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# MEDICAL RECORD

*A Weekly Journal of Medicine and Surgery*

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# Medical Record

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## Original Articles.

### THE NEW YORK LARYNGOLOGICAL SOCIETY.*

BY CLINTON WAGNER, M.D.,

PARIS, FRANCE.

IT has been twenty years since I last had the pleasure of reading a paper before the Laryngological Section of the New York Academy of Medicine, and I desire to express my appreciation of the compliment paid me upon this interesting occasion.

The celebration of the fortieth anniversary of the founding of the New York Laryngological Society was conceived by my friend Dr. Delavan, your former president, who for many years has been a most indefatigable worker in developing and uplifting the specialty of laryngology and rhinology; now he has rescued from oblivion the almost forgotten New York Laryngological Society and has placed its name on record in enduring bronze. I have been requested, as one of the early laryngologists in New York, to speak of the work accomplished by them, and will therefore ask your attention to a few words which I hope may prove of interest to members of the specialty.

Forty years ago the number of men in this city who were familiar with the modern methods of examining the throat and nose, could be easily counted. Most of us had received practical, or clinical, instruction in London, Berlin, Vienna, or Paris, but, notwithstanding, our knowledge of the diseases of the throat and nose was very limited. We could be compared perhaps, to young men fresh from the colleges or hospitals, with minds stored with the ideas of other men in the matter of the treatment of diseases, but with no fixed views, such as one acquires from practical and personal experience when called upon to think and act for one's self. In other words, our knowledge of the throat and nose had taken no concrete form; had not crystallized; for we had no blazed trail to follow through the intricacies of this department of medical science. We met one evening at my house, in October, 1873, and decided to organize a society, not only for mutual improvement and the advancement and enlargement of our limited knowledge of the diseases of the throat and nose, but we had also in view establishing on a solid footing with the medical profession at large the specialty of laryngology and rhinology in this country, for the reason that many of the physicians of the time looked askance upon all specialties. The general practitioners in medicine and surgery were jealous of interlopers; the probang and gargles were their sole reliance for all cases of sore throat; the nose was ignored.

*An address at the fortieth anniversary of the New York Society of Laryngology, New York Academy of Medicine, Tuesday, November 25, 1913.

The aurist, who preceded us, had had his troubles in obtaining recognition; in fact, the physician who undertook to cure chronic deafness was regarded as a charlatan. A surgeon in one of London's largest and best known hospitals, but a short time prior to the date to which I have referred, during the course of his lectures coming to the subject of the ear, dismissed it curtly by asserting that there were but two classes of ear trouble or deafness, those that could be cured with the syringe and those that could not, and for the latter nothing could be done.

All of us who met on that evening in October were connected with clinics for the diseases of the throat. At subsequent meetings, we sent cases of special or unusual interest, which were examined and discussed by those present, all of whom were young, hard-working, ambitious, and determined to make successful careers during the coming years in this the largest city in America and destined to become the largest in the world. Not all of them continued to follow the specialty; those who did succeeded to the full measure of their expectations, and always stool first among laryngologists; they were George M. Lefferts, Francke H. Bosworth, Morris J. Asch, Woolsey Johnson, and Norman D. Bridge. The two latter died young.

The others. Charles McBurney, Robert F. Weir, Matthew D. Mann, Francis P. Kinnicutt, sought a broader field for their abilities in general surgery or medicine, but all, before many years had passed, became well known throughout the entire country, and no word of praise from me can add to the luster of their fame.

Many young men came to our clinics for instruction. I had patients from various parts of the country and Canada, but from the Potomac River to the Rio Grande, there was absolutely no one to whom I could refer my patients for further treatment at their home towns or cities. However, the specialty became popular, not only with the laity but also with the profession, which at first had given it the cold shoulder. The laity soon learned that many ailments of the throat from which they had suffered could be speedily relieved by those physicians familiar with the more modern methods of treatment, and the profession seemed content to refer cases which they could not handle, to those who could.

As an evidence of the rapid growth and popularity of the specialty, within less than five years after the organization of this society, it was deemed advisable to have a national society; accordingly the American Laryngological Association was organized at Buffalo in 1878, with a membership limited to fifty, but within a few years the number was increased to seventy-five and later to one hundred, as at present. In the nineties a sister society was organized, the American Laryngological and Rhinological, with a large membership roll.

As I have stated, the laity took kindly to the specialty when they learned, as they soon did, that relief was afforded speedily in many cases of laryngeal and pharyngeal ailments, which had resisted all ordinary treatment, and the profession showed a disposition to refer those cases which they were unable to diagnosticate.

For instance, adenoids and enlarged tonsils were not suspected as a cause of habitual mouth-breathing; the etiology of hoarseness and aphonia was not recognized; and dyspnea was not infrequently ascribed to and treated as asthma, when dependent upon stenosis of the larynx caused by neoplasms or upon nasal obstruction.

During the two years I spent abroad in acquiring a knowledge of the specialty, the treatment of nasal troubles was practically ignored by those who taught; of course, polypi, foreign bodies, and tumors were recognized and removed, but there was no systematic instruction given for nasal troubles, as for the larynx and pharynx.

The prevalence of chronic rhinitis or so called nasal catarrh in our country, stimulated research into the hidden labyrinths of the nose, and in this branch of the specialty we went rapidly ahead of our confreres on the other side of the Atlantic.

In contrast with the comparatively friendly reception accorded to the early throat specialists in this city forty years ago, let me recall the hostility, less than a generation before, that was encountered by Dr. Horace Green, a man whom the profession in America to-day appreciates and justly honors. Dr. Green was the first throat specialist in America, and the *first in the world* to demonstrate that an instrument could be introduced into the larynx through the rima glottidis into the trachea, and as far as the bifurcation of the bronchi. He used a sponge probang charged with a strong solution of nitrate of silver for the treatment of the larynx, and by means of a catheter introduced solutions into the bronchi, for the relief or cure of certain pathological conditions.

Much opposition to his views and claims of being able to do this was encountered in the profession; a committee of the Medical and Surgical Society of New York condemned his theories and practice, and even a professor of anatomy declared his claim impossible. Dr. Green was asked to withdraw from the society.

His work on "Polypi of the Larynx and Edema of the Glottis," showed that he was far in advance of the age in which he lived; he not only diagnosticated the presence of laryngeal growths but successfully removed them by means of laryngotracheotomy.

If the laryngoscope had not been discovered as an aid to diagnosis, there would nevertheless be to-day throat specialists following the methods and teachings of Dr. Horace Green. To the laryngoscopist who removes without difficulty growths from the larynx and makes topical applications with the aid of the mirror, the brilliant work of Dr. Green appeals most strongly.

I have endeavored in this brief address to set forth the good work accomplished by the early laryngologists in establishing the first laryngological society in the world; "they builded better than they knew," and, as a tree is known by its fruit, so will the work of these pioneers be appreciated and understood, when we look upon the scientific work now being performed by the Laryngological Section, under the sheltering ægis of the Academy of Medicine.

## LARYNGOLOGY IN NEW YORK.*

By D. BRYSON DELAVAN, M.D.,

NEW YORK.

We have met to commemorate the fortieth anniversary of the New York Laryngological Society, the first society of Laryngology ever established, at least in modern times, in this country or in the world.

While eulogizing the society we are also accorded the great privilege of offering our tribute of honor and appreciation to its modest but far-sighted and public-spirited founder, Dr. Clinton Wagner, the guest of the evening, and to those other enthusiastic spirits who associated themselves with him in the society's primal organization.

It is well that we ourselves, as men loyal to the medical profession of the country and justly proud of the city in which we live, should fearlessly claim for New York the credit for intellectual and scientific eminence which through many generations its physicians have so richly deserved. It is well that we should know something of the lives of those pioneers whose toilsome struggles and rare genius have brought to us who have come later so many and so great advantages and that we should realize the far-reaching influences for good which have steadily grown from their high-minded and unselfish efforts. Finally having glanced at the conditions which led to the formation of the New York Society of Laryngology it is well that we should at this time recount the story of what New York has done for laryngology and study the exploits of the men who have contributed in so many wonderful ways to its fame.

Long before the invention of the laryngoscope it was here, in the city of New York, that attention was first seriously turned to the special study of diseases of the throat; here, that the most important principle connected with the physiology of the throat was first discovered; here that the possibilities of the topical treatment of the larynx were first demonstrated, developed, and perfected; here that intralaryngeal surgery had its birth; the first public throat clinic in America, and perhaps in the world was established here; here the causes of nasal obstruction were first understood and successfully treated and the way thus opened for the recognition and treatment of sinus disease; here that intubation, with all of its great possibilities, was first made practicable; here that Koller, abandoing Europe, taught the value of local anesthesia and gave us cocaine; and here, again, in the city of New York, that was founded the first Society of Laryngology in the world.

With regard to the founding of the society it must not be supposed that this event was in any sense accidental. On the contrary, it was the culmination of more than a century of blind struggle, of earnest groping for the light, and while progress was tedious and slow, there was, nevertheless, a constant advancement of which this was the successful, the triumphant, issue.

A hurried history of the situation would be instructive, for, did time permit, the story of the early study of disease of the throat in America is not without interest. Suffice it to say that the first mention of throat disease, probably an epidemic of diphtheria, was made by Captain Morton in his

*An address delivered in commemoration of the fortieth anniversary of the founding of the New York Laryngological Society, at the New York Academy of Medicine, November 25, 1913.

"New England Memorial," in 1650, while Josselin, about ten years later, in "An Account of Two Voyages Made to New England" mentions another epidemic of similar character.

During the following 200 years progress was very slow, until toward the close of the period, when the subject began rapidly to receive considerable and increasing attention.

In 1846 Horace Green, already spoken of by the guest of the evening, presented his "Treatise on Bronchitis," the result of work begun by him in 1838.

In this extraordinary thesis he first described what he called "Catheterization of the Larynx." Under this unpretending title he announced the great discovery that a foreign body could be introduced into the larynx and even below the vocal cords without necessarily producing suffocation.

For this all-important discovery credit is beyond question due to Green. That his suggestion as to the value of local applications to the larynx in general and, in particular, of nitrate of silver were worth while would seem to be proved by the fact that in the Vienna clinics and elsewhere silver was the main reliance for more than a generation. Strangely enough, and as if in confirmation of the justice of this, argyrol to-day is one of our most popular remedies.

Horace Green's thesis was destined to produce a revolution in the treatment of laryngeal disease and to open the way for new methods, both medical and surgical, which have constantly increased in number and in value from that time up to the present day. Perhaps no more interesting and, from a practical point of view, more important addition has ever been made to our knowledge of physiology than the principle discovered by him, that the larynx would tolerate the presence of a foreign body.

To the name of Green must be added that of another citizen of New York, Dr. Gurdon Buck, who has been called the father of laryngeal surgery. In 1848, when Green was doing his own best work, Dr. Buck published a series of classical papers upon "Edema of the Larynx," in which he taught the diagnosis of these cases by palpation and devised a special knife which, safely guarded by the forefinger of the examiner, could be passed into the larynx and applied with successful effect. Thus did our city, far in advance of the world, produce the two most successful and epoch-making students of the larynx of prelaryngoscopic days.

The grand epoch in the history of laryngology, however, was rapidly approaching. As we have already shown, much attention had already been given to the study of diseases of the throat and as Dr. Wagner has well said, in the able hands of such men as Horace Green, laryngology would have taken its place among the special branches of medicine, even if the laryngoscope had not been invented. But a wonderful thing was to come to pass. In the words of the well-chosen motto of the American Laryngological Association,

*"E tenebrae lux."*

Out of darkness was to come the light, and the regions of the larynx hitherto obscured were now to be made visible to the eager searchers after truth.

In 1858 the dawn ushered in by Horace Green, was made brilliant daylight by Manuel Garcia's invention of the laryngoscope and the way prepared for the establishing of the specialty upon a definite and firm basis. Here, again, New York took the lead, at least in this hemisphere, for it was the distinguished and much respected Dr. Ernest Krackowitzer, surgeon to the New York Hospital, who was the first in this country to procure a laryngoscope from Vienna and with it, in 1858, to demonstrate the vocal cords.

Great events are apt to move slowly. It was not so with the development of laryngology. Following the announcement of Garcia's invention and Czermak's and Turk's appreciation of it, a clinic was established in Vienna by Turk to which many students resorted for instruction in the new art. Soon other clinics were started in Vienna and Paris, and later in London and Berlin, the most noted of them being under the direction of Tobold of Berlin, von Schrötter of Vienna, Mackenzie of London, and Fauvel and Krishaber of Paris. Of the opportunities offered by them progressive young Americans were not slow to take advantage, for in that day contrary to what is now the case, if laryngology was to be learned at all, it was necessary to go abroad to study it. Among these early students were the founders of our society.

Dr. Wagner has already told us of the conditions which prevailed soon after the return from Europe of the men who were his student companions there and of the desire of himself and others to make an organized effort for the establishing and promotion of the specialty of laryngology in this country.

But the success of that effort was not confined to New York. Five years after the organization of the New York society, able laryngologists were to be found in most of the principal cities of the Northern States. So great was the increase that, following Dr. Wagner's original intention, in 1878, a national society, the American Laryngological Association, was founded.

Meanwhile, as compared with ours, what had been the progress of the outside world in this direction? The British Laryngological Association was founded by Sir Morell Mackenzie in 1888, ten years after ours and not until fifteen years after the New York society. The associations of France and Belgium were begun in 1890, that of Italy in 1892; Holland in 1893; Scandinavia, Russia, Germany, Austria and Spain being at that time not represented.

In addition to its scientific and social purposes there were important ethical reasons for the existence of the new society. About that time a number of men, chiefly from Europe, had come to this city and had announced themselves as specialists, several of them advertising extensively in the public press. A few claimed to have received regular instruction in European clinics. Many, on the other hand, were not even graduates in medicine, and it had become necessary that some acknowledged standard should be raised for the protection of the public.

Among the best of the newcomers was Dr. Sass, who made his home in New York. He was a man of quiet life and demeanor whose contributions to the armamentarium of the specialty were ingenious and valuable, notably his modification of the spray atomizer which superseded the use of the laryngeal brush, as the brush had superseded the probang and revolutionized the method of making applications to the throat.

The Americans, on the other hand, who entered the department of laryngology in those early days, were men of the highest type. Not a few of them had seen service during the War of the Rebellion,

either as members of the Medical Corps of the army or in regular service. The New York Society of Laryngology numbered at least four of these. Chief among them was Dr. Wagner, whose war record is an eloquent tribute to the courage and efficiency of the man. Entering the Medical Corps in 1860 at the beginning of that great conflict he served with distinction until its close. He established numerous hospitals, among them the first floating hospital on Western waters. He was Surgeon-in-Chief of the Regular (or 2d) Division of the 5th Corps of the Army of the Potomac. At the battle of Gettysburg his hospital was the one nearest to the firing line and, in the desperate attempt of the Confederates to retake Little Round Top was in the midst of such a hot fire of shot and shell that it became necessary to abandon it for a less exposed position. As everyone knows, the fighting around Little Round Top was one of the most terrible incidents of the Civil War. As the outgrowth of his opportunities during those stirring years Dr. Wagner had a rich surgical experience before he was twenty-five.

Dr. Asch also saw service as an army surgeon.

Dr. Lincoln enlisted when a Junior at Amherst College, entering as second lieutenant, and rising rapidly to the colonelcy of the 37th Regiment, Massachusetts Volunteers. He was severely wounded while leading his troops in no less than three engagements, once by a rifle shot in the thigh, again by two severe saber cuts in the forehead, and, finally, by a shot through the right lung, received so near the close of the war that he was mustered out, with the rank of Brevet Brigadier General, before sufficient time had elapsed for him to resume active service.

Dr. Bosworth had a short term of service in the Northern Army.

I call attention to this phase of the life of the time because by reason of it extraordinary opportunities were given for the development of strong traits of personal character, and in the medical service for unlimited opportunity and experience in medical as well as in surgical work. The men who entered laryngology, moreover, were generaly of good position and excellent education, possessed of fine intelligence and able to afford the means for securing the best special training. They realized the value of the new specialty as a field for scientific investigation and for practical work. Of highly trained power of observation, untiring clinicians and diligent readers, they relied upon the experience gained by such means rather than upon the not always infallible findings of the laboratory. They were also enthusiastic teachers. No wonder that their pupils were inspired with a little of the leaven which they so freely gave. No wonder either that we who had failed to enjoy some of their advantages, notably that of military life and discipline, found it hard to emulate them.

Following the organization of the society, its membership increased with rapidity, and in the course of a few years a goodly number of ardent workers had come to the front. The specialty was new, everything was to be done and learned, and rhinology had not been born. True, rhinoplasty had flourished for generations under the lead of the Italian surgeons. In this field Dr. Gurdon Buck, of New York, was prominent. Efforts were directed to the correction of external deformities of the nose by means of sliding skin flaps. Corrections of bone deformities were seldom attempted.

About 1880 Prof. T. C. Sabine, of New York, attempted to restore a nose by transplanting the middle finger of the patient to the open space. The transplantation was successful, but the exchange was startlingly evident to the eye. Indeed, the effect was so hideous that the patient was shunned by his friends, and, becoming despondent, shot himself. What would have been the surprise and delight of these two great surgeons, Buck and Sabine, if they could have seen the admirable series of cases of nasal repair presented at our last meeting by the chairman of the section, Dr. Carter.

As before stated, rhinology in the early seventies was unknown. Attempts were made to treat nasopharyngeal catarrh, but beyond that and the surgical treatment of polyps and growths and the control of epistaxis, little was done. Nasal obstruction was not understood and the causes leading to it were practically unrecognized, although Catlin in a very interesting work, had called attention to "Mouth Breathing" in 1853, and Clinton Wagner had presented an admirable thesis on the same subject, as related to medicine, in 1881. The clinics of Europe and many of our own were in the habit of grouping the affections of the nose in general under the head of "nasal catarrh" or "chronic rhinitis." The surgery of the septum and of the turbinated bodies did not exist. The nasal sinuses, except anatomically, were unknown.

It was Dr. William C. Jarvis, a member of the New York Society, who first recognized and called attention to the importance of nasal obstruction due to undue swelling, or chronic hypertrophy, of the turbinated bodies, and it was he who devised that most ingenious of all instruments for correcting the difficulty, the so-called Jarvis snare. It was Bosworth who recognized the part played in nasal obstruction by nasal spurs, and who was the first to advocate their removal by means of the saw.

It was another member of the New York Society, Goodwillie, who substituted for Bosworth's saw the dental engine for the carrying of trephines and burrs, and again another member, Asch, who recognized the inadequacy of the efforts made by Adams and others to repair deformities of the nasal septum and gave us the first practical method for their relief, a method which, with its modifications, still holds a position of much usefulness, in spite of newer and less conservative means.

Finally, although not of New York City, we have within New York State Dr. John O. Roe, whose wonderful originality and ingenuity and unrivaled technical skill in repairing nasal deformities in general have caused him to outrank all others, either in this country or abroad.

While on the subject of the nose, we must not neglect the great work of Lincoln in the treatment of nasopharyngeal fibroma.

He it was who, following and elaborating the suggestions of Voltolini applied electrolysis and the use of the galvanocaustic snare with successful results in the removal of these growths, with practically no loss of blood and with a minimum of shock, whereas the fatality from hemorrhage in the course of the removal of the tumor and from the shock of the preliminary operation under the old surgical methods had been enormous, many patients dying on the operating table. By Lincoln's method, preliminary operation was dispensed with, the operation being carried on through the natural passages, hemorrhage was avoided, shock was inconsiderable, and the possibility of recurrence was immeasurably decreased.

As a therapeutist also Dr. Lincoln was original

and wise. His combination for coryza is classic and in general use to-day.

Upon the merging of the New York Laryngological Society with the New York Academy of Medicine Dr. Lincoln was elected fiirst president of the new section.

One of the most interesting inventions that laryngology has produced was made by our distinguished colleague from Brooklyn, Dr. Thomas R. French. Lennox Browne, of London, had succeeded in photographing by time exposure the larynx of a singer who could demonstrate his own remarkable tolerant throat.

By the method of Dr. French, for which he devised a special camera, any larynx or upper pharynx that could be demonstrated at all could be photographed, and that by instantaneous exposure.

Thus a new and effective resource was provided for the study of the physiology and pathology of the upper air passages and many new facts were developed upon the subject of the production of the voice. Indeed, with the advent of French's camera and the phonograph of Thomas Edison, New York placed the study of voice production for the first time upon a genuinely scientific basis.

French's adjustable table, for securing the upright position of the patient in the removal of adenoids and for other operations upon the throat and head, perfected within the past year, is the most admirable device of its kind yet invented.

Again referring to O'Dwyer of New York, no man of loftier character or more far-seeing intelligence was developed in our generation. His method of intubation for the relief of laryngeal obstruction in diphtheria was one of the most remarkable exploits in the history of surgery and was recognized by him as being applicable in many other and widely different conditions of laryngeal disease and injury. Thus, in addition to diphtheria, he applied it to obstruction of the larynx due to acute diseases, to injuries and lacerations of the soft parts, and to fractures of the laryngeal cartilages. He employed it with success in cicatricial contractures of the larynx and his methods, in this class of laryngeal deformity, elaborated by the modifications suggested by John Rogers, of New York, have proved far superior to any that preceded them and are unquestionably better than those of European device that of late years have been offered to us.

In the literature of laryngology New York has always maintained a leading place. Following the introduction of the laryngoscope a number of works appeared in Europe which were of greater or less value. It remained for three English-speaking authors to present complete treatises upon the subject of laryngology and rhinology. These were J. Solis Cohen, of Philadelphia; Sir Morell Mackenzie, of London, and Francke H. Bosworth, of New York. These thoroughly comprehensive works exerted a final influence in the establishing of the specialty throughout the world that has never been equaled. Meanwhile, among the other writers of the day, Beverley Robinson, Elsberg, Wagner, were eminent. All of the leading men of the time were doing excellent original work and freely recording their results. What they accomplished would have been worthy of all credit had it ended with them. But through us who came under its influence, and through those who in turn have been our pupils, it will live and flourish, let us hope, for many generations to come.

Again taking the lead in America, Dr. Elsberg, of New York, published a bibliography of laryngology in the United States, dating from the earliest records to 1875. In the same year, 1875, Dr. Lefferts began to publish monthly a complete report of the current laryngological literature of the world. This was carried on by him for a number of years and later was taken up without interruption by the "Index Medicus," where it is still continued.

Of the whole amount of laryngological literature of the world the United States contributes 25 per cent. New York's share of this is large and of very superior excellence.

The list of our fellow-members who, following the earlier names, have contributed to the fields of invention, investigation, and literature in laryngology is long and distinguished. Even to refer to all would be difficult. The section has reason to be proud of the records of such men as Jonathan Wright, Park, Gleitsmann, Simpson, Coakley, of the much beloved Knight, and Newcomb, both so lately gone from us, not to mention scores of others whom we hold in warm admiration and respect.

Of teachers New York has produced and is still producing a splendid array, many of whom have attained highest distinction, both in the departments of graduate and of undergraduate instruction.

Dr. Wagner established the Metropolitan Throat Hospital and made it a model institution, which soon became famous among those desiring advanced instruction. This hospital was well in the lead with regard to the observance of cleanliness in the handling of patients. Scrupulous care was observed to safeguard the patient by all the means then recognized. Foreshadowing the introduction of aseptic methods, it was the best managed clinic of its time. Unfortunately, this could not be said of all dispensaries for the treatment of diseases of the throat. In many abroad and in some at least here at home the conditions were not good, and, compared with modern methods of asepsis, they were in some respects incredibly bad. Why patients were not infected by the means used for treating the milder conditions of the throat must be explained upon the theory of the germicidal power of the nitrate of silver and of iodine, the most frequently employed remedies of the time. In the case of the more serious infections, however, great care was generally used to observe every known precaution.

Wagner, besides organizing a model clinic and hospital, showed great inventive genius. His nasal forceps was among the earliest instruments of its kind, and is still one of the best. He modified the old-fashioned powerblower so that it could be conveniently attached to the compressed air apparatus.

His great experience as a general surgeon and his rare technical skill enabled him to attempt with success operations upon the throat which few specialists were in the habit of undertaking. This statement is proved by the published record of his cases of thyrotomy, which for skill and execution, originality of detail and successful result have not been surpassed.

As a consequence of these advantages his clinic was sought by the most discerning pupils of the time, many of whom were destined to advance to positions of eminence.

According to the statements of the late Dr. Louis Elsberg, he himself was the first to lecture on laryngology in the United States. He began in 1861 and in 1863 he established a laryngological clinic at the University Medical College. Dr. Els-

berg claims that this was the first public clinic in America, and perhaps in the world. This present year, 1913, marks its fiftieth anniversary, and, not to mention the vast amount of work done in the other cities of the United States, finds New York City alone with sixty clinics for the treatment of diseases of the throat.

As one of our earliest instructors of graduates, Dr. Wagner deserves first rank. As an instructor of undergraduates, another one of the charter members of our society will long be remembered as having far surpassed any of his masters of the Old World. The lectures of Dr. Lefferts, continued for many years at the College of Physicians and Surgeons, have never, as far as I have been able to learn, been equaled.

So the story of what the New York Society has done for laryngology might be continued through many chapters. If the aims of its organizers were ambitious, they were also eminently high-minded. How they have succeeded the brief and imperfect suggestions which I have tried to give you, added to your own knowledge of what has been done in more recent years, will amply prove. Its earliest members, Wagner, Lefferts, Bosworth, Asch, were probably, with few exceptions, either your instructors or [illegible] or the ones from whom your instructors derived their chief inspiration. As such we accord to them the honor which they so richly deserve, and, in many instances the warm affection which their sympathy and helpfulness to us as beginners in a difficult career have called forth.

In the history of the society the fine altruism of Medicine at its best and most dignified has been splendidly shown.

The great discoveries and inventions of its members were not hoarded for the purpose of personal gain, but were freely and enthusiastically given to the profession and to the world, with the freest liberality and the most broad-minded and philanthropic spirit. The idea that salvarsan could be patented had not occurred to their unsophisticated minds.

The history of the society since it became the section on laryngology of the Academy of Medicine, itself the first and best institution of its kind in the world, is too recent to warrant my bringing it before you to-night. Suffice it to say that it has thus far well sustained its traditions.

Those who have been its members have been earnest and in many instances brilliant men, whose work has sustained the high standards of the past. Its present is most satisfactory and the promise of the future was never more bright.

It is my strong and earnest desire to excite and foster a lively interest in the history of our specialty in this country.

That a knowledge of what has been done in the past by others may at any time be productive of most valuable results to ourselves has been frequently shown. Thus the work of Professor Langley, in the invention of the flying machine, although apparently a failure, was turned to brilliant success by the introduction of the motor engine. A given work of the past may have fallen short of success simply for the lack of some element which has in later years been supplied. This idea has been beautifully illustrated by the evolution of the bronchoscope. It may surprise some of you to hear that we of New York may claim no inconsiderable share of the credit for this wonderful invention, as will be seen when we remember the principles upon which it depends. These are the tolerance of the larynx to the introduction of a foreign body, the insertion into it of a tube capable of dilating it to its greatest extent and the introduction through this tube and into the deeper parts of the air passages of a powerful light. The tolerance of the larynx to the passage of a foreign body was first definitely established by Horace Green of New York; O'Dwyer of New York demonstrated that the larynx would retain a dilator for an indefinite length of time. He, himself, also devised a tube for the express purpose of facilitating the expulsion of foreign bodies from the trachea, thus propounding the grand fundamental idea of the instrument. Acting upon this suggestion, Coolidge of Boston lengthened the O'Dwyer tube and illuminated the trachea through it with a strong reflected light. The great Thomas Edison of New York had invented the incandescent electric lamp and this had been modified in the form of lamps of small size of several candlepower, capable of being used in the exploration of various cavities of the body. To adapt this principle of examination to the method of Coolidge and of Mosher, also of Boston, was comparatively simple, and when Kirstein and Killian had exhausted their ingenuity Chevalier Jackson, another American, set his brilliant mind upon the matter and gave the world the perfected bronchoscope.

Again, the fact that an invention or an idea is old is no proof that it is necessarily inferior to something more recent. On the contrary, many an old method has been superior to the ones which have taken its place and its abandonment has been a step backward and a distinct loss.

There are always those who will say: "Of what use is a knowledge of the past?" "Why should I waste time upon it when the present holds out so much to me, and the future is beyond?" No thinking man can satisfy his mind with this sentiment, as the history of the development of the bronchoscope proves. We can know of no way of judging of the future, or, indeed, of truthfully understanding the present, but by the past. And knowing the past and guiding ourselves by it, how many successes might we emulate, how many failures avoid? History instructs and warns. Tradition, the outgrowth of history, dignifies, while, fostered by tradition, sentiment stimulates us to action and inspires us to high aims.

One of the chief objects of this meeting is to arouse in the members of the society, present and to come, a lively interest in the work of the past. To that end we have tried to give not only the record of its origin and its early career, but to place in the permanent keeping of a strong and enduring institution certain definite reminders of the past of laryngology in America and in New York. These things might have been deposited elsewhere, but there is no city where they so rightfully belong as in New York, and no institution likely to better utilize and appreciate them than the Academy of Medicine.

This tablet, which I have taken great satisfaction in preparing for you, has been accepted by the Trustees of the Academy of Medicine and approved by the members of the section in laryngology and rhinology in regular meeting. I place it in your safe keeping with full confidence that it will fulfil its intended mission. May it arouse in us and in those who shall come after us a desire for full and

thorough knowledge in all that pertains to our chosen field of professional work; may it add to our enthusiasm and respect for this great metropolis of which we are citizens; may it stimulate a just appreciation of American medicine and a high ambition to forever keep it by superior ability, by superior energy, and, far above all, by superior integrity, in the forefront of the progress of the world.

40 East Forty-first Street.

## UNRESOLVED PNEUMONIA.*

By JOHN S. THACHER, M.D.,

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If we are to believe some eminent medical men, this matter lies more in the domain of mythology than pathology. Members of my house staff show the effect of such teaching, and occasionally inform me that there is no such thing as unresolved pneumonia, what is so called being either empyema or tuberculosis.

On the other hand, many leading medical authorities assert with no appearance of doubt or mental reservation the occasional long delayed resolution of pneumonic consolidation.

In Flint's "Practice of Medicine," the edition of 1873, there is a definite clinical picture of cases which had come under his observation and had gone on to the recovery which confirms the diagnosis.

Osler, in his "Practice of Medicine," reports forty cases at the Johns Hopkins Hospital, being between 3 and 4 per cent. of all their cases of pneumonia. These cases were studied by McCrae and included two which came to autopsy and showed in the fourth and ninth weeks persisting inflammatory consolidation. In one of Osler's cases nearly the whole of the left lung was solid for eleven weeks and then cleared perfectly. Musser and Norris, collecting over 2,500 cases of pneumonia, report delayed resolution in more than 4 per cent. The diagnosis in these cases was not, however, carefully scrutinized. Strümpel, Allbutt, Powell and Hartley, and Holt teach similar doctrine.

In view of these contrary opinions I have long wanted to review the experiences of the two hospitals with which I am connected, and see whether I could thus get any light on this interesting subject. Therefore in response to our secretary's insistence I decided to look over the recent cases of pneumonia in the records of these two hospitals and report on them to-night.

With the very kind aid of recent members of the house staffs, a list has been prepared for me of 1,252 cases of pneumonia observed during the past few years, with certain statistical data.

The cases running prolonged courses I attempted to analyze, but time has been too short for me to go carefully over more than the first 200 cases. I will therefore give only an informal and partial report to-night, hoping later to publish a more complete and formal analysis of the larger series.

In only two of the 1,252 cases was the diagnosis of delayed resolution entered on the discharge card, showing the effectiveness of the prevailing teaching. However, in the 200 cases which I have been able to look over with some care, I find 34 in which the fever ran for three weeks or more, *i.e.* 17 per cent.

Of these there were 14 cases in which the prolonged run of fever was so moderate, though lasting into the fourth week, and the condition so mild, that the cases, even if they were possibly true instances of unresolved pneumonia, were of little clinical importance, except to teach us that such a delay in recovery, if the other symptoms are mild, is usually followed by perfect restoration of health.

Of these 14, nine simply ran a trailing fever maintaining a daily maximum of 100° till the twenty-third to the twenty-sixth day. In three of these there was an early period of normal temperature, followed by a return of the fever. Two did the same till the twenty-ninth and thirtieth days. One after a normal period ran a temperature with daily maximum of about 101° till the thirty-sixth day. One showed a moderate elevation of temperature from the thirty-first to the thirty-fourth day, and one presented five isolated shoots of fever between the sixteenth and thirty-ninth day. In all of these 14 there was no apparent cause for the late recovery and in all the lungs afterwards seemed to be perfectly sound.

Among these 34 cases of prolonged fever there were, besides these mild trailers, 6 with miscellaneous complications, otitis media, gastroenteritis, evident tuberculosis, etc., to explain the continuance of elevated temperature.

There were, moreover, 9 cases of empyema or abscess, and, which interest us particularly, 1 case of delayed resolution with abscess, 1 probably delayed resolution with abscess, and 3 probably simple delayed resolutions. Put into tabular form, in 200 cases of pneumonia there were 34 with fever lasting three weeks or more. Of these there were:

Fourteen simple mild trailers with recovery.
Six with miscellaneous complications.
Nine empyema or abscess.
One delayed resolution with abscess.
One probably delayed resolution with abscess.
Three probably simple delayed resolution.

This small series of cases then tends to indicate this chief conclusion, that of patients, who after pneumonia are quite ill with a prolongation of fever, more are suffering from the presence of pus, in the pleura or the lung, than from any other abnormal condition.

But on the other hand many mild prolongations of fever occur without serious import, and among the cases with prolonged high fever there are some which clear up without manifestations of suppuration or tuberculosis and are probably instances of simple delay in the resolution of pneumonic consolidation.

Of the five cases which were apparently delayed resolution of marked type, only one came to autopsy. The patient died on the twenty-third day, and both lower lobes were found to be solid, a typical exudate, such as is characteristic of lobar pneumonia, filling the alveoli. There was also some interstitial inflammation, and a small abscess.

A second patient was in the hospital until the fortieth day, when she insisted on going home. The fever persisted all of this time. On the sixth day, however, it had come down to about 100°, but then rose higher until the thirty-first day, when for a few days it stayed below 100° and the patient felt well except for the cough. It rose again, however, about the thirty-fifth day with a widely swinging temperature, and a maximum of 104°, and a few days later she went home. On the thirty-second day, when the temperature had become normal, the leucocytes were also normal, having come down from 15,000. When the temperature rose during the last

*Paper read at the 256th regular meeting of the Practitioners' Society of New York, October 10, 1913.

week in the hospital the leucocytes rose again to 19,000, but not the percentage of polynuclears. The signs did not clear up. They changed so as to be like signs of fluid, but the chest was explored with the needle nine times without finding any. The sputum was examined twelve times for tubercle bacilli, but none found. On each occasion pneumococci were reported present in the sputum. A von Pirquet test was negative. Towards the end of her stay in the hospital the sputum became more abundant and purulent. A radiogram now showed a triangular shadow at the right of the mediastinum with its base on the diaphragm. This case certainly seems to have been one of delayed resolution with development of an abscess at the end of the fifth week.

The third patient, aged 38, reached a normal temperature on the nineteenth day, but up to his discharge on the twenty-second day the signs of consolidation persisted although he was otherwise perfectly well.

The fourth patient, aged 6, showed on admission signs of consolidation at the apex of the lower lobe and dullness below. A few days later it was noted that dullness at the base was marked, with diminished vocal resonance and respiratory murmur. No egophonic quality to the voice anywhere. Up to the twenty-fourth day there was a regular high intermittent temperature coming down to normal on the twenty-fifth day and staying there. The leucocytes were 36,000 on admission and remained above 20,000 until the thirtieth day, although the polynuclears had come down by that time from 80 per cent. to 61 per cent. On the thirty-ninth day the child was discharged cured, and the signs had disappeared. In this case one cannot say positively that there were no complications; very likely there was more than the usual amount of pleural exudate, but the spontaneous recovery would indicate that there was no serious complication, and one may say that practically speaking it was a case of delayed resolution.

In the fifth case, a man of 54, the signs of consolidation continued and their extent increased up to the twentieth day. Even on the thirty-sixth day faint signs could be heard over part of the same area and over a very small spot up to the forty-seventh day, when he was discharged "cured." The temperature ran a varied course, at first high with a crisis on the seventh day. Then it rose gradually to 105° on the nineteenth day. By the twenty-eighth day the daily maximum had fallen to 100.5°. There was another brief upward wave, but then it stayed most of the time below 100° until his discharge. His leucocytes were highest on the eighteenth day, 26,000; on the thirty-seventh day still up to 13,000. The percentage of polynuclears, which were counted five times, the last time being on the thirty-seventh day, was never below 81. The sputum was examined four times for tubercle bacilli with negative results. The von Pirquet was positive. On the twenty-sixth day the needle was inserted twice without getting fluid. Some months later he returned with consolidation of the right lung, a small area of which could still be detected on the eighteenth day. On the thirtieth day he was discharged cured, the lungs having entirely cleared up.

In this case, the long continuance of fever, signs, leucocytes, and polynucleosis, followed by complete spontaneous recovery, with a repetition of the same, though more brief, later, in another part of the lung, certainly leads to the conclusion that there was a delayed resolution and no important complication.

We have then five cases among these 200 pneumonias in which it is reasonable to believe that there was a serious delay of resolution.

Another case shows how extension of the pneumonic process may greatly prolong the febrile course. This patient, a boy of about 5, on admission had signs of consolidation of the upper lobe, on the twelfth day of the right middle, on the eighteenth day of the right lower lobe. His temperature, which had been very high, reached 100° on the twenty-second and reached normal on the twenty-seventh day. All physical signs had cleared up on the thirty-first day. On the twenty-first and twenty-second days five explorations were made with the needle without obtaining any fluid.

As suppuration in the pleura or in the lung is not an infrequent event after pneumonia, and as it is most important to remove the pus if it is there, it follows that we ought if possible to find the means of recognizing its presence, and especially of distinguishing it from delayed resolution.

Physical signs are not infallible in differentiating fluid from consolidation. The classical signs of fluid may be present when there is only consolidation, and v ce versa. Especially difficult may be the recognition of fluid when it is in a small pocket, when an area of consolidation adjoins it, or when it is buried in lung tissue. All of these circumstances are frequent in cases of pneumonia. If there be a large accumulation of fluid free in a pleura the usual rules of physical diagnosis will generally give a correct answer, but not always. Especially helpful, as Morse has pointed out in the case of children, will then be the marked sense of resistance on percussion and displacement of the heart. But in interlobar or other encapsulated empyemas or pulmonary abscesses these points may not be present.

Some writers extol the helpfulness of local friction, local edema and pain on pressure in detecting spots of suppuration in these cases, but these features are usually conspicuous by their absence.

The thermometer and the microscope also not infrequently fail. A persistence of increase of temperature calls attention to the fact that something is wrong, and its irregular or intermittent character may suggest suppuration, but some of the most striking series of wide swings have been followed by complete recovery without ever any proof of the presence of pus, and in six of our nine cases of suppuration the temperature was either falling or showing a lower range than before, when the pus was found. In two of these, successive explorations showed that while the fluid was changing from clear to purulent the temperature was falling. The number of leucocytes and the percentage of polynuclears, while often of great aid, at times fail as signs of suppuration. In at least three of our nine cases, both the leucocytes and polynuclears were lower when the pus was found than they had been earlier.

From all this the difficulty of distinguishing suppuration from persisting consolidation is certainly evident, and we are thrown upon the exploring needle as our main reliance in this uncertainty. But even here there are two discouraging considerations. The needle may fail to find the pus, and it is not without danger.

In one of our cases cloudy fluid was found three times, then there were three so-called dry taps, and then pus was found. In another case twelve dry taps were made and then pus found, all within a week. In another pus was found with the needle, the patient sent to the surgeons for operation, but

not opened because their needling was without result. The condition then progressed to a fatal ending. And again the dangers of the exploring needle, though slight, are real. I can recall four deaths due to the needle, two by hemorrhage, and two by pnemothorax. Two of these patients were nearly hopeless when explored, but the other two not very seriously ill. One of the latter, to be sure, was needled on both sides and it was double pneumothorax from puncture of the lungs which proved fatal.

In view, however, of the frequency of suppuration in the group of cases which we are considering, and of the importance of its removal if present, the exploration with the needle must be done when, after careful examination and watching, it is reasonable to suspect the presence of pus, and its probable location is evident. In this the radiogram is of great help. Sometimes the character of the shadow is of some help in case of doubt as to the character of the lesion. More often the location of the shadow or of its densest part is helpful in deciding where to puncture.

20 West Fiftieth Street.

## ACUTE APPENDICITIS IN INFANCY AND CHILDHOOD.*

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This subject was chosen by the writer in response to the request for a paper of interest to the general practitioner and occasional operator rather than to the surgical specialist; for the general practitioner is usually the one who first sees such a case and upon him devolves the responsibility for early diagnosis and the institution of proper treatment. The parents, as a general rule, rely absolutely upon his judgment, seldom question his diagnosis, believe that "freezing out" is the right thing if he says so, allow him to set the time for operation if he believes one necessary, and he can often do the operation himself or have a specialist called in, as his own operative skill, cupidity, or conscience dictates. Furthermore, from the number of such cases found at autopsy, it is certain that the figures would be appalling if there were any way of determining how many cases of appendicitis in children, *who could have been saved by prompt operation,* are wrongly diagnosticated, treated, *and buried,* as cases of gastroenteritis, cholera morbus, or peritonitis of unknown origin; while doubtless in some instances a false diagnosis is made in which the physician has not taken into consideration the possibility of intra-abdominal lesions of *any* kind.

Edebohls[1] found that the literature of appendicitis, up to and including 1898, embraced over 2500 journal articles, dissertations, and books, of which more than half had appeared in the last five years of that period. Since then there have been almost innumerable further contributions to the subject, and it would hardly seem possible to add anything of value. However, in this vast amount of literature, appendicitis as found in infants and children, has received comparatively scant attention. All seem to be on the watch for and usually readily diagnosticate cases of appendicitis in adults, but apparently not in children. While many are now regularly making an early diagnosis, the rank and file of general practitioners seem to be making the same errors in diagnosis and treatment now as were made a decade ago; most surgeons are still having more late-stage cases and appendicular abscesses referred to them than early clean cases, and few apparently realize even yet that appendicitis in infants and children, as well as in adults, is not a medical but a surgical disease first, last, and all the time.

To prove the essentially surgical nature of appendicitis, Lloyd[2] followed up the histories of 25 patients who had been treated in their first attacks upon the theory that the disease belonged to the domain of medicine rather than of surgery. Of these twenty-five, six died (24 per cent.), three finally being operated upon when *in extremis* or after general peritonitis was well under way. Furthermore, eighteen cases (72 per cent.) had one or more recurrent attacks. All but ten patients finally submitted to operation, and of these ten unoperated cases three (30 per cent.), died. There were, then, but seven out of the original twenty-five who did not sooner or later come to operation or die, while the mortality in the operated cases was entirely confined to those already in desperate condition through delay.

Is it sufficiently realized that the all too frequent headline: "Died following an operation for appendicitis," in the vast majority of cases charges surgery with a death that is really due to a deferred diagnosis from ignorance, or to indecision, or to delay while experiments are being made as to the curative properties of the ice bag or coil, opium or purgatives, and fever mixtures; and that meanwhile the condition has been progressing from one requiring a simple operation, that any intelligent fourth year medical student should be able to do, to a case of gangrenous appendicitis or rupture with, perhaps, general peritonitis; and that the death should not be charged to the surgeon who stepped in at the last moment to give the patient the one desperate chance remaining, but to the doctor who has counseled or countenanced those experiments?

The writer realizes that in thus emphasizing the surgical character of the disease and the necessity of early operation almost at the beginning of the paper, he is breaking all the established rules covering the orderly presentation of a subject. Without having written a line as to etiology or diagnosis, he has already referred to treatment. This has been done deliberately and with the definite intention that if everything else in this paper be forgotten it shall at least be firmly impressed upon one's mind that *acute appendicitis calls for surgery.*

*Incidence.*—Appendicitis occurs in children under fifteen years of age much more frequently than is popularly supposed and demands consideration because of this frequency, its often insidious development, obscure symptomatology, special difficulty of diagnosis, and other peculiarities of the disease when affecting infants and children. The disease is rare under two, rather uncommon under five, but frequently seen in patients five to fifteen years of age. Male children appear to be more frequently affected than females. Morris,[3] in his first 100 operations for appendicitis, had seven cases in children ten to fifteen years old. Fowler[4] states that in the first surgical service of the German Hospital of Brooklyn during the period 1900-1912 there were 1,115 cases of appendicitis, of which 183 (16.41 per cent.) were in children under twelve years of age. Erdmann[5] operated upon 100 cases in

*Read in abstract at the October meeting of the Society of the Alumni of the Post-Graduate Hospital.

children one to fifteen years of age, between January, 1902, and May, 1907. Dowd[6] has reported three consecutive series of cases in children, 181 cases altogether; and many others have reported series numbering 100 or more. The writer has made no effort to find the age of the youngest case operated upon, but incidentally noticed that one of Cumston's[7] cases was only twelve weeks old. This child had an appendicitis with mucous membrane congested, part dark purple, ulcerated almost to perforation, and made an uneventful recovery after operation.

*Etiology.*—It was formerly thought that appendicitis could not occur in breast-fed infants when the mother's milk was normal, or in bottle-fed infants when proper care was taken in the preparation of the feedings. That this idea was entirely erroneous has been abundantly proven by actual cases. Milk-fed infants may, and occasionally do, have the disease. In 1906, Kermisson—quoted by Erdmann[8]—stated that he found reports of 25 cases under two years old, and that no meat had been given to any one of these children. Indiscretions in diet and over-feeding have been assigned as causes. Since infants, on the simplest of all diets, may have the disease, it is not surprising that older children, with their natural inordinate desire for anything and everything edible, should fall easy victims, in so far as indiscretions in diet have to do with its acquirement. Exactly as is the case in adults, there are no particular food-stuffs that can be singled out as being especially liable to cause the disease, unless possibly fruits having small pits or seeds. The reason for this exception in the young is that as the appendix in children has a relatively large mouth, is sometimes funnel-shaped, and relatively very long, foreign bodies get into and stay in the appendix much more frequently than is the case in adults. Among the many foreign bodies, other than fecoliths, which have been reported, are pins, *Ascaris lumbricoides*, pin worms, cherry stones, and currant seeds. In Erdmann's[5] series of 100 operations, he found foreign bodies in 41 cases, of which 10 were pin worms. Many observers have noted the frequency of previous gastrointestinal derangements, and it is undoubtedly true that the mucous membrane lining the appendix joins to a certain extent in the general inflammatory process during these attacks, thus laying a foundation for subsequent bacterial invasion of its walls, with resulting acute appendicitis. Of the bacteria causing acute appendicitis, we find most frequently the colon bacillus, and staphylo- and streptococci. Occasionally the gonococcus and pneumococcus have been found, while rather rarely we find the tubercle bacillus.

*Peculiarities of Acute Appendicitis in Children.*—Before taking up the diagnosis of acute appendicitis, it may be well to pause for a moment and consider some of the reasons for the difficulty of diagnosis and other peculiarities of the disease as it is found in infants and children. In the first place, there may be certain anatomic variations, such as those depending upon the degree of rotation and descent of the cecum, the great relative size and length of the appendix, and the degree of development of the great omentum, this latter corresponding roughly to the age of the child. With a high placed cecum the appendix may be found far above the usual position, running as high as the costal margin or even occupying the usual site of the hepatic flexure, as has been reported. It may be retrocecal, giving no tenderness on pressure at usual site but on pressure in the loin. It may lie behind the caput coli. It may be unusually long and large, and run to the midline above or below the umbilicus. It may dip far down into the pelvis or lie angulated or curled up at the root of the mesentery. Murphy[8] found that in children the appendix is *usually* above McBurney's point. In the adult the omentum is one of the principal agents in forming a protective wall and preventing dissemination of pus, in case of rupture of the appendix. In very young children the great omentum is still in such a rudimentary state that they are denied this protection, and we see this reflected in the greater percentage of cases of general peritonitis and the more rapid development of that complication. As a rule, the disease does not remain confined to the appendix itself as long as in adults and children are very prone to early abscess formation, while rupture of the appendix often means not one but multiple abscesses, if the patient is so fortunate as to escape general peritonitis. Strange to say, however, children seem to stand general peritoneal infections relatively better than adults; there is usually less evidence of shock, constipation is less frequent, diarrhea is rare, and they are much more likely to recover.

Another fact which adds to the difficulty of diagnosis was pointed out by McCosh[9] in 1904, and since emphasized by many authors. This is the remarkable insidiousness of onset, rapidity of spreading and overpowering intoxication in so many of the cases. Children are so subject to gastrointestinal upsets that the vomiting and early slight abdominal pain often excite little comment and no suspicion of the real nature of the trouble. Parents rather expect children to have occasional attacks of this sort, so frequently give the child a cathartic and allow twenty-four hours or more to elapse before they become sufficiently alarmed to call the physician; while by the end of another twenty-four hours the clinical picture may have entirely changed, the appendix having ruptured and this been followed by rapidly spreading general peritonitis. It is like the old cry of "Wolf! wolf!" The physician has been called so often on false alarms that his examination is apt to be superficial, his judgment clouded, and diagnosis delayed, while a particularly virulent organism has had its chance to destroy the mucosa, burst through the wall of the appendix, and invade the general peritoneal cavity. Another drawback is the difficulty or impossibility often experienced in getting an adequate history. The child may be too young to talk, unable or afraid to do so, while the parents may also be unable to furnish information that is really helpful.

Dowd[10] has summarized the peculiarities of appendicitis in children as follows: "We may say that (1) the rapidity and insidiousness of the disease are much greater; (2) that the percentages of diffuse and general peritonitis is greater, probably because the omentum is less apt to enclose the inflamed appendix; (3) that the pain is almost always present, but is more difficult to interpret; (4) that the vomiting is almost always present and is frequently many times repeated; (5) that the abdominal palpation in the majority of cases is as satisfactory or more satisfactory than in adults, but in a few cases is absolutely misleading; (6) that constipation is much less likely to be present; (7) that they have a greater ability to deal with general peritonitis than adults do; (8) that during the acute progress of the disease delay is more dan-

gerous than in adults, because of the insidious course of the disease and the greater tendency to peritonitis, and immediate operation is to be advised."

*Symptoms and Diagnosis.*—As has already been suggested, the diagnosis is sometimes particularly difficult. In typical cases in the older children the symptoms follow the same order, palpation gives the same information, and diagnosis is as easy as in adults. It is the cases occurring in the younger children (under five) and the atypical cases that especially try one's diagnostic ability. In general, the younger the patient the more atypical the case is apt to be. Whenever possible, a good history should of course be obtained, not forgetting to elicit information regarding any previous attacks of similar nature, or special susceptibility to gastro-intestinal disturbances.

From the experience gained in 2000 operations for appendicitis at all ages, Murphy[8] found that usually the symptoms came in a definite order and followed one another at approximately regular intervals. These symptoms were "(1) pain in the abdomen, sudden and severe; (2) nausea and vomiting within a few hours, most commonly three of four hours, after the onset of pain; (3) general abdominal sensitiveness, most marked on the right side or, more particularly, over the appendix; (4) rise of temperature two to twenty-four hours after onset of pain." He further says: "The symptoms occur almost without exception in the above order," and "when that order varies I always question the diagnosis."

*Pain* was a constant and uniform symptom, usually colicky, varying in severity, and becoming most intense about four hours after its onset. It usually subsided gradually. Abrupt decline within first thirty-six hours was due to evacuation of infective material into cecum, rupture, or complete gangrene of the appendix. Dowd found pain a practically constant symptom. The secondary pain after thirty-six hours is usually not colicky, and is due to peri-appendical irritation or inflammation. Sudden severe pain after initial subsidence generally, if not always, means a beginning local or general peritonitis from perforation. Because of anatomic peculiarities in children the pain may become localized at other points than the usual situation, particularly high up toward the liver, near the umbilicus, or low down, and giving reflex disturbances of the rectum or bladder, strongly emphasized by some as very significant symptoms when they occur. It is, however, often difficult or impossible to get an accurate localization of the pain, hence this symptom is often difficult to interpret and may be of little value except when taken in conjunction with other factors, particularly abdominal sensitiveness.

*The primary nausea and vomiting* are reflex symptoms due to irritation and over-distention of the appendix. The secondary vomiting and the persistent vomiting are due to involvement *outside* of the appendix, that is, infection of the peritoneum. Nausea and vomiting are practically constant symptoms, and McCosh and others have emphasized persistent vomiting as a symptom of great diagnostic importance. Campbell[11] hits the nail on the head when he says: "When called to treat a case with bellyache, vomiting, and fever, proceed at once to prove that it is not appendicitis before attempting to prescribe."

*General abdominal sensitiveness* is a symptom of great significance, and, taken in conjunction with early sharp colicky pain, nausea, or vomiting, should immediately lead one to investigate the appendix. Fever may or may not be present when the sensitiveness first appears. It is at first diffuse and the abdominal wall is not particularly rigid. As the inflammation and distention of the appendix advance general rigidity, particularly of the right abdominal muscles, soon develops, to be followed later, as the acute tension subsides, by a relaxation of those muscles not directly concerned in the protection of the inflamed area. In this way we get local tenderness and rigidity, or muscle spasm over the site of the appendix, whatever its location. Murphy believes that in the early stage, while the inflammation is confined within the appendix, the "tumor" felt is usually contracted muscle fibres directly over the situation of the appendix, which may itself be even retrocecal. If the tenderness has once been limited to a small area and increases suddenly, together with an exacerbation of pain and nausea, or vomiting, we should expect to find a breaking down of the primary protective adhesions and involvement of further areas or a general peritoneal invasion. In palpating after the first twenty-four hours, caution as to the amount of pressure used is extremely important since the thin wall of protective adhesions is so easily broken down, particularly in very young children where the omentum does not form part of the limiting wall. In acute cases don't try to find out how many concretions the appendix contains until *after* it is in the pan. This remark may sound flippant and unnecessary, but it is a very important point, since the writer's observation of staff men and others has shown that it needs to be strongly emphasized. Gentleness in manipulation is particularly necessary after the patient is anesthetized and the natural reflex muscular protection has been eliminated. If, in a case of evident severe infection and after the general tenderness has become localized, we have a *sudden* cessation of pain and a relaxation of the overlying muscles, particularly if within the first forty-eight hours of the disease, it is almost certain that the appendix has become gangrenous; while the combination of this feature with a sudden drop in temperature while the pulse remains high almost invariably means gangrene and perforation, with beginning involvement of the general peritoneal cavity. The size of the mass felt often bears little relation to the amount of pus contained within the protective wall. Fluctuation is rarely obtained, and then only when there is a large abscess with thin anterior wall. While it is sometimes impossible to get definite localization of pain in very young children, muscular rigidity is usually easily determined. Dowd found it practically constant and considers that abdominal palpation in these cases has been rather more satisfactory than in adults. After the local tenderness is established Erdmann[12] has found that "almost invariably the little patients unconsciously place their hands in the region of the appendix to ward off manipulation in this region," and further experience led him to emphasize this point in a later article.[5] The abdominal muscles of children are evidently particularly sensitive to inflammations beneath them, and local muscular rigidity is thus the best possible evidence of an underlying inflammatory process of some kind. The writer has already referred to the abnormal positions in which the appendix may be found, hence will merely mention here that spasm may be found in lumbar or ilio-psoas groups of muscles. Rarely acute appendi-

citis and acute suppurative processes in the right hip joint have been confounded for this reason. With otherwise classical signs but no local rigidity to be found, the appendix may lie deep in the pelvis and rigidity remain general or disappear, and a rectal examination may disclose the condition. These cases are also apt to have painful or very frequent micturition, as previously pointed out. With the appendix in other situations rectal examination may or may not be of value, but should always be employed when children present any obscure abdominal condition. Campbell believes that in the majority of cases the diagnosis can be made by the abdominal examination, irrespective of the history. While palpating, the child's face should be watched, as his expression often indicates when the tender spot is reached. Mass may or may not be present, depending upon (1) the period of the disease or (2) the virulence of the attack. In average cases it may be felt in the second twenty-four hours; in mild or very virulent cases there may be no mass. Respiration in young children is normally of the abdominal type. With costal type and abdomen held rigid, a painful abdominal or pulmonary lesion should be suspected, since general rigidity may also be present in pneumonia, diaphragmatic pleurisy, or subphrenic abscess.

*The temperature* never fails to rise at some time during the early stage of the disease. In acute severe infections it is present within a few hours; in mild cases, somewhat later. It may subside gradually within twenty-four hours, due to the expulsion into the cecum of the exciting material. If sudden drop occurs, suspect gangrene or perforation. Remission with subsequent gradual increase means invasion of new adjacent structures, while sudden increase may mean multiple abscesses or general peritonitis. These secondary elevations of temperature *always* mean further involvement of tissue, are danger signals that even the most rabid adherent to the old-fashioned medical tenets cannot afford to disregard, and indicate that immediate operation is imperatively demanded.

*The blood count*, simple or differential, has not appeared to the writer to be of much value except as it is concerned in differential diagnosis. In all acute inflammatory conditions in previously healthy children the leucocytosis is usually very marked. A leucocytosis is merely an indication of the fight which the body has been making, may be misleading, and gives absolutely no information as to the condition of the local focus of infection at the time the blood is taken for examination. This is particularly true in fulminating types of acute appendicitis, and the writer desires to sound a note of warning against placing any dependence in the findings or wasting any time in waiting for a report in the presence of other indubitable evidences of this disease. On a number of occasions the writer has operated within one hour after blood examination has shown very high leucocytosis with high percentage of polynuclears; but as there had also been a sudden drop in temperature, cessation of pain, and local tenderness, while the pulse remained rapid, immediate operation was indicated. Operation repeatedly showed a gangrenous appendix with few or absolutely no protective adhesions surrounding it.

*The pulse* usually follows the temperature, and with it is usually an indication of the degree of toxemia. The significance of high pulse with suddenly dropping temperature has already been pointed out.

Collapse appears rapidly or slowly after perforation, depending upon the type and virulence of the infection. Murphy found the streptococcus infection most rapid; staphylococcus, slowest; colon bacillus, intermediate; though sometimes acting with overwhelming virulence.

*Differential Diagnosis.*—In the course of this paper the writer has repeatedly emphasized the fact of the occasional difficulty one experiences in diagnosticating acute appendicitis in infants and children. The conditions which we are called upon to differentiate most frequently are (1) gastroenteritis; (2) pneumonia; (3) diaphragmatic pleurisy, and (4) intussusception. Among others occasionally to be differentiated are (5) subphrenic abscess; (6) glandular tuberculosis (in the mesentery), and localized tuberculous peritonitis; (7) general peritonitis of unknown origin; (8) fecal impaction; (9) typhoid fever; (10) strangulated hernia; (11) pyelitis affecting the right kidney; (12) stone in right kidney or ureter; (13) pyosalpinx, inflamed ovary or ovarian dermoid; (14) inflamed undescended right testicle; (15) duodenal ulcer; (16) intra-abdominal tumors; (17) acute infections of right hip joint; (18) malaria, as emphasized by Brickner[13]. While this list may seem long, it does not by any means include all the conditions which have simulated or delayed the diagnosis of acute appendicitis. Illustrative cases covering acute appendicitis in its relation to each of the above-named conditions have been reported in varying numbers and may be found in the literature. We must also remember that acute appendicitis sometimes occurs coincident with or during the course of pneumonia, typhoid, tonsillitis, measles, or other febrile disease.

*Points in Differentiation.*—(1) From gastroenteritis: The symptoms sometimes correspond so closely with those of appendicitis with mild onset that positive diagnosis may be impossible during the first twenty-four hours. However, in gastroenteritis the initial fever is usually higher, while pain is rarely so severe and usually does not become localized, or, if so, it is apt to be near the navel or in the epigastrium. Diarrhea is the rule, while the opposite condition usually obtains in appendicitis. The differential leucocyte count may be of value. McCosh[9] believed that "persistence of vomiting, with severe pain for more than twenty-four hours, especially if there be no diarrhea, favors the diagnosis of appendicitis." Obstinate constipation with any one other symptom of the disease he believed sufficient to warrant operation. General abdominal sensitiveness, with localized muscle spasm is, however, the surest indication that the appendix is the seat of the trouble.

(2) From pneumonia: One of the most fruitful sources of error, and one which is sometimes very hard to differentiate, is beginning pneumonia in the right lung, particularly if it be of the central type. In its incipiency, pneumonia is occasionally accompanied by right-sided abdominal pain and muscular rigidity, and under these circumstances even the most careful and experienced diagnosticians, both pediatrists and surgeons, have been misled. Sometimes the mistake has been in one direction, sometimes in the other. It occasionally happens that two such experts are absolutely unable to make a positive diagnosis until, after several days elapse, either the usual typical local evidences in the chest or development of abdominal mass make the condition clear. Rectal examination occasionally has served

to show the appendix at fault, and thus clear up the diagnosis in some of these obscure cases. No definite rules can be formulated for early differentiation of these atypical cases of pneumonia with confusing abdominal symptoms. Delay in the diagnosis is not only excusable, but unavoidable, unless one may have the benefit of the information to be gained by the *x*-ray in the hands of an expert radiographer. Pisek,[14] in conjunction with radiographers at the New York Post-Graduate Medical School and Hospital, and elsewhere, has done considerable work along the line of early diagnosis of pulmonary lesions and in the study of conditions affecting the gastrointestinal tract in infants and children. He has achieved some very brilliant results in obscure pulmonary cases, and from his experience is convinced that where the diagnosis rests between central pneumonia and appendicitis it can be quickly cleared up by this method when expert radiography is available. Such atypical cases as these are rather unusual, but they occur often enough to instil a wholesome fear of sometimes overlooking the condition and not discovering the error until we have cut down upon a normal appendix. In the ordinary case there should be no difficulty in ruling out pulmonic involvement. Blood examination gives no aid here, but with pneumonia we often have an initial chill, occasionally a convulsion; there is usually more rapid elevation of temperature, much more rapid breathing, evident prostration, different facies, occasional cyanosis, cough, and the physical signs in the chest. There may be vomiting and diarrhea, but usually no abdominal pain or rigidity. These points are sufficient for differentiation in the great majority of cases of bronchopneumonia, while with lobar pneumonia, in addition to the above symptoms, there is often typical pleuritic pain and friction sounds, while the initial rise of temperature is still more marked and more likely to be ushered in by a definite chill.

(3) From diaphragmatic pleurisy: In this affection also we may have abdominal pain and muscular rigidity, so here again is a problem which may defy solution until positive localizing signs have become manifest. Blood tests are of little or no value. There is nothing characteristic about the pulse or temperature, but the breathing is apt to be much more rapid with pleurisy. Vomiting is a symptom common to both. In pleurisy there may be a certain fixation of the lower ribs, but abnormal chest sounds may be absent. From the inter-relation of pleural and lumbar nerves we may have as severe abdominal pain and as rigid muscles in one as in the other. In the absence of definite localizing symptoms, and with negative results from rectal examination, the writer knows no method of early differentiation unless radiography after a bismuth meal may furnish the clue. Summers,[15] however, believes diaphragmatic pleurisy can be very readily recognized. He states that he "found almost complete absence of the respiratory murmur over the lower part of the right lung." The writer has never been able to verify this observation.

(4) From intussusception: Ordinarily there should be but little difficulty in differentiating these two conditions. The persistent vomiting, rhythmic pains, bloody and mucous stools, and greater degree of shock all point to intussusception. The mass may or may not be felt on abdominal palpation, but, if felt, is usually above and to the left of the appendix region near, or even beyond, the median line. Rectal examination often discloses the intussusceptum protruding into the rectum. When the tumor is in the ileocecal region, it may occasionally be mistaken for an inflammatory mass. Sometimes the appendix forms part of the intussusceptum, but hardly influences the clinical picture characteristic of intussusception. Rarely the diagnosis may be doubtful, but as both conditions demand early operation no harm is done unless precious time is wasted by some procrastinator or by one who still believes in medical treatment of one or the other of these conditions. Snow and Clinton[16] have shown that the *x*-ray is sometimes of value in these cases also, their *x*-ray photographs illustrating the condition found in two cases of intussusception being very interesting and instructive.

It hardly seems necessary to differentiate *seriatim* the other occasional to very rare causes of uncertainty in diagnosis. The history, physical examination, with the routine employment of abdominal, rectal, and bimanual rectoabdominal palpation and the judicious use of one or more of the many modern diagnostic aids, should differentiate acute appendicitis from any of the above mentioned sources of error without much difficulty. The simple blood count, differential leucocyte determination, examination for plasmodium malariae, and blood reactions (Widal, Wassermann, etc.); the urine examination (with cystoscopy, ureteral catheterization, and functional tests for individual kidney sufficiency, possible in the older children); the von Pirquet; the numerous other tests, including possibly Abderhalden's recently advanced serum test for malignant tumors (since Erpicum's[17] correct results in forty-two cases are certainly impressive); and, finally, the *x*-ray, since giant strides have been made in recent years in *x*-ray diagnosis of pulmonary, gastrointestinal, and other intra-abdominal conditions by Cole[18], Pisek and LeWald,[19] Chapin,[20] Morse,[21] Quimby[22], and a host of others, following improvements in apparatus and refinements of technique which have allowed instantaneous exposures, singly or in rapid sequence, and the development of greater skill in the interpretation of these plates; any or all of these resources may be called to our aid in the larger centres, and most of them even in the country village. With these and such a multiplicity of other diagnostic aids at our command, is it too much to ask that an early diagnosis be made in these cases of acute appendicitis, whatever the age of the patient?

*Treatment.*—The writer believes that with extremely rare exceptions we should no longer consider that there is a medical treatment of acute appendicitis. The treatment is, as suggested by Campbell, preoperative and operative. The preoperative treatment consists in rest and fluid, or no diet except water (and the ice bag as a placebo, if you insist) while waiting to confirm the diagnosis. No active catharsis while any doubt exists as to the possibility of acute appendicitis. After the diagnosis of acute appendicitis is made, possibly the ice bag or coil and opium in some form while preparing for the operation, which should be done as soon as possible. Before operation the lower bowel may be emptied by enema or left alone. Children bear short operations well, but not extensive bowel manipulation or loss of much blood. With the tenderness in the typical situation, the writer believes in using the McBurney incision if there is no mass, or if the mass is well confined to that region. Right rectus incision for all other cases

where the mass or tenderness is high, nearer the median line, or very low. When the rectus incision is used, it should be made well to the outer edge of the muscle. The operation in children before complications develop is usually as easy or easier than in the adult. Early clean cases are of course not drained. When the appendix has been found gangrenous, or a little fluid and flakes of lymph are present, a small cigarette drain may or may not be used, depending upon the condition of the periappendicular tissues, and as judgment dictates in the individual case. Abscesses are sponged out and freely drained. No peroxide or general irrigating. Wound closed by layers, to emergence of the drain or drains, except occasionally in especially virulent cases or where drains run to several abscess cavities and the incision is short. In some cases one or more provisional sutures may be placed at point of emergence of drain, to be tied after its removal if the condition warrants this procedure within twenty-four to forty-eight hours.

Nothing will be said regarding technique of operation in late stage cases, since the surgical portion of this paper is directed not to the surgical specialist, but to the occasional operator, who seldom is justified in attempting the surgery of these often very complicated cases. The proper handling of such cases often requires the exercise of rare judgment and taxes the resources of even the most skilled and experienced surgeon. Any reader of this paper who operates seldom or only in emergencies, or through force of circumstances (at a considerable distance from a competent surgeon), and who might thus be compelled to operate upon late stage cases of appendicitis in children, is referred to the excellent articles by Torek,[23] Hawkes,[24] Hotchkiss,[25] Murphy,[8] and others on the treatment of diffuse suppurative peritonitis and other conditions complicating or following appendicitis.

*Results of Surgical Treatment.*—Erdmann, in 100 cases operated upon at all stages, had 7 deaths: pneumonia, 2; general peritonitis, 4; subphrenic abscess, etc., 1. Twenty-four cases had perforated; 50 were gangrenous. There were 5 interval cases. Thirty-seven cases had to be drained. Fowler, in his last 100 cases, had 3 deaths: 2 from septic peritonitis, 1 from general septicemia in a case operated on in less than twenty-four hours, where there was a very acutely inflamed appendix with a perforation, and with an escaped enterolith lying directly on the iliac vein. Dowd, in 41 cases operated upon within forty-eight hours had one death, while in the entire series of 181 cases there were 11 deaths: 7 in the first series of 70; 4 in the second series of 50, and none in the third series of 61 cases.

The percentage of mortality in operations for acute appendicitis undertaken in the early stages of the inflammation is shown by hospital statistics to be very low. It is practically nil. In the cases operated upon after plastic lymph has been thrown out, adhesions have begun to form, seropurulent exudate is present, and the mesoappendix and head of the cecum have become infiltrated and friable, the mortality gradually increases; and in the cases where gangrene has supervened or the appendix has ruptured, and so on up to the cases with general peritonitis, the death rate increases by leaps and bounds. Is it not perfectly clear that this increase is the mortality of delay and not of surgery? And in these desperate cases, if, by dint of good fortune, a rugged constitution, skilled surgery, careful nursing, and after weeks of drainage with the attendant torture of frequent dressings, the patient escapes death, he often recovers with a fecal fistula or a weak point in his abdominal wall positively inviting a hernia, or with a mass of adhesions that may later cause intestinal obstruction or result in perverted bowel function, easily giving rise to intestinal toxemia and chronic invalidism. How frequently we see patients undergoing the discomfort and danger of a second operation to relieve conditions the direct result of delay in the operative treatment of an antecedent acute appendicitis, when immediate operation probably would have allowed them to leave the hospital after a smooth and easy convalescence, with a solid abdominal wall and with no network of adhesions within the abdomen to lay the foundation for future complications!

If the reader has been one of the procrastinators, and if consideration of the facts presented in this paper results in more keen and careful examination, earlier diagnosis, and prompt operation in future cases of acute appendicitis, whatever the patient's age, it will not have been written in vain. It is true that the mortality is somewhat higher in such operations on children than on adults, but it is still very low, and one must remember that the mortality in medically treated cases that are allowed to go on to gangrene and rupture with general peritonitis is practically 100 per cent., while late surgery in such cases saves comparatively few; and let us also remember that an innocent appearing start is no guarantee that we shall not have a desperate case on our hands before the expiration of forty-eight hours. Early diagnosis and operation within the first forty-eight hours means approximately 100 per cent. cures. Delay invites disaster, with the useless sacrifice of many lives.

Acute appendicitis calls for immediate surgery.

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# GENITAL FISTULÆ IN THE FEMALE.

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Genital fistula is perhaps one of the worst complications we are called to attend in pelvic troubles because their effect upon the patient's nervous temperament and general health is far out of proportion to the pathological lesion, and no matter what the cause may be the sufferer ostracizes herself from even her friends.

Fistulæ in the upper part of the vagina result most frequently from malignant disease, while those in the lower part of the vagina result from trauma, protracted and difficult labors, imperfect union following operations, and ulcerative processes of syphilis, tuberculosis, or foreign bodies. Anatomical malformations sometimes contribute, although to a small degree.

Although there are a number of different varieties of fistulæ they may be classified for brevity into those from the vagina to either the urinary or fecal tracts.

*Symptoms.*—The actual solution of the tissues that is to constitute the vesicovaginal fistula is preceded by the development of bladder symptoms. In postparturient cases these symptoms may occupy but a few days, but when ulcerative processes are the cause the bladder symptoms may occupy weeks or months. They begin with frequent micturition and dysuria, showing irritation of the bladder. Later hematuria informs us that the epithelium of the bladder is giving way, and then suddenly the urine gushes from the vagina. From this time on incontinence of urine is more or less complete and the vagina, external genitals, and thighs are excoriated from the constant dribbling of urine, and the patient is embarrassed by the urinous odor about her at all times. If the fistulous opening is small and high in the vagina, incontinence will occur only when the bladder is filled or when the patient is recumbent and not when she is up and about. The urinary salts are deposited about the fistulous opening and in the vagina, and when removed, either purposely or by the gradual breaking down of the crusts, the surfaces are found ulcerated and bleeding. Contraction is going on in one ulcer while crusts are forming in another place and the opening into the bladder soon becomes circuitous. In rectovaginal fistula there is but partial fecal incontinence unless the sinus is very large (in the late stages of cancer). In the traumatic forms the opening is very small. Frequently it is only pin hole in size and only liquid feces escape. But no matter how small the opening is the intestinal gases are uncontrollable and escape with a whistling noise.

*Diagnosis.*—Urinary or fecal incontinence occurs in so few other conditions that fistula must be always considered when this symptom is complained of. In puerperal patients sloughing progresses gradually for several days or a week and then the patient has the urine suddenly gush out of the vagina. If the opening is large it may be detected by the palpating finger or with a sound; but if small it must be located by inspection, that is, by seeing the discharge come through the mucous membrane. For examination, place the patient in the lithotomy or Sims' position in a good light. Forcibly retract the vaginal wall opposite the expected fistular site and then carefully examine all of the exposed mucous membrane. Even with careful work it may be necessary to distend the bowel or bladder with permanganate or some analine solution and watch for its oozing through the wall into the vagina. Sometimes instead of finding a definite opening from the bladder, the vesical mucosa will extrude into the vagina and the urine seep through the thin wall.

*Prognosis.*—There is a vast difference in the history of fistulæ produced by incision or laceration, and fistulæ resulting from sloughing produced by bruising. The former leaves a clean cut healthy edge which tends to granulate and contract until the opening is closed. Palliative treatment such as rest, cleanliness, and relief of excoriations of the outer parts is all that is needed. If the granulations seem sluggish and the fistula is very small, the edges may be freshened, and the bladder drained with a retained catheter through the natural passages for a week or ten days. Traumatic fistulæ should not be treated surgically for at least two months, because the majority of them close spontaneously under palliative treatment. Keeping the urine acid and frequent irrigations of the vagina and bladder assist healing. When the mucosa has broken down by necrosis and sloughed away, the history of the fistula is different. The wound edges are poorly nourished and uneven. Granulation goes on at one place while ulceration is still unfinished in another. About this sloughing mass is a region densely filled with leucocytes which block the circulation. The lymphatics are also filled with débris which they are trying to dispose of. It is little wonder with such pathology that regeneration does not progress or that urinary salts incrust the surfaces. These fistulæ (those due to ulceration) do not heal of their own accord.

*Treatment.*—Tentative treatment and the application of caustics are almost useless. In patients presenting recent lesions cleanliness and keeping down fatty granulations will assist nature to close the opening but where the fistula has existed for sometime and is surrounded with cicatricial tissue nothing but operative procedure offers any hope of cure.

Rectovaginal fistulæ that open within one inch from the anus are best treated by splitting the tissue between the fistulæ and the skin, thus converting the wound into a small complete laceration of the perineum and then repaired as such. Fistulæ high up in the vagina and those entering the bladder require plastic operations of various forms. The style of operation to be used depends upon the location of the fistula, its connections and form, and conditions peculiar to each case at hand. The greatest handicaps to plastic work here are tension on the sutures, and wound infection. The danger of both of these complications is lessened by placing the line of suture in the line of axis of the vagina. This utilizes any laxity of the vaginal wall. With old persistent fistulæ plastic surgery calls for considerable ingenuity in the operator. The operation to be described hereafter is given only as a pattern which the reader must modify and twist to best suit his individual case. If fistulæ into the rectum and bladder coexist the rectovaginal opening must be first repaired and allowed to heal before attempting the vesical sinus, as otherwise the bladder stitches would surely be infected.

*Preparatory Treatment.*—All inflammation and induration must be relieved. Lime salt deposits are to be removed and the tissues brought to nearly normal before any operative work is begun. The urine should be rendered bland by administration of benzoate of soda or potash. To remove the crusts

of lint that surround the fistulous edges copious douches of boric acid solution frequently repeated will give good results, or nitric acid, 1 to 4,000, may be used. Ulcerations and abrasions should be brushed with nitrate of silver solution, 5 grains to the ounce, every few days. If any scars or bands distort or stretch the vagina, they must be divided and allowed to heal on the stretch. The details of the treatment of scars and bands cannot be taken up in this paper. The urethra sometimes contracts from disuse or cicatrices and must be dilated before repairing the fistula. Where the fistula is dependent upon some other diseased condition, as cystitis or tuberculous ulcers of the bladder or rectum, these conditions must be corrected before any plastic operation will be successful.

*Operation.*—In general the plan of this operation is to make a trapdoor from the vaginal mucous membrane on one side of the fistula and turn it into the bladder or rectum as the case may be. The free edge is then stitched to the opposite side of the fistula. This flap is then reinforced by imbricating a portion of the opposite wall over it. This second flap is fastened near the base of the first. The flaps may be taken from either side of the opening. A lateral flap is preferred rather than one above or below the opening.

The vagina is widely dilated by means of Sims' specula and the fistula is steadied with tenacula. A flap one-quarter of an inch larger than the opening is then marked off on one side with a knife or sharp scissors curved on the flat. The vesicovaginal septum is split and the vaginal mucosa lifted but leaving the vesical wall and areolar tissue intact. This dissection is carried to within one-eighth of an inch of the fistulous edge, and the remaining tissue is used as a hinge to lay the flap over the opening like a patch. The size and shape of the flap must be determined in each case and varies from the crescent for a round fistula, to a triangle or oblong in irregular openings. Whatever the shape of the opening the flap must be large enough to cover it completely and have about one-eighth of an inch lap all around.

The next step is to split the vesicovaginal septum around the edge of the fistula opposite the side of the flap, thus making another flap beginning at the edge of the fistula and hinging about three-eighths to one-half inch back of the opening. To fasten the flaps in place, a curved needle carrying fine catgut is inserted into the flap about one-quarter of an inch from the edge, passed through the connective tissue deeply down to but not through the mucosa and curved back and out again on the same surface about one-eighth of an inch from the edge. Passing over to the vesical half of the flap of the opposite side, the needle is entered in the fresh cut surface, passed down to but not into the vesical mucous membrane, then turned and brought out again on the cut surface back in the angle of the wound. This is a Lembert stitch. It provides a broad surface for approximation and also lifts the wound edge above the level of the bladder wall.

The fistulous opening is now closed, but the flap of vaginal mucosa remains to be fastened. A curved round needle threaded with fine catgut is now passed through the free edge of this flap, carried over the wound, and into the fresh surface on the opposite side, where it is passed into but not through the vaginal wall and brought out again on the vaginal surface. This stitch very closely resembles that used in suturing for repair of any vaginal tear. The stitches are placed about one-quarter of an inch apart. This second flap closes the vaginal wound and reinforces the flap which closes the fistula. By this method a double-breasted coat effect is obtained. The two rows of stitches are each in the line of axis of the vagina, but are not superimposed on each other. This provides a wide surface for union and raises the vesical line of suture above the level of the bladder wall and thus lessens the danger of infection. After the sutures are inserted but before they are tied the bladder should be thoroughly washed out to remove all clots.

*After Treatment.*—At the close of the operation a catheter should be inserted into the bladder and retained for two or three days, and after that the bladder should be catheterized every three hours for the balance of the first week. Let me say just a word here about the care of the catheter while it is retained within the bladder. It must be examined every few hours to see that it does not become occluded, and the bladder dangerously overdistended. It should also be removed once or twice in each twenty-four hours, washed, and replaced under the strictest asepsis. Removing the catheter each day greatly relieves the patient and it may be well to leave it out for one-half hour or so each time it is cleansed. A good dose of castor oil or a saline should be given on the morning of the second day and after that the bowels should be kept free and the movements soft. No vaginal dressing or douches are given unless for special indications. The patient should be kept in bed for ten days, and it is preferable that she should lie on her side instead of on her back. By so doing the urine gravitates away from the sutures when the bladder is only partly filled instead of constantly bathing the wound. After the patient leaves her bed she should be kept under restraint for at least two weeks, and not allowed to be upon her feet any great time until the tissues may have obtained more strength.

Recently quite a number of plastic operations have been suggested for the relief of this very troublesome condition. Each operator suggests a different method but all aim to use the tissue obtained by freshening the edge of the fistula instead of discarding it as is done in the older classic method. This multiplicity of operations suggests failures in all of them and it is well to remember that much depends upon the case in hand and upon the inventive ability of the operator.

438 East Forty-sixth Street.

## USES AND ABUSES OF SALVARSAN AND MERCURY IN SYPHILIS.

By ELLIOTT C. BURROWS, M.D.

NEW YORK.

In every phase of the treatment of syphilis there is great need of intelligence and caution, for the drugs used are beneficial and curative only in so far as their harmful effects are avoided. In a series of 10,000 personally observed syphilitic patients treated with salvarsan and mercury a truly marvelous abortment of the disease in early cases and a shortened period in obtaining cures in the secondary and tertiary stages have been repeatedly observed with these combined remedies, properly used. The abuse of salvarsan by the unskilled and unscrupulous has done great harm as is shown not only by the neurorecurrences but by approximately 400 useless fatalities reported in the three years of its use as compared with only 70 deaths on record from mercury

in the last sixty years. However with a proper knowledge of its uses and contraindications, I have found salvarsan most efficient and safe in a very large series of cases.

Neurorecurrences are common after the indiscriminate salvarsan injections in the second and third stages of syphilis when the organism is flooded with spirochetes. It is plausible to assume that the spirochetes are leading a saprophytic existence on the meninges, doing no harm until the toxic action of the salvarsan is felt by the tissues under them, especially the capillaries. This reduces their resistance and the spirochetes can then exert their destructive action. Salvarsan is not only improperly used by the ignorant and unscrupulous but its use is abused by the quack, who to obtain an exorbitant fee for this comparatively inexpensive remedy, assures the patient that one injection will cure. All of these patients return in a year or later with symptoms of uncured syphilis. Another type of quack is the pseudospecialist who receives in advance a fee for at least three injections, whether or not they are indicated. The danger from these repeated injections is great; practically all cases of neurorecurrences coming under my observation give a history of such injections during the second and third stages of the disease. As many as ten weekly injections are sometimes given, each followed by a Wassermann test with the object evidently of obtaining a negative Wassermann regardless of the danger to the patient and a possible fatal termination. Such haphazard treatment is of unavail and in cases at all late gives universally 3 to 4 plus Wassermann's. Most accidents occur in such cases and this unscientific therapy should be discountenanced. The best symptomatic results and the quickest permanent negative Wassermann tests are obtained on the other hand in the second and third stages by weekly injections of mercury and infrequent safe doses of salvarsan. However, a persistent positive Wassermann reaction following a thorough and systematic course of salvarsan and mercury, may frequently be changed to a permanent negative Wassermann reaction by the temporary discontinuance of these drugs, substituting in their place sodium cacodylate which should be injected intramuscularily twice weekly for two months.

In the first stages of syphilitic infection the spirochetes are most active and most susceptible to drugs and the disease is curable in direct proportion to the timeliness with which salvarsan injections are given. Early chancres can be diagnosed by the microscopic dark field examination for the spirochetes and should be followed at once by excision of the lesion, or when this is not practicable the injection of the lesion with a 1 per cent. solution of mercuric chloride, the application of the thermocautery, dusting the lesion with calomel, and by the immediate intravenous injection of salvarsan, repeated in four days, and followed by a six weeks' course of mercury, terminated with a third intravenous salvarsan injection. This is the only efficient abortive treatment. In the second and third stages of syphilis it is essential to arouse the avidity, and to stimulate the appetite of the spirochetes for drugs with small doses of mercury, sweating procedures, iodides or thiosinamine, thus activating the virus before commencing salvarsan therapy. In the secondary stage salvarsan should be used with great caution at infrequent intervals, its use being combined with intramuscular injections of mercury, salvarsan being used principally to control the symptoms. In the tertiary stage with late manifestations of syphilis with marked involvement of the nervous system, such as severe and continuous headache, insomnia, irritability, backache, inability to work, asthenia, and vertigo, the treatment should begin with a course of mercury followed by the cautious intravenous or at times intramuscular injections of salvarsan in small doses. Syphilis in all three stages may be controlled during the treatment by the Wassermann test which should never be performed until at least ten days to two weeks have elapsed after the last medication.

The intravenous use of salvarsan, properly administered, is devoid of danger provided it is given in suitable dosage and at infrequent intervals, apart from cases of early infections. Salvarsan should never be used in patients exhibiting cachexia or severe visceral involvement, or in the presence of extensive cerebrospinal involvement or in those suffering with other infections such as grippe, etc. On account of the possible idiosyncrasy of some patients to arsenical intoxication patients should be within reach of the physician after each treatment with salvarsan. That many cases are promptly and radically cured by its use with mercury is shown by the large number of reinfections which are now being recorded, this reinfection implying that the original disease has been cured. Before the advent of salvarsan reinfections after mercurial cures of syphilis were extremely rare.

Precautions as to the water used for the solution of salvarsan, freshly distilled water being preferable, the promptness of the intravenous injections following the preparation of the solution, and the usual aseptic surgical technique are details of importance. The patient's health during treatment is important; he should feel better than he has felt before beginning the treatment, he should have a good appetite and should feel fit for work. The toxic effect of either drug by lowering the resistance lessens the chance of either a symptomatic or a radical cure. The insoluble salt of mercury injected deep into the gluteal muscles once a week is the most efficient form of mercurial treatment. Mercurial rubbings are filthy and inaccurate. The internal use by pill, tablet, or liquid is slow of action and unscientific, and it is impossible to give a sufficient amount of mercury by the mouth to procure satisfactory results without causing gastrointestinal disturbances which are much to be avoided in the treatment of syphilis. The writer prepares his own mercurial injections using the salicylate preferably, the patients receiving on an average of 1½ grains weekly. The injections are given under aseptic precautions; they are scientific and accurate in that a definite quantity is absorbed at each injection. Syphilitic symptoms disappear with such rapidity that the mercurial injections may be favorably classed with salvarsan in this respect. The injections do not produce abcesses or indurations and are painless. Potassium iodide is a most useful adjuvant in selected cases and should be used in large doses starting with 100 grains a day up to 1 ounce, keeping this up for several weeks. Large doses are far better tolerated than the daily doses of 10 or 15 grains. The drug should be given one-half to one hour after meals when digestion is well advanced, and is advantageously given in vichy, hot or cold water, or milk.

Inadequate treatment does actual harm, merely rousing the spirochetes without exterminating them; also, mild, early syphilis should not be treated

with correspondingly mild measures, as general paresis most frequently follows such cases. It is yet too early to state the time required for treatment in individual cases, but the basis upon which this is decided has for its object the positive elimination of all possible destructive and unfortunate complications of late uncured syphilis. However, from personal observations it can be stated that patients with a negative Wassermann reaction two years after the discontinuance of treatment, are cured. An indicative test should be insisted upon at the end of three to six months and one year, so that no time is lost should evidence of a return be present. Here is the most difficult responsibility for the conscientious physician in the treatment of syphilis and one eagerly avoided by the unscrupulous. It is only by having the full confidence of our patients whereby thorough treatment and necessary after-observation are possible, that both the physician and the sufferer can finally feel confident that a cure has been effected.

40 East Sixty-second Street

## EFFECT OF TYPHOID VACCINE ON SUGAR OUTPUT IN DIABETES.

By FRANCIS A. PRENDERGAST, M.D.,

BROOKLYN, N. Y.

Having seen the statement made that in patients suffering from diabetes the sugar disappears from their urine during an attack of typhoid fever and well on into convalescence, we thought it would be of interest to know what effect typhoid vaccine would have on the sugar output in diabetic patients.

The experiment was tried with four patients in the wards of the Kings County Hospital. Patients were first put on the regular hospital diabetic diet and an attempt was made to get their average twenty-four hour amount of sugar—then with patients still on same diet, treatment was begun with typhoid vaccine (50 to 100 million a dose) and at four-day intervals. The twenty-four hour sugar amount was again taken. After a period of three to four weeks, typhoid vaccine was discontinued and the sugar amount was taken at intervals. At the end of another four weeks, a return to vaccine was made and the sugar was again checked. The result of above treatment is given below:

Case I.—Patient admitted to hospital (October 20, 1912) in a semi-conscious condition and put to bed. Urine amount in twenty-four hours, 12 ounces; no casts; no organic acid; sugar present, per cent. not given. On October 24, under diet and soda bicarbonate treatment, urine had risen to 60 ounces; sugar at this time was 3.8 per cent. On the 29th sugar was 4.5 per cent.; urine 90 ounces; patient's mental condition, clear. On October 30, typhoid vaccine was started (50 million); slight skin reaction. On the 2nd of November, urine showed: sugar 3.1 per cent, no organic acid. On the 3rd and 7th, patient was given vaccine. On the 15th, urine showed: sugar 1.2 per cent. and general condition had so far improved that patient was allowed out of bed and all treatment was discontinued, except diet. On the 26th, sugar was less than 0.5 per cent. Left hospital on the 28th. On February 15, 1913, patient returned to hospital with return of symptoms; sugar at this time 5.7 per cent.

Case II.—Patient admitted to ward February 10, 1912, and on sugar being found in urine was placed on diabetic diet. Sugar 8.4 per cent.; weight, 86 pounds; no organic acids. February 25, sugar 3.2 per cent. March 7, sugar 6.1 per cent. On the 11th, patient was given vaccine (50 million), followed by slight skin reaction; 16th, vaccine. On the 20th, sugar 7.8 per cent.; weight 86 pounds; no organic acid. On the 26th, patient left the hospital and returned in forty-eight hours. Sugar on return, 5.9 per cent. On the 31st, vaccine (50 million); weight, 86.5 pounds. April 2, sugar 6.1 per cent.; no vaccine given during April. Sugar during April: 2nd, 6.1; 14th, 5.2; 24th, 4.0 (white bread given on this date). 30th, 3.0 per cent. On May 3, weight 86 pounds; vaccine resumed (50 million). May 6, sugar 3.5 per cent. May 7, vaccine 100 million. May 12, sugar 4.2 per cent. May 16, vaccine 100 million. May 21, sugar 2.4 per cent.; weight 92 pounds; vaccine 100 million. May 24, sugar 4.0 per cent.; weight 94.5 pounds. Treatment discontinued. Early in July the patient developed lung symptoms and tubercle bacilli were found in sputum.

Case III.—Patient transferred from surgical ward (January 30, 1913) after operation for hernia; wound healed; sugar 6.6 per cent; placed on diabetic diet. February 17, sugar 5 per cent. February 24, sugar 5.2 per cent. February 28, sugar 5 per cent. March 4, sugar 3.8 per cent. March 11, patient received 500 million typhoid bacilli; very severe reaction. March 14, sugar—a trace; no organic acids, weight 130 pounds. March 15, vaccine 50 million. March 20, sugar 3.8 per cent.; vaccine 50 million. March 25, vaccine 50 million. During April no vaccine was given. Sugar during April: (2nd, 3.8 per cent.; weight 130 pounds; 14th, 2.8 per cent., weight 131 pounds; 24th, 2.5 per cent., white bread allowed on this date; 30th, 3.2 per cent. On May 3 vaccine resumed—50 million. May 6, sugar 6 per cent., weight 131 pounds. May 7, vaccine 100 million. May 12, sugar 2.5 per cent., weight 127.5 pounds, vaccine 100 million. May 17, sugar 2.4 per cent., vaccine 100 million. May 21, sugar 6.2 per cent., vaccine 100 million, weight 128.5 pounds. May 26, sugar 5.4 per cent., treatment discontinued.

Case IV.—Patient admitted to ward (March 6, 1913) with beginning of gangrene of toe and history of long standing diabetes; sugar 6 per cent.; no organic acids; put to bed and diabetic diet given. March 12, vaccine 50 million. March 16, 50 million; no local reaction. March 19, sugar 3.8 per cent.; tubercle bacilli found in sputum. March 27, 50 million. April 1, slow advance of gangrene; no sugar or organic acids in urine. Patient died on April 5.

Special thanks are due Drs. O'Leary and Henderson of the House Staff who assisted me in this experiment.

340 Clinton Street.

## SUBPECTORAL ABSCESS.

### REPORT OF A CASE.

By C. LEGIARDI-LAURA, M.D.,

NEW YORK.

Acute suppuration under the pectoral muscles is not a common condition. According to v. Bergmann and Mikulicz ("Practice of Surgery"), of 1,080 inflammatory processes treated during the last ten years at the hospital in Eppendorf there were only twenty-six cases of suppurative processes of the chest. According to these authors the condition is almost always fatal on account of the extremely large surfaces through which infectious material may enter the body. Out of ten patients treated during the last six years at the above mentioned hospital only two recovered, whereas the others died of general sepsis (v. Bergmann and Mikulicz).

These authors do not clearly distinguish the two different clinical forms resulting from the location of the abscess either under the pectoralis major or under the pectoralis minor. But Tillaux ("Traité de chirurgie clinique"), who was the first author to describe deliberately the acute phlegmon of the subpectoral region, had already pointed out the differences of symptoms, course, and prognosis between the two conditions, and while he considers the former as a comparatively benign disease, he notes the anatomical perculiarities that make the latter one of the most dangerous conditions.

The pectoralis minor is firmly attached to the clavicle by the aponeurosis of the subclavian muscle; between the pectoralis minor and the chest there is a space occupied by cellular tissue; this space communicates freely with the neck beneath the clavicle.

This is why this deeper abscess cannot finds its way externally, and why local symptoms do not appear clear and early.

Whether the suppuration be of the one or of the other form, it can be a result of cellulitis, but usually it has its starting point in the lymphatic glands of the axillo-pectoral region, or in the subclavian nodes. When the infection affects the glands near the coracoid process or the subclavian nodes, pus may collect over the costocoracoid membrane and clavipectoral fascia, and form a subpectoral abscess. Indeed the diagnosis is clear when a bulging of the pectoral region is present; but this is a late symptom. At the beginning of the disease and without enlargement of the axillary glands, and especially if the pus has formed beneath the pectoralis minor muscle, the diagnosis may be perfectly obscure.

The abrupt onset, the usually high temperature, and the general condition of the patient may lead one to think of some internal condition, while the pain, which is usually dull and more or less diffuse to the side of the chest, together with more or less difficulty in breathing, may suggest pleurisy, or perhaps pneumonia. In these cases, before the practitioner has availed himself of a blood examination, before any local fact suggests a suppuration, the condition is likely to be serious. It is septicemia, in fact, that makes the acute suppurative process under the pectoral muscles a very dangerous condition; and while the operative procedure is very simple by itself—so simple, indeed, as to be within the means of every practitioner—the necessity of an early diagnosis and a prompt interference is all the more important.

The case I am reporting is one of the most characteristic, and has two clinical peculiarities: (1) The predominance of the general symptoms at the very beginning. (2) The formation of subpectoral abscess by suppuration of the subclavian nodes without suppuration of the axillary glands, and as a complication of a simple excoriation of the skin of the hand. Finally, we can also note that the lymphatic system of the skin of the hand drains into the lymphatic nodes of the axilla; so that it ought to be expected that an infection of the skin of the hand should induce infection of the axillary glands, and only secondarily infection of the pectoral, subpectoral, and subclavian nodes. In my case we must admit that infection has primarily taken place in a latent form in the axilla, and secondarily but more acutely in the subclavian lymphatic glands.

Case.—A. V. 28 years old, laborer, had typhoid fever at the age of 12. Nothing else of importance in his personal history. On July 21, 1913, while at his usual occupation (stone breaker) he received two excoriations, apparently of no account, on the dorsal surface of the right thumb and index finger. He did not pay any attention to the superficial wounds and continued to work. The next day he went to his work as usual, but in the afternoon began to feel pain in the arm and right side of the chest; nevertheless he went through his regular day's work; he was not able to get out of bed the next day, but for three more he did not ask for any regular treatment. He looked very ill, and complained of severe pains in the arm and axilla, headache, and fever; in fact, his temperature was about 104° F. The skin of the dorsum of his right hand had two small excoriations from which one or two drops of a yellowish pus could be obtained. The forearm and the arm were not swollen, there was no redness of the skin and the lymphatic glands of the elbow and axilla could hardly, if at all, be felt enlarged. In fact there was no local condition, apparently, to account for the high temperature of the patient and for his sickly appearance; so that at first sight one could have hardly thought the fever and the general discomfort of the patient were dependent upon the complications of the superficial wounds of the hand. But a careful examination of the patient failing to show any other condition capable of explaining the general symptoms, I satisfied myself with a diagnosis of septicemia from infected wound of the hand I did not see the patient for five days more, when I was again called in, and found him in a semistuporous condition, complaining of dull pain in the right and anterior side of the chest; the pain being more intense during the respiratory movements.

The chest wall was tender, the patient was restless and complaining of insomnia, obstinate headache, and profuse perspiration; he was not able to raise the arm on account of pain. There was no sign of suppuration in any part of the lymphatic system, nor in the cellular tissue of the region. The excoriations above mentioned appeared healed up. Percussion showed that the right infraclavicular region was perhaps a little duller than on the left side, but auscultation was normal. While I suspected some purulent focus as the cause of the trouble, I could not positively locate it. I injected hypodermically a full dose of antistreptococcus serum. The next day the patient looked brighter and the temperature dropped to 100° F. in the morning, only to reach 103° F. again at night, and a vesicular eruption appeared on the chest, especially on the right side. The next morning the temperature was 103°, the skin over the right pectoral region appeared tense and a little edematous, so I decided to make an incision. After painting the infraclavicular region with tincture of iodine, I made a two inch incision parallel to and about two inches below the clavicle, comprising the skin and subcutaneous tissue, and then the pectoralis major and minor muscles. As soon as I reached beneath the latter, a large amount of pus, "bonum et laudabile," rapidly flowed out of the incision, while a probe showed the presence of a large and deep pus-cavity pointing under the clavicle toward the root of the neck. Having complied with the urgent necessity of evacuating the pus, I simply introduced a large rubber drainage tube into the cavity toward the root of the neck behind the clavicle and covered the region with a well padded aseptic dressing. No other intervention proved necessary as the patient recovered uneventfully in about ten days after the operation.

137 Macdougal Street.

## REFRIGERATION WITH ICE IN THE TREATMENT OF INTERCOSTAL NEURALGIA.

By PASCAL ROMEO, Ph.B., M.D.,

KANSAS CITY, KANSAS,

FORMERLY INTERNE IN THE PARIS HOSPITALS.

F. M., 30 years old; married; Croatian. Parents living and in good health; no syphilis; no tuberculosis; never used alcohol, nor tobacco to excess. Two and one-half years ago he started to work in a refrigerator of a packing house in Kansas City, and during the first six months was in good health. At this time he was wounded with a sharp knife, two inches below the right breast, along the mammillary line, but the wound did not penetrate the cavity. One week later he resumed his usual work; a short time afterward he felt, particularly in damp weather, a slight painful sensation, circumscribed within the region where he had been wounded. The character of the pain was a little sharp, coming at long intervals, mostly at night, and lasting only a few seconds. Within four months the pain had increased to such intensity that it became almost unbearable. The character of the pain was first paroxysmal, lancinating, incisive, and with burning sensation; sometimes was persistent and radiating to the right clavicle and below the right nipple, confined within the external axillary line and the parasternal of the right hemithorax. The pain, up to this time, never had been irradiating to the dorsal region, and the point of its maximal intensity had always been in the region where the patient had been cut. Two months later the topography of the pain was as follows: At the sternum, in correspondence with the fifth costal cartilage, and at the axillary line at a level of the spinal apophyses of the sixth and seventh cervical vertebræ. Sensibility on the affected side was increased. Temperature of the right axilla was always from two to three-tenths of a degree above that of the left. The semicircumference of the right thorax at the mammillary level was 16 inches; left 17. Frontal headache on the right side was very severe. Hyperhidrosis hemifacialis of the same side was also one of the most

troublesome symptoms. Examination of the respiratory organs did not show any special condition for consideration. The examination of the heart disclosed an anemic murmur, systolic in time, heard at the left base, not transmitted. There was no evidence of hypertrophy or dilatation. The pulse showed a low tension, 68 per minute. Dyspeptic conditions were present; the stools were hard and passed only every two or three days; urine normal. Weight before illness was 190 pounds; now, after two years, is 150 pounds. Anemia, loss of strength, anorexia, dyspepsia, and excitability were prominent in the clinical picture.

The patient could not be made to believe that he had a chance to recover. Nothing would give him relief; nothing could make him happy. He presented a characteristic neurasthenic appearance; always angry for no apparent reason, realizing the fact and having no will power to restrain himself. Out of work all the time. He had tried all kinds of treatment, but any relief obtained never lasted more than 24 hours. On account of the general health conditions I deemed it advisable to give a tonic treatment, in connection with the local one. I gave the phospho-arsenite of iron hypodermically. Locally I had tried nearly every remedy, but always without any permanent relief, although the general conditions were improving to a certain extent. Patient had been taking too much morphine, and I was obliged, twice during the treatment, to give him relief by this means. One evening the patient came to my office as usual. After treating him in the manner before stated I painted the painful area with tincture of iodine, freshly prepared, and made according to the directions of the United States Pharmacopœia. After a few minutes patient developed in the affected side a burning hyperesthesia, covering all right hemithorax, face, and head. Nothing in the left side. Frontal headache appeared worse than usual; I had tried nearly all usual remedies with very little results.

Having no other means at my disposal, I anointed the region with common vaseline in order to prevent a possible sphacelus *a frigore* of the same. I then wrapped a large piece of ice in a towel and applied it to the affected part by rubbing. I made fractional refrigeration as the patient could not stand the same continuously. Twenty minutes later he felt relieved and went home. That night he had a very good sleep. The following day I saw him at my office and he was feeling exceptionally good and was apparently well. Now, after more than five months, the patient has never had a recurrence of pain; is working every day, and has gained fifteen pounds. At my advice, however, he has given up the work he had been doing previous to his illness.

Intercostal neuralgia is generally attributed to cold, anemia, intoxication, syphilis, and is also due to local causes, as pleural lesions, as well as tuberculosis of the lungs, rib fractures, aortic aneurysm, Pott's disease, and in women to cancer of the breast; sometimes it may be due to reflex causes, as in cardiopathy, gastropathy, and also in uterine pathological conditions. The main symptom is the persistent pain, unilateral, more frequently at left side. Sometimes respiration, particularly a deep inspiration, increases the pain. Valleix describes three painful points proper of intercostal neuralgia; sternal, vertebral, and axillary.

The treatment recommended is the same as for all neuralgias in general. To control the pain local revulsives are of use; tincture of iodine, cantharides, veratrine ointment, 3 per cent., etc., are commonly employed. Ethyl chloride, chloroform, morphine, cocaine, and the like are largely used.

The causal treatment, when the cause can be disclosed, is the rational one, as under the same we always obtain good results. So, in case of neuralgia from malaria, quinine renders us the best service; in syphilis specific treatment controls the conditions very well; in rheumatic subjects the salicylates in general do the work, etc.

The treatment of the general conditions, when the same are in the clinico-pathological picture, should be cared for in connection with the topical treatment. In severe cases the application of constant electric currents has rendered good services. (Positive pole on the dorsal column, negative on the painful area.)

In 1888 the well known medical clinician of Rome, Baccelli, at the Congress of Internal Medicine, introduced a new method of treatment of neuralgias. The method consisted in practising local injections with one or two per cent. of carbolic acid solution, preferably along the course of the nerve, in doses of one to ten c.c. *pro die*. This method had its hour of glory, to the point of being considered as a specific at home as well as abroad. The method really has worked very satisfactorily in many cases and reports to that effect come from many practitioners from time to time. I tried this method in the present case, but did not obtain any satisfactory results. Hydrotherapy here found also a good application. When all remedies have failed surgery is the last resort. The same may be circumscribed to the following operations: (1) Compression of the nerve with the fingers or by means of an apparatus *ad hoc*. (2) Bloody or unbloody stretching of the nerve. (3) Neurotomy. (4) Neurectomy or resection of a nervous tract.

As far as etiology is concerned in my case I would say that cold, caught in refrigerators of a packing house, is to be blamed. This statement is corroborated by the fact that intercostal neuralgia occurs more frequently in the left side than in the right. I believe that cold alone would perhaps not have determined a pathological condition such as appeared in my patient. He had been doing the same work for six months before receiving his wound and always in the best of health. In this case one treatment alone was sufficient to cure a condition of two years' standing.

This case alone, treated successfully in the manner above mentioned, does not authorize me as yet to claim a new method for treating intercostal neuralgia *a frigore*. However, I feel confident that a further trial will prove my statement to be correct and satisfactory.

346 North Fifth Street.

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**Gonorrhea and Suppurative Disease of the Uterine Adnexa.**—H. Schottmüller and W. Barfurth made a careful bacteriological examination of the pus in 79 cases of suppuration in the uterine adena. There were found gonococci in 6.3 per cent.; streptococci and staphylococci in 17.8 per cent.; miscellaneous organisms in 25.3 per cent.; and anærobic organisms in 35.4 per cent. of the cases. The cultures were sterile in 15.2 per cent. of the cases. The authors conclude from these findings, in agreement with Döderlein, that gonorrhea does not play an important rôle in the production of adnexal suppuration in women. Septic infection is a more dominant factor.—*Beiträge zur Klinik der Infektionskrankheiten und zur Immunitätsforschung.*

**Congenital Eye and Heart Defects.**—D. G. Greenfield reports the case of a male, aged 11 years, who was a full-time child weighing 1 pound 15 ounces at birth. His mother has had no other children or miscarriages. He had convulsions as an infant and at the age of 8 months developed a "cataract"; he has always been deaf and can hear nothing with the right ear and very little with the left. Since the age of 5 years he has had a left otorrhea. He can read with the left eye, but the right eyeball is small. He also has a congenital heart lesion. There is no evidence of congenital syphilis, and the author gives no history of anything to account for the condition.—*Proceedings of the Royal Society of Medicine.*

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New York, January 3, 1914.


## REPORT OF THE SURGEON - GENERAL, UNITED STATES NAVY.

THE Surgeon-General of the U. S. Navy has just issued the annual report which on the whole goes to show that the health of the personnel has been good during the fiscal year 1913. The prevalence of certain diseases has abated, while some diseases have exhibited increased occurrence. Animal parasitic infections have increased, a result chiefly due to the greater amount of interest taken in hookworm disease and the larger number of examinations for the parasite thereof. The rate for pneumonia has been decreased at the training stations and shore stations, but the force afloat showed an increase over the previous year. The decrease of this disease in the training and shore stations is attributed to the prevention of overheating of living and working spaces. Attention is drawn to the great success of antityphoid inoculation, the fleet surgeon of the Atlantic fleet going so far as to state that the administration of the prophylactic has practically eradicated typhoid from the fleet and that this serious menace to the health of the navy seems to have passed away. A slight reduction in the number of cases of malaria is noted and salvarsan has been used in the treatment of a small number of cases with encouraging results. Tuberculosis has decreased considerably. Diseases of the nervous system showed a decrease, but diseases of the digestive system have increased since 1911, an increase which on analysis is found to be due to increased incidence of appendicitis and tonsillitis.

Venereal diseases have decreased in a satisfactory manner. On the subject of prophylaxis the report says: "From a military standpoint it has become imperative that prophylaxis for venereal disease shall be properly employed. It should be arranged so that if the men, after being thoroughly instructed in personal hygiene and the advisability of avoiding venereal exposure, persisted in wilfully seeking illegitimate intercourse they could procure an effective prophylactic to carry with them and apply within six hours after exposure, should this take place." The bureau emphasizes its recommendation that those who are disabled by reason of venereal disease should have their pay checked while on the sick list. Attention is drawn to the fact that this practice has been in vogue in the army for some time with satisfactory results.

The sanitary conditions and measures afloat are dealt with at some length, but can be only briefly referred to here. Ventilation of the forward compartments of battleships is a problem that has yet to be successfully solved. According to the report, the combined heating and ventilating system is subject to the criticisms stated in last year's report, namely, low relative humidity of air, failure to maintain an equable temperature in all compartments, and dust and insects not removed from the air before distribution. Louvers in most compartments are near the ceiling, resulting in poor circulation of air, since in cold weather the warm air is not delivered into the cooler stratum at the lower level and the normal difference of temperature between the deck and ceiling is increased. Garbage disposal on battleships is another matter that demands serious consideration. As a rule, at sea, the refuse is dumped overboard or burned in the fireroom. When in port it is usually collected by lighter once daily and dumped at sea, proper storage of the garbage for twenty-four hours being a serious problem. The report strongly recommends that garbage incinerators be installed on all ships as rapidly as possible. The character of the vessels used as transports is severely commented upon in the report.

The question of competitive athletics is again discussed and the conclusion formed that general indulgence in athletics is desirable, and the mental relaxation secured in this way is even more complete and more profitable than that obtained by prescribed physical drills, and the ideal to be desired is for every man to take an interest in some form of physical diversion other than the routine exercises which are required. As in the army so in the navy, there is a considerable shortage in the hospital corps and some revision of entrance regulations is necessary in order to render the service in the corps more popular.

## OPERATIVE INJURIES OF THE VAGUS AND INTERNAL JUGULAR.

THERE seems to be a tendency on the part of many expert surgeons to be indifferent to the danger of injuring the vagus and internal jugular when operating for benign or malignant growths of the neck. Roswell Park (*Annals of Surgery*, August, 1895) found in the literature reports of 15 cases of accidental injury of the vagus and 50 where the nerve had been sectioned, resected, or caught in a ligature during the progress of an operation. Among the 15 accidental cases 11 patients died, 2 recovered, and in 2 the result was unknown; while of the 50 in which the nerve was injured during operation, 21 died, 27 recovered, and in 2 the result was unknown. Park evidently believes that injury to the nerve played no very important part in causing the deaths, for he stated that "It is impossible to say that in any instance death was due to injury of the nerve," and "the preponderance of testimony is in favor of the comparative safety of attacking this nerve when involved in disease, and when too much other operating is not necessitated by the

condition which has caused the operative attack." These conclusions were reached in spite of the fact that pulmonary edema, gangrene of the lung, or unusually rapidly developing pneumonia occurred in a considerable number of cases.

Since then the subject has been discussed many times, especially by German authors. One of the most notable of their contributions is that of A. Reich, published in the *Beiträge zur klinischen Chirurgie* in January, 1908. His article is based upon the study of 83 cases, including 11 accidental wounds, 44 operative sections or resections, and 28 irritations, traumatic or operative. Bérard and Chalier (*Lyon Chirurgical*, November, 1912) utilized his material in connection with reports of their own cases and others found in the literature, and thus collected histories of 17 traumatic wounds of the vagus, 54 operative sections or partial resections and a large number of irritations, of which they report only the most interesting. The 17 traumatic wounds were complicated by injuries of other nerves (single or multiple) 13 times, of the carotid twice and of the internal jugular once. Clinically, allowing for shock, observed in some cases, cardiac troubles were absent or of small moment and transitory. They consisted in lowering of the blood pressure and acceleration of the heart beat. Respiratory troubles, on the contrary, were practically constant. There was usually an immediate paralysis of the vocal cord and many had cough and dyspnea. Some had pneumonia, usually fatal, and always situated on the side of the nerve sectioned. Dysphagia was observed in some cases, while often many of these symptoms were combined in one patient. There were 7 deaths (asphyxia 2, pneumonia 5), 7 survived but sometimes with vocal-cord paralysis and other symptoms, while in 3 cases the result was unknown. Tachycardia sometimes persisted for a long time but finally always subsided.

Among the 54 operative sections and resections there were found as concomitant lesions partial resections of the jugular 32, ligature or partial resections of the carotid 28, sections or resections of the sympathetic 7, and occasional injuries or ligations of other vessels or nerves. There were 21 deaths. In these 54 cases Bérard and Chalier studied the effect (1) on the heart, (2) on the respiration, and (3) on the esophagus and stomach. The cases where a competent assistant noted the state of the heart and pulse during the entire duration of the operation proved the similarity of action on the heart of man and animal of unilateral vagotomy. They found that this causes immediate marked acceleration of the pulse but never disquieting cardiac accidents. Tachycardia, often very slight, attains only rarely 120 or 130 pulsations to the minute, and disappears ordinarily in some hours, or at most in some days. Immediate effects of vagotomy upon respiration seem quite inconstant and of little moment, though recurrent nerve paralysis is the rule. "Outside of the paralysis of the corresponding vocal cord, section of the vagus in the neck does not start any immediate respiratory trouble." More or less early secondary respiratory manifestations, however, appear to be very frequent, but divide themselves into two classes of entirely opposite prognostic significance. Some are not of great moment, for they are similar to those frequently observed in the surgery of the neck. Such are laryngitis, tracheitis, and bronchitis, which are sufficiently explained by the location and nature of the operation, without its being necessary to search for an outside influence such as injury to the vagus. The others, more grave, consist in the pulmonary complications, properly so called, whose relations with the nerve it is important to determine. Seven of the 54 cases may *a priori* be considered as examples of vagus pneumonia. In three cases the pneumonia was on the side of the nerve sectioned, in one on the opposite side, and in three the lesion was bilateral. All but two of these cases they believe may be sufficiently explained by the general nature of the operation, and depend in no wise upon the vagotomy. Strange as it may seem, they also state that it appears difficult to maintain, in the case of human pathology, that there is a true vagus pneumonia, and, further, one should not accuse paralysis of one vocal cord, which inevitably accompanies vagotomy, of especially predisposing to pulmonary complications. Tuffier, however, believed his case of pulmonary gangrene to be due solely to the resection of the vagus on the same side during the course of an operation for carotid aneurysm. The influence of unilateral vagotomy on the digestive apparatus in man is still more doubtful than is its influence on the heart and respiration. Few authors mentioned digestive complications at all, and those usually distinctly stated that there were none. From these studies of the effect of vagotomy upon the heart, respiration, and digestive apparatus. Bérard and Chalier conclude that "unilateral vagotomy, right or left, upon a nerve healthy or degenerated, has not by itself any gravity."

Operative irritations of the vagus also affect heart, respiration, and digestive system. There may be circulatory disturbances ranging from simple diminution of blood pressure with slowing of the pulse to the arrest, temporary or final, of the heart. Immediate effects upon respiration consist often only in attacks of fitful cough, with or without dyspnea. With a further degree of irritation respiration becomes embarrassed, then arrested sharply, to start up again ordinarily after some forced, jerky inspirations; though sometimes the respiratory pause is final. If grave results do not immediately appear from its inhibitory action on the heart and respiratory apparatus, none are to be anticipated; for vagus irritation plays no part predisposing to late pulmonary complications. Digestive disturbances are confined to transient nausea and vomiting and are never serious. Five deaths are reported in the literature from vagus irritations, but, again, Bérard and Chalier question its sole responsibility for the fatal outcome and, while counselling care in the avoidance of this nerve, rather make light of the chance of there being any serious results following its accidental injury. Reich, on the other hand, who had one fatal case and several others desperately close to it, considered that the danger from irritation of this nerve is considerably more grave than that from section or resection.

Bérard and Chalier finally conclude that the surgeon should not be "hypnotized" by the pneumogastric, and state that "section or the frank resection of this nerve is not dangerous; it will be better to have recourse to it in the cases of adherence or neoplastic invasion than to attempt to free the nerve, thus risking its irritation, or to prolong beyond measure an operation already long and shocking. One should abstain in all cases, even if it produces an abundant hemorrhage, from pinching or tying in the dark, in the fear of seizing also the nerve and producing a reflex syncope which might be very serious."

P. Guibal (*Revue de Chirurgie*, July, 1913) formerly shared with the majority of surgeons the firm conviction that patients are not subjected to any great risk when the operator resects, on one side of the neck, either the internal jugular, the pneumogastric, or both of these structures at once. He reports a case which cured him of this optimism and which is well worth the attention of all who have the impression that jugular or vagus may be resected with impunity. In dissecting cancerous glands of the left side of the neck, the jugular was soon found to be involved by the growth, was divided near its lowest point between two ligatures, and vein and glands were rapidly dissected upward. At one point the vagus traveled directly through the cancerous mass. A clamp was applied above this point, nerve and jugular were sectioned, and the involved portion of nerve was resected. At the moment of putting a ligature on the central end of the vein it tore but was quickly seized by a forceps. Because of the depth to which the jaw of the forceps reached, it was impossible to see if the vagus was caught at the same time as the vein; but there was no immediate evidence of trouble and the anesthesia continued to be normal. The carotid was seen to be uninjured. A tracheotomy was then done, preparatory to a subsequent laryngectomy for removal of the primary growth. A few hours later the patient was found to have pneumonia affecting the lower half of the left lung and beginning paralysis of the right half of the body. The following morning hemiplegia was complete, there was incontinence of urine and feces, and coma was absolute. The patient died within less than forty-eight hours after operation. Autopsy could not be obtained. Guibal believes that the section of the pneumogastric was the principal factor in the development of the pulmonary lesions and that the hemiplegia was due to some anomaly in the intracranial circulation. In support of this latter conclusion he cites a number of instances where autopsy after jugular ligation revealed incomplete development of intracranial venous channels or of the other jugular.

This résumé of some of the most important contributions to the literature should make it clear that operative injuries of the pneumogastric or ligation of the internal jugular may cause death; that while it is true that the vast majority of such cases survive, it is impossible to foretell the outcome in any given case; and that extreme care should supplant indifference in handling these structures.

## INFLUENCE OF THE INTERNAL SECRETIONS UPON FEMALE CHARACTERISTICS AND FUNCTIONS.

In a paper read before the Clinical Congress of the Surgeons of North America, at Chicago, on November 14, Roswell Park said that the internal secretions, so often spoken of as hormones, exercised an apparently controlling influence on many of the organs and functions, and this not alone on the ordinary body functions, but on the nutrition and regulation of individual organs and their particular activities even to the extent of becoming responsible for the development of certain mental traits or personal characteristics which make or mar the individual and thus affect both his physical and intellectual welfare. The importance of the internal secretions is beginning to be recognized and further studies in this direction with consequent discoveries bid fair to revolutionize the practice of medicine. In every country of the world investigations with regard to this question are going on and a more intelligent comprehension of the part played by the internal secretions in developing and influencing the bodily functions and mental characteristics is slowly but surely filtering through the consciousness of the medical profession at large.

On November 6 a particularly interesting discussion took place at a meeting of the Section of Obstetrics and Gynecology of the Royal Society of Medicine in London (*Lancet*, November 22, 1913). W. Blair Bell of Liverpool read a paper dealing with the relation of the internal secretions to the female characteristics and functions in health and disease. He first pointed out that from a broad standpoint femininity itself is entirely dependent on the internal secretions acting in correlation. In considering the more purely morphological and physiological aspects of the matter, the production of the female characteristics, primary and secondary, was traced to the internal secretions, and this statement was supported by facts. The paper dealt with the whole question exhaustively and was a contribution of some note to the literature concerned with the internal secretions.

Louise McIlroy of Glasgow continued the discussion and in conclusion gave it as her opinion that it was a happy augury for future work that there should be so much collaboration between the laboratory worker and the clinician. She drew attention to the fact that much confusion as to the function of the ductless glands arose from want of proper comparison of the variation in different species of animals and of the human subject. The secretory organs modified sex development, but did not cause the assumption of secondary characteristics, as these would probably be found to be due to cell development in very early embryonic life.

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### The Insanitary Waiting Room.

In this age of advanced sanitation, in which the gospel of health is being continually preached, it is curious to note how frequently its tenets are disregarded. This is especially the case in rural districts, where even such mighty corporations as railroad

companies are constant sinners. Attention is drawn to this fact in Public Health Reports, October 10, 1913, in which it is pointed out how seldom the waiting rooms used by passengers are kept in a wholesome sanitary condition. Such places are generally the loafing haunts of the unemployed, who aid in vitiating the air and not uncommonly spread the germs of infection by promiscuous expectoration. Further, the toilet arrangements are usually deplorable and lacking in ordinary decency as well as sanitary precautions. The bad condition of toilets attached to waiting rooms is perhaps in the majority of instances not due to the negligence of the transportation companies, but is owing rather to the want of public conveniences which compels many to use the waiting room toilets. The scarcity of public conveniences in America installed and operated by municipalities or public bodies is a blot on the sanitary fair fame of the cities as well as of the rural districts of the country. In all parts of Great Britain and in many parts of Europe municipal lavatories are maintained in cities and towns, in which at a very small cost a person can have the use of a scrupulously clean toilet and is also afforded facilities for washing. The plea for sanitary waiting rooms in America will find an echo in the hearts of all those who travel in any part of this continent.

### Unbaked Eugenic Legislation.

At a recent meeting of the Milwaukee, Wis., Medical Society, it was agreed that for the prescribed fee of $3 it was impossible for physicians in the State properly to conduct the medical examinations required under the new marriage law before the issuance of a marriage license, and a committee was named to lay the matter before the State Board of Health. The law, which went into effect on January 1, 1914, provides that all applicants for marriage licenses must prove their physical fitness by the production of a physician's certificate, and prescribes a fee of $3 to be paid to the physician, though the cost of performing all the necessary tests is very much more than that amount. Unless arrangements can be made by which the tests can be carried out by the State Department of Health it would seem that weddings in Wisconsin may be very much decreased. The law makes it a felony for any couple to leave the State and be married in an adjoining State. The danger of such a law lies in the possibility that it may prove a boon for those who are willing to issue a certificate for the small fee without making the necessary and complete examinations of the applicant. Before ignorant law-makers and sensational clergymen begin playing with eugenics it would be advisable for them to inform themselves regarding this new science—what it is and how much or how little is to be hoped from it.

## News of the Week.

**Civil Service Examinations.**—Competitive examinations for the positions mentioned below will be held in various cities throughout New York State on January 17, 1914. Applications blanks may be obtained before January 7 by addressing the State Civil Commission, Albany, N. Y. No applications received at the office of the Commission after January 9 will be accepted.

Physician, regular. This examination is intended to provide eligibles for the position of assistant physician and other medical positions of similar grade in the State hospitals, etc., at an entrance salary of $1,200, increasing $100 each year to $1,600, with maintenance. A vacancy exists in the position of resident at the West Haverstraw Hospital for the Care of Crippled and Deformed Children.

Woman physician in State hospitals and institutions. A vacancy exists in the position of resident at the Western House of Refuge, Albion, N. Y., at a salary of $1,000, increasing to $1,200 per year and maintenance. Open to licensed medical practitioners of New York State, of either regular or homeopathic schools, with one year of hospital work or three years general medical practice.

Medical Inspector of Factories. Open to licensed practitioners of New York State, both men and women. Appointments of a Chief Medical Inspector at $3,500, and two medical inspectors at $2,500, one of these to be a woman, will be made.

Coroners' Physician, East Side, Monroe County, at $150 per annum. Candidates must be legally licensed medical practitioners and residents of Monroe County. They will not be required to appear for written examination, but will be rated on experience and personal qualifications as shown by sworn statements to be submitted.

**Broome County Tuberculosis Hospital.**—The Board of Supervisors of Broome County, New York, by a vote of 23 to 5, has decided to take over the Mountain Sanatorium property of Binghamton City Hospital, and hereafter will conduct the institution as a county tuberculosis hospital. The property comprises thirty acres of land and is valued at $10,000.

**Dr. Henry Winston Harper,** M. D. University of Virginia, 1892, and professor of chemistry in the University of Texas since 1894, has been made first dean of the Graduate Department of the University.

**Post-Graduate Hospital.**—The annual report of the New York Post-Graduate Hospital gives the number of patients treated in the hospital during the year as 7,518 and the total number in all departments as 53,308, of which 4,253 were free cases. There was a large increase in the number of physicians taking courses of study at the school.

**New York's Good Health.**—For the first eleven months of the year the following vital statistics have been given out by the Department of Health of New York City. The total number of deaths reported was 67,694, giving a death rate of 13.78 per thousand of population, as against a total of 66,714 and a rate of 14.10 for the same period of 1912. Among the causes of death showing decreases in number are tuberculosis of the lungs, 305; other forms of tuberculosis, 26; diarrheal diseases in children under five years of age, 609; typhoid fever, 149; lobar pneumonia, 146; measles, 76; acute bronchitis and bronchopneumonia, 18. The causes of death showing increases are organic heart disease, 447: diphtheria and croup, 175; whooping cough, 133; influenza, 83; cancer, 28. Not a single death from smallpox was reported.

**Another Centenarian.**—"Granny" Deese, probably the oldest inhabitant of Alabama, celebrated her 107th birthday at her home in Mobile on December 27.

**Crocker Laboratory.**—The work of cancer research was begun on January 1 by the staff of the George Crocker Special Research, Columbia University, in the new Crocker Laboratory at 116th street and Amsterdam avenue. The building, erected by the university solely for research work, is admirably equipped and provides ample room for a large staff of workers. Dr. Francis Carter Wood, director of Cancer Research, is in charge of this department of the university.

**Cancer Clinic.**—At the General Memorial Hospital for the treatment of Cancer and Allied Diseases, 106th street and Central Park West, New York, Dr. William B. Coley and Dr. William A. Downes will hold a clinic for the diagnosis and treatment of operable and inoperable malignant disease, on Thursday afternoons, at 2:30.

**Gibbs Prize.**—The committee in charge of the Edward N. Gibbs Memorial Prize Fund announces that the selection of the worker under the fund for the year 1914 will be made about February 1 and requests that candidates for the award send in their applications, together with a statement of their fitness to pursue the investigations, including the laboratories in which they have studied, and any researches conducted by them, so that the committee may be guided in its selection. This fund was established by the wife and daughter of the late Edward N. Gibbs, and the income, amounting to about $500, is used in aiding investigations into the cause and treatment of diseases of the kidney. The recipient is chosen annually. Applications may be sent to the Committee of the Gibbs Memorial Prize Fund, New York Academy of Medicine, 17 West 43d street, New York.

**National Conference on Race Betterment.**—This conference will be held at Battle Creek, Mich., on January 8 to 12, 1914, under the presidency of Dr. Stephen Smith of New York. Morning and evening sessions will be held at the Battle Creek Sanitarium, for which a long and interesting programme has been prepared. Moving picture and lantern slide exhibitions have been arranged, and there will also be exhibits from the National Child Welfare Committee of New York City, the Association for Study and Prevention of Infant Mortality of Baltimore, and the Michigan State Board of Health and Tuberculosis Society. An ample fund for the maintenance of the conference having been provided by a friend of the Race Betterment Movement, there are no dues or assessments in connection with membership in the conference, and it is also possible to offer entertainment without charge to 200 officially invited guests at the Battle Creek Sanitarium. Further details may be obtained by addressing the secretary, Miss Emily F. Robbins, Battle Creek, Mich.

**Charitable Bequests.**—The Memorial Hospital, Pawtucket, receives a bequest of $10,000 by the will of Mrs. Sarah Goff Steele of that city.

Bequests of $5,000 each to St. Vincent's Hospital, Sanitarium Gabriels, the Servants of Relief of Incurable Cancer, and Seton Hospital, New York, are made in the will of Francis Higgins of New York, who died on November 15.

Mt. Sinai Hospital received $10,000 and the Montefiore Home, New York, $2,500 by the will of Samuel H. Spingarn of this city.

The Hahnemann Hospital, New York, receives, subject to the life interest of certain beneficiaries, a share in the residuary estate of Mrs. E. M. Raymond of this city, who died on November 27. The amount of the bequest is not stated, but is said to be large.

A bequest of $5,000 to the Nyack Hospital, Nyack, N. Y., is contained in the will of Mr. N. B. Cushing of that city, who died a few weeks ago.

By the will of the late Miss Susan Gorgas of Philadelphia, the sum of $5,000 is bequeathed to the Chester County Hospital, and the residue of the estate to the Roxborough Home for Indigent Women, a charity founded and largely supported by the decedent.

By the will of the late George W. Lees of Philadelphia, an estate of $9,000 is left in trust to brothers and sisters, on whose death the sum of $5,000 is bequeathed to the Methodist Hospital.

**Diphtheria Closes Hospital.**—The Nassau Hospital, Mineola, N. Y., was temporarily closed on December 14, because of an outbreak of diphtheria among the nurses of the institution.

**For London Hospitals.**—By the will of Sir Julius Wernher, the South African diamond merchant who died in 1912, the London hospitals benefit to the amount of $2,325,000.

**The Panama Exposition.**—Medicine and Surgery are to receive special attention at the Panama-Pacific Exposition at San Francisco in 1915. One feature will be a presentation of the methods with which the mosquito was fought, the application of the especially devised sanitary process by which Dr. Gorgas and his men were victorious in their struggle with malaria and the deadly fevers of the tropics. Another interesting medical exhibit will be the Emergency Hospital, the equipment being provided entirely by exhibitors. This will be under the direction of Dr. R. N. Woodward, of the United States Public Health Service, and will include the very latest and finest specimens of hospital equipment. It will be used for the emergency treatment of visitors to the exposition.

**Care of Feeble-Minded.**—A recent report of the New York State Board of Charities places the number of idiots and feeble-minded persons in need of care in the State at about 30,000, and adds that there are present available accommodations for about 4,000 only. The report urges the building of additional institutions as soon as possible.

**Radium Work at Harvard.**—Dr. William Duane, formerly a coworker of Mme. Curie, has been appointed assistant professor in the division of physics in Harvard University, where he will study the physiological action of radio-active substances.

**For Radium Institute.**—The taking over by the United States Government of all the deposits of radium-bearing ore in this country, and the establishment of a Federal institution for the production of radium and its distribution to physicans for the treatment of cases of cancer, has recently been suggested.

**Travel Study Club.**—The physicians who made a study tour of Europe last year under the chairmanship of Dr. William B. De Garmo of New York, have organized into a permanent body to be known as "The Travel Study Club of American Physicians." At a recent meeting a constitution and by-laws were adopted, and the following officers were elected: *President*, Dr. Louis Livingston Seaman, New York; *Vice-Presidents*, Dr. W. B. De Garmo, New York; Dr. Edward B. Heckel, Pittsburgh, and Dr. Howard Van Rensselaer, Albany; *Secretary-Treasurer*, Dr. Richard Kovacs, New York. The club plans a tour in 1915 to the

meetings of the American Medical Association, the San Francisco Exposition, Honolulu, the Philippines, China, and Japan.

**Cold Storage Signs.**—The State Commissioner of Health of New York recently issued a regulation providing that in future cold storage goods in New York State must be sold and advertised as such. All persons and firms retailing cold storage products must display prominently a card bearing the notice to consumers that cold storage goods are sold on the premises. The regulation also makes it unlawful to remove from packages containing foods from cold storage the stamps showing when the articles were placed in storage and when they were taken out.

**Hospital Ship to Mexico.**—The U. S. Hospital ship Solace has been ordered to Mexican waters in order to care for the sick on the battleships stationed there.

**Reward for Triplets.**—The Board of Supervisors of Orange County, Cal., has made a standing offer of a reward of $100 for each set of triplets born in the county.

**Medical Society Elections.**—St. Clair County (Ala.) Medical Society: Annual meeting at Odenville on December 4. Officers elected: *President*, Dr. J. W. Woods, Springville; *Vice-President*, Dr. R. L. McLellen, Easonville; *Secretary-Treasurer*, Dr. J. R. Chandler, Odenville.

Jefferson County (Ark.) Medical Society. Annual meeting at Pine Bluffs on December 3. Officers elected: *President*, Dr. T. W. Woodul; *Vice-President*, Dr. E. C. McMullen; *Secretary-Treasurer*, Dr. J. T. Palmer.

Jackson County (Ark.) Medical Society: Annual meeting at Newport on December 2. Officers elected: *President*, Dr. Ira H. Erwin; *Vice-President*, Dr. L. T. Slayden; *Secretary-Treasurer*, Dr. H. O. Walker.

**Obituary Notes.**—Lieutenant-Commander William M. Wheeler, Surgeon, United States Navy, a graduate of the University of Virginia, Department of Medicine, Charleston, in 1895, and a member of the American Medical Association, and the Medical Society of the District of Columbia, died at the Naval Hospital, Washington, after a long illness, on December 14, aged 39 years.

Dr. Thomas J. McCloskey, formerly of Beloit, Wis., a graduate of the St. Louis College of Physicians and Surgeons, in 1899, and a member of the State Medical Society of Wisconsin and the Lafayette County Medical Society, died at the home of his sister in Dubuque, Ia., after a long illness, on November 28, aged 53 years.

Dr. Amos Henry Elliott of Brooklyn, N. Y., a graduate of the New York Homeopathic Medical College and Hospital in 1888, and a member of the American Institute of Homeopathy and the New York State Homeopathic Medical Society, died suddenly at his home on December 12, aged 73 years.

Dr. John W. Staples of Franklin, N. H., a graduate of the University of Vermont, College of Medicine, Burlington, in 1880, and a member of the American Medical Association, the New Hampshire Medical Society, of which he was at one time president, and the Merrimac County Medical Society, died suddenly at his home on December 11, aged 58 years.

Dr. Arthur Fisher of Montreal, Can., Licentiate of the Royal College of Surgeons, Edinburgh, in 1880, died at his home on December 3, aged 67 years.

Dr. Rockwood Sager of Rockford, Ill., a graduate of the Rush Medical College, Chicago, in 1879, and a member of the Illinois State and Winnebago County Medical Societies, died at his home recently, after a short illness.

Dr. Lee O. Rogers of Newton, Ia., died suddenly at his home on December 4, aged 69 years.

Dr. Thomas Marshall Huntington of Amesbury, Mass., a graduate of the Bellevue Hospital Medical College, New York, in 1883, was struck and instantly killed by a freight train at the Newburyport station of the Boston & Maine Railroad, on December 9, in the 54th year of his age.

Dr. Thomas E. Parke died at East Downingtown, Pa., on December 13, at the age of 62 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1871. He was for many years president of the Dime Savings Bank of Chester County and a director in the Chester County Trust Co., and the Downingtown National Bank. He was for five consecutive terms burgess of Downington.

## Obituary.

### GEORGE HENRY TORNEY, M.D.,

SURGEON-GENERAL, UNITED STATES ARMY.

Surgeon-General George Henry Torney died at his home in Washington, after a short illness, from bronchopneumonia, on December 27. Dr. Torney was born in Baltimore in 1850 and was graduated from the University of Virginia, Department of Medicine, Charlottesville, in 1870. His first service was in the navy, to which he was appointed in 1871. Resigning from the navy in 1875, he was immediately reappointed in the army as assistant surgeon, and was promoted rapidly until he reached the rank of Major and Surgeon in 1895, Lieutenant-Colonel Deputy Surgeon-General in 1903, Colonel in command of the Medical Corps in 1908, and Surgeon-General of the Army in January, 1909. During his service he did duty both in Cuba and in the Philippines. He was a member of the American Medical Association, the Medical Society of the District of Columbia, and the Association of Military Surgeons of the United States, and chairman of the War Relief Committee of the American Red Cross.

### ALFRED E. M. PURDY, M.D.,

NEW YORK.

Dr. Alfred E. M. Purdy died at his home in this city on Christmas Day, after a short illness, aged 75 years. Dr. Purdy was graduated from the College of Physicians and Surgeons, New York, in 1861, and directly thereafter was appointed an assistant surgeon in the United States Army, serving on the staff at Fort Schuyler. In 1870 he was appointed a surgeon on the New York police force, and later became chief surgeon, in which position he remained until 1880. He was for many years editor of the "Medical Register," now the "Medical Directory of New York, New Jersey and Connecticut," and was one of the organizers and at the time of his death consulting physican of the Methodist Episcopal Hospital and Home, Brooklyn. He was also a life member of the New York Pathological Society, and a member of the New York Academy of Medicine, and the New York State and County Medical Societies.

## Correspondence.

### LUNDVALL'S REMEDY FOR DEMENTIA PRÆCOX.

To the Editor of the Medical Record:

Sir:—The prognosis in dementia præcox has been and is almost uniformly unfavorable. In the State of Massachusetts only one out of each 1,500 admitted to the State hospitals with this diagnosis during seven years recovered. The systematic writers give a rather better prognosis, allowing that anywhere from one to eight in each hundred recover with some defect. The cause of this insanity of adolescents is absolutely unknown. The pathological findings are trifling and for the most part neglected. The duration of the disease is long, averaging more than ten years. These unhappy, often starving, creatures of our neglect make up more than 60 per cent. of the asylum population.

Thirty years ago Savage noticed that many mute and inactive cases of dementia præcox became awake to their condition, took an interest in their surroundings, and voluntarily talked with their attendants during the progress of a febrile disease such as typhoid fever or erysipelas, and that some of these patients went on to complete psychic and physical recovery. Boody estimated that one-fourth of the insane patients in two epidemics of typhoid at the Asylum for the Insane at Independance, Iowa, made temporary mental improvement and at least two remarkable cases recovered so completely that they returned to their professions, one to law and one to engineering. Wagner and Lehmann (1887) gave their similar experiences and reversed the existing literature, and since that time scarcely a year has passed without some valuable contribution on the same subject, recounting the experience of the author in confirmation of the thesis, that *the febrile diseases often exert a temporary or even a permanent betterment on the psychic and physical condition of dementia præcox patients.*

One of the earliest studies of the blood of the insane was the work of W. L. Lindsay (1854), but little was accomplished until the strong presentation of L. Bruce in his popular "Studies in Clinical Psychiatry" (1906) in directing attention to the leucocytosis and polycythemia that marks the remissions and exacerbations of dementia præcox. He noticed that hyperleucocytosis was present in improvement and leucopenia in deterioration. Dide, Chénais, Donath, Lepine, and Popoff in France, Galdi, Pighini, Sandri, and Paoli in Italy, Ellermann and Erlandssen, Lindhard and Lundvall in Sweden, continued these researches and developed as clear a blood picture characteristic of dementia præcox as the long recognized blood picture in typhoid fever is of that disease. This finding is now to be known as "the blood crisis" of Lundvall (see *Hygiea*, 1907).

Only during the last ten years has the pathognomonic pupillary symptom complex of dementia præcox attained recognition. This phenomenon is often referred to as "Westphal's pupillary stare." but Weiter, Huber, Sioli, and Oswald Brumke have extended Westphal's observation and shown that not alone in advanced cases of catatonia but also in early cases of dementia præcox there is in more than six-tenths of the cases a characteristic pupillary complex in which the pupils are widely dilated and the normal pupillary unrest and the normal reaction to touch are absent while all the time light reflex remains present and normal. The pupils assume a drop-shaped or slit-like form under myosis. One pupil is sometimes alone affected. The cyanosis and dilatation of blood-vessels present a strong argument for the toxic nature of dementia præcox.

Early in 1912 the epoch-making little book of Emil Abderhalden appeared with his new method of organic synthesis. It is best known to physicians by its application in the diagnosis of pregnancy. This remarkable method has, however, been applied in the diagnosis of dementia præcox and epilepsy. In this short time Fauser and Wegener and several other investigators report a most uniform differential reaction between dementia præcox and manic depressive insanity.

With these growing indications, almost demonstrations of the physical and toxic etiology of dementia præcox, it is no wonder that efforts have been repeatedly made to bring about artificially the hyperleucocytosis which attends the improvement of these patients in their attacks of typhoid and other febrile diseases. The nucleates of sodium have been used by Donath, Fischer, Ittan, and Lundvall. On nine patients Ittan* used subcutaneous injections at intervals of ten days or less of 50 c.c. of a 1 per cent. solution of the nucleate of sodium; chills, fever, and leucocytosis followed, and in two cases betterment. One patient, mute for twelve years, volunteered conversation and played chess. Lundvall† after giving a full account of his studies of the blood and a careful outline of his technique proposes a more concentrated solution of the nucleates with sodium cinnamate and arsenic. The plates consist of charts showing the blood reaction to the injections which were given after protracted study of the blood of the same patient before treatment began. The differential white count is made on a study of thousands. He recommends the injection subcutaneously of 2 to 15 c.c. of the following sterilized solution at intervals, corresponding to the duration of the reaction, of four to twenty days: Sodium nucleinate, 10.000; arsenous acid, 0.005; sodium cinnamate, 1.000; distilled water, 40.000.

While there is sometimes pain at the point of this injection which is much relieved by hot applications, no abscesses were produced in several hundred cases injected by Lundvall. A few hours after the injection there is a chill more or less pronounced, and the temperature rises two or more degrees. The leucocytin increases correspondingly, but sometimes the leucocytes increase without high temperature or the hyperleucocytosis remains after the temperature subsides. None of the patients were made worse by the treatment.

In his thesis Lundvall reports eighteen cases in considerable detail. Of these eight cases of dementia præcox recovered, some of them rapidly, some slowly, but all quite completely; five or six made remarkable improvement. Of the remaining five cases only three, and these of doubtful diagnosis, showed no improvement.

Lundvall's patients were not selected from the very early or favorable cases, but were those in whom he had been able to follow out a long series of observations on the changing blood picture. He

*Ittan, W.: Heilversuche mit Neuclen-injidion bei Schrzophrenie. *Zeitschr. f. d. g. Neur. u. Psych.* Vol. 7, 1911, p. 384.

†Lundvall, Halvar: Uber Blutseränderungen bei Dementia præcox nebst einen Versuche einer Art spec. Therapie. *Tidsskrift for Nordisk Retsmedicin og Psykiatri*, Vol. 10, 1912, pp. 227-306. 30 plates and figures.

lays much stress upon the technique of the examinations, and presents twenty-nine charts illustrating the findings in these patients covering long periods of observation. It is too much to believe that we have in Lundvall's remedy a method of curing dementia præcox, but his modest report certainly commands us to investigate in our crowded institutions a method which has proved successful in 40 per cent. of a most unpromising series of confirmed patients.

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## OUR LONDON LETTER.

(From Our Regular Correspondent.)

TREATMENT OF GUNSHOT WOUNDS—NON-CANCEROUS TUMORS OF THE STOMACH—FISHBONE IN STENO'S DUCT—BISMUTH MEALS—NOTIFICATION OF DISEASE—LISTER MEMORIAL—OBITUARY.

LONDON, December 12, 1913.

THE Bradshaw lecture for this year was duly delivered on the 5th inst. at the Royal College of Surgeons. Mr. G. H. Makins, vice-president, was the lecturer and he took for his subject "Gunshot Wounds." He was supported by many fellows and members, a good proportion of them being connected with the Red Cross Society and the Royal Army Medical Corps. Mr. Makins devoted the lecture to gunshot wounds of small caliber—bullets in fact—respecting which he remarked that a single battle offered more experience and that of a more various kind than years of laboratory or experimental work. So large was the subject that he would restrict himself mainly to a consideration of the wounds of one set of structures—the arteries. The last decade had furnished us with some remarkable evidence of the amenability of the wounded vessel to methods of treatment other than obliteration by application of a ligature. Changes have taken place in the form of bullets which have brought about other modifications. The most striking danger during the last decade was perhaps the introduction of the pointed bullet by some powers. This alteration in the outline of the bullet is designed to overcome the resistance offered by the air to its progress and so obtain a greater velocity in its flight as well as more striking power on impact. But these advantages are obtained at the expense of the consequent shifting backwards of the center of gravity of the bullet and this in turn increases the difficulty of maintaining its flight parallel to its long axis. Some experimental work has seemed to show that this last character would result in a more serious wounding capacity, since slight inaccuracies of impact will suffice to cause a sudden somersault of the bullet and consequently a greatly increased surface of resistance to its entry into the body with a widening of the area of tissue destruction. The lecturer mentioned a peculiarity of practical importance that had been observed as to these pointed bullets when retained in the tissues. That was a tendency to travel such as needles have long been known to display. The new bullet possessing a sharp point has greater penetrating power than its predecessors and makes narrower, cleaner perforations. The wound made by it differs from that caused by the older missile much as does one caused by a sharp instrument differes from that produced by a blunt one.

At the Royal Society of Medicine on the 25th ult. two cases of tumors of the stomach, non-cancerous, were described and specimens shown by Drs. Gossage and Braxton Hicks, who considered one fibromyoma and the other fibrosarcoma. They were admitted into hospital suffering from hematemesis, rather an uncommon cause of death in gastric tumor of this class. They were too ill for surgical measures to be undertaken.

Mr. Newton Pitt showed a case of recurrent distention of the parotid gland due to calcification round a fishbone retained for over a year in Steno's duct. The patient was a man of fifty-eight who thought he felt it stick in his throat, but though the symptoms abated some discomfort persisted and the right parotid had swollen up several times. Sir A. Lane had suggested there might be a calculus in the duct. An *x*-ray picture gave a shadow in the line of the duct behind the edge of the masseter and slightly bifurcated in front. Exploration from inside being without result the gland was cut down upon. No calculus was found but the duct seemed thickened and atheromatous. A tube was passed down the duct and out of the month and the wound closed. After healing the swelling recurred from time to time, the tube came out, and on the fourteenth day the wound broke down and on the eighteenth an elongated shell of bone was extruded, the anterior end of which was bifurcated and so prevented movement except upwards. Dr. Pitt observed that foreign bodies in the salivary ducts were rather rare. He only found records of twenty-seven in Wharton's duct, nineteen in Steno's, and two in the sublingual. Straw or blades of grass were found fourteen times, fishbones seven, bristles six, ears of corn five, feathers three, fruit seeds and splinters were removed twice, while a piece of toothpick, another of chestnut, a hair, and a shot had each furnished one case.

At the Section of Electrotherapeutics Dr. R. Morton opened a discussion on the technique and standardization of bismuth meals, with the object of getting comparable results. He had found that meals were being given by different radiologists of very various description—one of 5 oz. containing 2 oz. of bismuth, another of 20 oz. with 1½ bismuth—all agreed that it should be as palatable as possible. Those using 20 oz. found some difficulty in getting it all taken. Quite one-half those asked were using a 10 oz. meal with 1 to 4 of bismuth or barium, the average being 2 oz. A minority preferred barium as requiring so much less. A light form of bismuth carbonate which remained suspended in water for some time had been put on the market and its shadow seemed as dense as the heavy form. It was said that oxychloride did not neutralize the gastric juice as carbonate did. Two-thirds of his informants spoke of bread and milk as a medium of suspension, others porridge, blanc mange, etc. In France gum solutions were used and in America buttermilk. His idea of the meal was: 2 oz. bread crumb cut small, on which was poured 8 oz. of boiled milk, into which had been stirred 2 oz. bismuth carb. or oxychlor. (or 3 oz. of barium sulph.). Sugar to taste. He would order an aperient thirty-six hours before, and an enema the same morning of the examination, the bismuth meal taking the place of the usual breakfast. No other meal for four hours after the bismuth. His correspondents had examined 2, 4, 6, 12, 24 and 36 hours after it. He proposed the appointment of a committee on which Dr. Hertz should be asked to serve on account of his work on the subject, and this was agreed to. Dr. Morton to be

convener and Drs. Scott, Barclay, and Jordan to act with him and Dr. Hertz, with power to add others. In a note sent to the secretary, Dr. Hertz warned against subnitrate of bismuth, which had caused poisoning. Even carbonate was a depressant of peristalsis. Oxychloride was the only bismuth salt inert in the stomach. Barium sulphate was quite as useful for *x*-ray work. The smallest quantity which would answer should be used as distortion was caused by the heavy salt. He used 2 oz. of barium added to a 4 oz. meal and discontinued aperients at least forty-eight hours before the first examination. Each morning an effort at defecation should be made and the ordinary diet continued so that the examination might be made under the ordinary condition of the canal.

The Harveian Society had a discussion on the 27th ult. respecting the proposed registration and notification of venereal diseases. Dr. R. Dudfield was in favor of the proposal, but he was alone, and seven other speakers were opposed to it. One of them drew attention to the fact that no indication had been held out that medical men would be protected against the consequences of breach of confidence or errors of diagnosis.

To the Lister Memorial it is proposed to give a threefold form—a simple medallion bearing a sculptured portrait to be placed in Westminster Abbey, a larger monument in some public position in London, where he lived and worked in the later years of his life, and if the amount subscribed suffice, the foundation of an international fund to make grants in aid of researches bearing on surgery and awards in recognition of important contributions to surgical science.

Dr. Inspector-General T. J. Preston has died at the age of 66. He entered the navy in 1873 and rose to be fleet surgeon in 1894, having served at Alexandria in 1882, and afterward in the Egyptian War to the surrender of the Aboukir and Saretta forts. He was awarded the Medal and Clasp and the Khedive's Star, and in 1888 the Sir Gilberg-Blane Gold Meal. He retired in 1902.

Dr. Richard Macartney, Coroner for the Forest of Dean since 1907, died on the 6th inst. He was born in Ceylon in 1861.

## Progress of Medical Science.

### Boston Medical and Surgical Journal.

*December* 18, 1913.

*Memorial Meeting: Reginald Heber Fitz, M.D., LL.D.*

1. Dr. Fitz's Services to Surgery. W. W. Keen.
2. Dr. Fitz's Contribution to Pathology. W. T. Councilman.
3. Dr. Fitz as a Teacher. W. S. Thayer.
4. Dr. Fitz's Association with the Massachusetts General Hospital. Henry P. Walcott.
5. Dr. Fitz's Service to Medical Education. Charles W. Eliot.
6. A Symposium on the Reportability and Control of Venereal Diseases. S. L. Strong.

**1. The Late Dr. Reginald H. Fitz.**—W. W. Keen reviews the important contributions made to surgery by the late Dr. Fitz. In 1886 he first named the disease now so familiar under the name of appendicitis, established its origin from the appendix, elaborated its diagnosis and indicated on broad lines its proper treatment. In 1889 he classified and clarified the knowledge of pancreatitis, a disease at that time emerging from obscurity into concrete form as a surgical entity. He reviewed the reciprocal relations of the physician and the surgeon, encouraged their hearty cooperation and laid a restraining hand on the sometimes too radical tendencies of the surgeon. By his personal relations and influence as a consultant and teacher, he rendered signal service both to medicine and to surgery by advocating surgical treatment to his laggard brother physicians and by pointing out the safest path to the surgeons.

**6. The Control of Venereal Diseases.**—S. L. Strong made a canvass of fifty physicians in different parts of the country, requesting their opinion as to the advisability of reporting venereal diseases. He concludes from this inquiry that as to belief in the reportability and control of venereal diseases by boards of health a majority of physicians believe in it at the present time. On the matter of practical adaptation and enforcement the profession is about equally divided, the prevailing view being that more efficient means of treating these diseases in hospitals must be provided before such a move can be taken. Venereal diseases cannot probably be controlled to the same degree as smallpox, scarlet fever, diphtheria, etc., for some time to come. The desirability of gathering more accurate statistics regarding the efficiency of the treatment of venereal diseases is widely recognized. This should be done by societies already existing or by the formation of new organizations with this special object.

### New York Medical Journal.

*December* 20, 1913.

1. The Question of Diabetes at the International Congress of Medicine in London. R. Lépine.
2. Orbital Abscess from Infection Through the Ethmoid. J. O. Roe.
3. Epilepsy. E. H. Mullan.
4. The Bacteriology of Pyorrhea Alveolaris. C. P. Brown.
5. The Mechanotherapeutics of Acute Croupous Pneumonia. E. F. Cyriax.
6. Cerebrospinal Fluid and Its Diagnostic Significance. A. I. Rubenstone.
7. Pellagra in Maine. E. W. Gehring.
8. Atypical Infantile Paralysis. F. L. Wachenheim.

**1. Diabetes.**—R. Lépine refers to the practical importance of decreased glycolysis as an essential factor in the disturbed metabolism that results in diabetes. In certain forms of diabetes there is an exaggerated formation of sugar at the expense of the amino-acids. The view of the decrease of glycolysis in diabetes affords an important therapeutic indication—that of increasing glycolytic activity. Diet is not the sole means of accomplishing this. The diabetic patient must be thoroughly examined, every abnormality of nutrition sought out, and an attempt should be made to restore the nutritive state to normal. Diet is essential in the treatment of diabetes; but generally there is something to be ordered besides. To throw aside all medicinal measures is a mistake; not that there exists at this time any specific for the disease, but because this or that drug may correspond to some indication in a given individual. For example, the author has observed a patient who could not do without quinine, though he was not malarial. Another patient may do well on opium, etc. The utility of the alkalies is generally recognized; physical agencies should not be entirely overlooked. It is well known that glycosuria is increased by a low surrounding temperature, and that a moderate degree of heat decreases it. Climatotherapy may be resorted to in some cases with advantage.

**2. Orbital Abscess from Infection Through the Ethmoid.**—J. O. Roe notes that the intimate and important relations existing between the ethmoid labyrinth and the orbital cavity are well illustrated in the cases of orbital abscess resulting from an acute extension of an ethmoid infection. He reports two of these cases. This intimate relation is also shown in the frequent disturbances of vision that result from nerve irritation, reflected from the nose to the retina and to the ocular muscles—this irritation being caused by intranasal pressure, the result of various diseased conditions of

the turbinate bodies and of the accessory sinuses. Onodi has clearly shown how this takes place through the anatomical connection of the two regions. Notwithstanding the fact that many cases of visual defects and disturbances from nasal and accessory sinus diseases are reported by different observers, the subject is not given the attention it should receive. Many chronic visual defects and also many chronic headaches that are attributed to these visual defects go unrelieved because the fundamental cause of the disturbance in a large proportion of cases remains unrecognized. The author's two cases of ethmoid disease in the acute form, illustrating this intimate association of the ethmoid sinuses with the orbital cavity, are of special interest, the first one particularly so because it illustrates not only the readiness with which ethmoid diseases may extend to the orbit, but also the ease with which the orbital cavity can be reached and abscesses of this region opened by the nasal route.

4. **Bacteriology of Pyorrhea Alveolaris.**—C. P. Brown has isolated a large number of organisms in a series of cases of pyorrhea alveolaris, but is unable to attribute to any one germ an etiological rôle in this condition. Plain or serum agar, plain or serum bouillon, or Loeffler's blood serum mixture is not the best culture medium for studying diseases of the mouth and of the respiratory passages. Blood agar is the best culture medium for work of this kind because the hemophilic bacteria grow only upon this medium; in addition to this a number of types of streptococci can be differentiated at once by the appearance of the colonies. A vaccine for the treatment of pyorrhea should contain all the organisms isolated in a given case. Before one may draw final conclusions on this subject a study of the possible association and rôle of anaerobic bacteria is necessary.

7. **Pellagra in Maine.**—E. W. Gehring reports three cases of this condition which he has observed in Oxford County, Maine, during the past spring and summer. These cases, together with others recently reported, fail to establish the etiology of the disease, but they confirm the belief that pellagra is not a disease peculiar to tropical regions. The author's patients had never been out of the State and had lived continuously in Oxford County, where they had been born. All had gastrointestinal symptoms and typical skin lesions, but only two presented any mental abnormality. In two of the patients mental symptoms preceded those of the gastrointestinal tract and skin, whereas in the third, although the skin looked as if painted with iodine, and diarrhea was a distressing symptom, the mind was not affected.

8. **Atypical Infantile Paralysis.**—By F. L. Wachenheim. (See MEDICAL RECORD, November 15, 1913, page 913.)

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**Journal of the American Medical Association.**

*December 20, 1913.*

1. Treatment of Pneumonia with Partially Autolyzed Pneumococci. E. C. Rosenow and L. Hektoen.
2. Entericoid Fever—Febris Entericoides. D. Riesman.
3. The Treatment of Hemoptysis in Pulmonary Tuberculosis. N. B. Burns.
4. Ship-Borne Cholera. The Sea as a Factor in the Transmission of Asiatic Cholera. C. V. Craster.
5. The "Wassermann-Fast Tabes": A Serologic Precursor of Taboparesis. D. M. Kaplan.
6. An Experimental and Clinical Study of Internal Hydrocephalus. W. E. Dandy and K. D. Blackfan.
7. Some Recent Conclusions on Abdominal Roentgen-Ray Work. A. Bassler.
8. The Treatment of Paralysis of Anterior Poliomyelitis. H. W. Frauenthal.
9. The Practical Importance of Infantile Kidney in Renal Diagnosis. J. T. Geraghty and H. W. Plaggemeyer.
10. Heliotherapy, with Special Reference to the Work of Dr. Rollier at Leysin. H. Dietrich.
11. Treatment of Loose Teeth Due to Inflammatory Degeneration of the Gums and Alveolar Process. J. Head.
12. A Case of Congenital Myotonia. G. W. Boot.
13. Enteroliths. Review of Literature with Report of Case. F. D. H. Goerr.
14. An Unusual Combination of Conditions Producing Appendicitis. P. S. Rossiter.
15. Combined Oxygen and Nitrogen Compression in Early Lung Hemorrhage. L. S. Mace.

2. **Entericoid Fever.**—D. Riesman states that the term "typhoid fever" as commonly used by physicians includes more than one disease. Only that disease in which the characteristic serological and cultural tests for the typhoid bacillus are obtained should be called typhoid fever. To the others, which clinically resemble typhoid very closely, the terms "entericoid fever" may be applied. The entericoid fevers are due to different strains of organisms of the paratyphoid group and to others morphologically similar (Gärtner's *Bacillus enteritidis*, etc.). The source of infection is chiefly food derived from unhealthy animals. Food (including drink) may become contaminated through contact with diseased meat, through rodents and birds, or through the discharges of carriers, etc. So-called second attacks of typhoid fever are probably paratyphoid fever. In all cases of typhoid-like character careful search should be made for the source of infection, and blood-cultures and other tests should be made for the determination of the infecting agents. By combined clinical and laboratory investigations it should eventually be possible to distinguish, according to their specific etiology, the various entericoid diseases now groupd together.

3. **Treatment of Hemoptysis in Pulmonary Tuberculosis.**—N. B. Burns describes the following method in the treatment of hemoptysis: The treatment consists mainly of purgation. The patient who begins to expectorate blood is made to lie down and keep perfectly quiet, and one one-hundredth of a grain of nitroglycerine is injected hypodermically as soon as possible and perfect quiet is enjoined. A curved basin is placed next his face so that the patient can expectorate without moving, and tight-fitting garments are loosened, but complete undressing is not usually advisable at once. The patient should be encouraged and told that his condition is not likely to be fatal and should be advised against unnecessary coughing or movement. Except in case of extreme asthenia or gastrointestinal irritation, a dose of one or two ounces of magnesium sulphate is given from fifteen to thirty minutes after the beginning of the hemorrhage. The good effects are shown as soon as the purgative action begins. In about eight out of ten cases hemorrhage does not occur. The reasons for adopting this method were, the observation that severe constipation is the rule in patients having hemorrhage, and the sluggish bowel condition seems to be a causative factor. Another reason was the high blood-pressure in cases of hemoptysis. The after-treatment consists in keeping the patient at rest, giving non-irritating liquid food, and preventing constipation. The patient is kept flat on his back without a pillow for at least twelve hours. Ice to the chest is continued only for about three hours, but can be replaced if needed, as too long-continued use of it may do harm. One grain of sodium nitrate may be given every three hours with the idea of reducing the blood-pressure. If the cough is very severe, codeine by the mouth in small doses is preferred to morphine or heroine. For nourishment the patient should receive four ounces of cold milk with perhaps a scant teaspoonful of lime-water every three hours. If the sputum becomes clear in eighteen hours, more solid nourishment in the form of dropped eggs may be given. The bed-pan is continued for three or four days, but the patient is not allowed to be up for any length of time for at least seven days after the sputum becomes clear. The advantages of this method of treatment are shown in the absence of fever and

slight loss of weight as compared with the efforts of the morphine and atropine treatment.

**9. The Infantile Type of Kidney in Renal Diagnosis.**—J. T. Geraghty and H. W. Plaggemeyer state that when disease is present in the larger, hypertrophied kidney, the total function, as estimated by phenolsulphonephthalein, is decreased, and the function of the diseased kidney is usually greater than the function of the supposedly healthy kidney. The function of the infantile kidney shows marked decrease, although the urea percentage and general character of the urine are normal, while the amount of urine secreted is relatively small. Pyelography is of doubtful value, since the size of the kidney pelvis is usually not a reliable index of the size of the kidney. In persons not too stout it may be possible to secure Röntgen-ray shadows, showing the presence of a diminutive kidney. The fact is emphasized that kidneys of the infantile type are a menace to the surgeon if the opposite kidney is the seat of disease. The character of the urine may be normal in appearance and the urea concentration or percentage may be high. The recognition of this anomaly may be extremely difficult, and its presence can be suspected only when function estimations are carried out.

## The Lancet.

*December* 13, 1913.

1. Common Errors in the Diagnosis of Nervous Disease. S. A. Kinnier-Wilson.
2. Cancer of the Prostate. P. J. Freyer.
3. Jackson's Pericolic Membrane: Its Nature, Clinical Significance, and Relation to Abnormal Mobility of the Proximal Colon. J. Morley.
4. A Method of Removal of Carcinoma of the Prostate (Abdomino-Perineal Complete Prostatectomy). R. Howard.
5. The Myocardial Lesions of Rabbits Inoculated with Streptococcus Viridans. E. C. Rosenow and C. Coombs.
6. Tuberculosis Statistics: Some Difficulties in the Presentation of Facts Bearing on the Tuberculosis Problem in a Suitable Form for Statistical Purposes. Hilda Clark.
7. Notes on Three Cases of Glanders. H. M. M. Woodward.

**1. Some Errors in the Diagnosis of Nervous Disease.**—S. A. Kinnier-Wilson notes that as a rule a case of organic hemiplegia is readily recognized, particularly if the onset is sudden and is associated with unconsciousness. But hysterical hemiplegia is not rare. The absence of the epigastric and abdominal reflexes on the affected side, and the presence of an extensor movement of the great toe on stimulating the sole of the foot, are signs that postulate organic disease. There may, however, be a flexor response, and in hysteria the abdominal reflex may be diminished, especially if there be any degree of cutaneous anesthesia. Ankle clonus may help one to reach a definite conclusion. In organic cases it is rhythmical and the excursions are equal; in functional disease it is often highly irregular in time and extent, and the patient seems sometimes to be unconsciously endeavoring to start or to continue the phenomenon by pressing downward with the forepart of the foot. A consideration of the nature of the paresis or paralysis may prevent an error in diagnosis. The hysterical patient very often shows the condition of defective inhibition of the antagonists. A common mistake is the failure to separate from the scrap-heap known as neurasthenia the class of cases variously known as cardiac neurasthenia, pseudo-angina pectoris, etc., but best described by the appellation "vasovagal attacks." These attacks are allied both to epilepsy and to migraine, and are due to instability of the vagus nucleus in the medulla and the vasomotor centre in juxtaposition. As a result the patient complains of attacks of difficulty in breathing, a suffocating feeling in the throat, palpitation, hot flushes, cold waves, perspiration, shivering, nausea, and an epigastric sensation, and often, also, an indescribably distressing sensation of trouble, of fear, even of imminent death.

**3. Jackson's Pericolic Membrane.**—J. Morley concludes from his observations that Jackson's pericolic membrance is of congenital origin and is noninflammatory. It occurs in association with abnormal mobility of the proximal colon, due to a failure of fusion of the ascending mesocolon with the posterior parietal peritoneum. The great omentum, from which Jackson's membrance is derived, is the most primitive agent in fixing the proximal colon to the parietes in the right loin. In cases of mobile proximal colon Jackson's membrane may be the principal means of fixing the colon. Unless it causes kinking of the colon a pericolic membrane is therefore rather useful than harmful, and should not be divided. The symptoms and pathological conditions found in association with Jackson's membrane (apart from mechanical obstruction due to the membrance) are primarily due to stasis in the abnormally mobile proximal colon, which is ill-adapted to the upright posture. Surgical treatment should be directed to securing the normal position and fixation of the proximal colon by the operation of colopexy.

**5. Myocardial Lesions from Streptococcus Viridans.**—E. C. Rosenow and C. Coombs present an account of the myocardial lesions found in rabbits inoculated with the streptococci isolated by Rosenow from cases of chronic ulcerative endocarditis. These organisms corresponded to *Streptococcus viridans*, but owing to the fact that numerous strains have been converted into pneumococci they have been designated as modified pneumococci. The affinity for the heart valves of rabbits of the strains of these cases as isolated has been shown to be striking. The experimental endocarditis has been proven to be embolic in origin. The vegetations here, as in man, tend to become very large, often obstructing the valve orifice. Rosenow has recently found that while the affinity for the endocardium of the streptococcus from rheumatism is as marked as that of *Streptococcus viridans*, the mode of origin also being embolic, the type of lesions produced is very different; the vegetations remain subendothelial and tend to heal, producing small nodular scars similar to the chronic nodular endocarditis described by pathologists as characteristic of rheumatic endocarditis in man.

## Berliner klinische Wochenschrift.

*December* 1 *and* 8, 1913.

**Rheumatism and Tuberculosis.**—Menzer makes the following points in his paper on this subject. The sole cause of acute, subacute, and chronic articular rheumatism is a bacterial infection of the upper air passages. This may be an acute streptococcus angina or an exacerbation of a latent infection. These latent infections may be seated in the nose and nasal sinuses, the ear, tonsils, bronchial glands, etc., and lead to a weakening of the organism expressed as anemia, headache, tendency to perspire, palpitation of the heart, frequent anginas and catarrhs in the head. In these latent foci, we find localized the ordinary exciters of catarrh (strepto- and pneumococci) and not infrequently tubercle bacilli. From these latent foci there may appear as a result of exposure or other constitutional injury, a general infection, which leads to metastases to the joints, heart and serosæ, etc. According as the constitution of the individual patient develops we see different expressions of disease. The powerful man who reacts the more actively is seized with an acute attack of articular rheumatism; while the weak, anemic subjects develop a subacute affection which lies between the acute and chronic forms. It is in just this last named type that we find tubercle bacilli in association with the catarrh exciters, first of all in obstinate, chronic inflammatory processes in the joints and other organs. But

in connection with acute articular rheumatism we find associated a not inconsiderable number of cases of latent tuberculosis. Every mode of treatment of the various forms of articular rheumatism must start with the conception that the joint and other symptoms are only the expression of a central latent infection and that nothing will be gained by treating the peripheral joint symptoms. Salicylic acid and other like remedies should therefore be rejected and immunizing or curative sera used in their stead, along with vaccines.

**Erysipelas vs. Nephritis.**—Glaser discusses the possibility of the cure of a severe nephritis by an intercurrent erysipelas. In 1675 Hoffmann mentioned the "salutary erysipelas" which favorably influenced lupus, syphilis, and rheumatism. In modern times sarcoma has undergone resolution after intercurrent erysipelas (not a word of mention of Coley and his serum). Finally, certain severe cases of psychoses are said to have yielded to the same remedy. These results cannot be duplicated in animal experiment. The author in seeing the sequence of nephritis cured by erysipelas, had predecessors in Langballe (complete cure) and Nyrop (improvement). Eichhorst has seen a favorable influence exerted under these circumstances. To sum up the author's case: In a boy of 12, a subacute nephritis setting in with marked edema, ascites and hydrothorax, underwent permanent involution after an attack of erysipelas over the buttocks and thighs. As regards a speculative origin we can only fall back on a suddenly exerted antitoxic action, or a powerful derivative action of the renal blood toward the skin.

**Camphor as an Antipyretic in Pulmonary Tuberculosis.**—Weihrauch states that we have in camphor when used subcutaneously or percutaneously an antipyretic for pulmonary consumption which will lower the temperature 20 per cent. We cannot decide with certainty how this depression is effected; it probably results from an inhibitory action upon the germ exciters of the disease, and perhaps also from a diminution of the catarrhal state of the affected mucosæ. Camphor is entirely harmless to the consumptive.

**Mouse Favus in Mankind.**—Fischer mentions the slight degree of interest in this affection cherished by experts. Even Sabouraud regards it as something which is only theoretically possible. However, what is rare under certain states may be of epidemic incidence in others. Quincke discovered the exciter of mouse favus in 1886, separating it from the Achorior Schoenleinii. After years of debate it became conceded that Quincke's fungus might be pathogenie to man—in fact that a number of kinds of fungus might be able to form scutula. We now know half a dozen or more species of favus. One kind while regularly pathogenie to certain animals, could occasionally domicile itself on another. Scutula formation is no longer the sole manifestation of a favus, for now and then they cause the same lesions as the trichophytinæ. We know now that the mouse favus can not only form scutula on man, but also the efflorescence of trichophytinæ. In a small epidemic, mouse favus appeared to extend to children, cats, and a group of women—twelve individuals all told. The polymorphism noted is doubtless due to special strains of fungus, not to differences in those infected.

**Importance of Lime Salts for the Therapy of Internal Affections.**—Kayser sums up his general review of this subject as follows: Calcium salts act upon the blood and blood vessels by tightening the unduly permeable vascular wall thus promoting coagulation and stripping exudation. They influence the excitability of the nervous system by depressing the latter, especially the vegetative and autonomous, and are therefore indicated in internal medicine especially tetany, epilepsy, hay fever, and asthma bronchiale, in all of which they are used with success. In disturbances of the calcium metabolism, as in rachitis, osteomalacia and Grave's disease, lime salts are also of use. Through the ability of increasing the phagocytotic power of the blood, lime salts appear to come into question for the therapy of infectious diseases like pneumonia and tuberculosis. Lime also cures oxalic acid poisoning. The salts may be given per os, subcutaneously, by the rectum, and intravenously. Hence it is essential to exhibit the remedy in large doses, and for a period of one or two weeks.

**Fecal Vomiting in Gastric Crises.**—Oczesalski refers to certain unusual conditions under which fecal vomiting occurs; but thus far he has found no mention of such an event in the gastric crisis of tabes. After describing in full one of his own cases. Before attempting to explain the case we have no proof that a gastroenteric fistula had not formed at some time, this hypothesis always giving a simple explanation of fecal vomiting. The only other solution is that of a purely nervous mechanism which caused antiperistalsis at the time of the crisis. A gastro colic fistula was excluded by the fluid character of the vomitus. The author found the gastroenteric fistula theory satisfactory to account for all the symptoms.

**Severe Anemia with Aphasia and Hemianopsia.**—Knoch discussed the association of anemia—not necessarily severe—with focal cerebral lesions. This association is a very rare one. It is most often seen in pernicious anemia, in which we see disturbances of motility, sensation, and special sense. The mechanism is doubtless a circumscribed thrombosis due to excessive slowing of the blood stream or some other vascular disturbance. The author regards these lesions as permanent.

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### Münchener medizinische Wochenschrift.

*November 18 and 25, 1913.*

**Practical Identity of Radium and Röntgen Rays.**—Pagenstecher mentions the enormous prices of radium and mesothorium and alludes to the need of some cheaper substitute. Radium is composed of three kinds of rays, of which the *a*-rays have the greatest penetrative powers. The *b*-rays closely resemble the cathode rays. The *x*-rays originate from the *b*-rays, as the *x*-rays from the cathode rays. The author shows the likelihood that in the future the *x*-rays may be endowed with the penetrative properties of radium and mesothorium. To use superhardened *x*-rays is not to secure this conquest, for rays may be too powerfully penerative as well as too feebly. The future tubes should be hard, carry a high tension, and have increased lead filtration.

**Unusual Case of Rumination in Man.**—This is related by von Gulat-Wellenburg: In October of this year a man exhibited himself in Münich. His art was to swallow frogs and fishes and bring them forth alive. This he did thirty times daily. Before this feat he drank water by the quart; then swallowed in succession some twenty frogs or goldfish; and while these were within him conversed and moved about. By a silent effort he then allowed the creatures to escape separately; he afterward expelled the water through a tube, pressing the last of it with his hands. The man was sixty-three years old, small, but well nourished. His demeanor is quiet and natural, in no wise hysterical. His palatal reflex, like all others tested, was normal. He exhibited the trick of rumination as a boy and began to regard it late in life as a possible source of income. There was evidence to show that his habit of rumination was familial. He was tested with *x*-rays by the author and others. The stomach was not distended, and even seemed smaller than normal; all the digestive organs and esophagus seemed intact. In order to trace the swallowed objects they were baryumized (a dead frog and two finger cots). The muscle tonus of

the stomach is excellent, while the chemistry is abnormal. The conclusion was reached that the stomach possessed an abnormal elasticity. Stomachs of this type have been used in several kinds of deception.

**Leukemia, Lymphoblastic and Myeloblastic.**—Herxheimer concludes his serial article as follows: Two forms of leukemia may occur in the same individual—lymphoblastic and myeloblastic. The former is usually a chronic, the latter an acute affection. In a case related the author states that the mediastinal tumor with its rapid evolution, the tumor-like change in the pancreas and the heart are to be referred to myeloblastic leukemia. The two forms might be placed in direct connection with each other for certain reasons, but the author chooses to regard them as quite distant, or in other words he is a dualist. During the past year he has treated three cases of myeloblastic leukemia. In one of these he mentions the great difficulty of diagnosis; it is necessary for myeloblasts to preponderate in the blood, to drive all other formed elements from the blood and even from leukemia growths, and finally to give the positive oxydase reaction.

**Are So-Called Diatheses Constitutional Anomalies?**—Pässler has already written of a special diathesis indicated by chronic tonsillitis, chronic infection of the nasal sinuses, and especially chronic conditions of the teeth, either caries or pyorrhea alveolaris. He feels that the reader will regard him as a lobbyist or "one sided" observer. He finds evidence that many classes of cases exist clinically. Thus one is characterized by acute exacerbation of chronic focal disease. There is no evidence of infection. We note the occurrence of relapsing anginas, pharyngitides, bronchitides, etc. In a second class we see tendencies to high and low temperatures, chills and sweating, prostration, exhaustibility, headache, etc. In a third a tendency to hyperplasia of lymph-nodes, especially of the pharyngeal rings and nearby lymph-nodes. Next in order comes a remotely exerted action on the most varied organs and systems bearing the stamp of direct and indirect infection. These are constituted by rheumatic phenomena as affecting the motor apparatus. This class is very numerously represented. Akin to the above is the vascular expression, including the vasomotor apparatus, as manifested in part by the results of inflamed glands of internal secretion. Forms characterized by nervous phenomena are made up of restlessness, with tendency to be startled, irritability, inability to concentrate, and perhaps sleep disturbances. Pseudochorea may belong here. As expressed in the gastrointestinal tract, under such generic terms as dyspepsia and constipation, we find a variety of special conditions, such as mucomembranous enteritis. Another class has to do with the uropoietic apparatus in which a great number of conditions may be reckoned. There is hardly any need to pursue this subject further, as the various affections make up almost the entire pathology of the body. This the author appears to admit in the interest of chronic diseases. As he implies or states, there is but a single diathesis as far as chronic conditions go which practically comprises all chronic disease.

**Diet and Dietetic Treatment from the Vitamin Viewpoint.**—C. Funk of the Cancer Research Institute, London, writes entertainingly on this subject, for there has been much discusssion as to vitaminous foods and their proper administration. There is a loss of vitamin when we remove the peripheral layers of various grains (rice, maize, wheat, rye); also when we overheat our food: from the washing out in cookery; and especially through drying. In improper preparation of food in general, we lose not only the vitamins, but also other nutrient constituents. The author compiles two tables of food: Those containing vitamin are breast milk, raw cow's milk, boiled milk (brief, single exposure), butter, cheese, yolk of egg, meat juice and broth, fresh potatoes and green vegetables, vegetable soup, fresh fruit, fruit juices, plain or cooked, lime juice, whole wheat bread, whole rye bread, red rice, lightly boiled meat, fresh beer yeast, yeast extract, and cod liver oil. Foods which contain little or no vitamin are sterilized milk and preserved milk, repeatedly boiled cow's milk, white of egg, dried fruit and vegetables, white bread, flour, rice, sago, dried and polished maize, Indian meal prepared from same, etc., etc. In regard to pellagra the author concludes that maize or Indian meal does not suffice as chief nourishment and should be consumed with vitaminiferous potatoes, fruit, vegetables, meat, etc. Whole Indian corn alone may be dependable as food.

**Protection from the Toxic Component of Hypnotics.**—Cimbal thinks he has found a formula which can "dope" or deaden the action of the leading hypnotics, notably veronal. He uses to offset the toxic effects of the latter antipyrin, phenacetin, codein, pantopon, ipecacuanha, etc. The last is especially recommended. When desire for suicide is present, along with veronal with a single synergist, a certain quantity of ipecacuanha root in powder is given.

## Deutsche medizinische Wochenschrift.

*November* 27, 1913.

**Development of Psychical Activity.**—Von Bechterew sums up his serial article as follows: Phenomena of neuropsychic activity are manifold and detach themselves from the entire circle of biological and somatic development; nevertheless the laws which dominate over these phenomena are the same as those which preside over the organism itself, the transformation of dead matter, and the development of the universe. In these generalizations we see the proof that psychology as science, and especially the psychology of the child, must be studied as all other natural sciences. This robs it perhaps of the stimulus of philosophical abstraction which should cover a broad and nebulous perspective; and therefore tends to make it a science which is just as exact as any other section of natural science; and on that account at least in the future, guarantees the best results; which will render possible in certain cases more accurate scientific prognoses which repose upon a fixed regularity of phenomena, and a definite reciprocity of causes and effects. When it is also determined that the development of the neuropsychic sphere upon the reproduction and alteration of the reflexes, rests upon the imitation of what is seen and heard; and at the same time the differentiation and the associative generalization or analysis and synthesis of the visible material can be brought together, though the education must begin in the first days of life and must above all represent a family education. Education must therefore endeavor to furnish the child with good material for imitation, both intellectual and emotional, in order to differentiate the esthetic and moral spheres. Care must be taken to secure a more or less synchronous and more ample synthesis of the intellectual, and likewise esthetic and moral synthesis, for the one and the other represent the basic condition of the development and completion of the human personality.

**A New Antidiphtheritic.**—Two articles appear on the same subject in this number, one by Freund, the other by Kausch. The more or less secret preparation has been known since 1898 and has been known under at least three separate names. Apparently it has been resurrected because of the criticism of serotherapy in the Berlin epidemic of 1911, criticism by no means warranted by the full data. The remedy is not intended to supplant serum of course, but to reinforce it. It is said to be a powerful bactericide and some of the references to it are in bacteriological periodicals. It is thought to be of special service in cases of bacteria carriers.

# Insurance Medicine.

## SUGGESTIONS TO MEDICAL EXAMINERS.

BY THE INSURANCE EDITOR.

### THE SIGNIFICANCE OF VALVULAR LESIONS IN LIFE INSURANCE.

THE statistics of deaths occurring directly or indirectly as a result of impaired valves of the heart are meager and of little practical value, so that in estimating the future danger liable to result from these lesions we are limited in a great degree to our clinical experience and knowledge of the structure and functions of the valves. Those who devote their time exclusively to the practice of medicine, viewing the subject, as they do, from a different point of view, are prone to state at times that the medical officers of life insurance companies overestimate the gravity of heart murmurs. A large part of the duty of the consulting physician is fulfilled when he makes a diagnosis, gives the patient good advice, and assures him, if the murmur is uncomplicated, that he will probably live as long as the next fellow if he follows the instructions and avoids indiscretions. The advice is often forgotten but the adviser has done his part and will not be open to future criticism in any event. The medical director is expected to foresee the liabilities in a general way for many years to come, even to the later years of the policies. His decisions are carefully recorded, not to be forgotten in a few years, and are of importance to the ultimate as well as the immediate interests of the policyholders.

It is popular among the medical profession at large to regard certain organic heart murmurs as of little clinical significance unless accompanied by signs of serious disease, and to base the prognosis chiefly upon whether evidence of cardiovascular disease, such as dyspnea, etc., is present or absent. This is all very well for the consideration of the present but it will not answer for the possibilities of the remote future. Patients with cardiac disease consult their physicians because they have some evidence of disease, but people apply for life insurance, as a rule, with the impression that they are healthy and sound. It is safe to say that the vast majority of applicants with valvular trouble have absolutely no subjective symptoms or indications of a lesion aside from the heart murmur. Many of them have even no appreciable hypertrophy, probably because the leaks are small. The medical examiner, therefore, will seldom be called upon to consider cases with advanced disease or complications.

The question arises, are applicants with simple heart murmurs insurable? It is well known that some persons with valvular lesions live to advanced age, but the medical officers of life insurance companies, treating these cases as a class, cannot agree with the belief that the condition may be lightly regarded, even when no signs of progression are present. It is not reasonable to suppose that 100,000 diseased hearts, with their delicate and complicated structure, will work on incessantly and constantly for a long period of years without a sufficiently large number of them coming to grief to make this group unprofitable to insure at the ordinary rates computed for payment by sound, unimpaired risks. It would be an injustice to those paying the ordinary rates to insure unsound individuals at the same cost. Nearly all of the 100,000 hearts may show no disposition to flag or falter to-day, but where is the clinician who can point out those individuals to the companies who will sooner or later succumb to excessive pressure brought on by hard work due to the inexorable demands for existence, by continued excitement or nervous strain, by immoderation in eating and drinking, or by the increased burden thrown upon them by intercurrent disease. Men in the business of selecting insurance risks make no pretensions to determine in advance the course which will be pursued in the great majority of individual cases of heart murmur. It is imperative, nevertheless, for due allowance to be made for all degrees of hazardous risks, and the only practical method for accomplishing this end with applicants who have heart lesions is to regard them as a class calling for rejection except where the company considering the proposition has perfected an arrangement for accepting substandard risks at advanced rates.

A moderately leaking valve is believed by some to act as a safety valve under excessive pressure. A murmur is sometimes produced in a sound heart by back pressure during or after unusually vigorous exercise or mental excitement and is, of course, of no consequence. The fact that a leaking valve may relieve excessive pressure to some degree in the event of future disease of other organs will hardly moderate the prevailing distrust of valvular diseases as a class.

A company who has adjusted certain rates to apply to substandard risks may safely accept most applicants presenting themselves with valvular defects if a number of years is reckoned off from the individual life to correspond with the natural period of degeneration, *i.e.*, the period in which the reserve powers of repair will become a diminished quantity. In addition to this, the merits of each case must be considered as to whether the heart may be expected to maintain its efficiency up to the period of degeneration, the conclusion depending largely on the particular valve or valves involved, the occupation, habits, financial condition and environment. The mortality will be higher than in the class of unimpaired lives but the extra risk will be covered by the raised rating. Even this method is impracticable after the appearance of signs of progressive or complicating disease.

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Futherance of the Science of Disease Prevention.—Rittenhouse says that if it is a righteous act to relieve suffering, it must be a still greater one to prevent it, and that the spread of knowledge of preventive medicine has resulted in an extraordinary reduction in the general mortality rate during the last fifty years. For this achievement the press and the layman are entitled to their full share; the chief honor, however, must be given to the medical profession, which has developed the science. They have made every effort to induce people to adopt healthful habits of life, and are to-day leading or prominently identified with every official or unofficial movement in the nation-wide campaign for the conservation of health and life. The medical examiners of life insurance companies have rendered most effective service, although we seldom hear it alluded to. This valuable service could be materially advanced at the cost of very slight effort. The fact that more of our people are coming to appreciate the wisdom of giving their doctors a chance to head off disease is due largely to the medical examiners.—*Lancet-Clinic*, August 22, 1913.

# Book Reviews.

EPIDEMIC INFANTILE PARALYSIS (HEINE-MEDIN DISEASE). By Prof. PAUL H. RÖMER, Principal of the Institute of Hygiene and Experimental Medicine of Marburg. Translated by H. RIDLEY PRENTICE, M.B., B.S., Lond., M.R.C.P.; late Resident Medical Officer to the National Hospital for the Paralyzed and Epileptic, Queen Square. With fifty-seven illustrations in the text. Price $2.75 net. New York: William Wood & Company, 1913.

THE numerous additions that have been made during the past few years to the knowledge of poliomyelitis, both in the clinic and in the laboratory, impart considerable importance to this volume, which gathers the scattered threads of this knowledge. Professor Römer has been active in the experimental study of this disease and is singularly fitted to present a complete and lucid account of its history, epidemiology, etiology, and clinical and laboratory aspects. In short, he has written a monograph on poliomyelitis. In the first chapter he discusses the development of the knowledge of this disease from the early conceptions framed by Heine and Medin to the more recent ideas advanced by Wickmann and others, and in Chapter II describes the symptomatology of the disease in man. In Chapter III he deals with the microscopic and cultural researches, the experimental studies on monkeys, the clinical history of the disease in the latter animals, the nature of the virus, and the use of other animals for experiments. In Chapter IV, which is headed "pathology and pathogenesis," the author, after a historical retrospect of these phases of the subject, describes the distribution and spread of the virus within the organism, contrasts the pathological changes in the experimental disease in monkeys with those found in man, and traces the portal of entry of the virus into the central nervous system. Chapter V comprises a history of the various epidemics of poliomyelitis and a portrayal of the epidemiological characteristics of the several outbreaks. The most important and the most interesting part of this book is that which concerns the fight against the disease, which topic comprises the substance of Chapter VI. The questions of immunity and immunization are here discussed. The results obtained by the author and by other investigators in the immunization of animals and in the detection of specific antibodies, and the experiments with drug and serum therapy are all presented in detail. The measures of prophylaxis are also discussed. A complete bibliography of poliomyelitis comprises a section of nineteen pages. There are a number of illustrations showing the various types of the disease as experimentally produced in monkeys. The translator has ably acquitted his task in rendering the author's language into clear and idiomatic English. The book is well printed on fine paper and well bound. It should prove a valuable addition to the library of the general practitioner.

THE DOCTOR IN COURT. By EDWIN VALENTINE MITCHELL, LL.B., of the Massachusetts Bar. Price $1.00. New York: Rebman Company, 1913.

THIS book discusses the general principles of the law relating to the medical profession. It deals with professional evidence, the contract of the profession, the civil responsibility of the physician, remuneration, confidential communications, the criminal responsibility of the profession, and qualifications. The book is brief and to the point, and is designed to be of distinct service to the general practitioner, warning him of the many legal pitfalls that he is apt to meet in the course of his work.

A CLINICAL MANUAL OF MENTAL DISEASES. By FRANCIS X. DERCUM, M.D., Ph.D., Professor of Nervous Diseases Jefferson Medical College, Philadelphia; Consulting Neurologist to the Philadelphia General Hospital, President of the Philadelphia Psychiatric Society, ex-President of the American Neurological Association and of the Philadelphia Neurological Society, Foreign Corresponding Member of the Neurological Society of Paris, and of the Neurological and Psychiatric Society of Vienna; Member of the Royal Medical Society of Budapest, etc. Price, $3 net. Philadelphia and London: W. B. Saunders Company, 1913.

THIS author is best known perhaps from his neurological contributions to medicine. He is pleased to state in his preface that his manual, as prepared from his lectures at the Jefferson Medical College, is written purely from the clinical standpoint. The psychological interpretation of the symptoms of insanity occupies but a small part of the text. The author's aim has been to instruct the student and the family physician in such a way that they may know how to recognize mental diseases, even in their early stages, that they may know when to commit and when not to commit the patient to a hospital, and that they may understand how to select the proper treatment for the case. He believes that the psychiatry of the present day is too largely speculative and metaphysical, and that our knowledge of mental diseases must advance, not only in the direction of psychological interpretation, but also in what he considers the more important direction of internal medicine. The book is divided into four parts. Part I. contains a description of "the five fundamental groups of mental affections," viz., delirium, confusion and stupor; melancholia, mania, circular insanity; the heboid-paranoid group (dementia præcox, paranoia); the neurasthenic-neuropathic insanities (psychasthenias), and the dementias. Part II. comprises the consideration of the relation of insanity to various somatic affections (infections, intoxications, disorders of metabolism, diseases, pregnancy, etc.); second, the relation of mental diseases to age epochs; and, third, certain mental disorders not usually included under insanity, and also insanity by contagion. Part III. (seventeen pages) is devoted to the psychological interpretation of symptoms. Part IV. is given over to treatment. The style of the book is clear and interesting. There are no histories published at length to illustrate the various types, but symptoms of special cases are introduced for the purpose. The book is commendable as a manual, or more or less brief presentation of the subject, and is not intended as a text book, or as an advanced psychiatric treatise.

TEXT BOOK OF THE DISEASES OF THE NOSE, THROAT, AND EAR. For the Use of Students and General Practitioners. By FRANCIS R. PACKARD, M.D., Professor of the Diseases of the Nose and Throat in the Philadelphia Polyclinic Hospital and College for Graduates in Medicine; Aurist to the Out-Patient Department of the Pennsylvania Hospital. Second Edition, with 145 Illustrations. Price, $3.50. Philadelphia and London: J. B. Lippincott Company, 1913.

ONLY four years have elapsed since the first appearance of this book, but so many strides have been made in the progress of laryngology and rhinology that the rewriting of many portions of the book has become necessary. In the present edition an effort has been made to incorporate such advances. It has been necessary to rewrite entirely the section dealing with diseases of the tonsils and adenoid growths and also to incorporate the description of the processes employed in direct tracheobronchoscopy and esophagoscopy. The author's original purpose in writing this book was to furnish a practical handbook for the use of the undergraduate student and for those taking postgraduate work. The post-graduate work of physicians here and abroad makes it necessary for them to have a reliable guide. It has been the author's aim to provide such information as is essential to help the student in his practical work and to burden his book with as little theoretical knowledge as he could. The book is based on the author's years of experience as a postgraduate teacher and his hospital work in large clinics. His intimate contact with the students of the Philadelphia Polyclinic Hospital and College for the Graduates in Medicine for some years past has made him capable of realizing their needs.

PATHOLOGISCH-ANATOMISCHES PRAKTIKUM FÜR STUDIERENDE UND ÄRZTE. Von Professor Dr. Med. RICHARD OESTREICH, Privat Dozent an der Universität und Prosektor des Königin Augusta Hospitals zu Berlin. Preis, 2 marks. Wien und Berlin: Urban & Schwarzenberg; New York: Rebman & Co., 1913.

THIS handbook in dictionary form of pathological anatomy contains lucid explanations of the different methods of examination of fresh organs and of general pathological anatomical diagnoses. An excellent index renders Professor Oestreich's manual very convenient for students and the overworked general practitioner.

JAHRESBERICHT DER GESELLSCHAFT FÜR NATUR UND HEILKUNDE IN DRESDEN. Sitzungsperiod, 1912-1913 (Oktober, 1912-Mai, 1913). München: Verlag von J. F. Lehmann, 1913.

AMONG the most interesting articles in this year's report of the Dresden Society for Natural History and Therapeutics are the following: Opsonogen Treatment of Furunculosis and Acne, by Dr. von Einsiedel; Ophthalmological Diagnosis of Diseases of Accessory Nasal Cavities, by Dr. Meyer; Production of Tumors by Homogeneous and Heterogeneous Embryonal Cells, by Dr. Kelling; Human Parasites, by Professor Brandes, and Water Supply for Country and Town, by Dr. Thiersch. There is also an account of the visit of the members of the society to the Rhythmical Gymnastic School of Jacques Dalcroze in Hellerau near Dresden, and the subsequent recommendation adopted by the society that the Delcroze system should be introduced into the German public schools as excellent exercise for the body and the mind.

A MANUAL OF X-RAY TECHNIQUE. By ARTHUR C. CHRISTIE, Captain Medical Corps, U. S. Army; Instructor in Radiology and Operative Surgery Army Medical School, Washington, D. C. With 42 Illustrations. Price, $2. Philadelphia: J. B. Lippincott Company, 1913.

THE small number of medical officers in the service of the United States Army necessitates a frequent change of station, so that it often becomes imperative for one to familiarize himself in a comparatively short time with the essentials of radiology. Captain Christie's book is limited to the absolute essentials of *x*-ray examination of the head, the thorax, the alimentary canal, and the urinary system, and to the localization of foreign bodies and fluroscopy. Resort to a specialist whenever his services can be obtained is candidly advised by the author.

FRACTURAS DEL FEMUR Y EN TRATAMIENTO. Por El Dr. S. GARCIA HURTADO. Madrid: Imprenta de San Francisco de Sale, 1913.

PROFESSOR HURTADO reviews the fractures of the thigh and their therapy. For their diagnosis he believes radiography indispensable and advises an antero-posterior projection of the affected joint with the leg extended and approaching the middle line as much as possible while the radiogram is being taken. Another radiogram should be made with the leg separated from the middle line as far as possible. Eight original radiograms and forty-five text illustrations complete this very clear and detailed treatise.

MINOR OPERATIVE SURGERY. By DUNCAN C. L. FITZ-WILLIAMS, M.D., Ch.M., F.R.C.S. (Eng.), F.R.C.S. (Edin.), Surgeon in Charge of Out-Patients St. Mary's Hospital, Senior Assistant Surgeon to Paddington Green Children's Hospital, Lecturer on Clinical Surgery, and Joint Lecturer on Operative Surgery St. Mary's Hospital Medical School. Price, $3.75. 446 pages. New York: William Wood & Co., 1913.

THIS book is intended chiefly for the student and young surgeon, although even the F.A.C.S. of long standing may learn something from it. An attempt has been made to add the chief points in surgical and surface anatomy, with a good deal of success. A timely introduction is afforded by the first chapter on general considerations, which includes the examination of the patient, preparation for the operation, sepsis, antisepsis and asepsis, and general principles. Some of the main chapters treat of ligatures of arteries, operations on nerves, amputations and disarticulations, osteotomies, operations on the air passages, alimentary and genitourinary tracts, on the head and breasts, harelip, cleft palate, plastics, tendons. Each of these subjects is taken up systematically and treated in a most satisfactory manner.

KRANKHEITSENTSTEHUMG UND KRANKHEITSVERHÜTUNG UND GEHEIMSNISSVOLLE LEBENSÄUSERUNGEN DES KÖRPERS. Offentliche im Hamburgischen Vorlesungsgebäude in den Winter 1911 und 1912 gehaltene Vorlesungen von Dr. HANS MUCH, Oberarzt am Eppendorfer Krankenhaus. Mit 22 Abbildungen im Text. Pages 117. Price Mks. 2.50. Würzburg: Verlag von Curt Kabitsch. 1913.

THIS series of lectures deals with the latest problems in medicine with reference to the causation and prophylaxis of disease. The subjects of some of the lectures are: 1. The Instigators of Disease—immunity, natural immunity, science and philosophy. 2. Acquired immunity, the protective agencies, their injury, etc. 3. Acquired immunity, tetanus, bacilli carriers, meat and sausage poisoning, etc. 4. Individual diseases, syphilis, recurrent fever, frambesia, the plague, etc. 6. Tuberculosis. 7. Miscellaneous. The articles are written in an interesting semi-popular philosophical style.

THE PRINCIPLES AND PRACTICE OF GYNECOLOGY. For Students and Practitioners. By E. C. DUDLEY, A.M., M.D., ex-President of the American Gynecological Society, Professor of Gynecology Northwestern University Medical School, Gynecologist to St. Luke's Hospital, Chicago; ex-President of the Chicago Gynecological Society, one of the Founders of Congrès Périodique International de Gynecologie et d'Obstetrique, Fellow of the Royal Society of Medicine, England, Surgeon to the Medical Reserve Corps United States Army. Sixth Revised Edition, with 439 illustrations and 24 full-page plates in colors and monochrome. Price, $5 net. Philadelphia and New York: Lea & Febiger, 1913.

THE appearance of six editions of this work within a period of fifteen years is sufficient proof of its popularity. The present edition maintains the high standard which has characterized this book in the past. The subject matter has been carefully revised and has been brought strictly up to date. One admirable feature of this work is the arrangement of its topics in pathological and etiological sequence. Thus infections and inflammations, such as vulvovaginitis, metritis, salpingitis, ovaritis, and peritonitis are considered together. The illustrations, of which there are a large number, are striking for their originality and artistic excellence. Those that show the various steps of operations, as perineorrhaphy, are particularly helpful. The work is eminently practical, both in its detailed description of operative procedures and in its ample exposition of the non-operative measures of treatment. One need have no hesitation in recommending this book to the student and practitioner as one of the best in its line.

THE PRACTICAL MEDICINE SERIES. Comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Under the General Editorial Charge of CHARLES L. MIX, A.M., M.D., Professor of Physical Diagnosis in the Northwestern University Medical School. Volume IV. GYNECOLOGY. Edited by EMILIUS C. DUDLEY, A.M., M.D., Professor of Gynecology, Northwestern University Medical School; Gynecologist to St. Luke's and Wesley Hospitals, Chicago, and HERBERT M. STOWE, M.D., Associate in Gynecology, Northwestern University Medical School; Attending Obstetrician to Cook County Hospital. Series 1913. Price $1.35. Chicago. The Year Book Publishers.

THE book is divided into five parts: General Principles, Infections and Allied Disorders; Malformations and Tumors, Traumatisms and Displacements. The arrangement is valuable, as it enables one to readily review any gynecological subject. Many interesting and instructive cases are recorded.

TREATMENT OF INTERNAL DISEASES. For Physicians and Students. By Prof. NORBERT ORTNER, of the University of Vienna. Edited, with Additions, by NATHANIEL BOWDITCH POTTER, M.D., Assistant Professor of Clinical Medicine at Columbia University (College of Physicians and Surgeons), New York; Visiting Physician to the New York City Hospital and to the French Hospital. Translated by FREDERICK H. BARTLETT, M.D., Instructor of Children's Diseases at Columbia University (College of Physicians and Surgeons), and Attending Physician to the Babies' Hospital. Second Edition in English Revised and Reset, from the Fifth German Edition. Price $5. Philadelphia and London: J. B. Lippincott Company.

AFTER reading portions of this volume the wonder grows how the phrase "therapeutic nihilism" ever came into existence. The author presents a most comprehensive exposition of therapeutic science, including not only the medicinal aspects of the subject, but also its mechanical, dietetic, climatic, hydrotherapeutic, and other physical phases. The book is eminently practical. There are numerous prescriptions which are made to conform to the American Pharmacopeia. The translator has brought to his task a sympathetic knowledge of his subject and the command of idiomatic English. A wide sphere of usefulness is predicted for the volume.

# Society Reports.

## NEUROLOGICAL INSTITUTE OF NEW YORK.

*Reports of Weekly Clinical Conferences.*

FIRST DIVISION—DR. JOSEPH COLLINS.

**An Unusual Case of Polyneuritis.**—Dr. FREDERIC M. HANES presented a patient with symptoms and signs which have not been altogether easy to interpret. Her history is that of progressive muscular weakness with muscular atrophy, and the diagnostic difficulty has been definitely to localize the site of the lesion in the spinomuscular neurone. Her history follows:

The patient, a married woman of 55, of American birth, comes complaining of difficulty in walking, especially in walking upstairs; weakness of both legs and rapid fatigue of the legs upon exertion. She has been married 30 years and has had two miscarriages but no children. Her husband is alive and well. The family history is negative. She says she has always been a healthy robust woman, having had no serious illness since childhood. As a child she had measles, mumps, and pertussis without complications or sequelæ. She has never been of a nervous disposition and has not suffered from headache. She has always been fond of alcoholic drinks. Alcohol gives her a sense of pleasurable exaltation but even in large quantities does not confuse or depress her. Some nine years ago, about the time of her menopause, she felt very nervous and excited and at this time drank large quantities of alcoholic drinks. She usually drank whiskey, and consumed as much as a pint a day. During the past two or three years she has used alcohol very sparingly—a glass or two of beer daily. Six or seven years ago she suffered from "prickly sensations" in the hands, legs, and feet. She likewise had paresthesia at this time, consisting of crawling sensations in both legs and feet. All these subjective sensory disturbances passed away before the muscular weakness of which she now complains began.

After recovering from a sprained ankle five years ago she noticed that the right leg seemed weaker than the left, and this weakness made it difficult for her to step upon the curb without stumbling. This condition progressed very gradually; the left leg also began to feel weak, and the weakness of both legs necessitated her helping with her arms by pulling upon the hand-rail in ascending stairs. It required about three years for the development of the weakness of the legs to a stage in which walking was seriously hindered. The patient says the weakness of her legs preceded the wasting by some two years. It is only within the past three years that she has noticed the legs becoming smaller. The calves of the legs seemed to waste first. All her symptoms have been more pronounced during the past two years and she says she is growing progressively worse. Both legs have grown weaker gradually, though she is still able to walk with a cane, and the legs have grown much thinner from the hips down. She has had no lancinating pains in the legs at any time. After severe exertion or fatigue from standing, her calves often ache and sometimes she has a dull pain in both thighs. These symptoms have come on only in the past two years. During the past few years she has had urgency of urination with an occasional loss of urine when unable to void at once. This symptom is worse when she is fatigued from standing or walking. The bowels are regular. Her general health has been excellent.

*Physical Examination.*—The patient is a bright, intelligent woman, of well nourished appearance and healthy color. There are no cranial abnormalities, no glandular enlargements. The thyroid is not palpable. The heart, lungs, and abdomen are negative. The skin is normal. She is mentally normal and there is no disturbance of function of the cranial nerves. Both pupils are irregular in outline but approximately equal in size. They react to light and in accommodation. There is hippus of both pupils. No abnormalities of sensation can be elicited; both superficial and deep sensibility are normal. The superficial reflexes are normal, as are the deep reflexes of the upper extremities. The left knee-jerk and ankle-jerk can be elicited. The right knee-jerk is weakly present, the ankle-jerk absent. The musculature of the face, upper extremities, and trunk is normal. There is no wasting of the small muscles of the hands. There is weakness and wasting of all the muscle groups of both lower extremities. The flexors of the legs and feet are weaker than the extensors. The muscles are flaccid, atrophic, and soft. She walks with a steppage gait. The feet are held widely separated, are lifted rather high, only slightly dorsiflexed, and are brought down quickly. This gait is more marked in the right leg. No Rombergism. The electrical examination of the muscles reveals a marked hyposensibility to electrical stimulation of both nerves and muscles of the legs for the faradic and galvanic currents. There is no reaction of degeneration. The Wassermann reaction is negative in the serum and cerebrospinal fluid, and there is no pleocytosis or excess of globulin.

These symptoms and signs, together with the history of immoderate use of alcohol, have convinced us that the patient is suffering from alcoholic polyneuritis. The case is far from typical, however, in that the objective findings are exclusively those due to motor neurone injury. Sensory symptoms, both subjective and objective, may be very slight in alcoholic neuritis, but it is rare, I believe, to have them so nearly absent from the picture as they are in this case. On first sight the patient's gait and the location of the atrophy suggests a primary muscular lesion —a dystrophy. Considering her age, the distribution of the atrophy, and the absence of any heredito-familial history, however, we may with confidence exclude this condition.

SECOND DIVISION—DR. FREDERICK PETERSON

**Case of Brain Tumor.**—Dr. FOSTER KENNEDY presented a case of tumor in the left temporosphenoidal lobe involving or producing pressure on the mid-brain especially the corpora quadrigemina.

T. D. aged 24 years was admitted to the Neurological Institute on October 8, 1913. His present illness dates from four months ago when he began to suffer from severe headaches: these have been persistent and progressive. In early September he began to have attacks of vertigo of indefinite character, of a severity to interfere with walking: he lurched chiefly to the right side.

About the same time the right eye began "to turn in" and he complained of seeing double; he also told of seeing objects "like ghosts" and of frequent subjective sensations of smell and taste. There has been occasional vomiting, and for some days before admission considerable stupor has become evident. Both pupils are small and without reaction to light or on accommodation. Conjugate movements of the eyes in upward and downward directions are almost completely abolished. No hemianopia. Paretic jerking of the eyeballs on looking to the right and left sides. Gross papilloedema in both fundi. There is a weakness of the right side of the face of supranuclear type. There is no ataxia demonstrable in any of the extremities. Marked weakness in right arm and right leg. No atrophies. All deep reflexes in right arm and leg much brisker than on the left side.

Abdominal reflexes: Right, absent; left, present.

Plantar reflexes: right, extensor; left, flexor.

Considerable defects in word-memory. When shown his rosary, he said it was "a bit of brass" but could not name it. A key was identified as "matches" which error was repeated for several other objects immediately afterwards shown to him. This patient has in the ocular symptoms

the typical and well known complex produced by lesions in the region of the quadrigeminal bodies. His marked increase in weight,—twenty pounds in the last six months—with his eye symptoms might point to a tumor originating from the pineal gland. In such growths, however, by the blocking of the iter and the rise in ventricular pressure there is produced bilaterally equal pressure on the two pyramidal tracts. In this case, evidence of such pressure obtains only on the right side of the body. This fact together with the failure in word-memory would seem to point to the gradual spread to the mid-brain of pressure from the left temporosphenoidal lobe. If credence be placed in the history of subjective visual, gustatory, and olfactory sensations, then the probability of this tumor being primarily temporal and secondarily quadrigeminal becomes much increased.

Dr. Elsberg punctured the corpus callosum in a vain attempt to withdraw fluid from the ventricles. In pineal growths the ventricles are much dilated. A tumor pressing mesially from without would compress the ventricle and diminish its cubic space. Therefore perhaps it is justifiable to consider the result of this operation as being in itself of diagnostic significance.

**Juvenile Paresis.**—Dr. Peterson presented J. H., Age 20. Errand boy. This patient was referred by one of the eye hospitals for opinion as to his mental status. The only symptom of which he complains is failing eye sight, but investigating his past life we find that birth was normal. He is one of four living children, the others being in good health. He talked at 18 months. Walked at 2 years. Started schooling at 5 years, but did not progress very well. At 8 years of age began to play truant frequently, but he learned to read, write, and spell fairly well. At age of ten began to smoke cigars and take an occasional drink. His companions were always boys much older than himself and not of the best moral character. There is an indefinite history of excessive indulgence in alcohol, but no direct corroboration can be obtained. Examination reveals a simple, expressionless facies. Test words poorly performed. There is considerable mental confusion. Eyesight poor, practically no vision in right. Pupils are fixed and irregular, the right considerably irregular. The upper jerks are present as equal. The reflexes of the lower extremities were difficult to elicit, but being elicited are fairly active. The platar responses are flexor. No clonus. Abdominals and epigastrics are present and equal. There is a general hypoesthesiæ to pain stimuli, and on first examination abolition of conjunctival reflexes.

Serology. Serum Wassermann positive. Spinal fluid Wassermann, positive 8 cells, excess of globulin, Fehling reduced. Routine blood examination negative. Gold chloride positive. Eye report Dr. Holden: No perception of light in right eye, L 5/200. L. marked concentric contraction fields. Simple optic atrophy R. > L. Binet-Simon test places boy at 8.2 years.

No subjective history of hereditary syphilis could be obtained, but mother has irregular pupils L. > R., fixed to light and shows a positive serum Wassermann.

THIRD DIVISION—DR. PEARCE BAILEY.

**Case of Cerebellar Embolism.**—Dr. Louis Casamajor presented H. E., 29 years old, Norwegian servant maid who entered the service of the Third Division of the Neurological Institute complaining of difficulty in walking and dizziness. The family history was negative as far as neurological disease was concerned. As a child the patient had had an acute attack of "heart disease" from which she recovered with no subjective residual. Had two attacks of pneumonia in the past nine years. No history of syphilis. The patient had always been well except for the above acute illness and worked as a domestic servant. Five weeks ago she began to complain of pain and some numbness in the legs. These pains, while rather severe, did not interfere with her work and began to recede after two weeks. Two weeks ago the patient suddenly became dizzy and could not stand alone. With this onset there was no headache or eye symptoms nor did the patient lose consciousness. She was obliged to go to bed on account of the dizziness and has not been able to work since. When she got out of bed she experienced great difficulty in walking, due to insecure balance, with a tendency to fall forward and to the right. There has been no change in her condition for the past week. At no time has there been any bladder disturbance.

Physical examination on admission showed a fairly well developed young woman whose gait and station were decidedly unsteady. The deep reflexes of the arms were present and equal as likewise were the abdominals and epigastrics. The knee jerks and angle jerks could not be obtained on either side. There was no clonus or Babinski. There was some slight swinging ataxia of all extremities, more marked in the legs. Asynergia marked; adiadochocinesia negative. Sensations were normal throughout.

Eye examination by Dr. Holden showed the pupillary reaction normal and equal. Ocular movements very normal. There was no diplopia. She had a high degree of myopia in both eyes with a vision of something less than 20/200 and the fundi showed the usual changes of high myopia. The nystagmus was of interest. Looking straight ahead no movement of the eyes was observed. Looking to the right there was slight, slow, horizontal, and rotary mystagmus to the right. On looking to the left the mystagmus to the left was much more marked and rapid than the other. On looking upward and downward no nystagmus was seen. No changes could be found in any other of the cervical nerves and especially was there no diminution of hearing acuity for the patient heard the watch tick at three feet from either ear.

Examination of the heart showed that the left border percussed five inches from the median line while the right border did not extend beyond the right border of the sternum. On auscultation there was a loud diastolic and a soft systolic murmur heard loudest to the left of the sternum in the second and third intercostal spaces. The diastolic murmur was transmitted in all directions. We considered the murmur to indicate an aortic regurgitation with some stenosis. The systolic blood pressure in the right arm was 125 mm. and the diastolic 85 mm. Wassermann in serum negative. Spinal fluid: Wassermann negative. Globulin negative. No cells.

*Interpretation.*—A young woman of 29 years, with a severe heart lesion following an early acute endocarditis, suffered from dizziness and instability of gait and station of acute onset. Neurological examination shows instability of gait and station with asynergia. Slight swaying ataxia, lost knee jerks, and some cerebellar nystagmus most marked on looking to the left. The localization of cerebellar lesions is still hazardous but this case is put forward as one of cerebellar lesion on the following points: (1) Vertigo and instability of gait and station. (2) Horizontal and rotary nystagmus which is more likely of cerebellar origin than of vestibular as the hearing is the same in each ear. (3) The absence of pyramidal or other tract signs. The absence of knee jerks.

The rapid onset and the presence of an extensive cardiac lesion in this patient justifies the diagnosis of embolism in the cerebellum.

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**An Immaculate Profession.**—In some countries it seems to be understood that if a physician calls in a surgeon to perform an operation the fee for the operation is to be shared. We have never heard of this being done in England, nor is it thinkable that the idea has ever been entertained in any part of our far-reaching Empire.—*British Medical Journal.*

## NEW YORK ACADEMY OF MEDICINE.

### SECTION ON LARYNGOLOGY AND RHINOLOGY.

*Anniversory Meeting, Held November 25, 1913.*

Dr. William W. Carter, in the Chair.

This meeting consisted in exercises commemorating the Fortieth Anniversary of the Section which was originally the New York Laryngological Society. The tablet presented was inscribed as follows:

The New York Laryngological Society, founded by Clinton Wagner, M.D., merged with the Section in Laryngology and Rhinology of the New York Academy of Medicine Eighteen Hundred and Eighty-five. The oldest Society of Laryngology in Existence. This Tablet Commemorating its Fortieth Anniversary Presented by David Bryson Delavan.

**Reading of Congratulatory Letters.**—Dr. C. D. Van Wagenen, the secretary, read congratulatory letters from Dr. Thomas Rushmore French of Brooklyn, Dr. George M. Lefferts of New York, Dr. William Kelly Simpson of New York, Dr. John M. Mackenzie of Baltimore, Dr. Herbert S. Birkett of Montreal, Dr. Francis R. Packard of Philadelphia, and others.

**Introductory Remarks.**—The President, Dr. William W. Carter, made this brief address. He said that he congratulated the Section and welcomed the guests of the evening with a feeling of keen appreciation of the honor of presiding at such a meeting together with a sense of unworthiness in assuming the chairmanship on this occasion. This was an epoch in their history. They had met not from necessity nor to applaud their own work, but to honor those pioneers who had lifted laryngology from a cradle of obscurity to its present position. The span of one life was too short for the founder to realize all that he had done, but he knew that he was building for those who were to follow him. They had with them one who had come from London to be with them on this occasion, Dr. Wagner, who had graduated at the beginning of the Civil War and had served in the Medical Corps of the army during the war. This experience placed him in the first rank as a surgeon in that day. He then went to Vienna and studied laryngology and when he returned opened a laryngological clinic in this city. This clinic was the beginning of the Metropolitan Throat Hospital. Dr. Wagner was instrumental in founding the New York Laryngological Society in 1873 which later became the Laryngological and Rhinological Section of the New York Academy of Medicine.

**Address of the Founder.**—Dr. Clinton Wagner made this address (see page 1).

**Address of Commemoration and Presentation.**—Dr. David Bryson Delavan made this address (see page 2).

**Acceptance of Commemorative Tablet and Memorabilia.**—Dr. William Wesley Carter made this address. He declared that this tablet commemorating the Fortieth Anniversary of the Laryngological Section of the Academy of Medicine, was a record to posterity of the distinction of the birth of the section, and the wonderful collection of memorabilia bearing upon its early history, and the remarkable collection of historic instruments, showing the ideas from which many of the most useful instruments of today had been evolved created a shrine, to which members could ever look for inspiration. The section recognized with grateful appreciation the professional pride of the donor and pledged itself to maintain the high standard upon which the society was founded. The section had wielded a distinct influence in their specialty and had contributed its full share to its unparalleled growth. It was well, therefore, for those who had come upon the arena after the first great battles had been fought and won to know whence came the enthusiasm that had achieved these results. There was no specialty that had advanced more rapidly than laryngology; only a few years ago it received but a modicum of respect, and its followers were almost ostracized by the general profession; but all this was now changed and it was recognized as a calling worthy of the best efforts of the most skillful men in the profession. Laryngology was the child of necessity and was endowed with those sturdy characteristics especially designed to overcome difficulties. The position which it now occupied was due to the character of the men who had embraced it, so that, while utilizing the gains of science they should not fail to appreciate the dignity and worth of those from whom their knowledge had been obtained. At no time in the history of laryngology had there been so many good men engaged in devising new methods and in perfecting the old, and to even mention the new and efficient procedures for relieving abnormal conditions that arose in their field of effort would require more time than was at his disposal. One instance, however, that of the bronchoscope must be mentioned. This instrument had opened up a new field for the laryngologist, and its wonderful possibilities, which were only just beginning to be realized, should be published throughout the length and breadth of the land, so that every layman might know that when a foreign body became lodged in the air passages it might be removed under the direct guidance of the eye by one skilled in the use of this wonderful instrument. This section had contributed largely to the advances of their science. There were men present whose accomplishments had not only been admired in this country but who were recognized in foreign parts and whose work claimed a place of distinction in the literature of every country in the world. These were the men who had drunk deep of the astral wines, and who could see, engraved on the stars themselves, the great future of their specialty. This bronze tablet was a fitting tribute to the oldest laryngological society in the world and should occupy an appropriate place on the walls of this Academy.

Dr. Douglas Beaman said that he had been thinking that the generation to which he belonged was in the third rank. First came the pioneers with high boots and axes who hewed the path; then the teachers who had taught him, and these too were giants. Their methods were not always perfect but they had the right spirit and high ideals. They, themselves, belonged to the third rank and they, too should be proud of their work; they were still forging ahead. Three great revolutions had come since his association with laryngology. First, there was the great advance brought about by the use of clean methods, which had resulted from a knowledge of the part played by bacteria in causing infection. Second, and perhaps even more important, was the discovery of cocaine, in 1884, by which their work had been revolutionized in the very best sense of the word. The third great revolution had been a natural evolution, that was, an improvement in method. There had never been such an active tide, such a wave of progress as was now sweeping over their specialty.

Dr. Robert C. Myles said that on such an occasion one's feelings were mingled. They should bow their heads in reverence and place laurels on the heads of the living and chaplets of immortals on the graves of the dead. It was with a sense of gratitude that they paid tribute to their teachers, who had only required of them that they should be a credit to themselves. Twenty-seven years ago he came from the forest and had straggled into Dr. Wagner's clinic and he still recalled much that he had learned there that had been very helpful to him. Dr. Myles said that he believed that occasions like this were of more value to them than twenty scientific meetings because, after all, it was the spirit that made the world move on. They were apt to lose their constructive feelings and to become pessimistic, and while it was right that they should fight things that would not stand the scientific test, it was not well to lose sight of the constructive side. It seemed that when one compared what those pioneers accomplished with so little with what they were doing today that they suffered by the comparison.

The meeting was closed by a rising vote of thanks to Dr. Delavan and Dr. Wagner.

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## THE PRACTITIONERS' SOCIETY OF NEW YORK.

*Two Hundred and Fifty-sixth Regular Meeting, Held October 10, 1913.*

The President, Dr. Walter B. James in the Chair.

**Spontaneous Rupture of the Spleen in Typhoid Fever: with Report of a Case Cured by Operation.** Dr. William A. Downes reported this case. He said that spontaneous rupture of the spleen in the course of typhoid fever was sufficiently rare to warrant the report of a case; more especially as, in this instance, it was possible to make the diagnosis, and, by prompt operation, to save the life of the patient. Only twelve other cases were recorded in the literature. In nine of these the condition was discovered at autopsy. In the three remaining cases it was found in the course of operation for supposed intestinal perforation. None of the cases recovered.

The case was that of a physician, thirty-six years old, who was admitted to the New York Hospital on February 20, 1913, with the diagnosis of probable typhoid fever. He had never been seriously ill before, and especially had never had malarial fever or any other disease likely to lead to enlargement of the spleen. Physical examination on date of admission showed noth-

ing unusual for the stage of the disease he was suffering from, except that the area of splenic dullness was unusually large and extended from the eighth to eleventh rib and anteriorly three c.m. beyond the costal margin. The edge of the spleen was distinctly felt even with quiet breathing. On deep inspiration it extended fully four c.m. below the costal margin. It was unusually broad, its edge blunt and rounded and its consistence noticeably firm and tense. On the day after admission the patient complained of a sudden, severe, sharp, stabbing pain in the left hypochondrium. This was soon followed by severe aching pain in the left shoulder, which radiated somewhat down the left arm. Soon after the onset of the pain he vomited a small quantity of clear fluid and broke into a profuse perspiration. The pain was so severe as to require an injection of morphine. The respirations were rapid and shallow; there was marked tenderness to pressure just below the costal margin, where the spleen could be distinctly felt, and slight rigidity of the upper part of the left rectus muscle. At times the pain was felt somewhat in the right hypochondrium. The patient looked very seriously ill the next day; the severe pain in the left hypochondrium and left shoulder having continued throughout the night. The area of splenic dullness seemed larger than on admission. Elsewhere the abdomen was soft and showed no tenderness on palpation. His condition improved in the next twenty-four hours. Pulmonary infarct was suspected, but neither the signs nor the symptoms were sufficiently characteristic to justify that diagnosis. The extremities showed no indication of thrombophlebitis. Blood cultures taken the day after admission were now reported as containing a Gram-negative bacillus, which was later positively identified as the bacillus typhosus. On the morning of February 25 the patient had an attack of coughing and immediately afterward complained of the same severe pain in the left hypochondrium and left shoulder. This pain continued throughout the morning and was accompanied by profuse sweating and by a startling change for the worse in the patient's general appearance and condition, similar to the one observed after the first attack of pain. Examination of the chest still showed no change from that of the preceding days. There was dullness on percussion over the greater part of the left side of the abdomen and in the left flank, and some rigidity and tenderness in the left upper quadrant. The rest of the abdomen was soft and flat, and, while having a somewhat boggy feel, was not tender. The patient was seen by Drs. Conner, Downes, and Lambert, and all agreed that the symptoms indicated a rupture of the spleen. This diagnosis was arrived at by considering the location of the pain, tenderness and muscular rigidity; by the absence of signs pointing toward other possible complications such as intestinal perforation and pulmonary infarction, and, finally, by the fact that the spleen has been recognized as being unusually large and tense for the early days of typhoid fever. A blood examination made some three and a half hours after the onset of the pain, and when the symptoms pointed strongly to an alarming loss of blood, showed the following surprising results: red cells, 5,280,000; hemoglobin (Sahli), 85 per cent.; leucocytes, 35,000. In spite of these apparently inconsistent blood findings, an immediate exploratory operation was decided upon and the patient was taken to the operating room five and a quarter hours after the onset of the symptoms. Dr. Downes, under local anaesthesia, opened the abdomen by a vertical incision through the middle of the left rectus muscle. Upon opening the peritoneum, the abdomen was seen to contain a great quantity of blood. The patient was therefore given nitrous oxide and ether and the incision rapidly enlarged. A tremendous quantity of fresh and clotted blood, estimated at from one and a half to two quarts, escaped from the abdomen. The spleen was then delivered through the wound, the pedicle being caught with a long straight rubber-covered clamp, placed close to the spleen. The vessels were ligated, the spleen removed, and the larger blood clots taken out of the abdomen—one old and laminated clot fully an inch thick and conforming to the size and shape of the phronic surface of the spleen being found high up under the diaphragm. The abdomen was closed without drainage. When the spleen was first explored with the hand a rent in its capsule fully three inches in length was encountered running along its posterior border; during the further manipulations the capsule was stripped from almost half its surface. In spite of the patient's critical condition on the operating table he improved steadily in the following few days. On the night of the day of operation his hemoglobin was 62 per cent. and his leucocytes 68,000. The next day his hemoglobin was 58 per cent.; red cells, 2,810,000; leucocytes, 36,400. During the further course of the disease the patient, despite a complicating thrombophlebitis and pulmonary infarct, improved steadily and left the hospital on March 31. One month later he had regained his weight and seemed in his usual health.

In answering inquiries from the members present, Dr. Downes said that as far as he knew patients deprived of their spleen by operation got along as well as normal persons. At least this was the usual history in such persons in whom the spleen had been removed after some accidental injury to the organ; that is, traumatic cases. He had also seen recovery in cases of splenomegaly of the Gaucher type, after removal of the spleen; of course in this condition the withdrawal of the functions of the spleen from the general organism was gradual as the spleen tissue was replaced by the new growth and it was thought that the bone marrow in the mediastinum took up some of the functions of the organ.

**The Serological Tests in Cerebral Hemiplegia.**—Dr. CHARLES L. DANA read this paper. (See Vol. 84, p. 1013.)

**Unresolved Pneumonia.**—Dr. JOHN S. THACHER read this paper. (See page 7.)

Dr. JAMES said that he quite agreed with Dr. Thacher as to the importance of radiographs in pointing out the localization of fluid in the chest. He was also not inclined to grant that radiographs are very important in differential diagnosis of the various conditions that may follow pneumonic inflammation of the lung; that is, a radiograph tells little or nothing about the nature of the shadow seen, but tells a great deal about its site and the necessity of exploration with the needle to decide upon the nature of the condition. Dr. James thought, too, that while the dangers of exploration with the needle were real, still, in his opinion, the needle was used rather too little than too much in routine practice of physicians. Dr. Thacher brought out clearly the unreliability of the usual signs and symptoms of pus in the chest and valuable time is lost if exploratory puncture, repeated if necessary, is not made.

Dr. ROPER said that it was his opinion that one saw at least one case a year in hospital practice in which the patient left the hospital with physical signs of consolidation still present but with nothing to suggest pus. He could recall two autopsies in the last five years in which cases which had given similar signs showed consolidation with beginning organization. It was the routine practice at New York Hospital to operate upon cases of empyema even before pus in the exploratory syringe was evident to the naked eye. If the fluid was turbid and the number of polynuclear leucocytes was very considerable on microscopic examination, operation was thought to be indicated. He thought that the experience at the New York Hospital showed that this was a better routine rule than waiting for the appearance of frank pus, especially in empyemata of children. On the other hand, one child in whom operation had been delayed for some reason eventually recovered without operation. This was unusual.

## SOUTHERN MEDICAL ASSOCIATION.

*Seventh Annual Meeting, Held at Lexington, Kentucky, November 17, 18, and 19, 1913.*

THE PRESIDENT, DR. FRANK A. JONES OF MEMPHIS, TENNESSEE, IN THE CHAIR.

(*Concluded from Vol. 84, p. 1145.*)

**The Management of Proteins and Fats in Infant Feeding.**—Dr. A. W. CALLOWAY of Asheville said that one very important estimation must be considered in connection with proteins, namely, for a baby to thrive it must have 1.5 grams of proteins per kilogram daily, even though the caloric estimation might be in excess of daily requirements. The consequence was the sufficient number of protein calories. These could not be supplied with either fats or carbohydrates. Such was not the case with the two latter. Clinically speaking, there was a disturbance in the protein digestion if the following group of symptoms prevailed. First, they would describe those where proteins were in excess. Failure to gain weight, constipation, the presence of large, hard, casein curds in the bowel movements. Under the condition of an excess of proteins the management would consist in increasing the per-

centage of sugar and lowering that of the proteins. A considerable portion of these might be given in the form of whey. The casein might be rendered more digestible by adding starch to the food. Again, the milk might be pancreatinized. Having pointed out most of the clinical evidences of excess of fats, a reduction in it was the remedy, and in making this reduction it was better to go to a low point, as far as even one per cent. and then make additions as rapidly as results would justify. When babies were vomiting it was a safe rule to keep the fats low. Fat starvation was soon manifested by a condition of rickets, and one of its earliest symptoms was constipation, in which there was a deficient tone to the bowel. The addition of cream to the food, cod-liver oil or kindred products would remedy this condition. After indiscriminate feeding, cream was added, hoping it would build up the baby. If the child was delicate, cream feeding was very apt to cause dyspepsia and greatly impair the digestive power. There must be a distinct indication for the need of fats and first they must diagnose the particular phase of malnutrition. By clinical and laboratory investigations they must determine the excess or insufficiency of one or more of the elements of food. Without this, he could conceive of no successful management. Having arrived at the particular form of malnutrition due to food disturbances, the management of the fats or proteins became one of individual prescription. Use could be made of a division of the milk products. The early months of infancy demanded a low protein percentage and by the use of whey in a modified milk, the same proportions of lactoalbumin and caseinogen as in human milk might be simulated.

**Symposium on Malaria.**—Dr. R. H. Von Esdorf of Mobile was directed in 1912 by the United States Public Health Service to make an investigation of the geographical distribution and prevalence of malaria in the state of Alabama. In July, 1913, the same work was extended to include the states of Arkansas, Mississippi, Georgia, South Carolina, North Carolina, and Florida. The campaign was one of education. Lectures had been given in schools and to the people to acquaint them with the exact facts in regard to the conditions prevailing in their own towns, particularly with regard to mosquito breeding places. In addition, he had lectured at universities and had taken high school classes and made surveys and taught these individuals how to identify the larvae from all other larvae, and they readily learned the differences and made surveys of their own. To save time he had advocated forming organizations, using boy scouts, and getting girls interested so as to make these surveys for local health officers. In connection with the intensive studies he gave an outline for studying the geographical and climatic conditions in each place; also the social, hygienic and economic conditions that prevailed in the particular places, the industries, and how they were affected and infected, so that the economic question was also being studied in this conservation, and estimations were being made from an economic standpoint in each one of the localities, so that undoubtedly it would prove of value when they got all of this information together to stimulate and arouse greater public interest and greater public demand for doing this work.

**Treatment and Cure of Malaria.**—Dr. C. C. Bass of New Orleans stated that perhaps the most perfect specific in medicine was quinine for malaria but like few other specifics it was a specific only when properly administered. The present paper dealt with the proper use of quinine in the treatment of malaria and gave fundamental facts and principles, based on experimental evidence and observation, which made such routine necessary. The asexual cycle of malaria plasmodia which caused the common symptoms of malaria in man took place partly in the blood stream and partly in the capillaries. The plasmodia lodged in the capillaries and remained until they segmented. The time spent lodged in the capillaries varied with the different species of plasmodia. The estivo-autumnal parasite, the most malignant of them all, remained lodged in the capillaries for at least thirty-six out of each forty-eight hour period or cycle. During the time the parasites were lodged in the capillaries they were beyond the reach and effect of quinine in the blood stream. Therefore, it was necessary to keep quinine in the blood for a period of at least forty-eight hours and preferably seventy-two hours or three days. The author stated that thirty grains of quinine on each of three consecutive days always destroyed all asexual plasmodia in the patient. There were no exceptions. Relapses resulted from reproduction in some manner not now well understood of sexual plasmodia or gametes which were usually present in variable number. They reproduced in seven days and multiples of seven days, and gave rise to the relapses occurring usually on the seventh, fourteenth, twenty-first, and sometimes twenty-eighth day. Gametes were not killed by quinine or any other drug but their products of reproduction were killed by quinine. Thirty grains of quinine once a week for six weeks would always sterilize the blood of all plasmodia after the asexual parasites had been destroyed by the first three days of quinine treatment. Continuous administration, especially of small doses of quinine, favored or increased the number of gametes and insured relapse or chronicity. The author laid down as routine treatment for malaria, from which there should seldom be variation, thirty grains of quinine during each of three consecutive days followed by thirty grains on the same day of the week on which the last of the three days fell for a period of six weeks.

**Malaria During the First Three Months of Life.**—Dr. B. H. Booth of Drew, Mississippi, outlined the usual treatment of malaria during this period as follows: cold baths to reduce the temperature, if practicable; if not, then hot ones. Small doses of heroin and atropin, or morphin and atropin to control the convulsions and equalize the circulation, not losing sight of the fact that young children, as a rule, bore morphine badly, hence it must be given very guardedly. As a good mercurial purgative, he preferred a mixture of calomel and the time honored mercury with chalk, followed by plenty of castor oil, as hot as could be given, also quinine which could be administered by mouth best in some syrup or the proprietary preparation euquinin, or used in the form of an inunction, the soluble salts dissolved in alcohol and glycerine, or as he thought the preferable mode by hypodermatic injections of quinine and urea salt, remembering that an infant at this age would bear well proportionately large doses of both the mercurials and quinines. The hypodermatic administration of the quinine was to be preferred to any of the others, as it was more prompt in its action, more sure in its results and was really easier on the child than either by the mouth or inunction, as it was administered in two doses, was comparatively painless, and allowed the child more rest besides being much less trouble to the attendants. After the acute symptoms had subsided, iron in such forms as to be easily assimilated with essence of pepsin, in appropriate doses, would cause a quick recovery from the emaciated condition.

**Some Observation on Mumps, with Discussion of Complications.**—Dr. J. S. Tuberville of Century, Florida, took the position that mumps was a more serious disease than is generally supposed, and that it could be contracted from persons through eating and drinking utensils before there was evidence of the malady. The idea that old people did not have mumps was a popular fallacy among medical men and perhaps had its origin in unrecognized cases earlier in life. There was a report of acute pancreatitis as a complication and a suggestion that this condition was more frequent than was generally thought. Further, that a certain number of chronic cases of pancreatitis perhaps had their origin from cases of mumps.

**The Medicinal Treatment of Bronchitis and Pneumonia.**—Dr. I. L. Van Zandt of Fort Worth, Texas, summed up his treatment of pneumonia and bronchitis as follows: Give a creosote preparation freely from the beginning in all cases. Use collargolum in all cases of small children, preferably by inunction. There might be some who did not need it, but it would do no harm. In cases of older persons, where there was a suspicion of an infection other than of pneumococcus, use it also. Do not understand that he never used anything but these specifics. Most frequently he did not, but kept a constant watch as to the necessity for anodynes, stimulants, etc., and used them when he deemed them necessary. Mention had been made in this paper of the use of antistreptococcus serum with apparent good results. The general reports of serum in pneumonia had not been encouraging, not at all to be compared with its use in diphtheria and meningitis. The reason of this was that in each case of these two diseases, they had a single specific microorganism to contend with, while not infrequently in pulmonary infection, the organisms were multiple and various.

**Pellagra.**—Dr. Seale Harris of Mobile, Ala., stated the published death rates for pellagra were too high and gave no idea of its prevalence. After considering the digestive symptoms, and the importance of early diagnosis, he stated that in beginning the treatment of pellagra he usually gave several small doses of calomel, 1/20 grain every hour until ¼ grain was given, then bismuth subnitrate in from ½ to one dram doses with five grains of salol every 2 to 4 hours as might be necessary to control diarrhea. He had rarely found it necessary to use opium.

Where there was absence or deficiency of hydrochloric acid, dilute hydrochloric acid with pepsin often relieved the gastric symptoms and would not infrequently control diarrhea. Colonic irrigation with normal salt solution was often helpful, and in some cases, where there was pain in the rectum anesthesin suppositories gave great relief. When there was stomatitis with ptyalism the chlorate of potash given internally yielded splendid results. Mild antiseptic mouth washes, as diluted liquor antisepticus alkalinus were helpful. Lombroso thought that arsenic and the chloride of sodium were antidotes for the toxines from spoiled corn and following his teachings the author had used both in large doses. The salt was usually mixed with the food. Fowler's solution of arsenic was the best preparation and should be given in ascending doses of from 1 to 15, or even twenty drops three times a day, or until the physiological effects were obtained. He had used a toxyl in a number of cases, but had not been pleased with the results. Salvarsan had also been used with varying results by different observers. He was inclined to think that the arsenic must be taken into the alimentary canal to get the beneficial results. He had seen very remarkable improvement in the digestion and general nutrition of patients with pellagra follow the use of Fowler's solution. There was no disease or condition with which he was familiar in which the confidence of the patient was more important than in pellagra.

**Pathology of the Heart in Rheumatic Infection in Children.**—Dr. W. W. Harper of Selma, Ala., showed slides of ten cases, and a study of them demonstrated (1) that in children endocarditis was often the only symptom of rheumatism. (2) That chorea was the result of a rheumatic infection, and that every child suffering from acute chorea should be placed in bed and kept there until the acute symptoms had subsided. (3) That a primary attack of rheumatic endocarditis was not ulcerative. (4) That a first attack of rheumatic endocarditis usually left the heart valves in such a condition that vegetations frequently developed during a second attack of rheumatism. (5) That such valves were peculiarly vulnerable should the patient be subsequently attacked by any of the pus-producing bacteria, such as the pneumococcus, streptococcus or colon bacillus.

**Central Cirrhosis of the Liver.**—Dr. V. H. Bassett of Savannah, Georgia, reported a case of central cirrhosis of the liver with acute endocarditis of gonorrheal origin in a young man 22 years of age, following an acute attack of acute specific urethritis. The clinical features of the case were fever with delirium, dyspnea, hemoptysis, and icterus, and moderate generalized edema. The course of the disease was about 8 weeks. At autopsy an acute ulcerative and vegetative endocarditis of the mitral valve, with a stemosis, was found, with hypertrophy and dilation of the right side of the heart. The lungs showed the changes of chronic passive congestion. The liver did not resemble a nutmeg liver, but differed from a normal liver only in being somewhat cloudy, paler, and somewhat firmer in consistency. The condition of fibrosis of the centers of the lobules was not suspected from the anatomic condition, but was found on making microscopic sections of the liver. The fibrosis was diffuse, affecting the centers of practically all the lobules, and occupied a space of a round or oval character, about equal in width to ¼ of the radius of the lobule. The connective tissue was young connective tissue and there was little pigmentation or other evidence of a previous chronic passive congestion of any extent. Dr. Bassett reviewed the work of Mallory, Opie and other investigators on the localization of necroses and Krotz in regard to the pathogenesis of fibrosis from localized or focal necroses. He cited a suggestion of Mallory that in some cases the fibrosis of central cirrhosis proceeded not from the stasis in the liver, except as an accessory factor, but from the necroses which had resulted from the attending infection, and offered his own case as a possible example. He suggested an anatomic classification of the cirrhosis of the liver based upon the localization of the fibrosis or of the necroses preceding it, in the vascular lobule, and considered the advantages and disadvantages of such a classification, acknowledging that it was difficult to place all types of clinical cirrhosis in the classification, but stating that similar difficulties were encountered in any system of classification. He reviewed the opinions of the older and more recent writers on cirrhosis of central origin with Piery and others that fibrosis rarely occurred as a distinct type of cirrhosis in the congested liver, and that there was no evidence that atrophic cirrhosis arose from this cause. He suggested that a central cirrhosis might occur which did not depend on congestion as a casual agent, but this type was rarely observed.

**Some Views on the Etiology of Pellagra, Based Upon the Experimental Inoculation of Monkeys and Rabbits.** Dr. W. A. Dearman of Long Beach, Mississippi, was prompted and led to make investigations along the line of insect transmission by the marked seasonal spring incidence of pellagra, the rise and fall of pellagra and malaria in his section along the Gulf Coast. The first of his activities in this direction was with the bedbug. He was successful in collecting from a bed, which a pellagrin had occupied for six months, a large number of these human parasites, including about fifty large and small; these were kept in a wide-mouthed, well veltilated jar. He induced these bedbugs to bite and abstract blood from the large vein underneath the wing of a full grown chicken. It was necessary to extinguish the light before they would begin their activities in sucking blood; after a few minutes they were removed to a test tube and there could be seen several discrete ecchymotic spots on the skin overlying the vein where they had been active in abstracting blood. This process was repeated at intervals of every other day for about three weeks; a greater number of the bugs, by this time, were dead, due to their deadly combat. Up to this time, a period of about four months, no lesions had developed in this chicken. On several occasions, his attention was attracted by the malignancy of certain cases of pallagra, as well as other members of the same household suffering from the disease, or in individuals who had frequently visited these homes, in which homes and on whose premises, there were found mangy dogs, heavily infested with fleas, (*Tcenocephalus serraticeps*) which dogs were in the habit of sleeping on the beds in the day time. One of these patients, a negro woman, gave a history of having been heavily infested with fleas from this dog, and had noticed no signs of her pellagrous condition until she had become in possession of the dog. He bought the dog and immediately placed him in a cage with a full grown Rhesus monkey, and kept them continuously associated for thirty-seven days. The monkey soon became heavily infested with fleas from this dog, as they could be seen crawling on her body and buried in the skin. The dog soon died from emaciation and a black diarrhea. Up to this time, a period of three months, no signs of pellagra had developed in the monkey. Plague, under the name of black death, which once decimated the populations of the earth, having made its grewsome appearance first on our shores in coast cities and towns, and being principally transmitted by the rat flea, induced him to investigate this insect as a probable transmitter of pellagra. Furthermore, pellagra was principally a European disease, and coming to our shores in exactly the same manner, first making its appearance, according to statistical records, on the coast of the Carolinas, and later invading new territory in the interior with alarming rapidity and unabated. Samples of cornmeal were obtained from pellagrous homes and from local dealers. Moulds were cultivated, isolated aerobically and anerobically, suspended in physiological salt solution, and experimentally injected and fed to rabbits, chickens, pigs and monkeys. Neither ever developed any lesions resembling pellagra. From what he had gained in the way of experimental inoculations with blood of pellagrins in the incipiency of the disease, and the report of Everett S. Lain's investigations on skin diseases among full blood Indians of Oklahoma (*Journal A. M. A.*, July 19, 1913, Vol. LXI, p. 168), with other evidence too numerous to set forth in this article, he felt inclined from his own observations and from Lain's statement of the study of these five thousand Indians to find a single case of pellagra, while they subsisted principally on spoiled corn, to doubt very materially that the cause of the disease was lurking in spoiled corn; that the condition known as pellagra, which was becoming so alarmingly prevalent in the southern states, invading new territory, leaving death, insanity and invalidism in its wake, terrorizing our American people and yielding to no therapeutic applications, was to his mind, without evidence at hand, a disease that in all probability was an insect-borne disease, and the dog and cat flea should be looked upon with suspicion, not to the exclusion of other possible transmitters, and further experiment, study and observation were yet lacking and needed to discover to come into full possession of all the facts relating to its etiology.

**Cocaine as a Respiratory Stimulant.**—Dr. George E. Pettey of Memphis, reported two cases showing the effect of cocaine. The first was one of chronic alcoholism with threatened respiratory failure, respiration irregular, 5 to 10 per minute. After several hours' effort at restoration by administration of caffeine, strychnine, adrenalin, ilynological salt solution, etc., without improvement, ½ gr. cocaine was given and repeated in 30 minutes. Slight improvement followed the first dose, and in 10 minutes from sec-

ond dose, respiration was 12 and regular. This improvement lasted one and one-half-hours, but at the end of ½ hour more, respiration was 8 to 9 per minute; ¾ gr. cocaine then given raised the rate to 12 again. This rate was maintained two hours, and both decrease in rate and irregularity occurred. One gr. cocaine then given restored rate to 12 to 14 per minute. In this case, in order to keep respiration up to a satisfactory rate, one gr. cocaine was required about every three hours for five days, during which time thorough elimination removed toxins from the system and the drug was no longer needed. Attempts to substitute other respiratory stimulants for it were unsuccessful.

The second case was one of paraldehyde poisoning. Patient had taken ½ oz. paraldehyde at 9 A. M., and sleep not following, another ½ oz. was taken at 1 P. M. At 2 P. M. he was found in a profound stupor from which he could not be aroused. He was cyanotic, breathing 6 to 8 per minute, pulse 120. Vigorous efforts to arouse him from stupor including dilation of anal sphincter were unavailing. Strychnine, adrenalin, and faradic current to base of brain made no perceptible impression. Artificial respiration was then resorted to and was being used when he saw the case, one hour from time active efforts at restoration were begun, and two hours from time of taking last paraldehyde. At this time, upon stopping artificial respiration for short time, 3 or 4 voluntary respiratory efforts per minute occurred; pulse 150; patient deeply cyanotic; ½ gr. cocaine was given, and repeated in 15 minutes, and 30 minutes later one grain was given. Artificial respiration continued and patient's body enveloped in blankets wrung out of hot water. More vigor in the few voluntary efforts at respiration were noted five minutes after second dose of cocaine was given, and 10 minutes after third dose, 6 to 8 voluntary efforts at respiration per minute occurred, and they were able to suspend artificial respiration 5 to 10 minutes at a time. Thirty minutes later from time of giving the 1 gr. dose of cocaine, another of that size was given, and within 10 minutes from that time, breathing was 8 to 10 per minute, and fairly regular. This condition continued 40 minutes, when respiration again became irregular and slow. One gr. cocaine was then given, with prompt increase of respiration to 10 or 12 per minute, after which no further restoratives were necessary. Notwithstanding the unfavorable results reported from the effects of cocaine, he believed, after a rather extended experience, that the remedy could be used with safety when a respiratory stimulant was really indicated, and especially so in opium and other forms of drug narcosis.

**Abderhalden Test.**—Dr. William Krauss of Memphis said that the causes of failure might be enumerated as follows: (1) Due to the serum. It must be fresh, uncontaminated, secured after a fast of eight hours to eliminate the products of digestion, and pale almost to colorlessness. It must be obtained through a dry sterile needle "sheer" into a dry, sterile centrifuge tube and immediately centrifugalized, and the serum not pipetted off if the test was made within a few hours. The serum must not be opaque. (2) Due to the placenta. It was now directed that the placenta be chopped up and entirely freed of blood immediately after it had been "Creded." This required some hours. The pieces were thrown into boiling water containing a few drops of acetic acid, boiled five minutes, expressed, boiled again in a smaller amount of acidified water, and this tested in the ninhydrin, and, if positive, boiled again. He then advised percolation with distilled water, incubation with normal serum, further percolation, reboiling, and percolation. Before each test boiled and percolated again. (3) Due to faulty dialyzing thimbles. Even the "No. 579 a" thimbles must be rigidly tested. After a test they must be passed through many changes of distilled water. Some tap waters might clog them, also bacterial growth, and rough handling might make them leak. (4) Due to old or improperly stored ninhydrin solution. It should be fresh, of exact strength and stored in amber bottles. (5) Due to faulty technic. The outside of the thimbles must be rigidly guarded from contamination by placenta or serum. The immersion must be to the exact prescribed depth and the proper distance between the thimble and wall of the outer cylinder preserved. Dr. Krauss used a system consisting of a test tube open at the bottom upon which the thimble was slipped. Near the top was a vent hole to establish equal air pressure within and without the tube. The test tube passed through a perforated rubber stopper through which it could be lowered to the desired depth. A pledget of cotton saturated with chloroform was put into the mouth of the test tube and a cork over that. Incubation could then be done in a basterial incubator without chloroforming any cultures that were in the incubator. He preferred Schwartz's plan of boiling 5 c.c. of the dialyzate with 0.1 c.c. ninhydrin. He used a marked wide test tube and restored the bulk after boiling for one minute. There had been no failure either way in the two tests made since adopting his latest technic, but he expected to meet them with more experience. He thought inactivated serum was the best control.

**Symposium on Tuberculosis.**—Dr. E. C. Thrash of Atlanta, Georgia, attempted to show that tuberculosis was as certainly an alimentary disease primarily as was typhoid fever. His experience in handling large numbers of children of tuberculous parents had been that practically all of them had tubercular adenitis, and were positive to the Moro and Von Pirquet test, showing that they had become infected from their parents, but he rarely found one with lung involvement. Also most of the children which he had examined post-mortem at the Grady hospital that had died of chronic, wasting diseases due to disturbances of nutrition, had shown tubercular infections in the lymphatic glands of the abdomen with normal lungs.

**Distinction Between an Infection by Tubercle Bacilli and Tuberculosis.**—Dr. Mary E. Lapham of Highlands, North Carolina, stated that tuberculosis entered every home. All children were infected before maturity. It was impossible to avoid the infection. Children should be examined by experts in order to detect the first changes before harm had been done. They should not allow children to become victims before they knew it. Tuberculosis in well people was the most dangerous because it was never suspected. Good health and tuberculosis were perfectly compatible. All animals had tuberculosis because the bacilli were universally present in their food. Four hundred thousand children in the United States were infected with tubercle bacilli from the milk of cows. It was not enough to protect a child from exposure to contagion. The insidious development of an ever present infection demanded detection by regular examinations. They should not wait until the horse was stolen before they locked the barn door. They should remember the relation of the universal presence of acid fast bacilli to the universal tuberculosis of animals. The relation of the etiology of tuberculosis to an intestinal infection was as common as that by the colon bacilli. The infection by tubercle bacilli was not prevented by quarantine or segregation. The development of this inevitable infection must be arrested by its prompt detection. This could only be assured by regular examinations by competent experts. The prevention of tuberculosis could never be accomplished by obliteration. Detection and no delayed diagnoses were their surest safeguards. A scientist should be employed to teach the people the comprehension of the truths concerning tuberculosis.

**Protection for the Post-Sanatorium Tuberculous Patient.**—Dr. L. B. Morse of Hendersonville, N. C., in his paper, set forth some general rules for the guidance of ex-sanatorium patients; (1) Place yourself under the care of a good physician. (2) Approximate the sanatorium life closely, particularly in the beginning. (3) Rest in bed for one week. (4) Increase exercise (walking) with exceeding care both as to time and distance, and note results. (5) Take the precaution to "rest before getting tired." (6) Make regular hours a conscientious habit, both as to rest, exercise, meals and sleep. (7) Keep away from every sort of place of amusement and entertainment until thoroughly cured. (8) Reduce visiting to a minimum. (9) Maintain, if possible, a good body weight. (10) Be scrupulously particular regarding the morning bowel movement. (11) With increasing strength, exercise an increasing pride in the maintenance of a good bodily posture. (12) Taboo all dissipation. (13) Protect the patient, if possible, from all worry and strain. (14) Do not remain in the same room with a patient suffering from any sort of acute inflammation of the nose or throat. (15) Finally, remember always that the things that made you well, in the main, were the things that would keep you well.

**Diagnosis and Treatment of Tuberculosis.**—Dr. Dunning S. Wilson of Louisville said that the essentials were, first, prompt diagnosis: secondly, cooperation of the patients: thirdly, institutional training, and, fourthly, continuation of the treatment at home, bearing in mind that even the earliest cases of tuberculosis were not permanently benefited in less than a year of prescribed routine. Certain improvement and basic parts of the routine must become fixed habits of life if a relapse was to be prevented.

**The Value of Rest, Physical and Mental, in Tuberculosis.**—Dr. Wallace J. Durel of New Orleans stated that the purpose of this paper was to show, though they

could derive some beneficial effects by the use of exercise, absolute rest must replace the latter in active tuberculosis, and modified rest in quiescent and arrested tuberculosis. They knew that exercise entertained the formation (to excess) of tuberculin protein poisons; and that the effects of the latter (in excess) upon the body cells of the human organism were deleterious to the improvement of the tuberculosis patient. The effects of exercise upon the leucocytes, especially the neutrophiles, partly accounted for the harm done by exercise. Rest was essential in the active incipient tuberculosis, during the first weeks or months of treatment. Rest was absolutely essential in all cases of febrile tuberculosis. Definite written orders, specifying rest in the reclining posture, and at definite periods, was essential for good results in all forms of tuberculosis. In quiescent and active tuberculosis, the physician must be positive in his assertions, and must not allow himself to be influenced by sympathy or antagonism; and thus permit his patient to cease the carrying out of the prescribed rest. The loss of weight, temperature, acceleration of the pulse, disturbance of digestion, and the neutrophile index, were the only means for determining when a patient must return to absolute rest, after the taking up of exercise. The practice of keeping patients in sanatoriums for a specified time of three months, was not of much benefit to the poor tuberculosis patient. That the recovering tuberculosis patient must be prepared and trained by varieties of exercise, in order that he might resume his previous work, was more theoretical than practical. It was not a question of preparing the tuberculosis patient for his work or occupation; but one of ridding him of his tuberculosis, and of his incapacity for work, and of the danger of infection to his fellow men. The "farm" and "autoinoculative" plans of providing for the quiescent tuberculous had not proven of greater value than those measures where rest was the prime factor and exercise the secondary factor. The psychic or mental condition of the tuberculous patient must be carefully studied. Worry and uneasiness must always be alleviated.

**Some Phases of the Tuberculosis Problem.**—Dr. W. R. KIRK of Hendersonville, N. C., maintained that the tuberculosis problem was primarily a medical one, but the social side, which struck the marrow of the question in the maintenance of life itself, could not be ignored. Any controversy as to their relative importance was a waste of time and energy, but a combination of all the combative forces would be necessary to overcome the greatest menace to human life. He would urge a thorough comprehensive and cooperative union, working upon the unit system, of all the forces in the field, medical, social, economic, and administrative. The tuberculosis problem differed somewhat in each section of the country. The South did not suffer from crowded tenements, sweat shops, and foreign elements of population as in other sections, but they had the negro. He thought tuberculosis was slowly solving the negro question in the South with its frightful mortality to that race, but it was also a constant source of danger to the whites. This phase of the problem was put up to the State Board of Health and in this connection he deplored the lack of interest and cooperation in the medical profession in the work of the public health board, and suggested the appointment of a committee for closer cooperation with those boards in an advisory rather than administrative capacity. They, as physicians, should teach the masses how to protect themselves against tuberculosis. The facts must be presented in a startling manner, but he believed they had overshot the mark, and that it was now time to allay some of the unreasonable fear by more rational teaching. He thought that the tuberculosis exhibit scared more people than it instructed. A wholesome dread of the infection was to be desired, but an insane fear did harm to the cause. He also questioned the wisdom of excluding tuberculosis patients from the general hospitals, for besides increasing this fear of contagion among the people, it seemed to be working to the disadvantage of the medical man by limiting his opportunities for study of the disease at the bedside in the hospitals and medical schools. He would criticise the increasing tendency of the profession to send tuberculosis patients away from home, not for specific treatment but to build up by their own unaided efforts. Under the noncommittal diagnosis of neurasthenia they were sent out in various stages of the disease to mingle among the healthy people, incapable of properly managing their own cases, the true nature of which they were trying to conceal. He regarded this practice as an injustice both to the patient and to society at large.

**Pulmonary Embolism as a Surgical Complication.**—Dr. JOHN H. BLACKBURN of Bowling Green, Kentucky, stated that pulmonary embolism secondary to venous thrombosis was a relatively frequent complication in general surgical and puerperal cases as well as after operations. There was no specific cause in all cases, but as a rule, it developed as the result of a combination of trauma and certain blood changes, either of a chemical nature or from bacterial invasion. A vast amount of experimental work had been done to prove or disprove certain theories regarding thrombosis and embolism, but the solution of cause and prevention would depend upon the carefully kept and reported records of clinical cases, that the relationship of the many factors might be learned and the predisposing causes removed. Even with the most careful preparation, operative procedures and after-treatment there would doubtless be a certain number of cases of thrombosis with the secondary development of embolism.

**The Treatment of the Pus Appendix.**—Dr. GEORGE H. BUNCH of Columbia, N. C., said by not just draining the abscess, but by removing the appendix, which was the pathology of the condition, by closing the incision and draining through a stab-wound, thus obviating the necessity of a secondary appendectomy, Guerry, so far as short convalescence and permanent cure were concerned, made the pus cases in effect clean cases. With all this he accomplished a lower mortality than was reported by those practising other methods.

**The Relation of the Medical Profession to Accident Insurance.**—Dr. EDWARD MAGRUDER of Baltimore said that it was incumbent upon them to see that their interests as policy holders were properly protected. They could assist in bringing about this result in the following ways: 1. By using their influence to the end that the companies operating in their several States were properly supervised, not unjustly taxed, were carefully administered and were honestly represented. 2. By endeavoring to prevent fraudulent claims or imposition upon insurance companies through the ignorance of the true conditions or cupidity on the part of their patients who were policy holders, they could assist in reducing the number of unintended losses to accident companies, and, as a result, enable them to sell insurance protection at a much smaller cost. 3. It was their duty to themselves and their families to immediately inspect their own policies and determine whether the statements in their part of the contract were true and the policy therefore, valid, or whether through carelessness or delegation of the matter to local insurance agents, their applications contained incorrect statements which might reduce the value of, or render absolutely worthless, their own insurance policies.

**Congenital Pyloric Stenosis.**—Dr. LYLE S. BOOKER of Durham, N. C., stated that the two indications for surgical treatment were: First, to meet the emergency of starvation by overcoming the obstruction at the pylorus. Second, to restore the continuity of the alimentary tract so that it might serve the individual through life. The best operation to meet the demands was the posterior gastroenterostomy. The following were his conclusions: (1) The pathogenesis of this condition was unsettled. (2) The diagnosis was usually not difficult. (3) The indications for surgical treatment were common-sense ones. (4) The operation best suited to this condition was the posterior gastroenterostomy. It was ideal in that nature had prevented the possibility of a vicious circle by obstructing the pylorus. (5) The operative mortality was low.

**Gallstones Complicating Pregnancy and the Puerperium.**—Dr. JOSEPH GRAHAM of Durham, N. C., reported six cases of gallstones complicating pregnancy.

**The Surgical Treatment of Goiter.**—Dr. JOHN R. WATHEN of Louisville stated that his own experience, which included over three hundred operative cases of goiter covering a period of the last eight years, furnished the data for his paper. Those operations embraced two general classes, the simple and the exophthalmic types, in numbers about equally divided. A proper time to advise operation with the expectation of mortality and good results was after the thyroid enlargement had begun to manifest the early symptoms of exophthalmic goiter, and had existed for several months with little or no signs of improvement. In the selection of their patient for operation they should realize that early operation, before complications had arisen as in appendicitis, gallstones, etc., offered the best results. All the patients operated upon by him, and who left the hospital as cured, had remained as cured or greatly benefited, the latter class being the cases seen late in the progress of the disease. His mortality had not been much over 4 per cent., and he had benefited all upon whom he had operated, apparently cured permanently about three-fourths and the remainder of-

fered relief to some extent. He believed we had now almost completely mastered the greatest drawbacks to goiter operations, *i.e.* the injury to the recurrent laryngeal nerve and the resultant paralysis of the voice, either complete or partial paralysis.

**The Evolution of the Treatment of Ectopic Pregnancy.**—Dr. STUART MCGUIRE of Richmond, Va., said that all surgeons were agreed that an operation should be done on a case of unruptured tubal pregnancy as soon as the diagnosis was made. Instances were so numerous of rupture occurring while the patient was waiting to go to the hospital, or while in the hospital, waiting for the surgeon to come, that it was now the universal practice to operate upon these cases with the greatest promptness. There was a serious difference of opinion among the best surgeons as to when to operate on a case after rupture occurred. Personally, he favored an immediate operation not only because it was in accord with general surgical principles, but also because in personal experience he had seen the practice save apparently moribund patients. He was opposed to the removal of the opposite tube, unless it was clearly, hopelessly diseased. If by leaving it he had subjected some patient to a second operation that might have been avoided, he had equally certainly made possible the birth of some babies that otherwise would not have come into existence.

**Growths and Syndromes of the Thyroid Gland Requiring Operation.**—Dr. WILLIAM D. HAGGARD of Nashville, Tennessee, stated that one of his most striking cases was in a woman, aged 36 years, acutely ill for ten weeks, with severe vomiting and diarrhea, with a loss of 59 pounds. The pulse varied from 160° to 180°, and she was so nervous and weak that transportation all but resulted in death. A ligation of first one and then the other superior thyroid artery very promptly resulted in great improvement, with a gain of 70 pounds in ninety days. In this case there was scarcely any perceptible enlargement of the thyroid, and he had not advised removal of one lobe. The acute exacerbation should be the *noli me tangere* of the surgeon. If undertaken when the disease was at its height fatal intoxication would often ensue within 36 hours. The same might be said of the very far advanced cases with cardiac insufficiency, ascites, etc. Careful medical management might restore some of those cases to a condition where surgery could benefit. As Crile said, "In any case the operation is but a means to the end. The raising of the threshold of environmental stimuli by diminishing the amount of activating sensitizing thyroid secretion and in conjunction with physical and psychic rest, permitting the patient to regain the power of normal control by the brain. Travel, diversion, nature, all are helpful, the operation serving to break the pathological change at one of its strongest links. These patients should be and can be literally taken by the hand and led away from mankind through the flowery paths of ease and pleasure to the haven of health.

**Ovariotomy Subpartus.**—Dr. W. KOHLMAN of New Orleans, stated that the important points in the treatment of those complications were: (1) Vaginal ovariotomy in small tumors without adhesions was to be followed by delivery by the natural passages. (2) Cesarean section and abdominal ovariotomy should be the operation of choice in all cases of solid tumors, cystic tumors, with probable adhesions, or intraligamentous development, or in all conditions where a prolonged and difficult labor was suspected.

**Observations on Anxiety-Neurosis.**—Dr. S. T. RUCKER of Memphis said that as a general predisposing cause of anxiety-neurosis heredity played a large part. Neuropathic parents transmitted to their children a delicately poised and sensitive organization. They were emotional, mobile, and unstable. They reacted abnormally to irritating and depressing influences and were potentialized towards nervous diseases. His observation had been that hereditary taint came most frequently from the mother. Not infrequently a neuropathic mother would transmit a similar condition to all her children. In one family whom he had under observation and treatment, the father was tuberculous all of his married life and finally died of tuberculosis, leaving three children. Ten years after his death the wife had a severe attack of melancholia, but recovered and had since been well. Two of the children had nervous breakdowns, and the other one was psychically abnormal. In another one of his families the mother suffered from hysteria ten years, was treated and recovered. She had two children; one was treated for neurasthenia and the other one for psychasthenia. The father of these children was a normal, healthy man. Another predisposing cause of anxiety neurosis was early education in the home. Indulgent parents often failed to teach their children self-denial and self-control. A child grew up to girlhood accustomed to every whim being gratified and an abundant sympathy being lavished on every woe, however trifling. She reached womanhood with a mental organization unfitted to withstand the cares of every day life. She weakened under the strain of trying ordeals and developed a nervous trouble. The symptom complex of anxiety neurosis was often associated with neurasthenia, hysteria, psychasthenia, and melancholia, and formed a clinical picture around which the classic symptoms of these diseases were grouped. By the process of suggestion and reeducation wrong beliefs and habits of thought could be changed or repressed and healthy psychic complexes be organized and substituted for unhealthy ones.

**The Cancer Problem.**—Dr. W. A. BRYAN of Nashville, Tennessee, stated that there was a more or less prevalent opinion among the people that cancer was fundamentally a general disease, "a blood disease," as they were pleased to term it, and that, therefore, no matter how extensive local treatment might be applied, it could do no good. It was true that many cancers did become disseminated through the body by the blood or otherwise at a certain stage of their development, and that then the case was hopeless, but the condition was never general from the beginning. On the contrary, cancer was just as much localized at the beginning as a mole or a wart or a pimple. From this small and curable beginning it gradually invaded the surrounding structures and became less easily curable until it passed certain limits in a local way or invaded the remote parts of the body and had positively become incurable. It was important to impress here that the time division between a curable and an incurable cancer might be no longer than a single pulse beat. A bruise, a cut, rough handling of the tumor by patient or surgeon might loosen the cancer cells into the circulating blood and render hopeless the curable case of a moment ago. The value of this could be seen in a practical way, for if the curable became incurable in the twinkling of an eye, and if the time of such occurrence was uncertain, no time should be lost in determining the nature of the malady and having settled this point, no delay should be countenanced by the physician or patient until the growth was destroyed.

**Officers.**—The following officers were elected for the ensuing year: *President,* Dr. Stuart McGuire, Richmond, Virginia; *First Vice-President,* Dr. J. W. Jervey, Greenville, South Carolina; *Second Vice-President,* Dr. F. H. Clark, Lexington, Kentucky; *Secretary-Treasurer,* Dr. Seale Harris, Mobile, Alabama.

Richmond, Virginia, was selected as the place for holding the next meeting.

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**Action for Compensation.**—The decision in a recent action for compensation may be set out in the language of the court: "This was a contest between two members of the gentler sex. The plaintiff was a practitioner of the art or science of osteopathy, and the defendant either needed, or thought she did (which is the same thing) the services of the plaintiff. Several visits were made at $3.10 per visit; the 10 cents being added for street car fare, and the whole bill amounted to $27.90. The defendant says she paid all she really owed, and that the plaintiff charged her for a number of social calls, during the course of which the defendant was importuned to continue the treatment. The defendant says that she declined to do so, and that the services rendered by the doctor gave her no relief, and were so unsatisfactory that she was forced to resort to a physician of the allopathic school, who administered pills and mixtures in the good old-fashioned way. On the issues of fact the plaintiff outswore the defendant, or at least the jury in the justice's court thought she did, and the judge of the superior court refused to interfere. This is the end of the law so far as this branch of the case is concerned. It would never do to hold that a doctor is entitled to recover only when he cures the patient. If we did, the members of this learned profession might hesitate to respond in extreme cases where the chances were against them. So far as we are concerned, the doctors may continue to bury their mistakes and recover for their services as they have always done. If we were dealing with lawyers, the rule might be different; but sufficient unto the day is the evil thereof. The defendant says that she ought not to pay the extra 10 cents per visit because the doctor usually walked. However, the plaintiff testified that the charge was usual and reasonable. If so, she had a right to walk and save the 10 cents."—Hall v. Mooring, Georgia Court of Appeals, 76 S. E. 759.

## Books Received.

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MODERN MEDICINE. Its Theory and Practice. Edited by Sir WILLIAM OSLER, Bart., M.D., F.R.S., and THOMAS McCRAE, M.D. Vol. I. Illustrated; cloth; 1093 pages. Lea & Febiger, Philadelphia and New York.

CANCER OF THE BREAST. An Experience of a Series of Operations and Their Results. By CHARLES BARRETT LOCKWOOD, F.R.C.S. Cloth; illustrated; 234 pages; price $3.00. Oxford University Press, New York.

A TEXTBOOK ON GONORRHŒA AND ITS COMPLICATIONS. By Dr. GEORGES LUYS. Translated and Edited by ARTHUR FOERSTER, M.C.R.S., L.R.C.P. Illustrated; cloth; price $4.50 net; 384 pages. William Wood and Company, New York.

EARLY PULMONARY TUBERCULOSIS. By JOHN B. HAWES, 2ND, M.D. With Preface by RICHARD C. CABOT, M.D. Cloth; price $1.50 net; illustrated; 114 pages. William Wood and Company, New York.

EPIDEMIC INFANTILE PARALYSIS. By Professor PAUL H. RÖMER. Translated by H. RIDLEY PRENTICE, M.B., B.S., M.R.C.P.; illustrated; cloth; price $2.75 net; 208 pages. William Wood and Company, New York.

THE HUMAN BODY AND ITS ENEMIES. By CARL HARTMAN, B.A., M.A., and LEWIS BRADLEY BIBB, B.A., M.D. Illustrated; cloth; price 84 cents; 358 pages. World Book Company, New York.

DIE SRÖRUNGEN DER MÄNNLICHEN GESCHLECHTSFUNKTIONEN UND IHRE BEHANDLUNG. By Dr. EMIL KANTOROWIEZ, Illustrated; cloth; 118 pages. Urban and Schwarzenberg, Berlin and Wien.

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BERIBERI. By EDWARD B. VEDDER, A.M., M.D. Illustrated; cloth; price, $4.00 net; 427 pages. William Wood & Company, New York.

SPÄTYPSYCHOSEN KATATONER ART. Eine Klinische Studie. By Dr. Med. MAURYCY URSTEIN. Paper; 440 pages. Urban and Schwarzenberg, Berlin and Wien.

INNERE SEKRETION. Ihre Physiologischen Grundlagen und Ihre Bedeutung für die Pathologie. By Prof. Dr. ARTUR BIEDL. Paper; illustrated; 692 pages; price 24 Mks. Urban and Schwarzenberg, Berlin and Wien.

DIAGNOSE UND THERAPIE DER HERZKRANKHEITEN. By Prof. Dr. LUDWIG BRAUN. Paper; illustrated; 362 pages. Urban and Schwarzenberg, Berlin and Wien.

DIE MALARIA NACH DEN NEUESTEN FORSCHUNGEN. By Prof. Dr. ANGELO CELLI. Paper; price 16 Mks.; illustrated; 294 pages. Urban and Schwarzenberg, Berlin and Wien.

UBER DIE PATHOGENES DER SALVARSANTODESFÄLLE. By Dr. WILHELM WECHSELMANN. Paper; illustrated; 84 pages. Urban and Schwarzenberg, Berlin and Wien.

HANDBUCH DER SPEZIELLEN PATHOLOGIE DES HARNS. By Dr. Med. FERDINAND BLUMENTHAL. Paper; 492 pages. Urban and Schwarzenberg, Berlin and Wien.

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DIE AMBULANTE THERAPIE DER LUNGENTUBERKULOSE und Ihre haufigsten Komplikationen. By Dr. KARL BLUMEL. Paper; 208 pages. Urban and Schwarzenberg, Berlin and Wien.

## Therapeutic Hints.

**Benzol in the Treatment of Leucemia.**—M. Brelet states that this drug may be given by the digestive tract or hypodermically. The latter method may be used in cases of intolerance on the part of the stomach, for the injections of benzol are very painful. The pain may be diminished by mixing the benzol with an equal quantity of olive oil. The dose to be injected is from 1.5 to 2 grams of benzol one or two times a day. Klein, who has observed poisoning result from the injection of the above dose twice a day, recommends its use only once daily. If internal administration is resorted to the drug should be given just before meals, to avoid the gastric irritation that may follow.

There is no unanimity of opinion as to the correct dose of benzol. Some authors recommend large doses given intermittently, while others advocate small doses long continued. The larger doses reach 4 and 5 grams per day. Kiralyfi prescribes gelatin or keratin-coated capsules containing the following:

℞ Benzol, chemically pure,
Olive oil, āā 0.5 gram.

In the beginning of the treatment two capsules are given twice daily, after the principal meals. The dose is increased until 3 to 5 grams of benzol are given daily. These large doses, while causing a rapid decrease in the leucocyte count sometimes give rise to albuminuria and hematuria.—*Gazette des Hôpitaux.*

**Transthoracic Intrapulmonary Injections in the Treatment of Pulmonary Tuberculosis.**—Georges Rosenthal alludes to the recent work on this subject by Vincenzo d'Amico, who believes that this is the only true method of treatment of pulmonary tuberculosis. The method consists in the introduction into the substance of the lung of a fine irridium pointed platinum needle 3 to 5 centimeters long. Through this needle there are injected into the diseased focus 1 to 2 cubic centimeters of the following solution:

℞ Iodoform, 1 gram.
Camphor, 2 grams.
Guaiacol, 5 grams.
Essence of peppermint, 30 drops.
Olive oil, 20 grams.

D'Amico is said to have obtained good results with the use of this method in the treatment of twenty cases of pulmonary tuberculosis.—*Bulletin Général de Thérapeutique.*

**Direct Transfusion of Blood in the Treatment of Hyperemesis Gravidarum.**—C. Viannay reports a case of incoercible vomiting of pregnancy in which he practised direct transfusion of blood from a normal pregnant woman. The vomiting stopped immediately. This method of treatment is based upon the method advocated by Le Lorier in 1911 and Freux and Dantin in 1912, by which the blood serum of a pregnant woman is injected into the vomiting patient. The latter method would commend itself by its greater simplicity.—*Journal de Médecine de Paris.*

**Emetine in the Treatment of Hemoptysis.**—C. Flandin recommends the injection into the thigh or flanc of 4 centigrams of emetine hydrochloride dissolved in 1 cubic centimeter of water. The result is an immediate arrest of pulmonary hemorrhage.—*La Presse Médicale.*

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## Original Articles.

### FURTHER OBSERVATIONS ON THE OPERATIVE TREATMENT OF PARALYTIC TALIPES, CALCANEUS, AND ALLIED DISTORTIONS.*

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THIS paper is primarily concerned with the treatment of paralytic talipes. I shall call attention, therefore, to certain points in the construction of the foot, and to the effects of weakness and deformity upon its functions, in order to indicate more clearly the purpose of the operative remedy.

The astragalus, interposed between the bones of the leg and the tarsus without muscular attachments, is the center of all the important movements of the foot; dorsal and plantar flexion in its superior, adduction and abduction in its inferior articulations. As deformities are essentially fixed attitudes, it follows that the astragalus is also the center of all distortions.

The functions of the foot, in order of importance,

FIG. 1.—The Normal Foot.

are—to serve as a secure support, and to balance and propel the body.

The most important of all the forms of talipes is calcaneus, because paralysis of the calf muscle disables both functions, and induces a deformity that progresses in spite of mechanical restraint.

The os calcis, no longer supported by the tendo Achillis, turns on end, elevating the astragalus and increasing its inherent instability. The forefoot is usually drawn backward by the accessory muscles,

FIG. 2.—Talipes calcaneus.

exaggerating the cavus, and, having lost its capacity for weight bearing, it atrophies and becomes an appendage to the hypertrophied heel. If, as in many instances, the foot is distorted laterally, it becomes an incumberance, rather than an aid in locomotion.

This analysis indicates that the astragalus, the center of uncontrolled motion, or insecurity, forms also the salient part of the deformity. Its removal is indicated, therefore, as the essential preliminary to permanent relief. The laxity of tissue thus obtained enables one to displace the foot backward, and to implant the malleoli on its basic structure near the center. This equalizes the leverage and checks dorsal flexion by direct impact of the tibia with the scaphoid. Tendon transplantation, usually of the peronei, is a useful supplement to restore in some degree the power of plantar flexion.

By this procedure a range of serviceable movement is restored and deformity is reduced without violence. In fact, a moderate degree of cavus is of advantage in preserving symmetry and the excess is reduced by the transference of the pressure on the foot, whose weight bearing capacity has been restored. The operation, although most successful in cases of extreme distortion, is also effective as a preventive of progressive atrophy and deformity, and if it is properly performed, the results, both as to appearance and function, improve with the lapse of time.

In all these particulars it presents a striking contrast to other methods of treatment. For example: All operations for the correction of deformity are palliative in the sense that support is required to prevent relapse and to aid function. The same is

* A paper read before the Orthopedic Section of the XVII International Medical Congress, August, 1913.

true of tendon transplantation, as is indicated by comparison of the power of the calf muscle with that of the feeble lateral group that can be utilized to replace it. But one operation need be seriously considered in comparison. This is arthrodesis, by which security is obtained at the expense of motion,

Fig. 3.—Illustrating the immediate effect of the operation. See Fig. 2.

with consequent muscular atrophy. At best its range is far more limited, since operative anchylosis is impracticable until late childhood. Nor is it adapted for the more extreme type of calcaneus with lateral distortion. Even reduction of the cavus may require cuneiform resection of the tarsus as in Jones' operation. In successful cases, the foot is fixed at a right angle to the leg, or oftener in slight dorsal flexion, so that the weight, as before, is supported in great part on the heel. If, therefore, as in many instances, shortening of the limb is sufficient to require compensation, an unsightly cork sole must be worn, as contrasted with a higher heel, or in more extreme cases, an extension shoe, which may be applied when plantar flexion is retained.

A common criticism is that removal of the astragalus shortens the limb. This is only relatively true, for, since calcaneus deformity elevates the malleoli, its removal simply restores the symmetry, and even in cases in which the cavus is slight, the shortening does not represent the thickness of the astragalus, since the lower border of the tibia remains on the plane of the upper margin of the navicular.

This operation was first described in 1901,* and in my last paper on the subject, in 1910, I was able to report on the results in 50 cases, most of which were of advanced deformity of the calcaneus type.†

Since then the field has been greatly extended and a much larger number of operations have been performed. It has now become the treatment of selection in all cases of calcaneus in which the paralysis is evidently permanent, with the aim of restoring function and thus to check the progress of the atrophy and deformity, and to relieve the patient from mechanical support.

It is of service also in a variety of other forms of paralytic talipes associated with lateral instability, for example, in cases of equino-valgus, in which the distance between the malleoli and the base is increased, especially so if extensive paralysis of the other limb requires a cumbersome brace. It is indicated in cases of complete paralysis of the leg muscles, the so-called "dangle foot." Since backward displacement limits both dorsal and plantar flexion, and balances the foot, support is usually unnecessary, and if the thigh muscles are active, the patient may walk well, although both feet are involved. In cases of complete paralysis of the extremity, in older subjects, it may be combined with arthrodesis at the knee to restore the weight bearing capacity. Even in cases of spastic hemiplegic and paraplegic deformity associated with marked contraction, the results are very satisfactory.

Incidentally it may be mentioned that the operation is of service in quite a different class of cases:

For tuberculosis at the ankle, in which one aims to remove the disease, and yet to retain motion.

To restore motion at the ankle in cases of ankylosis, or of deformity and limited movement caused by fracture of the astragalus or of the malleoli.

A point to which I would call attention is that in cases of this class also the foot should be displaced backwards, although not, of course, to such a degree as to check dorsal flexion. If this is neglected the function of the calf muscle is impaired, and the foot is noticeably deformed. In other words, whenever the astragalus is removed the foot should be displaced backwards.

The details of the treatment as applied to a typical case of calcaneo-valgus are as follows:

The line of incision begins at a point about an inch above the extremity of the external malleolus midway between it and the tendo Achillis, and is continued downward and forward about three-quarters of an inch below the malleolus over the dorsum of the foot to the external surface of the head of the astragalus.

The sheaths of the peronei tendons are opened and the tendons are cut below the malleolous and drawn backward. The bands of the external lateral

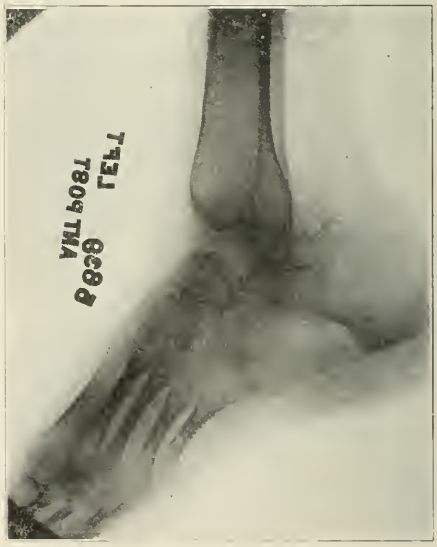

Fig. 4.—Showing a later result of the operation illustrating the limitations of dorsal flexion by contact of the tarsus with the tibia.

and interosseous ligaments are divided and the head of the astragalus is freed from its attachments to the tibia and scaphoid. An elevator is then inserted between it and the os calcis, and the foot being forcibly inverted, the head of the astragalus is drawn from the wound, and, the attachments on its

*American Journal of Medical Sciences*, November, 1901; *Annals of Surgery*, February, 1908.

†*American Journal of Orthopedic Surgery*, August, 1910.

inner and posterior borders having been cut or broken, it is removed.

One, then, prepares the new articulations. A thin section of bone is cut from the adjoining surfaces of the cuboid and os calcis. On its inner side a knife is passed about the internal border of the scaphoid and the ligament is separated by an elevator. The foot is then displaced outward and the malleoli are laid bare by dissection from their ligamentous attachments and are reshaped somewhat on their internal surfaces to fit the new articulations. The peronei tendons, freed from the lower extremity of the fibula, are passed through a slit at the base of the tendo achillis, sewn firmly to it, and then drawn forward and reunited to their distal extremities.

The foot is now displaced backwards, the external malleolus overlapping the calcaneo-cuboid articulation, the internal the navicular. The wound is then closed with catgut sutures and the foot is fixed by a plaster splint in an attitude of moderate plantar flexion and abduction.

In the routine of hospital practice the operation is performed under the Esmarch bandage. The tendons are sutured with Lange silk. The wound, having been cleansed with warm saline solution, is closed without drainage. The foot and limb are bandaged with sterilized sheet wadding, over which a light plaster is applied, holding the foot in the attitude described, and the leg at a right angle to the thigh. The limb is afterward suspended between tapes running from the head to the foot of the bed. Great care is taken to avoid constriction. To this, and to the rest assured by the plaster splint, and to suspension, is ascribed the very slight discomfort following the operation, and the absence of complications.

At the end of about three weeks the first support is removed, and the walking plaster splint is substituted, extending to the knee, and fixing the foot in the same attitude of moderate equinovalgus, the sole being equalized by the incorporation of a wedge of cork. The patient is encouraged to walk with equal steps, and to bear weight on the forward part of the foot. At the end of from four to six months the new joint will have become stable, and the fixed support may be discarded for a shoe arranged with a cork wedge beneath the heel, of sufficient thickness, is compensated for slight equinus, and if necessary the outer border of the sole is thickened somewhat to prevent a tendency to inversion.

Even in the cases in which after treatment has been neglected, the nutrition of the limb and the appearance of the foot improve with the gain in functional ability, and some of the patients walk so well as almost to merit the term "cure," as applied to cases of this class.

As has been stated, tendon transplantation is utilized whenever practicable in the treatment of these distortions; the transplanted muscles working at a mechanical advantage because deformity has been restrained. This is, however, a distinctly subordinate part of a procedure which of itself assures security by limiting movement to the range that is under control. I take great pleasure in presenting this operation for your consideration, as an assured remedy for the most disabling, the most deforming and the most intractable of all the paralytic distortions of the foot, which has, as yet, if one may judge from the literature, received no practical recognition from my European colleagues.

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# EXTIRPATION OF BACILLUS DIPHTHERIÆ BY MEANS OF A THALLOPHYTIC FUNGUS, ACHLYA MUSCARIS.

## A CLINICAL AND EXPERIMENTAL STUDY.*

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*Introduction.*—The success of preventive measures as compared with curative methods in the control of disease is so vastly more efficient and so apparent as to need no argument. Efficient a drug as is quinine in the control of malaria, its achievements by no means begin to compare with results obtained by extirpating the plasmodium through the destruction of its host, the mosquito. So there is abundant reason why, in spite of the brilliant therapeutic attainments following the introduction of antitoxin, further search must be made for a method which exterminates the *B. diphtheriæ* in a way that can compare with the extirpation of the organisms of malaria and yellow fever. The limitations of the life history of the *B. diphtheriæ* de-

A B C

Fig. 1—Cultures of diphtheria baccillus, destroyed by Achlya, A, diphtheriæ on blood agar. Control showing vigorous growth. B, diphtheriæ inoculated after 24 hours' free growth on blood-agar with Achlya; nearly complete bacteriolysis shown by the absence of the usual streak (the light spots are due to scratches and breaks in the media), a few ill-staining forms can still be scraped from the field. C, subculture from B on Loeffler's after 72 hours' mixed growth. Photographed after four days' incubation, no growth (the light spots are artifacts).

mands means that are effective during the time this organism is a prey on human tissues. Such a method must therefore be suited to the acute stages of this disease.

*Methods in Vogue to Exterminate B. Diphtheriæ from Human Throats.*—(1) Antiseptics locally applied. (2) Immunization, active or passive. (3) The use of antagonizing bacteria or their extracts; (a) having demonstrable bactericidal properties; (b) luxuriant growers, "over-riders." Detailed discussion of these methods is impossible in a preliminary report, and no more than enough can be said to obtain clear understanding of the method about to be described.

Antiseptics: It would be difficult to find a more exhaustive and painstaking work than that of Loeffler[1] in his early search for a reliable germicide for this organism. The fact that this worker speedily abandoned this field for that of biology ought to be

*The clinical properties of this fungus were first discussed by the late Dr. C. P. Bunsen. His infirmities prevented a thorough laboratory study of its reactions. At his request I took up the work anew, and the following report is based solely on independent work. This note is inserted in order that credit may fall where due.

substantial evidence of its limitations. It is, of course, possible to produce laboratory evidence in the form of cultures taken from the throats so treated, for the area of the throat accessible to cultural methods is strictly limited to the area under

Fig. 2.—Diphtheritic cast of uvula, Case No. 20 F. C. Removed 72 hours after fungus inoculation. No recurrence clinically, but cultures positive until fifth day. (See Fig. 4.)

control of local treatment, leaving the inaccessible points unknown quantities.

Immunization has its drawbacks. One encounters a prejudice and not without reason, for in immunizing the well and allowing germs to run riot so far as propagating is concerned in the sick, is taking a course as logical as to lock up law-abiding citizens and letting malefactors free. Nevertheless, much credit is due Hewlitt[2] and others for their work in active immunization whereby the efficiency and durability of immunity is much advanced. Recently von Behring[3] has opened up new possibilities for immunizing measures. However, there is a growing belief that modern immunizing methods depending upon the circulatory fluids to distribute protective agencies to the desired focus are liable to fall short of the mark, and must be supplemented by other measures that have a more direct attack on the focus of infection.[4] This point has been recently thoroughly discussed by Flexner.[5] The converse is also true, that antigen may be abundantly produced in areas from which it reaches the circulation in amounts too insignificant to provoke a serological response.[4] Speaking in terms made familiar by the immunologist, the phagocytes and similar factors quit (using a common term) before the work of cleaning the mucosa is complete. Following the modern tendency to reproduce artificially natural factors the idea suggests itself of introducing into these areas substitutes for these phagocytes and their coworkers. Whatever be the *modus operandi* of these natural factors, it is eventually bactericidal. So we may expect satisfaction from artificial factors if they can combine bactericidal activity with a power of migration and extension such as brings the natural leucocyte into all areas the seat of bacterial invasion. The migratory powers of leucocyte and bacterium differ widely. The bacterium only occasionally possesses power of migration *per se*. This is effectual chiefly in conditions of stasis (urinary, etc.). In the majority of instances, unless borne along by the circulatory fluids (metastatic), or by the fluid contents of some physiological canal (urine, bile, in ascending and descending types of infection), the bacterium makes his progress by contiguity. The leucocytes are infallibly, though at times inadequately, drawn to the seat of infection by a process known as chemotaxis. Inasmuch as there is this limitation in migratory powers of bacteria and other fungi, their use as scavengers in place of leucocytes, will meet with sharp limitations, and to compete with chemotaxis of the leucocyte their circumscribed migratory power must be supplemented by artificial means. Thus to bring a given area into the scope of such scavengers may require repeated inoculations, or inoculation within a given zone (*e.g.* inoculating direct into a nasal sinus instead of anywhere on the nasal linings), or the field may require special preparation. These remarks are made necessary by the general tendency not to fully sound the limitations of a new procedure and to fall into error in its application. It is well to repeat that there will occur great differences between the migratory power of the true and false leucocyte when any form of fungus plays the rôle of the latter.

Emphasis should be placed on bactericidal properties. It is possible to introduce a very luxuriant growth into an infected field in quantities sufficient to mask the original invader when the area is subsequently tested by the ordinary swab and cultural methods. Whether such an area is in reality toally rid of its infection is questionable. Dr. Corbett, city bacteriologist of Minneapolis, in a case of postdiphtheritic otitis media, found nothing but streptococci on Loeffler's media. Irrigation with weak phenol inhibited its growth and subsequent cultures showed pure *B. diphtheriæ*. So long as the streptococcus was present in culture or in the ear, uninfluenced by irrigation, no diphtheria bacilli could be found, but they could again be recovered from the ear after irrigation as described. I have been able in several cases to isolate pure cultures of streptococcus by a single animal passage in which competent bacteriologists have failed to find any trace of this germ by ordinary cultural methods.

This uncertainty is avoided if an active bacterio-

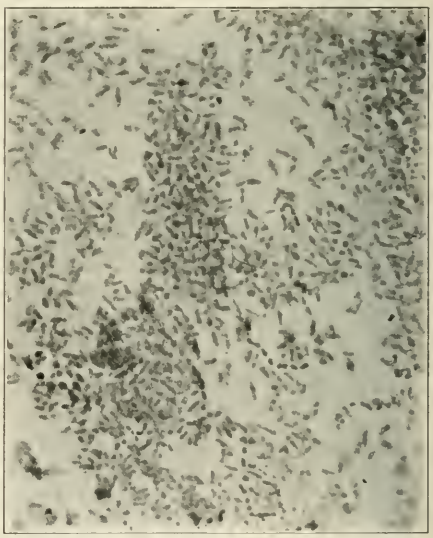

Fig. 3.—Case No. 20 F. C. Smear from culture taken just prior to inoculation with fungus showing groups of diphtheria organisms with cocci.

lytic ferment or bactericidal extract is present in the germ-free filtrate, as shown in the case of pyocyanase.[6] A simpler and equally convincing demonstration can be made provided the cultural characteristics will permit the infecting organism and its

antagonist to grow together on a common medium and yet provide another medium which supports the growth of the former, but will not allow the growth of the antagonist. Combined growth on the former medium will result in a destruction of the original

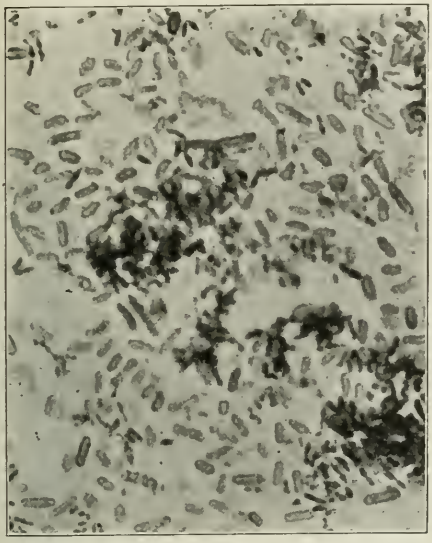

Fig. 4.—Case No. 20 F. C. Smears from culture taken the fifth day after inoculation with fungus showing no diphtheria organisms, numerous cocci and an unidentified long bacillus.

invader and subcultures from this combined growth transferred to the second medium will show no growth. This last medium will, however, support fresh inoculations from the original invader. This phenomenon is entirely different from that which is exhibited when an organism growing luxuriantly both on the throat and bacteriological media is used. Nevertheless, if it can be shown clinically that the use of this last type does prevent diphtheria contagion, the fact must be accepted as empirical, and such methods will be accorded a welcome place in our therapeutic armamentarium. There will always be an attempt made, however, to produce factors that follow more closely natural methods.

If bacteria or molds lack some of the desirable features of scavengers when compared to leucocytes they possess others highly desirable in keeping with their kind. If they are spore producers they lend themselves readily to infecting others, so that the treated patients disseminate the appropriate scavenger as well as the disease-producing body, and in so far as a scavenger is selected in which methods of dissemination surpass those possessed by the original infection, the chances are so much the greater of supplying artificial leucocytes instead of the contagion, so called. In contagion we are apt to see nothing but evil, but if this can be substantiated in practice there will be a contagion for good as well as for evil.

To produce an organism that meets these qualifications and brings the foregoing principles down to a working basis is a huge task demanding a wide scope of experimental investigation. The following data are but a small fractional part of this. There are, however, certain striking and notably constant phenomena attendant upon the use of this fungus in a variety of experimental conditions. Furthermore, the clinical evidence is sufficiently abundant to make an extensive and safe clinical trial possible, while the experimental and biological features are well enough demonstrated to direct further experimentation.

*Description of Thallophytic Fungus, Achlya Muscaris. Classification.*—The organism belongs to the group of thallophytic fungi as distinguished from fission fungi, or ordinary bacteria—genus *saprolignati*. It corresponds to the description of the *Achlya muscaris* given by botanists.[7] *Penicillium glaucum* (bread mold), *Oidium albicans* (the organism of thrush), *Aspergillum* (described by Sahli[8] and Chute[9] as pathogenic for the respiratory and urinary passages) are closely related fungi. The genus is for the most part saprophytic, and more often parasitic in animals (salmon, insects) than in man. Infections in the human being are self-limited and easily amenable to treatment.

Life History.—It occurs in nature as a parasite on the fly, covering this animal with a barely discernible down, causing an intense thirst and generally death. The thirst is revealed by constant drinking. The fungus can be artificially grown on the human throat, but so far as I know has never occurred there unless intentionally placed there.

Morphology.—It forms a felted mass composed of intertwining and branching mycelia that are capped with a lance-shaped sporangium which grows more spherical on maturity. In size it is relatively minute, measuring in width but twice the diameter of an erythrocyte. Mounted in liquid media and examined with a dark field its mycelia are seen in motion resembling the swaying of a tree top.

Staining Characteristics.—Molds stain with difficulty. The method that has proved most satisfac-

Fig. 5.—Case No. 21 B. R. Smear from culture taken the first day of treatment with fungus; numerous diphtheria organisms and few cocci.

tory is the India ink method following the technique of Kenneth Taylor,[10] to wit, artificial cover glass slips made from glycerin agar.

Cultural Characteristics.—Like all molds, it grows luxuriantly under favorable conditions, but its

growth is very susceptible to alterations in these conditions. Ordinary media will not support its growth unless impregnated with some particular substance. So far human blood has been used. It also requires an abundance of moisture. The color of blood slowly changes to pink, a valuable index of growth. Mixed with a little blood and a 24-hour bouillon culture of *B. diphtheriæ*, there is a complete destruction of the latter generally in forty-eight hours. Inoculation of this mixed growth at the expiration of this time into fresh blood free bouillon is negative, but the same bouillon supports a fresh inoculation of untreated *B. diphtheriæ*. The same holds good when solid media are used, but the process is slower perhaps for relative dryness. Blood bouillon cultures filtered and tested to be spore free will not support a growth of *B. diphtheriæ*. Further anaylsis of the active principle in this phenomenon has not been carried out.

Animal Inoculation.—Intraperitoneal inoculations in guinea pigs are negative, except for the slight

Fig. 6.—Case No. 21 B. R. Smear from culture 48 hours after fungus inoculation; nothing but cocci; a clinical and bacteriological cure without antitoxin; in this case the diphtheria disappeared before the membrane.

irritative phenomena that follow similar procedures with non-pathogenic growths. A series of controls was inoculated in the vagina. All died in three to six days, some with an insignificant vaginitis and some in spite of large doses of antitoxin. All gave positive diphtheria cultures at some stage of the disease. Necropsies were made on all with uniform findings—a local diphtheritic process not involving the uterus or causing a general toxemia. Another control was inoculated and a fresh animal. Three days later, when both were quite ill, the second animal being very much so, the second was inoculated with the fungus. Control died two days later with considerable vaginitis. Treated animal made a steady improvement, especially in vaginitis. Six days later it again became ill, without any noticeable change in the vagina, and died on the twelfth day following the original inoculation with *B. diphtheriæ*. As both animals were kept in the same pen, there is reason to believe from the clinical course that the second animal was re-inoculated. Necropsies on both were the same as described. Blood cultures negative. Difficulty was encountered in obtaining diphtheria cultures on account of overriding by secondary invaders. Positive cultures were obtained from the control for five days, from the treated animal for two. There are some unsatisfactory features about this test, the secondary invaders, opportunities for re-inoculation and delay in treatment until the animal was so far gone. Nevertheless, the results support the cultural findings, though not with the clean-cut decisiveness. It is believed that by eliminating these disturbing factors more striking evidence can be adduced.

*Certain Observations in Clinical Cases.*—When sown on normal throats, after a few hours patients complain of a scratchy feeling. Some injection is seen on the fauces, later an almost indiscernible covering develops, resembling a membrane as hoar frost resembles a snow fall. This is best seen at the junction of the soft palate and uvula. It gradually and unnoticeably disappears, but occasionally persists, especially in diseased throats, where it readily yields to antiseptic treatment, mercury exerting a rapid influence. When concentrated to one spot the spores produce some local irritation immediately, which can be relieved by copious gargling with warm water. Systemically a feeling of malaise is sometimes experienced of short duration. This occurs too early to be due to fungus propagation, and is probably due to absorption of the cultural products of the inoculation material or to preformed toxins of the bacteria there propagating, but whose absorption is hastened by the induced hyperemia, etc., analogous to the urethral chill that follows catheterization. It has given rise to no complications in sixty-five cases. One case is rather convincing proof of its harmlessness.

Case I.—Patient suffered from recurrent tonsillitis frequently suppurative. Patient always insisted on removal during the acute and painful stage, but refused operation during quiescent stage. Convinced of a quite general inhibitory action on the part of the fungus against the throat pathogens it was thought that a combination of bacterin and fungus treatment would permit of a relatively early removal of the tonsils. Operation wholly successful except that the throat was somewhat more septic than a quiescent case and much less septic than could be expected considering the condition of the tonsils. Inasmuch as the operative trauma invited every possible complication from the fungus it is clear that this organism has very limited pathogenic properties.

If this fungus possess strong bactericidal properties it ought to prove itself curative unaided by other means. Anticipating the clinical tables it may be said that the fungus seems to remove membranous anginas of various origin. Given a case of membranous angina not seriously sick enough to demand immediate antitoxin it is apparent that the fungus can be inoculated and be doing its work many hours before the diagnosis has become established. When there was at the same time a clinical improvement that one by practice can detect, we felt justified in the face of a favorable outlook to let the case progress without other treatment. These cases form the most striking demonstration of the action of this fungus.

The Pharyngeal Cases.—Almost invariably diphtheria makes its clinical manifestation in the throat. As a matter of laboratory knowledge the nasal discharges are contaminated in over half, perhaps 75 per cent. of the cases. This fact was not fully appreciated by us at the beginning of our work.

and we confined our attention to the pharynx. It would appear that the reaction that was successful in the pharynx could be carried on in the nose. Remembering the discussion at the beginning of this report, it would appear that bacterial or fungus migration was circumscribed and therefore a special technique for nasal inoculation might be required for complicated nasal cases.

As a matter of fact, attempts to inoculate nasal sinus by a deposit of spores on the tonsils has not proven successful. The critical point is whether the usual growth of the fungus and the usual field of diphtheritic invasion are coextensive at a comparatively early period of the disease. If special conditions arise in which the fields of invasion have different limits a special technique either in number of inoculations or in the site of inoculation must be devised. In the pharyngeal cases the pharynx only was cultured and that for a period considerably over a week. It would seem as though any diphtheritic discharge in the nose would at some time or other inside of a week contaminate the pharynx and give a positive culture. While the evidence is all in favor of a total extirpation of the *B. diphtheriæ* these remarks are inserted to insure that the question be neither misunderstood or overlooked, and that a careful control over these conditions be exercised.

A.—Twenty-five cases of simple follicular tonsilitis: Here a reaction occurs similar to or more marked than in normal throats. There is a rapid disappearance of the membrane without any loosening of the same in mass, a clinical characteristic that aids in distinguishing the non-diphtheritic exudate.

The treatment was adopted in suspicious throats and in others to test out the effect of the fungus under pathological conditions.

Case II.—M. W. Clinical diagnosis: follicular tonsillitis; bacteriological examination not made. No improvement after 43 hours local treatment. Antiseptics removed by copious gargling and throat innoculated in evening. Throat clear in morning. In the extreme types of diphtheritic cases one occasionally notices a persisting easily detachable exudate and slimy condition of the throat. This rapidly clears up under antiseptic treatment.

In a very severe case of combined scarlatina and diphtheria, in which the latter disease developed seventy-two hours after, and in spite of a prophylactic injection of 3,000 units noma developed despite a brilliant destruction of the diphtheritic membrane. Antiseptics were used for only one day, then refused. The case went on to a fatal termination. The only explanation that is in accord with other findings is that the destruction of the membrane left a raw wound that invited infection and noma, the fungus having been destroyed by natural processes or by the early use of antiseptics.

B.—Seven cases with mild diphtheritic tonsillitis: Five of these cases have been treated without antitoxin, their progress having been sufficiently satisfactory without to warrant letting them alone.

The procedure is not at this time recommended, but was adopted to demonstrate the efficient bactericidal properties of this fungus when unaided by other means.

Case III.—A. Z. Child, six years. Mild diphtheritic tonsillitis, diagnosis confirmed by culture. In 29 hours a well developed fungus growth with a peculiar fibrillation and loosening of the membrane was taken as evidence of success in membrane destruction. This, coupled with the fear of the antitoxin needle, led to the discarding of further measures. In 48 hours there was no positive culture nor any time afterward. Recovery rapid and uneventful.

Fourteen cases of somewhat severe throat involvement, with mild constitutional symptoms: Eleven of these cases were treated without antitoxin, one being a frank case of diphtheria, two showing typical forms in culture, the rest giving negative cultures. The three additional cases each received 1,000 units.

Case IV.—F. C. Severe involvement of tonsil and uvula. *B. diphtheriæ* promptly disappeared, then reappeared in nearly pure culture and was again not found and permanently diappeared on the fourth day. On the third day the membrane was stripped from the uvula like a finger cot. No recurrence. No antitoxin.

Case V.—G. D. Clinical diagnosis diphtheria. Atypical forms in culture. Much edema. Atypical forms disappeared in 48 hours showing only staphylococci. No antitoxin.

Case VI.—W. F. Clinical diagnosis diphtheria. Atypical forms in culture disappearing in 48 hours. No antitoxin. Rapid healing of throat.

Fourteen cases of malignant-looking throats and severe prostration. Nine cases were diphtheritic, one complicated with scarlatina. Two of the diphtheritic cases were treated without antitoxin, the remaining diphtheritic cases receiving appropriate doses.

Case VII.—Wo. Extreme edema and much prostration. Cultures nearly pure diphtheria bacillus, especially on second day. *B. diphtheriæ* absent on and after third day. Throat nearly normal on the seventh day. No antitoxin.

Case. VIII.—B. R. Characterized by extreme edema and severe prostration. *B. diphtheriæ* present on first and second day, subsequently absent. Recovery rapid and uneventful. No antitoxin.

Case IX.—D. A. Seen in consultation on the third day. Made clinical diagnosis of diphtheria and injected 3000 units at once. Cultures positive for three days only. Membrane rapidly disappeared but much painful infiltration of pillars on right side resistant to all forms of treatment. Yielded to autogenous vaccines subcultured from first day's culture (staphylococcus).

Six cases with malignant-looking throats and extreme prostration. These are the fulminating, not discovered till late in the disease. Two were rapidly fatal, one an infant of two weeks for whom all treatment was refused except one inoculation. The second case showed not the slightest improvement from 30,000 units given in eight hours, developed multiple petechiæ and died in 72 hours. This case was complicated with scarlatina and death was quite likely due to a general streptococcemia. The membrane, however, was in a large part disintegrated at death. A third fatal case of noma has been described.

Case X.—Si. Treated for five days as a follicular tonsillitis. Seen in consultation on the sixth day. Prostration very extreme. Diagnosis diphtheritic laryngitis and pharyngitis. Twelve thousand units given and fungus inoculated. Child insisted on sitting up the following day. Recovery uneventful. *B. diphtheriæ* absent after 48 hours.

Nasal Cases: No nasal cases have been treated during the acute stage. Through the kindness of Dr. Mullin I was able to treat a case of a bacillus (non-pathogenic) carrier whose throat cultures were generally negative and nasal cultures generally positive. Inoculation by the throat was adopted. A rather vigorous growth followed a single inoculation with a comparatively strong but harmless reaction. No alteration was noticeable in the diphtheria cultures. Owing to spore growths it was impossible to test the reaction *in vitro*. It would seem as if there was an area of the nose the seat of diphtheritic invasion into which the fungus had not penetrated at least from a single inoculation. These chronic cases afford a study distinct from the acute and it was thought best to work out nasal reactions and conditions in acute early cases.

| Number | Case | B. Diph. | Streptococcus | Staphyloccus | Pneumococcus | Day of Disease | Dose Antitoxin | Number Inoculations | Time to Produce Marked Loosening Membrane, Hours | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| A. Cases with malignant looking throats and extreme prostration. | | | | | | | | | | |
| 1 | B.G. | D | .... | .... | .... | 3–4 | 1,000 | 2 | 48 | Death in 72 hours. |
| 2 | M.M. | D | S | .... | .... | 3 | 35,000 | 2 | 48 | Death in 72 hours, complicated with scarlatina. |
| 3 | A.M. | D | S | .... | .... | 1 | 8,000 | 2 | .... | Death in two weeks from noma. Complicated by scarlatina. |
| 4 | H.T. | D | .... | .... | .... | 3 | 8,000 | 2 | 48 | Speedy recovery. Complicated with measles. |
| 5 | Si. | D | .... | .... | .... | 3 | 12,000 | 2 | 40 | Speedy recovery. Laryngitis. |
| 6 | D.A. | D | .... | St | .... | 3 | 7,000 | 2 | 40 | Severe infiltrations of pillars relieved by autogen vaccine. |
| 7 | R.W. | D | S | .... | .... | 4 | 8,000 | 2 | 42 | Complicated with measles. |
| B. Cases with malignant looking throats and severe prostration. | | | | | | | | | | |
| 8 | B.M. | D | S | .... | .... | 1 | 3,000 | 2 | 42 | Complicated with scarlatina. |
| 9 | H.M. | D | S | .... | .... | 1 | 2,000 | 2 | 30 | Complicated with scarlatina. |
| 10 | M.O. | D | S | .... | .... | 2 | 1,000 | 2 | 24 | |
| 11 | H.C. | D | .... | .... | .... | 2 | 0 | 2 | 24 | Severe lymph deniti |
| 12 | A.Sh. | D | .... | .... | .... | 2 | 0 | 2 | 96 | Very persistent. |
| 13 | A.H. | ? | S | .... | .... | 2 | 0 | 2 | 18 | |
| 14 | M.M. | .... | S | .... | .... | 2 | 0 | 2 | 36 | |
| 15 | Paul. | D | .... | .... | .... | 2 | 0 | 2 | 48 | |
| 16 | M.A. | D | .... | .... | .... | 2 | 1,000 | 2 | 36 | |
| 17 | T.B. | .... | S | .... | P | 1 | 0 | 1 | 24 | Pneu. vaccine used. |
| 18 | A.Z. | D | .... | .... | .... | 2 | 0 | 2 | 48 | |
| 19 | W.C. | D | .... | .... | .... | 2 | 0 | 2 | 48 | |
| 20 | F.C. | D | .... | .... | .... | 2 | 0 | 2 | 72 | Cast of uvula. |
| 21 | B.R. | D | .... | .... | .... | 2 | 0 | 2 | 48 | |
| 22 | C.Y. | D | .... | .... | .... | 2 | 0 | 2 | 48 | |
| 23 | Mr. S. | D | .... | .... | .... | 2 | 0 | .... | | Membrane reformed and antitoxin given. |
| C. Cases with moderately severe throats and mild constitutional symptoms. | | | | | | | | | | |
| 24 | Ely. | D | .... | .... | .... | 2 | 0 | 2 | 30 | |
| 25 | F.K. | ? | .... | .... | .... | 2 | 0 | 1 | .... | Membrane reformed and 1 000 unit given. |
| 26 | C.S. | .... | S | .... | .... | 2 | 0 | 2 | 24 | |
| 27 | E.H. | D | .... | .... | .... | 2 | 1,000 | 2 | 24 | |
| 28 | C.S. | D | .... | .... | .... | 2 | 1,000 | 2 | 24 | |
| 29 | L.S. | D | .... | .... | .... | 2 | 0 | 2 | 30 | |
| 30 | J.G | D | .... | .... | .... | 1 | 1,000 | 2 | 48 | |
| 31 | W.F. | ? | S | .... | .... | 2 | 0 | 2 | 36 | |
| 32 | Int. | .... | S | .... | .... | 2 | 0 | 1 | 36 | |
| 33 | Ben | ? | .... | .... | .... | 2 | 0 | 2 | 48 | |
| 34 | Max | ? | S | .... | .... | 1 | 0 | 1 | 36 | |
| 35 | Bard. | ? | .... | .... | .... | 1 | 0 | 1 | 36 | |
| 36 | C.L. | D | .... | .... | .... | 1 | 0 | 2 | 48 | |
| 37 | F.G. | D | .... | .... | .... | 1 | 0 | 1 | 48 | |
| 38 | G.D. | ? | .... | .... | .... | 2 | 0 | .... | 36 | |
| D. Mild miscellaneous cases including follicular tonsillitis marked.* | | | | | | | | | | |
| 39 | Burton | ? | S | .... | .... | 2 | 0 | 2 | 36 | |
| 40 | Bark | ? | S | .... | .... | 1 | 0 | 2 | 48 | Complicated with scarlatina. |
| 41 | F.K. | ? | .... | .... | .... | 1 | 0 | 1 | 36 | |
| 42 | F.G. | ? | .... | .... | .... | 1 | 0 | 2 | 36 | |
| 43 | M.R. | .... | S | .... | .... | 1 | 0 | 2 | 36 | |
| 44 | Kerr | — | S | .... | .... | 1 | 0 | 2 | 48 | |
| 45 | A.T.* | .... | .... | .... | .... | 1 | 0 | 2 | 36 | |
| 46 | C.K. | .... | S | .... | .... | 1 | 0 | 2 | 36 | |
| 47 | M.W.* | .... | .... | .... | .... | 1 | 0 | 2 | 24 | |
| 48 | T.R. | .... | S | .... | .... | 1 | 0 | 2 | 24 | Membrane reformed and second inoculation successful. |

For the chronic discharges the method of topical nasal application suggests itself and is worthy of trial.

Non-Diphtheritic Cases: Experimental investigation has up to this writing covered only cases of Loeffler's bacillus. In membranous anginas of other origin there appears to be a rather constant improvement equal to that in the true diphtheria. Contamination of *Staphylococcus albus* in achlya cultures have survived for weeks. Pneumococci and streptococci have promptly disappeared from cultures mixed with achlya and accidentally contaminated with a spore-bearing organism developing in the blood. These experiments are to be repeated.

Case XI.—T. B. Stormy onset with rigors and fever 105. Fauced injected for two days then a suspicious membrane. Clinical diagnosis non-diphtheritic angina probably pneumococcic. Pneumococci found in culture nearly pure. Fungus inoculated and an injection of dead pneumococci given. Very prompt disappearance of membrane and of pneumococci from culture (48 hours).

*Preparation of Spores.*—The original method was to grow the fungus on defibrinated blood to wait ten days for spore formation, then filter. Ordinary filter paper will by deposit of albumin soon become a fair filter for the spores. The method is tedious and objectionable. The fungus grows on one-half to one-tenth of one per cent. blood dilutions and can be filtered from this. Methods of filtration are now being studied. The amount of human blood necessary is very small and easily obtained. No doubt there is other media as suitable as human blood but it is desired to introduce no other factors in the problem at the present stage. *Oidium albicans* can be made to produce spores with great prolificity in a media of glycerin agar and eosin. No doubt the problem of propagation, now simple enough to be useful, can be further simplified.

The spores and filtrate are mixed with ten times their weight of lactose as a diluent. They can be applied in amounts of 5 to 7 grains of the mixture direct on the tongue or may be gently deposited as a powder by blowing. If too much is deposited at one point some irritation can be expected. Antiseptics must not have been used or must first be removed by copious gargling. A second inoculation in three hours is usually required. In six more hours signs of growth are generally noticeable. Towards the close of 24 hours mild antiseptic gargling is generally beneficial and hastens the clearing up of the throat. Sometimes it is necessary to reinoculate after removing antiseptics as a recurrence of the membrane has taken place in four instances—in two checked by antitoxin, in two by re-inoculation. Antiseptics were avoided in cases subject to bacteriological study.

*Control of Contagion.*—Important as is the question of bacteriolysis of the diphtheria germ, of greater importance is the question whether a mem-

brane in which the *B. diphtheriæ* is still propagating on which also the fungus has taken root, if it becomes a source contagion, will not infect the second individual with the fungus rather than with the diphtheria germ or at least limit that germ to a very short-lived and harmless existence.

Experiment on the control of contagion: A Coplin staining jar with slide was sterilized, and under sterile precautions the slides were smeared with human blood mixed with melted agar. In one set as a control *B. diphtheriæ* was grown. In a second set one slide only was doubly inoculated with *B. diphtheriæ* and the fungus, the rest inoculated with *B. diphtheriæ* alone. Both sets were incubated. In the set which included the single inoculation of the fungus there was not a solitary growth of *B. diphtheriæ*. There was a growth, however, in the control. It is essential to keep maximum humidity by placing sterile water in these jars.

The results on animals have been discussed. After considerable experimentation I considered it safe for a clinical demonstration and accordingly I inoculated my own throat with a diphtheritic membrane eighteen or so hours after I had inoculated the patient with the fungus, at which time I thought I recognized signs of fungus propagation. I suffered from a slight faucial congestion but no *B. diphtheriæ* were found in my throat. The condition passed away without treatment. This I have repeated in two other instances. The significance of this is apparent inasmuch as, if it is true, it means that every diphtheritic throat can be rendered non-contagious in less than twenty-four hours, probably in twelve hours. It must be remembered that there are other avenues of infection besides mouth to mouth, and that during the incubation period the disease may be widely disseminated. In promptly controlling mouth-to-mouth contagion the greatest menace is eliminated.

*Conclusions.*—1. *Achlya muscaris* possesses the power of destroying *B. diphtheriæ* in culture and in the throat.

2. Throat inoculations of this fungus are usually self-limited and may require some adjustment in the way of repeated inoculations or inoculation in special areas or under special conditions to embrace all complications in the nose.

3. It has the power of inhibiting the growth of a number of throat pathogens and seems to influence favorably membranous anginas of various origin.

4. Its clinical use seems to be attended with no danger but after treatment with mild antiseptics is recommended to remove the fungus.

5. It is applicable in all stages of the disease and seems to give speediest results in the early cases.

6. There are grounds for believing that a throat in which this fungus is growing is soon shorn of its danger of contagion even if the diphtheria bacilli are still harbored.

7. It is admirably adapted to the clinical requirements for reliable and ready use.

These conclusions are offered not as definitely established, but as established in so far as the limited observations here recorded can establish any conclusions.

My hearty thanks are due to the members of the Department of Medicine, University of Minnesota, and to Dr. Corbett, Dr. Woodworth, and the Staff of the City Bacteriological Laboratory, to Dr. P. Heineman of the University of Chicago, to Dr. Mullin of the Minnesota State Health Board, and to the laboratories of Parke Davis & Co., and H. K. Mulford & Co. for the material placed at my disposal, and for their kind help.

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507 Syndicate Block.

## FOUR CASES OF CORNEOSCLERAL DERMOID TUMORS.

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Dermoid cyst, as is known, designates a tumor containing substantial parts of the skin, as hairs, teeth, nails, and ordinarily produced by the invagination of a flap of skin in the course of the development of the embryo. Its habitual site is the neck and the angles of the eyebrows, but as it may also exist in any other region of the body as well as about the eyes, I shall describe four cases of this condition which I have observed in a long ophthalmological practice, during which I have kept the records of more than fifty thousand cases of eye patients. Dermoid cysts, while not being rare, are, at any rate, not common, and that it is convenient to exercise them in order to avoid the obstacle that they happen to offer at the palpebral border. These tumors, although benign, leave a certain amount of deformity that would be smaller if the tumor were operated upon during childhood, although the tumor, as well as its surface of implantation after its removal, develops at the same ratio as the eyeball. This was observed in the first case to be described, a child that was operated upon when a few months old, and that has been kept under observation until the present time, when he is a prosperous merchant thirty-two years of age.

Case I.—Infant J. J. A. 43 days old, well developed and of healthy aspect. On his left eye, there could be seen a small tumor, of white color, the size of a grain of millet, that on first sight appears to be a staphyloma of the corneoscleral junction Fig. 1. Its situation was at the inferior and somewhat external border of the corneoscleral limbus. His mother stated that on the third day after the birth of the child, she noticed the presence of the small tumor, which increased somewhat in size, because it did not strike against the free margin of the lower left eyelid, as it does now. It seems on first sight as if the lower part of the iris were attached to the tumor, but this is not so. The mother did not want to have the child operated upon at so early an age, but on September 16, 1882, four months after the first consultation and when the child was yet less than six months old, I excised the tumor

under chloroform anesthesia. As the operation appeared to be insufficient I repeated it five months afterward. The second time it was difficult to fix the small tumor with the fixation forceps but I passed through its base a sharp hook and then excised it with the scissors. As the borders of the incision were still defined after the excision, I re-

Fig. 1.

duced them with the fixation forceps and the knife. The center of the solution of continuity appeared somewhat obscure as if the choroid could be seen through it. The tumor after its separation looked somewhat concave on its inner or adherent surface. Two months afterwards, when the immediate after-effects of the operation had disappeared, the lower lid could be closed without having the obstacle that the tumor presented before. The surface of the cornea and of the sclera where the tumor had been appear slightly raised, more so than when last seen and looked like a small wafer adherent to the iris. I kept on seeing the patient until he was 18 or 20 years old. At this age I discovered on the fundus oculi the disk with a slight posterior staphyloma. Vision in this eye was defective as he could only count fingers and this could not be corrected. He insisted on having his leucoma covered with tattooing but this was only possible on the part affecting the cornea. After twenty years we did not see him again. The opacity, since the excision of the tumor, grew naturally with the eye, but always kept the same proportions with it. Finally very recently we met him in a theater and he greeted me but I naturally could not examine him at that place. Now he is 31 years old and he states that he has observed no changes after the last time I saw him and he has succeeded in the theatrical business. I invited him to visit me in order that I might make a thorough examination. This was the first case of dermoid cyst recorded by me and the one I have followed the longest.

Case II.—J. N. C. 19 years old, He states that on his third month after birth a "stain" was noticed on his right eye on the white towards the outside and almost on the sclera. When I examined him I saw a small tumor the size of a pea, situated outside of the periphery of the cornea and near the limbus Fig. 2. On the surface of the

Fig. 2.

tumor a hair could be seen. Using the fixation forceps only, instead of passing a sharp hook through, as in other cases, I immobilized the tumor and with the scissors separated it at its base, leaving uncovered the surface of attachment, and to diminish this I applied the thermo-cautery with the result that the borders and the raised surface receded. I did not see this case again.

Case III.—M. J. C. 19 years of age. Has had since birth a stain in his right eye. When seen an opacity was discovered on the external and lower part of the right cornea affecting also the sclera. It had a dull white color and had some vessels on its periphery. Its size is that of a pea (Fig. 3), and had not increased much. The pupil was normal and central. Operation was postponed but I did not see the patient again.

Case IV.—G. S. M. a boy 4 years old was brought by his parents to my office on February 24, 1913. They related to me that a month after the birth of the child they noticed a small white stain on the left eye and that the family physician said that it was a congenital manifestation. On the lower and outer part of the periphery of the cornea,

Fig. 3.

occupying an equal area of the cornea and of the sclera a small white tumor could be seen, the size of a pea and on its surface the parents had discovered and I also saw several very thin hairs (Fig. 4). Although the tumor was only

Fig. 4.

slightly raised on its base this small elevation was sufficient to cause the lower lid to strike against it and when the child was asleep the eye stayed half open. Under chloroform anesthesia, I passed a small sharp hook through the tumor and excised it with a good pair of scissors. As the border of the raw surface remained more raised than the middle, I employed a small knife and the forceps to level the entire surface. After excision, there were no obstacles to the closing of the lower lid. I observed him for several days after the operation and finally the remaining opacity at the site of implantation, as it was situated in the inferior border of the cornea, was partly covered by the left lower eye lid. The microscopical examination is as follows: Specimens examined were two small pieces of a hard tissue with some fine hairs on one of their surfaces. Under the microscope there was seen a subcutaneous node of fibrous connective tissue, covered by a thin layer of epithelium with some hair follicles. There are zones of infiltration with round cells of chronic inflammation as can be seen in Fig. 5.

I may repeat that corneal dermoid cysts, as those of the conjunctiva, are congenital tumors characterized chiefly by having in the interior normal cutaneous elements: hairs, sebaceous glands and portions of stratified or cylindrical epithelium. They are well known in their evolution and almost so in their pathological process, but their history is somewhat recent, and in this elucidation there have contributed Galenga, Lannalonge, Van-Duyse, and Cosmettatos. In reference to the symptomatology of these growths we ought to remember that dermoid cysts are always congenital. Owing to the lack of intelligence of the parents these growths are frequently not observed until the period of second dentition. When the tumor is quite visible the child is not taken to the ophthalmologist. On questioning the parent the congenital origin becomes evident. The upper and outer quadrant of the cornea, or the external border, is considered as the elective site of implantation of the neoplasm, but this rule is not absolute. Two of my patients had the cyst on the outer border. But the cysts can be in any other part of the cornea or on the sclera, and the case described by Demours in which the dermoid was situated in the inner angle of the eye,

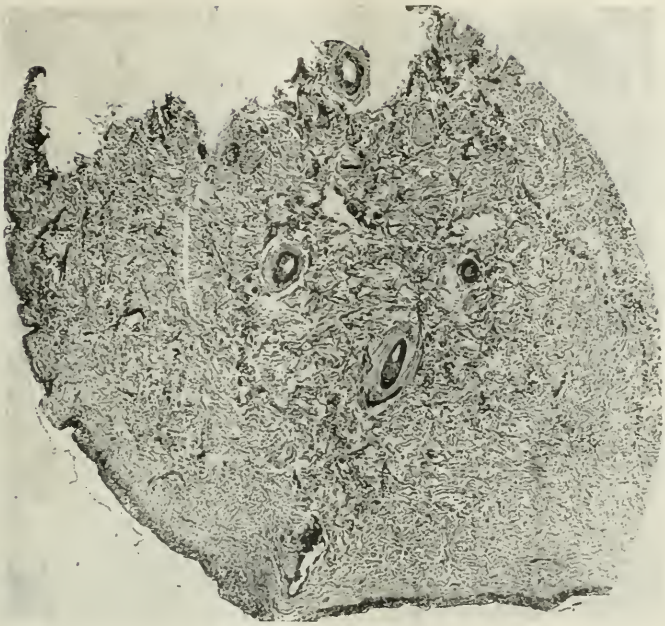

Fig. 5.

far away from the cornea, is well known. Although my cases attained the size only of a pea, some have grown to the size of a small olive. These cases have been single and not multiple, as that described by Picqué, Horner, Collomb and Lannelonge. The usual form was that of a truncated cone, as seen in Figs. 1, 2, 3, and 4. As seen in the description of the cases, the growth has been, up to puberty, slow in relation to the growth of the body. The dermoid in my cases were not prominently felt through the lids, but in Cases 1 and 4 (Figs. 1 and 4) they hindered the normal closing of the lower lids. In three of the cases (1, 2, and 4), although the tumor rested on the sclera as well as on the cornea, after excision it was seen that the base of implantation was only on the cornea. This also happened, but more strikingly so in Case 3. The substance of the dermoid in all our four cases was hard, fibrous, and somewhat like cartilage. In two of them hairs were seen. In no cases did I see glands. As always happens, these cases had a very slow growth. Histological examination was made only in Case 4 (Fig. 5), and this did not differ from the facts so far observed.

The dermoid, as mentioned above, in its beginning has several layers of skin: epidermis, dermis with its papillæ, hair follicles, sebaceous glands attached to the hair follicles, and sometimes, but very rarely, sweat glands. Many theories have been advanced to explain their cause, and those of Van Duyse, Lannelonge, and Vassaux are worthy of attention.

Prado 105.

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**Emetine in Hemoptysis.**—Flandin has employed emetine in the treatment of a number of cases of pulmonary hemorrhage with excellent results. He gives it hypodermically in doses of gr. 3/5 (0.04) of the hydrochloride in mxv (1.0) of water. The injection may be repeated in twelve hours, and again after the same interval.—*Presse Médicale.*

## A MODIFIED METHOD OF LAVAGE BY MEANS OF A DOUBLE-COCK GLASS PIECE IN CONJUNCTION WITH THE MODIFIED STOMACH-TUBE ESPECIALLY ADAPTED FOR THE OFFICE AND HOSPITAL WARD.

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Lavage is a common therapeutic measure in the primary affections of the gastrointestinal canal. In febrile and toxic states, as in pneumonia or postoperative conditions, particularly in abdominal surgery, the functions of the gastrointestinal tract frequently become perverted, abdominal distension and vomiting due to gastrointestinal paresis may become marked and lavage is almost always followed by some relief. Some of the systemic and metabolic disorders as arteriosclerosis, chronic nephritis, chronic lead-poisoning, diabetes, and gout are accompanied by gastrointestinal sluggishness. A course of lavages will stimulate the gastric mucosa, improve appetite, and aid digestion.

The performance of lavage is no pleasant task to the operator nor an act of comfort to the patient. The preparations and procedure generally employed may briefly be described as follows: The patient is seated and draped. A basin of cold water contains the long and stiff stomach tube. A pail on the floor receives the return flow. The operator back of the patient, and holding the latter's jaws apart, introduces the stomach-tube, after which the assistant, or, with great difficulty, the operator himself, delivers water from some pitcher. The psychic effect

alone is apt to usher in the patient feelings of fear and disgust. Besides, the passage of the stomach-tube and its stay in the stomach usually causes nausea, gagging, regurgitation, and, to the very sick, exhaustion. Furthermore, the patient being in the erect posture the return flow must assume an uphill

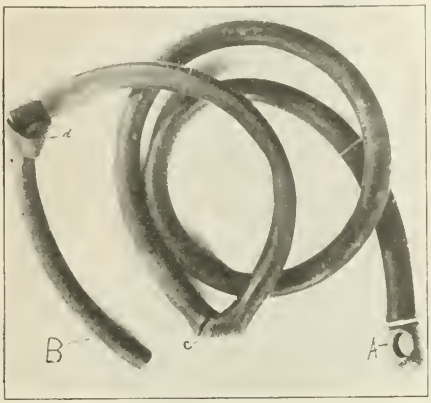


FIG. 1.—The Modified Stomach-Tube. A—Metallic tip. B—Soft and collapsible tubing. The kink c and the knot d show its collapsibility.

direction—against gravity. The stringy mucus and undigested large particles of food, therefore, mostly remain in the stomach. As the ordinary stomach-tube cannot be retained any longer than a few minutes, lavage, therefore, is usually performed very rapidly, clumsily, and often ineffectively. At the end, the patient feels as if he had undergone an ordeal, returns home relating to his friends the horrors of "stomach-pumping" as he calls it. The operator, on the other hand, often stops to reflect upon the therapeutic value of such lavages. As a matter of fact, a good many physicians believe the beneficial effects of a lavage, if any, are altogether psychic.

In the MEDICAL RECORD in the issue of September 27, 1913, I described the modified stomach-tube tending to lessen the difficulties experienced in the passage of the ordinary one. I described also a gastric glass bulb facilitating the extraction and collection of test meals and adaptable for lavage at the bedside or at the home of the patient. In this communication I desire to describe a simplified and speedy method of lavage when performed at the physician's office or in the hospital ward, possessing none of the objectionable features enumerated above. It will be appreciated, particularly, by those who will have occasion to use it often. It is best employed in conjunction with the modified stomach-tube. The outfit consists of:

(A) The modified stomach-tube. For its description and technique the reader is referred to the original communication. In lavage, however, I am using another form of a weighted tube which is being passed and tolerated with still greater ease than the one I use in extraction of test-meals. Its introduction is accomplished in the same manner as the original without using a stylet.

(B) Two graduated irrigating jars B and B′ placed about three feet above the patient, each of 1000 c.c. capacity with outlets at the bottom; B contains an alkaline irrigating solution and B′ a stimulating one, such as silver nitrate 1:10000 (Fig. 2).

(C) Two lengths of rubber tubing C and C′ (Fig. 2) suspended from cocks of the irrigating jars B and B′ respectively, the lower ends of which reach about one foot below the level of the patient when in recumbent posture and are connected to the two upright limbs F and G of

(D) A double-cock glass piece (Figs. 3 and 4) consisting of a stem E, three short limbs F, G, H, and two cocks X and Y. The stop-cock X is double bored so that it may form or sever the communication between F and E, G and E, or closing F, G from E (Fig. 3). The stop-cock Y has a 5/16 inch bore to allow the free passage of mucus and large particles of undigested food. The limb H communicates with the outer end of the stomach-tube by means of rubber tubing one foot long. The irrigating jars, tubing and the double-cock glass piece are permanently fastened to one another by means of adhesive plaster and can be easily carried from ward to ward in some box or basket.

*Procedure.*—The irrigating jars are filled with their respective solution. The modified stomach-tube is introduced in the manner as described in the original communication after which the patient assumes the recumbent posture. The operator connects tubing F to the outer end of the stomach-tube supporting the latter with the right hand and manipulates the stop cocks with the left one. On closing cock Y and opening X, the solution in B will flow out through C, G, X, E and H into the stomach (Fig. 3, B). The operator takes the read-

FIG. 2.—Lavage BB′, irrigating jars; CC′, rubber tubing; D, double-cock glass piece; A, outer end of the stomach-tube, communicating with tubing H; I, receptacle for the return flow. The patient in the recumbent posture, undraped, reads a newspaper during lavage, showing how little disturbed he is by the lavage.

ing and when a quantity of 300 c.c. has thus passed through he closes cock X (Fig. 4, A). As the modified stomach-tube can be retained a considerable length of time without any distress to the patient, the water, therefore, is left in the stomach a few minutes during which time the patient turns him-

self from side to side, thus allowing the thorough bathing of the whole gastric mucosa. Then on opening cock Y the return flow will start by means of siphoning through H, E, and Y (Fig. 4, B) into some receptacle on the floor (Fig. 2, 1). This is repeated a few times in a single lavage, beginning

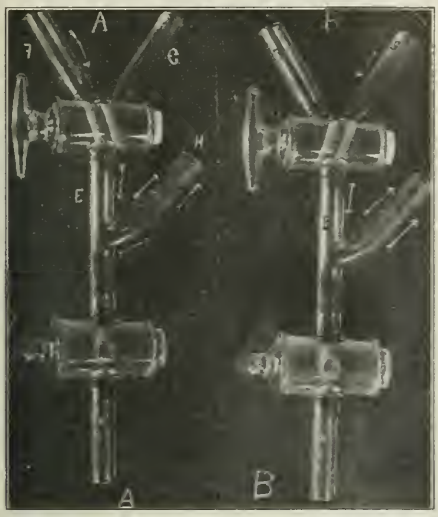


Fig. 3.—The double-cock glass piece for lavage. (Eimer & Amend, N. Y.) A—Cock Y closed, X communicating with F and E, arrows indicate direction of the flow of the irrigating solutions. B—Cock X communicating with G.

with the alkaline solution and ending with the stimulating one in the bottles B and B' respectively.

The design of the double-cock glass piece oc-

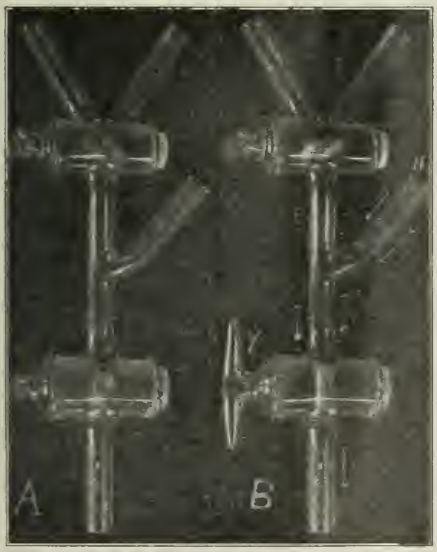


Fig. 4.—A—Cocks X and Y closed, F, G and E discommunicating. B—Cock Y opened, and return flow passes through H, E and Y as indicated by the arrows.

curred to me after Dr. A. Bassler was so generous in demonstrating to me his method of lavage by means of a specially constructed glass-tube embodying to some degree the principle of the double-cock glass-tube which, however, possesses only some minor advantage over the method generally employed. I am indebted to him also for the suggestion of the use of two irrigating solutions as well as many other invaluable suggestions for which I desire to express my thanks.

The double-cock glass piece is time saving, lessens work and renders assistance unnecessary. The patient need not be draped, as he neither gags, coughs, nor vomits, but lies quietly in the recumbent posture in which position the return flow assumes no up-hill direction, and hence, mucus or large particles of undigested food pass out readily. The stream of the water running into the stomach can be easily regulated by the stop-cock—highly desirable in an easily irritable stomach. A lavage by this method is least discomforting and most effective.

I desire to express my obligations to Dr. S. Wachsmann, Medical Director, Montefiore Home and Hospital, whose suggestions have greatly guided me in my researches in gastroenterology.

Gun Hill Road, Two Hundred-and-Tenth Street.

## CASE ILLUSTRATING THE "FACTOR OF SAFETY" IN LUNG TISSUE AND PULSE PRESSURE AS A PROGNOSTIC SIGN.*

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THERE has lately been quite some discussion about the "Factor of Safety" or "the excess of available physiological power of organs above what is normally called into play." This excess of power seems to be especially high in the lungs. Courmont has shown that life can still be prolonged if one-fourth of the lung capacity is active, and lately reports from the Laennec Hospital of Paris seem to show that with even one-sixth of the lung capacity, life may be retained.† To illustrate, we would like to cite the following case:

Case.—February 14, 1913.—E. Q., age 17; occupation, clerk; family history, negative; previous history, negative; was long-distance runner. Present history: Three months ago caught "cold" which has persisted to present time; has pain in left side; no chills; has fever; has night sweats; slight cough; little expectoration; digestion, good; appetite, good; bowels, regular. Examination: Temperature, 99.2°; pulse, 120; respiration, 40; weight, 120. Three months ago, when in training, weighed 147. Blood pressure, 105; pulse pressure 5; Von Pirquet reaction, marked. Sputum: numerous tubercle bacilli. On inspection: anemic; phthisical type chest; pupils irregularly dilated; right side lags; supra- and infraclavicular spaces depressed. On palpation: right side lags. Vocal fremetus very much increased on the right side posteriorly, also along a strip about two inches wide to the left of the spinal column. On percussion: right side marked dullness from apex to base posteriorly, also marked dullness along a strip two inches wide to left of spinal column. On auscultation: bronchial breathing, bronchophony and whispering; bronchophony present over dull area. Râles over left lower apex posteriorly. Right middle apex—râles with bronchovesicular breathing. We thought the strip to the left of the spinal column was due to the reflection of the signs on the right side. Heart, normal; arteries, nonpalpable.

March 9, 1913, the patient came back feeling fine; had gained weight; looked healthy. Although he walked to the clinic, about one-half mile from his home at a rather fast pace, he showed no dyspnea.

*Read before the Hudson County Medical Association, October 2, 1913.

†*Journal A. M. A.*, June 7, 1913.

He had slept out of doors since last seen and had followed the hygienic regimen we prescribed carefully. Pulse, 119; respiration, 30; temperature, 980; weight, 124¾.

The right side was still consolidated posteriorly; the left side posteriorly; flatness to the angle of the scapula. Apex of left lower lobe, dullness with râles and bronchovesicular breathing. Anteriorly—apex of left upper lobe, dullness with râles and bronchovesicular breathing; flatness on left to nipple; heart pushed entirely to right of sternum, apex felt in intercostal angle. Blood pressure, 110. Pulse pressure, 19. Diagnosis of fluid made; 6 ounces of serous fluid were removed a few days later with no affect on absorption. Later 2 quarts were removed. No ill effect after removal.

April 12, 1913, heart still to right of sternum. Fluid to ninth interspace on left posterior. Above that, pneumothorax; left lung collapsed. Could get a "lung-fistula" sound over first interspace below the junction of inner and middle third of the clavicle. Right lung posteriorly, dullness apex to base; anteriorly, normal; right middle apex hidden by heart sounds. X-ray taken April 15, 1913, by Dr. H. Axford, showed pneumothorax on the left side with collapsed lung, heart to right of sternum. Right lung: *x*-ray, taken with patient on back, showed various areas of consolidation with areas of normal tissue. This plate was shown to Dr. Quimby of the New York Polyclinic, who was kind enough to help us read it, and who said it was one of the best lung plates he had ever seen.

April 26, 1913, the heart still to right of sternum; fluid on left side to the angle of the scapula, pneumothorax above that; left lung still collapsed, "lung-fistula" sound same as before; dullness still present over right lung posteriorly. Weight, 120¼. Temperature, 100°. Pulse, 112. Respiration, 36. June 7, 1913, patient somewhat cyanotic. Right side posteriorly markedly enlarged over left. Dullness over that side gone. Fluid to ninth interspace on the right side. Area of dullness, bronchial breathing, bronchophony, whispering bronchophony and râles, size of a silver dollar in right lower apex. Left side: fluid to spine of scapula. No pneumothorax. Left lung above compressed area seemed normal. Anteriorly: Heart plainly seen pulsating to right of sternum. Lung tissue of right lung anteriorly seemed normal. Fluid on left side front to third interspace. Lung above compressed area seemed normal. Complained of feeling very tired; coughing and expectorating profusely. Weight, 121¼. Temperature, 102°. Pulse, 139. Respiration, 36. Some of the fluid removed three days later proved to be purulosanguineous. Examination showed diplococci. No tubercle bacilli. Next day two quarts of fluid were withdrawn and 2 ounces of a 2 per cent. solution formalin in glycerine were injected into the plural cavity.

Fig. 1.—Skiagram, with the patient lying down.

June 21, 1913, patient felt weak; marked dyspnea. Temperature, 102°. Pulse, 120. Respiration, 50. Weight, 120. Fluid on left side posteriorly up to the angle of scapula. Up to the nipple anteriorly. Lung above the fluid anteriorly gave signs of marked consolidation. At second intercostal space one inch to left of sternal margin, could make out "lung-fistula" sound. Right side, posteriorly, fluid to ninth interspace. Right lower apex still consolidated with râles. Anteriorly: heart still to right of sternum; a marked systolic murmur. Lung in front normal. Patient complained of weakness, cough and expectoration. This expectorated material patient said was similar to material which had been withdrawn from chest. This material upon examination was found to be purulosanguineous, full of diplococci with no tubercle bacilli. This proved that there was a "lung-fistula" present.

Fig. 2.—Skiagram, with the patient sitting up.

*Recapitulation.*—We consider that this case shows very well "the factor of safety," because on having the left chest practically full of fluid, while the right side was consolidated posteriorly and was further hampered by the displaced heart, the patient walked one-half mile to the clinic at a brisk gate and showed no dyspnea. Secondly, on April 15, 1913, having an absolutely collapsed left lung, with some consolidation in the right lung, with the heart to the right of the sternum, the patient ran up two flights of stairs to the *x*-ray room as fast as we did and showed less dyspnea; and, thirdly, we have seen him as far as two miles from home walking briskly and could not make him stop taking long walks as long as he felt well; in fact, he kept taking these walks until the latter part of May. During all that time he had probably only one-fourth of his lung tissue physiologically active. We would like to add this case to the great number reported, showing that low blood pressure, and especially low pulse pressure, indicates poor resistance and is a good prognostic sign.

## A EUROPEAN STUDY TOUR.

By RICHARD KOVACS, M.D.,
NEW YORK.

Study trips by professional men are coming more and more into vogue. The idea of organizing a travel-study by American physicians came from Germany, where an organization for this purpose has been in existence for the past fifteen years. This body arranges study trips for its members once or twice a year. It undertook its first American excursion a year ago last fall in connection with the International Congress of Hygiene and Demography in Washington. More than 200 members coming from all parts of the European continent visited the medical institutions of New York, Philadelphia, Baltimore, Washington, Chicago, Montreal, Toronto, Boston, etc. The success of the European party showed American physicians the advantages of a well-managed study tour. The tourists were received with exceptional courtesy by the government and by local authorities and medical societies. Everything pertaining to medical matters and sightseeing was so carefully provided for in advance that those unfamiliar with the language of the country visited did not feel this disadvantage.

Shortly after the German study tour returned to Europe, several New York physicians met and decided to form a similar association. As a first attempt a tour was organized in connection with the then coming Seventeenth International Congress in London, August, 1913. The plan included visits to most of the important capitals and health resorts of Europe, before the Congress was to be attended. Sixty-eight participants sailed from New York on July 3 on the North German Lloyd S. S. "Bremen." The list of members included Major Louis Livingston Seaman, Dr. Fred H. Albee, Dr. William De Garmo and Dr. S. Breitenfeld, of New York; Dr. Howard Van Rensselaer, of Albany; Dr. Edward B. Heckel, of Pittsburg; Dr. John Punton, of Kansas City; Major Henry Page, U. S. A.; Dr. Winslow Anderson, of San Francisco; J. F. Percy, of Galesburg, Ill.; Dr. J. P. Lord, of Omaha; Dr. A. J. Crowell, of Charlotte, N. C.; Drs. H. P. and S. P. Collings, of Hot Springs, Ark.; and others. The nine-day voyage was full of interest. The large dining hall was transformed into a lecture room in which professional lectures were given in the morning, while on certain afternoons or evenings the passengers of the ship were invited to listen to lectures of educational and general interest. All of the latter were illustrated by stereopticon views. Among the subjects treated were "African Sleeping Sickness," and "Big Game Hunting in Africa," by Dr. Louis Livingston Seaman; "Bone Transplantation," by Dr. Fred H. Albee; "Medical Experience in the Arctic," by Dr. Harold H. Foss; "Ten Years as Doctor Amongst Savage Tribes," by Major Henry Page, U. S. A., and "The Newer Mission of the Doctor and Hospital," by Dr. John Punton. With plenty of time at our disposal it naturally followed that the discussions were more lively and more detailed than we are accustomed to hear on land. At the popular lectures the dining saloon and its gallery were crowded to their utmost capacity.

The American Physicians in Berlin. The picture was taken in front of the Kaiser Wilhelm Akademie. The officer is Prof. Dr. von Schjerning, Chief Surgeon of the German Army.

Paris was the first city visited. We arrived just before the French national holiday, July 14. Our party was invited to visit the splendid "Revue" at Longchamps, and the same afternoon we were guests of Ambassador and Mrs. Herrick at a garden party. Three days were spent in inspecting hospitals and other institutions of medical interest. At the French Academy of Medicine a cordial reception was tendered us. At the Faculty of Medicine some of the examinations for the degrees in medicine were witnessed by our party. Both professors and students are required to appear in the ornate robes worn at these occasions since ancient times. The anatomical museum of the University is one of the oldest in Europe; the dissecting rooms are ample; 500 students have room and material enough for simultaneous work.

The hospitals present a contrast which one does not see in America. Opposite the new Hôpi-

tal de La Pitie, an entirely modern structure, is the immense "Hospice de la Salpétrière," converted from a saltpeter factory into a general hospital by order of Louis XIV. This institution has nearly 4,000 beds. The Hôtel Dieu is still older. It is a general hospital on the Island of the Cités. Here Reclus, the father of local anesthesia, gave us a very interesting demonstration. The visits to these hospitals conveyed the impression that modern American hospitals have very little to learn from the similar French institutions, and that in all the old buildings unhygienic conditions actually exist which would not be tolerated in any American community.

On the other hand the teachers and their clinics are admirable. At the Hôpital Cochin Professors Chauffard and Widal held clinics on internal medicine. At the Clinique Tarnier Professor Bar demonstrated the system of this obstetrical clinic. At the Hôpital Broca the famous ambidextrous gynecologist, Pozzi, performed one of his marvelous, rapid and skilful operations. His clinic is radically different from that of any other hospital. The corridors and wards are transformed into large picture galleries by fresco paintings, which are washable and therefore hygienic. These are intended to make the surroundings of the patients cheerful and pleasant. We visited the Pasteur Institute and Hospital and stood with deep reverence before the tomb of the father of modern bacteriology. Our last visit was to the Palais de Justice, to inspect the department of Dr. Bertillon, the famous scientist. Measurements and fingerprints of several colleagues were taken and the index cards signed by Bertillon were obtained as valuable souvenirs.

Munich was the next city visited. Its great, new medical institutions and the beauty of this city of are fully justify the decision made in London to hold the next International Medical Congress there in 1917. The new Munich-Schwabing Hospital has about 1,400 beds, and is an ideal type of a hospital. The university clinics and polyclinics and their splendid teachers have made Munich next in importance to Berlin as a medical center. Friedrich Müller, Kraepelin, Döderlein, and Hess are well known names even in America. The members of our party were delighted to meet these illustrious scientists at a "Gemüthlicher Bierabend" at the Austellungs Park.

Three days were spent in Vienna, the birthplace of modern clinical medicine. The 300-year-old "Allgemeine Krankenhaus," consecrated by the work of men like Auenbrugger, Hyrtl, Rokitansky, Billroth and Nothnagel was visited with due reverence. The buildings are unsightly, antiquated and unhygienic. Unfortunate political conditions in Austria greatly hinder the construction of new clinics and hospitals. Present hospital accommodations are entirely inadequate for the needs of the city, with its large population and the great influx of patients not only from all over the continent of Europe, but also from the nearby Orient. Political conditions also interfere with the task of getting men of proper calibre to fill professional vacancies at the university. Nevertheless, Vienna is still one of the great medical centers of the world, and the large material of the "Allgemeine Krankenhaus" furnishes unexcelled opportunities, especially for postgraduate medical instruction. It is very popular with American physicians. The well-managed American Medical Association of Vienna arranges for special courses given in English.

A number of excellent clinics were given by the surgeon, Von Eiselsberg, the dermatologist Riehl, the gynecologist Wertheim, the surgeon Hochenegg, the neurologist Marburg, the pediatrist Van Pirquet, the laryngologist Chiari, and others. The great Pathological Anatomical Museum is under the direction of Hofrat Weichselbaum. Physicians and visitors of the Krankenhaus are invited to the daily postmortems at the Pathological Institute. On the desk there are "death cards," their number corresponding with those on tags attached to the bodies. The cards contain salient facts such as clinical diagnosis, the number of the ward, and the name of the clinicians. A postmortem is made in every case of death in the hospital, a procedure of inestimable value to the value of clinicians. The next morning we saw the "Steinhof," a State Insane Asylum in the suburb of Huetteldorf. It is a most modern institution, perhaps the best equipped in the world. It was built at an expense of thirty million kronen (6,000,000). Sixty large buildings accommodate 4,000 patients. A church and a theatre form part of the institution. The following Sunday afternoon the tourists were guests of the nearby city of Baden, a well-known watering place, and on the day following the ladies were invited to a tea in the park of the famous Lichtenstein gallery as guests of Prince Lichtenstein. The physicians of Vienna cordially welcomed our tourists at a dinner at the Adria exposition in the famous "Prater." Professor Lorenz, the well known orthopedist, acted as toastmaster and chairman. During the following days the famous Bohemian health resorts of Karlsbad and Marienbad were visited, and a short trip was also made to Joachimsthal, where radium is obtained from mines controlled by the Austrian government.

In the model city of Dresden two days were spent seeing modern hospitals and art galleries with their treasures. Visits were also made to the Crematorium in Tolkvitz and the city slaughter house and filtering plants. The city of Dresden gave us a splendid reception and our colleagues of Dresden a luncheon, where Geheimrat Prof. Renk, president of the Royal Health Board, presided.

Berlin is to-day the leading medical center. Research work and clinical teaching are going on in new, splendidly equipped city, state, and imperial hospitals, laboratories and other institutions. As elsewhere in the continent, the men who follow the university career receive ample salaries, making practice unnecessary. The Charités Krankenhaus consists of a number of modern clinical institutions accommodating about 2,000 medical students and at least as many physicians. The teaching staff includes such leaders of medical thought as the internists Wilhelm His, the successor of Leyden, and Friedrich Kraus, successor of Gerhart; Johannes Orth, the pathologist, a worthy successor of the great Virchow; Bumm and Franz, the gynecologists, Heubner, the pediatrist, and Bonhoeffer, the neuro-psychiatrist. The Rudolf Virchow Krankenhaus with its 2,000 beds and sixty-seven pavilions is an appropriate memorial to the illustrious scientist after whom it is named. Nearby is the Robert Koch Institution, which was really the Royal Institute for Infectious Diseases, and which was named later after its first famous director. This institution is amply provided for by the government and is conducting the scientific investigation of infectious diseases. It also serves as a central consulting station for the medical department of the Prussian Ministry

of Education. Another new and unique institution is the Kaiserin Augusta Victoria Anstalt in Charlottenburg, which was founded in 1909 for the purpose of reducing the mortality among nursing infants. It is the central bureau for the entire German Empire in regard to practical and scientific information relating to pregnant women, their care before confinement, hygienic rules for confinement, the care of nursing infants, the care of artificial food, and the chemical and bacteriological examinations of milk, in fact, everything that may advance the health and development of the new-born babe or the care of a weak child.

A number of similar central institutions dealing with matters of general health and welfare are also situated in Berlin. Their work is wonderfully organized and efficient. Much of the success of our study tour was due to a central institution of this kind. This is the Kaiserin Friedrich Haus, the official seat of the Central Committee for Postgraduate Medical Education, of which Prof. Waldeyer is president. It is under the direction of the Prussian Ministry of Public Instruction and provides for regular annual gratuitous postgraduate and clinical lectures for physicians in forty-eight large cities of the German Empire. In the Kaiserin Friedrich Haus we find clinical instruction rooms for physicians, collections of objects aiding in medical instruction, a permanent exposition of products of medicotechnical industry, and a bureau of information and organization. Through its local committees the postgraduate committee, under its able and energetic secretary-general, Professor Kutner, arranged for the reception and medical program of the American study tour in a marvelous way all over Europe. The account of the stay in Berlin would be incomplete without mention of the reception at the Kaiser Wilhelm's Akademie, the training school for army medical officers, by his Excellency, Prof. A. Von Schjerning, the chief surgeon of the German Army, who is also the physician of the German Emperor. One evening the physicians of Berlin gave a reception and a concert at the Austellungs Park. The performers at this concert were all German physicians or their wives. Professor Waldeyer was chairman and the official speakers among whom was the distinguished neurologist, Professor Moll, gave voice to their respect for American medicine and the gratitude felt by German physicians for the splendid reception in America given to last year's German Study Tour.

The birthplace of the great German poet and scientist, Johann Wolfgang Goethe, Frankfort on the Main, was the next stop. The modern large hospitals have a staff of excellent medical men, who are to become teachers in the new University of Frankfort, which is about to be established. Prof. Carl von Noorden recently decided to leave his chair in Vienna and return to Frankfort. However, the greatest attraction for medical men, and the one which put Frankfort in the center of both medical and popular interest throughout the world, are the Ehrlich Laboratories at the Royal Therapeutic Institute. Professor Ehrlich received the Americans. He showed the travelers his laboratories, the Mecca of scientists from all over the world. He explained some of the newer drugs and experiments used with success in the combat of hitherto unconquerable diseases of parasitic infectious origin.

Within a short distance from Franfort there are a number of world-famous health resorts. Three of the "Taunus-bäder" were visited. Bad Nauheim belongs to the Hessian Grand Ducal Government, which recently erected a number of most beautiful modern buildings and bath houses. Here we observed the details of the famous Nauheim treatment for chronic affections of the heart. Homburg has a number of powerful mineral waters, especially for catarrhal and anemic conditions. It belongs to Prussia. At the time of our visit the German Empress was taking the cure there. The Kurdirektor, Count Zeppelin, a nephew of the famous air-conqueror, of the same name, provided a special "air ride" for about fifteen members of the American party, which they described as providing an entirely safe and delightful sensation. Wiesbaden is the oldest and largest of the Taunus baths. Even Pliny mentions the warm springs of Mahincum (Wiesbaden), where the fourteenth legion erected a castle. Among the many well-equipped institutions the municipal Kaiser-Friedrich Bad, deserves special mention. It was completed two years ago at a cost of 4,000,000 marks, and is absolutely the last word in modern hydrotherapeutic institutions.

In all these places our party was overwhelmed by the cordiality of the reception and the number of luncheons and dinners given in our honor. But this is not surprising, for the majority of well-to-do patients in these resorts are Americans. What wealth for domestic consumption and what benefit for millions of our less fortunate citizens, if some of our American health resorts, possessing undoubtedly all the healing agencies of European resorts were to be equipped and managed with the same vigor and same success as these!

From Wiesbaden the tourists took the beautiful Rhine trip down to Cologne, and here and in Düsseldorf, nearby, we visited the two Academies of Practical Medicine. These are new institutions which are organized in connection with the Central Committee for Postgraduate Medical Education at Berlin. Being in close connection with splendidly equipped large hospitals and possessing a staff of excellent teachers, the purpose of these academies is manifold. They give the medical candidate an opportunity after he has finished his State examination to put in his required year of practice before he receives his M.D. and the license to practice. They afford a place for the young physicians to do special work in preparing to become specialists. They conduct advanced courses, such as those in school hygiene. They also give courses for male and female nurses. Beautifully situated on the outskirts of the city, the picturesque buildings of the academies gave the impression of a college, and not that of a hospital. Their courses are gratis to Germans and foreigners alike.

The last city of medical interest on the Continent was Brussells, where the Solvay Institutes of the University and the well-equipped private clinic of Professor Depage were visited. Two days later, on the eve of the opening of the Seventeenth International Medical Congress in London the official program of the study tour was completed. The members now attended the various sections of the great Congress.

Much was seen in Europe and many suggestions were received, together with many ideas for improvement of conditions over here. But in general we can be justly proud of our American medical institutions, which were founded and equipped with practically no official help, and many of which

have achieved world-wide fame and recognition by their work. Briefly summed up the situation is as follows: The scientific pursuit of knowledge upon the Continent of Europe is subsidized. Conditions for research work are made infinitely more easy than in America. The social position and the financial benefits accruing to a man of scientific worth are far better there than with us. As a direct result of this system we see that in the main, pathology, clinical medicine, pediatrics, neurology, pharmacology, and dermatology are better taught abroad. The teachers have good salaries and can devote themselves to the matter at hand without regard to the ever-present question of our country—will it pay?

On the other hand, the Americans who go abroad quickly realize that in surgery we are far ahead of the average European clinic. There are several brilliant exceptions to this statement. Trained nursing as we know it simply does not exist abroad except in certain isolated instances. If we go to Europe with open minds and disregard the points of their system which we consider weak we will find that there is a tremendous amount of easily available knowledge placed at our disposal.

236 East Sixty-ninth Street.

## THE PHYSICAL CONDITION OF RETARDED SCHOOL CHILDREN.*

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Of all the problems presented in regard to school medical inspection and the hygiene of the school and school child none has been more complex than that concerning the relation between physical ill health and school progress. Owing to the lack of standardization of methods of promotion all studies made of this subject have in large degree been unsatisfactory and unconvincing. The notable contribution made to this subject by Leonard Ayers, for instance, gave as a statistical conclusion the statement that school children with defective vision progressed as rapidly in their school advancement as the average child, yet it is the common impression received by those of us who are in active contact with these children that defective vision handicaps a child in its school progress and is a frequent cause of retardation. Promotion seems to depend upon such a wide range of variable factors that scientific conclusions as to the contributing cause of ill health cannot be drawn or applied to the problem as a whole. The retarded school child is regarded as a pedagogical problem of the greatest magnitude. In the elementary public schools of New York City there were 124,398 over-age children in the grades, or 21 per cent. out of a total registration of 579,728, according to the annual report of the City Superintendent of Schools for the year ending July 31, 1912. The same report states that "The problem of over age may be grappled with in three ways, (1) by way of organization and classification, (2) by modifications in the curriculum, and (3) by improved teaching." Two forms of practical methods are outlined, (1) special classes, and (2) the so-called double time plan. Here the problem is considered wholly in its pedagogical aspects. There can be no question, however, that it is the duty of the school hygienist to determine what relation, if any, physical ill health has as an influence in non-promotion and to contribute a program for dealing with this particular factor. Such a study was made during the period between February and July of this year by specially selected, interested and efficient physicians and nurses of the Division of Child Hygiene of the Department of Health in the New York City Public Schools.

*Read at the Fourth International Congress of School Hygiene, August 28, 1913.

Table I.

| | |
|---|---|
| Number of children examined | 1,541 |
| Number found with physical defects | 1,202 |
| Of which:— | |
| In "D" classes | 26 |
| In "E" classes | 107 |
| Over-age in grades from 1-A to 8-B | 1,069 |
| | 1,202 |

Six out of the twelve schools selected have "D" and "E" classes. The remainder have retarded and over-age children placed throughout the regular grades.

"D" classes are for pupils who are preparing to take examinations for employment certificates.

"E" classes are for over-age children to endeavor to make up for grades lost.

For the purpose of this study four groups of schools in New York City were selected—four in the Borough of Manhattan, three in the Borough of the Bronx, three in the borough of Brooklyn, and two in the Borough of Queens—a total of twelve schools. The selection was made on the basis of the average school, without a preponderating attendance of children of any one nationality and with a view to obtaining the best possible cooperation of the principals and teachers. Interested and efficient physicians and nurses were detailed for the work of examination and follow-up visits to the homes. Three sets of record cards were used, one to contain the child's school record and the teacher's opinion as to causes of retardation, the second for data of the physical examination, treatment provided, and result of treatment as shown by physical reexamination, the third for social, sanitary, and hygienic conditions of the home.

Table II.

Number of retarded children with physical defects..... 1,202

| Ages | Number | Per Cent. |
|---|---|---|
| 6 years | 4 | 0.3 |
| 7 years | 20 | 1.7 |
| 8 years | 57 | 4.7 |
| 9 years | 94 | 7.8 |
| 10 years | 121 | 10.1 |
| 11 years | 153 | 12.7 |
| 12 years | 215 | 17.9 |
| 13 years | 223 | 18.6 |
| 14 years | 218 | 18.1 |
| 15 years | 77 | 6.5 |
| 16 years | 15 | 1.2 |
| 17 years | 2 | .2 |
| Not given | 3 | .2 |

In six of the twelve schools special classes designated as "E" are maintained for over-age pupils who are unable to maintain their proper school grade; other classes designated as "D" are maintained in two of the selected schools for pupils who need extra preparation in order that they may at the age of fourteen years complete the 5B grade legally essential for obtaining employment certificates. (The normal age of the 5B grade child is given by the Department of Education as ten to twelve years.) Of the children found with physical defects, 26 were from classes "D" and 107 from classes "E." The remaining 1,069 children were selected from over-age children in the grades where no special classes for them were provided.

In all, 1,541 children were physically examined and kept under supervision. None of these children were true mental defectives, and inability to speak the English language was not a factor in the cases examined nor the cause of retardation. In the instances enumerated under "foreigner—recent arrival" in Table IX previous lack of education was the retarding influence. The ages of the children ranged from 6 to 17 years, the greater number of instances of retardation being found at 13 years, with a total of 223, or 18.6 per cent., the number at each age increasing up to this point in rapid progression and declining afterward with equal rapidity.

TABLE III.

| Nativity | Number | Per Cent. |
|---|---|---|
| United States | 646 | 53.7 |
| Russia | 324 | 26.9 |
| Italy | 114 | 9.5 |
| Austria | 32 | 2.6 |
| England | 21 | 1.7 |
| Germany | 20 | 1.6 |
| France | 12 | 9 |
| Hungary | 6 | 3.1 |
| Roumania | 3 | |
| Poland | 2 | |
| Asia | 2 | |
| Spain | 1 | |
| Gallicia | 1 | |
| Sweden | 1 | |
| South America | 1 | |
| Not known | 16 | |

TABLE IV.
NON-PROMOTIONS

| Times Left Back | Pupils With Physical Defects | Per Cent. | Total Number Non-Promotions |
|---|---|---|---|
| 0 | 218 | 18.1 | 0 |
| 1 | 245 | 20.4 | 245 |
| 2 | 250 | 20.8 | 500 |
| 3 | 197 | 16.5 | 591 |
| 4 | 123 | 10.3 | 492 |
| 5 | 78 | 6.4 | 390 |
| 6 | 33 | 2.7 | 198 |
| 7 | 14 | 1.2 | 98 |
| 8 | 6 | 0.5 | 48 |
| 9 | 3 | 0.2 | 27 |
| No record | 35 | 2.9 | 0 |
| | 1202 | 100.0 | 2589 |

2.6 per cent. average number of times failed of promotion.

TABLE V.

| | Routine Pyysical Examinations, 1912 | | Special Physical Examinations of Retarded Pupils | |
|---|---|---|---|---|
| Number of children examined | 287,469 | | 1,541 | |
| | Number | Per Cent. | Number | Per Cent. |
| Normal | 80,749 | 27.8 | 158 | 10.2 |
| Teeth defects only | 119,359 | 41.5 | 181 | 11.8 |
| General defects | 87,361 | 30.4 | 1,202 | 78.0 |

The nationality of the children showed a wide compass; 53.7 per cent. having been born in the United States, 26.9 per cent. in Russia, 9.5 per cent. in Italy, the remainder being credited to twelve different countries.

The number of non-promotions is shown in Table IV. For the purpose of this study only the children with general physical defects are considered. The 218 children who had not previously failed of promotion include those who entering school for the first time were over-age for their grade. These 1,202 children had failed of promotion 2,589 times, or an average of 2.6 failures for each child.

Of the 1,541 retarded children examined 1,383, or 89 per cent., were found to have one or more physical defects. This is of particular interest in comparison with the 71.1 per cent. of physical defectives found in the regular routine examination of all pupils. The fact of particular importance in this broad classifiction as shown in Table V is the preponderance of the general physical defects occurring in the retarded children; 78 per cent., as contrasted with 30.4 per cent. in the children examined in the regular routine. The children with defective teeth as the only physical defect are contrasted in inverse ratio, showing 11.8 per cent. for the retarded children to 41.5 for the children as a whole.

TABLE VI.

| | Regular Routine Physical Examinations Made During 1912 | | Special Physical Examination of Retarded School Children | |
|---|---|---|---|---|
| No. of children examined | 287,469 | | 1,541 | |
| No. found with physical defects | 206,720—71.9 per cent. | | 1,383—89.8 per cent. | |
| No. of defects found | 226,639 | | 2,986 | |
| Nature of Defect | Number | Per Cent. | Number | Per Cent. |
| Anemia | * | * | 355 | 23 |
| Malnutrition | 8,303 | 2.9 | 557 | 36.1 |
| Defective vision | 21,078 | 7.3 | 536 | 34.7 |
| Defective hearing | 1,206 | 0.5 | 47 | 3.0 |
| Defective nasal breathing | 21,931 | 7.6 | 316 | 20.4 |
| Hypertrophied tonsils | 30,021 | 10.4 | 297 | 19.2 |
| Defective teeth | 142,168 | 49.4 | 796 | 51.6 |
| Pulmonary disease | 335 | 0.1 | 47 | 3.0 |
| Cardiac disease | 1,597 | 0.5 | 35 | 2.3 |
| Average number of defects per child | ..... | 1.1 | ..... | 2.5 |

*Not classified.

TABLE VII.

| | Occurring as Only Defect | Associated With Other Defects |
|---|---|---|
| Anemia | 16 | 339 |
| Malnutrition | 44 | 513 |
| Defective vision | 176 | 360 |
| Defective nasal breathing | 62 | 254 |
| Hypertrophied tonsils | 30 | 267 |
| Defective hearing | 3 | 44 |
| Defective teeth | 181 | 615 |
| Total | 512 | 2392 |

The relatively small number of retarded children who were physically normal with the exception of defective teeth offers an interesting field for study as to the significance of dental defects in relation to retardation.

The comparison of the various types of physical defects found, as shown in Table VI, is significant. Malnutrition found in 2.9 per cent. of all school children was found in 36.1 per cent. of the retarded children; anemia in 23 per cent. of the cases. The examination for defective vision was made more thoroughly than has proved practical in the regular routine examination. The refraction of each child was determined. However, as subjective symptoms of eyestrain are regularly ascertained as well as the Snellen test card used in the regular routine examinations, I am of the opinion that the marked difference—34.7 per cent. in the retarded children as compared with 9.3 per cent. in the children as a whole—is not wholly due to the greater care taken in this instance, but rather should be considered as a definite cause of the retardation, and, therefore, a predominant symptom in children selected because of inability to progress in their studies. The striking contrast between 20.4 per cent. of instances of defective nasal breathing in the retarded children and 7.6 per cent. in the regular group is more marked than that of the respective occurrence of 19.2 per cent. and 10.4 per cent. of hypertrophied tonsils. Defective hearing in 3 per cent. of the cases is an obvious cause of retardation and the contrast with .5 per cent. in the children at large calls for no fur-

ther comment. Pulmonary disease, with the ratio of 3 per cent. to .1 per cent., and cardiac disease in the contrasting occurrence of 2.3 per cent. in the retarded and .5 per cent. in all of the children follows the general ratio of the other serious defects. The one exception noted is the relative importance of defective teeth. While they were found to be present in 51.6 per cent. of the retarded children as opposed to 49.4 per cent. in the children of the regular group, they were found mainly in association with other physical defects in the cases studied. The retarded children studied showed an average of 2.5 defects per child, while the children examined in routine show an average of 1.1 defects per child.

The analysis of the conditions of the home, including sanitation, hygiene, and care is offered merely as a general index. Such data, even when compiled by careful investigators, is a matter of relative opinion and is necessarily influenced by the personal point of view. The factors considered were the sanitary and hygienic conditions of the premises and home, family intelligence and care given to the child and the food, hygiene, and rest periods. Classified together they were found to be good in 49.6 per cent., fair in 31.6 per cent., poor in 15.6 per cent., while 3.2 per cent. could not be classified. A special analysis of the same factors in the malnutrition and adenoid and hypertrophied tonsil cases showed much the same general average.

Table VIII.

| STIMULANTS (MALNUTRITION CASES)* | |
|---|---|
| Number of pupils | 647 |
| Stimulants used | 304—47 per cent. |
| Stimulants not used | 343—53 per cent. |
| Coffee used by 258 pupils | 39.8 per cent. |
| Tea used by 93 pupils | 14.3 per cent. |
| Beer used by 20 pupils | 3.09 per cent. |
| Wine used by 3 pupils | .46 per cent. |

*Including the anemia cases of marked type.

Table VIII is of interest as showing the use of stimulating beverages by the children suffering from malnutrition. The limited use of wine or beer, as shown in this group, can hardly be considered as a contributing factor in these cases, while the use of coffee by 39.8 per cent. and tea by 14.3 per cent. may readily be conceived as having some bearing on the etiology of the disturbed nutrition.

Table IX.

REASONS FOR RETARDATION

Of 1202 pupils with physical defects, the records of 218 gave no information unon which causes for retardation might be based. The causes ascribed for the remaining 984 pupils are berewith given, it being understood tbat in many cases a pupil bad several factors checked up against him:

| | | | Per Cent. |
|---|---|---|---|
| 1. | Mentality | 232 | 23.6 |
| 2. | Foreigner (recent arrival) | 115 | 11.7 |
| 3. | Late start | 191 | 19.4 |
| 4. | Personal illness | 270 | 27.4 |
| 5. | Illness at bome | 25 | 2.6 |
| 6. | Quarantine | 24 | 2.5 |
| 7. | Conduct (including truancy) | 55 | 5.6 |
| 8. | Absence (not specially defined) | 81 | 8.2 |
| 9. | Freq ent change in school | 34 | 3.4 |
| 10. | Family illiteracy | 10 | 1.0 |

The assigned causes of retardation in 984 of these physically defective children are given as opinion based upon the factors from the school point of view. Here personal illness as given in 27.4 per cent. of the cases studied is the only definitely given cause that may be considered as bearing upon the physical status of the children examined. No proof can be presented, worthy of acceptance, showing that the children in this group were retarded in their school progress because of the presence of the untreated physical defects discovered. Yet the fact remains that these children who by reason of their retardation must be classified as of subnormal mentality are physically subnormal in a greater degree than the average child. Disregarding the pedagogical aspect of the case, is it not the duty of the school hygienist to definitely focus his attention upon the retarded school children as the class who inevitably, by virtue of their physical disability, must be retarded in future physical resistance and good health in adult life?

33 West Ninety-sixth Street.

## PERSISTENT HICCOUGH.

By FRANCIS H. MEAD, M.D.,

SAN DIEGO, CAL.

PERSISTENT hiccough is often a troublesome condition, and as many remedies are advised for its relief the following experience may be of interest:

Major X., on Nov. 23 was suddenly taken ill in the evening. When I saw him that night he had had a severe chill and was running a temperature of 102.6°. He had previously suffered from a light attack of cerebral apoplexy, had an enlarged prostate with old interstitial nephritis, and a much dilated stomach. With appropriate emunctory remedies, as the symptoms were due to intestinal autoxication, the temperature became normal the next afternoon, and he expressed himself as feeling much better. On the afternoon of Nov. 27 a slight hiccough developed, for which he was in the first place given some peppermint water, with, as the symptoms increased, a sinapism. He was taking only a liquid diet, and there was no question of gastric distention with improper food, as this had been fully relieved. He passed a restless night with much hiccough. This persisting during the day, the next night he received 1/50 of a grain of atropine with morphine hydrochlorate, gr. 1/8 by hypodermic injection. He slept better and there was absence of hiccough for two or three hours, but it was renewed the next morning. I was afraid to wash out his stomach as he was unusued to it and the previous attack of apoplexy made one careful not to let him undergo any great exertion. He was given chloretone gr. iij with urotropin gr. xx every two hours as the urine was alkaline. This had no result. Ringer's mustard treatment was then tried, but also was of no avail. I then gave him ten drops of a saturated solution of menthol in spiritus vini rect., in a little hot water. This was to be repeated every hour if necessary. With the first dose relief was experienced, and after four doses in the first twenty-four hours there has been no recurrence of the hiccough. Dilatation with carbonic acid and the posture treatment I did not try as my patient's condition negatived them.

**Angioma of Synovial Membrane of Elbow.**—Sir Frederic Eve reports the case of a girl aged 11 years,in whom one year and nine months previously the elbow became swollen and painful. The patient was laid up with it for a fortnight. The swelling was attributed to a blow on the part two or three years previously. Since then the elbow has become swollen every few weeks. Present condition: There was a bluish bilobed swelling on the outer side of the head of the radius; the swelling disappeared on raising the arm; after applying an elastic ligature to the upper arm it stood out prominently and the circumference of the limb at the site of the swelling was increased one-quarter inch. The writer drew attention to this condition in 1903, and described two cases of angioma involving only the synovial membrane, and two others implicating also the surrounding muscles. The chief interest of the condition lies in the diagnosis from localized tuberculosis of the synovial membrane. This may usually be made by observing the changes in the swelling induced by alterations of the venous circulation. Angiomata of the synovial membrane often give rise to a good deal of pain, increased by exercise. There may be tenderness, limitation of movement, wasting of muscle, and two of the writer's cases complained of starting of the limb at night.—*Proceedings of the Royal Society of Medicine.*

# MEDICAL RECORD.

*A Weekly Journal of Medicine and Surgery.*

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## RECENT INVESTIGATIONS ON DIPHTHERITIC PARALYSIS.

THE nature of diphtheritic paralysis, its relation to the toxins of the diphtheria bacillus, and the efficacy of the serum treatment in preventing or in relieving this condition, are subjects about which there has been considerable difference of opinion. The idea has prevailed that the antitoxic treatment has not tended to diminish the incidence of paralysis. Nevertheless many French clinicians have extolled the value of massive injections of the specific serum in the treatment of paralyses even long after the disappearance of the initial symptoms of diphtheria. The introduction of the more modern methods in the treatment of diphtheria, particularly the rise of single large doses of antitoxin and the employment of the intravenous method of administration, and the recent announcement by von Behring that certain mixtures of diphtheria toxin and antitoxin are more potent in the treatment of diphtheria than antitoxin alone, place the subject of diphtheritic paralysis in a new light, and suggest many new points of interest regarding the causation and the prevention of this condition.

Professor Paul Römer and Dr. Viereck, working in the Institute of Hygiene and Experimental Therapy of Marburg, of which von Behring is director, have conducted an important series of investigations with reference to the above topics. They publish their results in the *Beiträge zur Klink der Infektionskrankheiten und zur Immunitätsforschung*, Vol. 2, No. 1. First of all they subjected the question of the serum treatment in relation to diphtheritic paralysis to a critical and an experimental analysis. They found that antitoxin in no way favors the onset of paralysis. The apparent increase in the incidence of postdiphtheritic paralysis that has been noted since the introduction of the Behring-Roux serum, is to be attributed to the fact that the mortality from diphtheria having been greatly lowered, many more individuals than hitherto survive to become victims of diphtheritic paralysis. Animal experiments showed that when timely used even small doses of antitoxin serve to prevent the onset of paralysis; the administration of antitoxin within twenty-four hours after the injection of diphtheria toxin either prevents entirely or greatly mitigates the paralysis. The authors were not able, however, to demonstrate any curative influence of the antitoxic serum upon any paralysis that has resulted. The practical conclusions to be derived from this set of experiments are that the early administration of antitoxin is necessary, that the most effective route of injection is the intravenous one, and that sufficient antitoxin, though not necessarily a massive dose, should be given, in order that the possibility of an ensuing paralysis should be minimized. The treatment most effective in combating the acute diphtheritic infection is therefore the one that is most potent in preventing the secondary paralyses.

The next line of investigation conducted by Römer and Viereck was into the nature of diphtheritic paralysis and its relation to the diphtheria toxins. Clinically, diphtheritic paralysis, at any rate in its early stages, is a process that is localized in the group of muscles near the seat of the original disease, as in the soft palate, pharynx, and larynx. Experiments on guinea-pigs show that the first sign of paralysis corresponds to the site of injection of the diphtheria toxin. Generalized paralysis follows later. The next step served to determine what numerical relationship, if any, exists between the acute fatal dose and the paralyzing dose of various preparations of diphtheria toxin. Five such preparations were tested. In specimen I the paralyzing dose was found to be one-seventh of the minimum fatal dose. In specimen II the paralyzing dose was three-quarters of the minimum fatal dose. The proportion was one-half in specimen III. The paralyzing dose in specimen IV was found to be as low as one-thirteenth of the lethal dose. Specimen V presented this peculiarity: No dose less than the mortal dose had any paralyzing action. Thus it is seen that in different specimens of diphtheria toxin the relation of the paralyzing to the fatal component is not a constant one. In the five specimens investigated the ratio varied from one-thirteenth to unity. The authors conclude that the paralyzing poison is separate and distinct from the acute-acting toxin which is responsible for the fatal outcome in experimental diphtheria. The above researches would seem to favor the hypothesis advanced by Ehrlich; namely, that the remote paralyzing effect of the diphtheria bacillus is to be attributed to a so-called "toxone" as distinguished from the primary intoxication caused by the toxin. Römer and Viereck suggest that just as the toxin stimulates the body to produce an antitoxin, so, also, the toxone causes the formation of an antitoxone. An "antiparalyzin" would neutralize the action of the " paralyzin." An analogy is furnished by solutions of tetanus toxin which contain two poisons: a tetanospasmin which is responsible for the convulsive properties of the tetanus bacillus, and a tetanolysin which is responsible for its hemolytic effect. Both toxins evoke corresponding and distinct antitoxins. Similarly Kruse has shown that in the dysentery bacillus there are a thermostable substance poisonous to guinea-pigs and a thermolabile substance poisonous to rabbits, to each of which toxins there corresponds a separate antitoxin.

That it is possible to neutralize the paralyzing component of the diphtheria bacillus was shown by the fact that in experiments on guinea-pigs one antitoxic unit of the curative diphtheritic serum

abolished the paralyzing effect of the corresponding dose of diphtheria toxin. It has, moreover, been shown by Ehrlich that the toxone has a degree of avidity for antitoxin less than that of the toxin, so that by means of suitable mixtures of diphtheria poison and antitoxin it would be possible to a certain extent to isolate the toxone. Römer has not been able to confirm the results announced by von Calcar several years ago, namely, that it is possible, by means of dialysis, to separate the toxone from the toxin. In view of the experimental evidence which indicates that the symptoms of acute diphtheritic intoxication and those of diphtheritic paralysis are the result of separate components of the diphtheria bacillus, it is difficult to explain how both of these elements can be neutralized by the same curative serum.

The practical applications of the work of Römer and Viereck, so far as these concern the timely and effective administration of diphtheria antitoxin, are of unquestionable importance. The results that bear upon the dual character of the diphtheria poison provide a promising outlook for future research.

## ABDERHALDEN'S TEST FOR MALIGNANT TUMORS.

It seems strange that more work is not being done in this country which would lead to definite conclusions as to the value of this test. American observers have carried on extensive investigations in the serodiagnosis of pregnancy, but the field of cancer diagnosis, one of vastly greater importance, has been comparatively neglected. In other countries, on the contrary, series of tests are constantly being reported, and while the reaction seems to be accurate in nearly all instances, there are occasional failures. These are of such a nature as to justify the belief that some modifications in technique may be elaborated after further experimentation by which these occasional sources of error will be eliminated.

Brockman (*Lancet*, November 15, 1913), from his experiments (twenty-five carcinomatous cases, all positive; twenty noncarcinomatous, all negative reactions) and consideration of the literature, believes that there has already been collected sufficient evidence to show that the serum of cancerous patients contains a specific substance not found in the blood of those not affected, and that it has proteolytic action limited to cancerous tissue. He also finds that stale serum becomes inactive, but regains its action upon the addition of a small amount of fresh human serum; and that the better the patient's general state of health the more rapid and intense is the reaction. This latter statement is of especial interest because of its showing the possibility of very early diagnosis in cases of suspected malignancy—diagnosis at the time when surgery offers the greatest hope of the complete eradication of a cancerous focus. This point was shown very forcibly by one of the cases reported by Wolter (*Russki Vrach*, 1913, No. 32, abstracted in *Zentralblatt f. Chir.* No. 50), where the patient gave a positive cancer reaction, died from some other affection, and at autopsy there was found a new growth only 1 x 1½ cm. in size in the esophagus. The total number of cases examined by him was thirty-two, of which seventeen were cancer, all giving a positive reaction. Fourteen of the fifteen noncancerous patients gave a normal reaction. Erpicum (Contribution à l'étude du séro-diagnostic du cancer) applied the Abderhalden test in forty-two patients with tumors the histological structure of which was determined after operation. All malignant gave positive, and all benign gave negative reactions. Von Gambaroff (*Münchener medizinische Wochenschrift*, 1913, No. 30) reports that in fifty cases of malignant tumors the reaction was positive in forty-nine, the single error in diagnosis appearing in a case of lues. He also found that the serum of those having carcinoma reacts only with carcinomatous material; the serum of those afflicted with sarcoma never with carcinomatous but always with sarcomatous material. He thus confirms Brockman's observations regarding the selective action of the serum.

While most of the reports resemble these, and would seem to show that the present difficulty of early diagnosis of malignancy will almost surely be finally overcome, some dissenting voices are still raised and there are occasionally cases in which positive reaction is not obtained because of some disturbing factor, such as occurred in von Gambaroff's case of lues. Considerable work thus remains to be done toward perfecting the technique. Where could one find a better field for the elucidation of this problem than that offered by the hospitals and research laboratories of New York? With the great wealth of material that passes through our clinics daily conclusions could soon be based upon the results in a thousand rather than in a few scores of cases. It is true that most of the hospitals are not equipped for doing research work in a large way, nor have they the financial resources necessary to obtain skilled workers along these lines; but there are certainly some that have the necessary facilities. Why should American surgeons be obliged to wait until enough evidence has been collected in France, Germany, Belgium, and Russia to decide the value of a test that is of vital interest to tens of thousands of American citizens? Some work along this line has been done here, but far more is necessary, and it should be undertaken systematically and on a large scale.

## The Surgeon-General of the Navy.

The term of Dr. Charles F. Stokes as Surgeon-General of the U. S. Navy expires this month and as usual there is more or less speculation as to who will be his successor. While there is no lack of excellent material in the medical corps of the Navy for this responsible post, we believe no one is better fitted to succeed the surgeon-general than Dr. Stokes himself. He was appointed assistant surgeon in the Navy in 1889, and in his twenty-five years of service has made an enviable record of efficiency and practical accomplishment. His work as commanding officer of a hospital ship, exposed to the fire of criticism from non-medical officers who thought it preposterous that a mere doctor should be in command of a ship, showed him

to be gifted with executive ability and tact far above the ordinary. His four years of service as chief of the Bureau of Medicine and Surgery have added to his other eminent qualifications that of experience. The latest report of the surgeon-general of the Navy, noticed recently in these columns, bears witness to his ability in directing the activities of the medical corps, and it would be a pity were he not retained in his present position, so as to have the time to bring to maturity his plans for the betterment of the service and the elevation of the standard of health of the sailors. We earnestly hope that President Wilson will see fit to reappoint Surgeon-General Stokes to succeed himself as head of the medical corps of the Navy.

### The Problem of the Tubercle Bacillus.

If it be true, as announced in a cablegram to the New York *Times*, that Director Roux of the Pasteur Institute has reported to the Academy of Sciences in Paris that P. Marino, one of the Institute staff, has proved that the tubercle bacillus kills off all other bacteria that enter its chosen terrain, the discovery gives an added interest to the contention of Dr. Stephen J. Maher in his paper in the Medical Record of December 27, to the effect that "mixed infection in tuberculous areas is caused, not by the invading of these areas by bacteria from the outside, but by the development in these areas of the bacterial progeny of the struggling tubercle bacillus." This deduction that Dr. Maher makes from his studies of old cultures of tubercle bacilli is so revolutionary that the temptation has been strong to suggest a possibility of contamination of some of these old cultures; but if, as the cables make Roux report, all old live cultures of tubercle bacilli evolve a toxin that is fatal to other bacteria, the suggestion of contamination falls flat. Again, if Dr. Maher is right, his non-acid-fast coccal and bacillary forms of bacterial life, derived from tubercle bacilli aging in an environment not quite suitable for their further development as tubercle bacilli, thrive in tuberculous areas. This work therefore opens a door for special vaccines and sera in tuberculosis, the very door that the Paris report shuts with such a slam when it says that "because of this toxin both vaccines and sera intended for the cure of tuberculosis are without effect."

### Fatality Following Vagus Resection.

Under the heading "Instructive Mistakes" in the *British Journal of Surgery* for October, 1913, appears an article entitled "Tumor of the Left Vagus Removed in Mistake for a Fibroma, with Fatal Result." A girl, five years of age, had enlarged glands at the left angle of the jaw for one year. For the last two months the swelling had been increasing, the child was not well, and it was noticed that when asleep respiration was difficult. The swelling was firm, extended forward into the carotid triangle, and the separate glands could not be differentiated. At operation some enlarged lymphatic glands were removed, and these were found to rest upon the surface of a large, somewhat lobulated tumor, extending upward to the base of the skull, and deeply to the wall of the pharynx. "Freeing of the deep connections proving difficult, the tumor, which was assumed to be a fibroma springing from the base of the skull, was bisected, the lower half, which was already cleared, was removed, and the upper half was snipped away from the skull with scissors. The whole tumor was 3½ inches in vertical length, and 2 inches in width." No immediate difficulty was experienced either as to pulse or respiration. The next morning the child was apathetic, seemed disinclined to speak, the voice was changed and deeper in tone; pulse, 160, small; respirations, 28. During the next two days she remained apathetic, was drowsy, and it was hard to get her to take nourishment. Moist sounds were heard throughout both lungs, and on the fifth day the base of the left lung was airless. The pulse at this time was 130 and frequently intermittent; respirations, 40; temperature, 102°. The child gradually failed and died on the thirteenth day after operation. Autopsy showed general septic bronchopneumonia in both lungs. The vagus was found to have been divided, a part of the tumor remaining attached to the lower portion. The author states that "No immediate symptoms accompanied the division of the vagus, but it seems clear that it was responsible for the symptoms which developed subsequently and led to the death of the child." This case report emphasizes the validity of the conclusions in the editorial résumé of the subject in these columns last week.

## News of the Week.

**City Vital Statistics.**—For the week ending December 27, the death rate for New York City was 13.18 per thousand of population, the total number of deaths being 1,357. For the corresponding week of 1912, the rate was 14.15 and the total number of deaths 1,403. The death rate for the year 1913 to that date was 13.75, a decrease of 0.33 of a point as compared with last year. The year will show the lowest death rate on record and is the fourth successive year in which the rate has been reduced. The greatest saving of life occurred among children under one year of age, the deaths in this age group numbering 1,669 less than those in 1912. The total number of deaths for the year was 1,917 less than for the previous year. The number of births was slightly decreased, from 135,653 in 1912 to 135,134 in 1913, and the number of marriages also decreased, from 51,703 to 51,267.

**Street Accidents.**—Three hundred and two persons, of whom 149 were children, were killed by automobiles in New York City during the year 1913, according to a report of the National Highways Protective Association. During 1912, the number killed was 221, of whom 103 were children. The street cars caused 108 deaths in the city during the year, as compared with 134 in 1912; and 132 persons were killed by wagons, as compared with 177 in the previous year. In the State of New York outside of New York City, 150 persons were killed by automobiles on the highways, 79 by trolley cars, and 32 by wagons, while for 1912 the figures were 127 killed by automobiles, 79 by trolleys, and 28 by wagons.

**Radium and Cancer.**—Following the optimistic reports made recently of the beneficent effects of radium upon human cancers and the consequent increased demand for the substance, Secretary Lane of the Department of the Interior has suggested to Congress the passage of a law which will give the United States Government control of all radium-bearing ores found in public lands. If this were done promptly it would be possible to withdraw a considerable area of public land

believed to contain radium; unless action is prompt, however, the Secretary fears that these lands will become the basis for private speculation. The proposal called forth a storm of protest from Colorado, whose most promising future resource is said to be the development of lands containing ore from which a large supply of radium may be produced. The Secretary says that chemists of the Bureau of Mines have recently invented a process of extracting radium which promises to be successful, and that "under the endowment of two Americans a building is now being erected in Denver, which with its equipment will be opened for work in February, where an effort will be made to prove the commercial possibility of this American process. If successful this process will be given to the world, and all of the radium secured over and above a small minimum will be the property of the United States and will be put into the hands of the United States Hospital Service for public use."

**Animal Experimentation.**—The following resolutions were adopted by the Federation of American Societies for Experimental Biology at the meeting in Philadelphia, December 31, 1913: (1) We the members of the Federation of American Societies for Experimental Biology—comprising the American Physiological Society, the American Society of Biological Chemists, the American Society for Pharmacology and Experimental Therapeutics, and the American Society for Experimental Pathology—in convention assembled, hereby express our accord with the declaration of the recent International Medical Congress and other authoritative medical organizations, in favor of the scientific method designated properly animal experimentation but sometimes vivisection. (2) We point to the remarkable and innumerable achievements by means of animal experimentation in the past in advancing the knowledge of biological laws and devising methods of procedure for the cure of disease and for the prevention of suffering in human beings and lower animals. We emphasize the necessity of animal experimentation in continuing similar beneficent work in the future. (3) We are firmly opposed to cruelty to animals. We heartily support all humane efforts to prevent the wanton infliction of pain. The vast majority of experiments on animals need not be and, in fact, are not accompanied by any pain whatsoever. Under the regulations already in force, which reduce discomfort to the least possible amount and which require the decision of doubtful cases by the responsible laboratory director, the performance of those rare experiments which involve pain is, we believe, justifiable. (4) We regret the widespread lack of information regarding the aims, the achievements, and the procedures of animal experimentation. We deplore the persistent misrepresentation of these aims, achievements, and procedures by those who are opposed to this scientific method. We protest against the frequent denunciations of self-sacrificing, high-minded men of science who are devoting their lives to the welfare of mankind in efforts to solve the complicated problems of living beings and their diseases.

**Civil Service Medical Board.**—The Illinois State Civil Service Commission recently named a permanent medical board which will have charge of its medical examinations in the future. The board is composed as follows: *Chairman*, Dr. James B. Herrick, Chicago; *Surgery*, Dr. Charles H. Culhane, Rockford, and Dr. Dean H. Lewis, Chicago; *Medicine*, Dr. George F. Suker and Dr. W. D. Napheys, Chicago; *Pathology*, Dr. Ludwig Hektoen, Chicago; *Nervous and Mental Diseases*, Dr. James C. Gill and Dr. L. Harrison Mettler, Chicago, and Dr. Harold D. Singer, Kankakee.

**Life Extension Institute.**—With ex-President Taft as chairman of its board of directors and Colonel Gorgas as consultant in sanitation and hygiene, a "Life Extension Institute" was incorporated in New York on December 29, 1913. The purpose of the corporation is the lengthening of human life by the application of modern science, and it will perform this service for life insurance companies and for the general public by examining periodically the physical condition of policyholders and other individuals and by disseminating life-saving knowledge. The institute has a "Hygienic Reference Board," which will help to determine the truth of hygienic questions referred to it, and will employ experts throughout the land to act as medical examiners and to cooperate in this new movement to prevent and to check disease. Its central office will be at 25 West Forty-fifth street, New York, but it plans to make arrangements with life insurance companies, schools, industrial establishments, clubs, etc., and to work with hygienic agencies and movements of all kinds throughout the country, including those connected with the tuberculosis movement, the social hygiene movement, the eugenics movement, and the public health departments, federal, State, and municipal. The originators believe that the results of this work may in time favorably influence the general death-rate of the country. The method which it will use to prolong life is the same as that applied to ordinary machinery—inspection and repair.

**The Herter Lectures** of the University and Bellevue Hospital Medical College will be given during the week beginning January 12, 1914, at Carnegie Laboratory, 338 E. 26th street, New York City. Professor Sven Hedin will lecture on "Colloids and Their Relation to Biological Chemistry."

**Public Health Lectures.**—The Committee on Public Health Education of the New York County Medical Society announces the fourth annual series of lectures will be given at the Academy of Medicine, New York, at half-past three on the afternoons of January 8 and 22, February 5 and 19, and March 5; and also at quarter past eight on the evenings of January 13 and 27, and February 10 and 24. The lectures will cover the following Topics: Athletics; The Backward Child; Everyday Troubles of the Eye, Ear, and Nose; Drug Addictions; Government Protection Against Disease; Sanitation for Workers; Prevention of Nervous Diseases. The officers of the committee are Dr. Phœbe M. Van Voast, Chairman, and Dr. Esther Leslie Jefferis, Secretary.

**Kansas Public Health Commission.**—Governor Hodges of Kansas has recently appointed a special Public Health Commission for that State, similar to the one appointed last January by Governor Sulzer of New York. The Kansas Commission is composed of seven members who are to collect facts, receive suggestions, and make recommendations as to changes in the public health laws and their administration in the State. The New York Commission has been requested to send to

Kansas copies of its findings, conclusions, and recommendations.

**Personals.**—Dr. Everett E. Potter of North Pownal, Vt., has been appointed by Governor Fletcher of that State to serve as State Senator for the unexpired term of Senator Mattison, deceased.

Dr. Hermann M. Biggs, who recently retired from the position of general medical officer of the New York City Board of Health, will, it is announced, be appointed by Governor Glynn, State Commissioner of Health.

Dr. B. F. Hawk of Harper, Kan., has been appointed superintendent of the new Kansas State Hospital for the Insane at Larned.

**Charitable Gifts.**—St. Luke's Hospital, New York, receives a bequest of $7,500 of the late Mr. Henry M. Sands of this city.

By the will of the late Judith L. Frechie of Philadelphia bequests are made as follows: Jewish Maternity Hospital $500, Jewish Hospital Association $1,000, Mt. Sinai Hospital $500.

**The Late Dr. Phelps.**—The following resolutions have been adopted by Dr. Phelps' colleagues at St. Vincent's and Bellevue Hospitals:

The Medical Board of St. Vincent's Hospital records with profound sorrow the death of Dr. Charles Phelps, who for forty-three years had been Visiting and Consulting Surgeon to this institution. His great skill and kindly sympathy were always at the service of the sick and suffering poor, and his vast experience and wise counsel always available to his colleagues.

JOSE M. FERRER, *President.*
CHARLES E. NAMMACK, *Secretary.*

The Medical Board of Bellevue Hospital announces with deep regret the death of Dr. Charles Phelps, who, entering Bellevue Hospital as a member of the interne staff in 1859, was one of its oldest graduates, and who for thirty-five years since then has been a Visiting or Consulting Surgeon to that institution. During all this time Dr. Phelps has never spared himself in the service of the hospital, giving abundantly of his time and skill to the suffering. In the councils of his colleagues his advice, enriched by long experience, was frequently sought and freely given.

GEORGE DAVID STEWART,
*President of the Medical Board.*
CYRUS J. STRONG,
*Secretary.*

**Obituary Notes.**—Dr. EMMA E. MUSSON of Philadelphia, a graduate of the Woman's Medical College of Pennsylvania, Philadelphia, in 1883, professor of otology in the Woman's Medical College, a former worker with Dr. Grenfell in the Labrador mission, and a member of the American Medical Association, the Medical Society of the State of Pennsylvania, and the Philadelphia County Medical Society, died at her home from pneumonia, after a short illness, on December 28, aged 52 years.

Dr. FRANCIS L. PARKER of Charleston, S. C., a graduate of the Medical College of the State of South Carolina, Charleston, in 1858, a surgeon in the Confederate Army during the Civil War, formerly dean of the Medical College of the State of South Carolina, and at the time of his death emeritus professor of anatomy in the same institution, and a member of the South Carolina and Charleston County Medical Societies, died at his home on December 5, aged 77 years.

Dr. D. H. KEY of Monroe, La., a graduate of the New Orleans School of Medicine in 1860, died at St. Francis' Sanatorium, Monroe, on December 7, after a long illness.

Dr. JAMES S. MORTON of Hartford, Ky., a graduate of the University of Louisville, Medical Department, in 1850, died at his home on December 4, aged 85 years.

Dr. NOEL M. DARDEN of Norwood, Ga., a graduate of the Medical College of Georgia, Augusta, in 1879, died on December 4.

Dr. JACOB W. E. K. DAVIS of Omaha, Neb., a graduate of the University of Buffalo, Medical Department, New York, in 1887, died suddenly on December 5, aged 64 years.

Dr. EDGAR MARTINDALE HERMANCE of Yonkers, N. Y., a graduate of the College of Physicians and Surgeons, New York, in 1878, formerly Commissioner of Public Safety of Yonkers, a member of the Board of Education, and president of the Health Board, attending physician to St. Joseph's Hospital, and a member of the New York State and Westchester County Medical Societies, and the New York Academy of Medicine, died at his home, from pneumonia, on December 22, aged 59 years.

Dr. FRANCIS H. O'CONNOR of Brattleboro, Vt., a graduate of the Long Island College Hospital, Brooklyn, in 1898, and a member of the Vermont State and Windham County Medical Societies, and widely known twenty years ago as a pitcher on the baseball team of the University of Vermont, died at his home from heart disease on December 26, aged 45 years.

Dr. FRANK EDWARD AGNEW of Paterson, N. J., a graduate of the College of Physicians and Surgeons, New York, in 1885, a member of the Medical Society of New Jersey and the Passaic County Medical Society, physician in charge of the Paterson Isolation Hospital, and formerly city physician of Paterson, died at his home from pneumonia on December 16, aged 49 years.

Dr. WILLIAM C. BARTRAM of Newburgh, N. Y., a graduate of the College of Physicians and Surgeons, New York in 1904, a member of the American Medical Association, the New York State and Orange County Medical Societies, and the Newburgh Medical Society, and assistant surgeon to St. Luke's Hospital, Newburgh, died at his home from blood poisoning resulting from the pricking of his finger during an operation, on December 17, aged 34 years.

Dr. E. L. B. GODFREY, formerly of Camden, N. J., died at South Pasadena, Cal., on December 18 at the age of 63 years. He was graduated from Jefferson Medical College in the class of 1875. He was a member of the Camden County Medical Society, a member and former president of the New Jersey State Medical Society, a Fellow of the American Medical Association, president of the New Jersey State Sanitary Association, and of the New Jersey State Board of Medical Examiners.

Dr. JOSEPH P. JOHNSON died at Hightstown, N. J., on December 18 at the age of 76 years. He was graduated from the Homeopathic Medical College of Philadelphia in the class of 1867. He was a veteran of the Civil War, a member of the Common Council for three years, president of the first Board of Trade of Hightstown, a member of the local Board of Education, and also a member of the United States Board of Pension Examiners.

Dr. GARY H. WOOD of Antwerp, N. Y., a graduate of the Long Island College Hospital, Brook-

lyn, in 1877, a member of the New York State and Jefferson County Medical Societies, and for five years a member of the New York State Legislature, died at his home from Bright's disease on December 18, aged 59 years.

Dr. RICHARD G. P. DIEFFENBACH of Newark, N. J., a graduate of the College of Physicians and Surgeons, New York, in 1874, a member of the Medical Society of New Jersey and the Essex County Medical Society, visiting physician to the Newark German Hospital, and treasurer of the same institution, died at his home from apoplexy on December 17, aged 61 years.

Dr. JAMES WILLIAM KORNEGAY of Mount Olive, N. C., a graduate of the College of Physicians and Surgeons, Baltimore, in 1894, died at his home from paralysis on December 12, aged 47 years.

Dr. JOHN CAVEN of Toronto, Canada, a graduate of the Toronto School of Medicine in 1886, and a Licentiate of the Royal College of Physicians, London, 1886, formerly professor of pathology in the University of Toronto, died at his home from Bright's disease on December 10, aged 52 years.

Dr. BENJAMIN FRANKLIN WAGENSELLER died at Selinsgrove, Pa., on December 20, at the age of 75 years. He was graduated from Pennsylvania Medical College in the class of 1861. In the following year he was commissioned assistant surgeon to the 139th Regiment, P. V. I., and in 1864 he was promoted to a surgeoncy in the 158th Regiment with the rank of major. He was a former president of the Northumberland and Snyder County Medical Societies, a member of the Medical Society of the State of Pennsylvania, a Fellow of the American Medical Association, surgeon to the Pennsylvania Railroad and Statistician to the County Board of Health.

Dr. GEORGE W. ZIEGLER died at Philadelphia on December 24 at the age of 52 years. He was graduated from Jefferson Medical College in the class of 1887.

Dr. W. H. STEARNS of Los Angeles, Cal., a graduate of the University of Southern California, College of Medicine, Los Angeles, in 1899, died at his home from pneumonia, after a short illness, on December 16, aged 44 years.

## Obituary.

### SILAS WEIR MITCHELL, M.D., LL.D.,

PHILADELPHIA.

AMERICAN medicine and American letters have suffered a great loss in the death of Weir Mitchell which occurred in Philadelphia early Sunday morning. Dr. Mitchell came of a medical family, his grandfather, Alexander Mitchell, having been one of the leading physicians of his time in Virginia, and his father, John Kearsley Mitchell, a well-known practitioner in Philadelphia and one of the faculty of Jefferson Medical College. Weir Mitchell was born in Philadelphia on February 15, 1829. He was a student at the University of Pennsylvania but was forced to give up his studies there before graduation on account of illness. Upon recovering his health he did not return to the University but entered Jefferson Medical College from which he was graduated in 1850. He began the practice of his profession in Philadelphia, but had a strong inclination toward literature and yielded to it so far as to write a small book of verse. This he showed to Oliver Wendell Holmes who gave him the advice to hide the book until he was forty years old and then see what he thought of it, and also told him he should practise medicine or write books but not try to do both. Mitchell had the sense to accept this sage counsel and chose medicine. Even when, later, he began to write novels he did it only during his vacations and never allowed himself to steal the time that belonged to medicine.

During the Civil War Dr. Mitchell served in the medical corps of the army and while in charge of one of the military hospitals made a special study of wounds of the nervous system and of traumatic nervous disorders, his work on "Gunshot Wounds and Other Injuries of the Nerves" being founded on his observation of the wounded soldiers. Prior to this he had published a work entitled "Researches Upon the Venom of the Rattlesnake" based upon several years' study of the chemistry and physiological action of snake venoms.

To the laity and the medical profession abroad Dr. Mitchell was perhaps best known as the originator of the treatment of neurasthenia by rest and feeding—the "Weir-Mitchell Treatment"; but to Americans he was known not only as a skilful neurologist, but as a biologist and naturalist, a poet and novelist, a man of brilliant parts and a whole souled and kindly gentleman.

### CHARLES PHELPS, M.D.,

NEW YORK.

Dr. CHARLES PHELPS of New York, for forty years a member of the staff of Bellevue Hospital, died at his home in this city on December 30, in the eightieth year of his age. Dr. Phelps was born in Milford, Mass., in 1834, and was graduated from Brown University in 1855 and from the College of Physicians and Surgeons, New York, in 1858. He served as a surgeon during the Civil War and at its close began the practice of medicine in New York, where he remained until his retirement in 1909. He was for many years an attending surgeon to St. Vincent's Hospital, and consulting surgeon to Gouverneur Hospital, and was at one time president of the Board of Police Surgeons of New York. He was also a member of the American Medical Association, the New York State and County Medical Societies, the Bellevue Hospital Alumni Association, and the New York Academy of Medicine, and was the author of a textbook on "Injuries to the Brain," and various monographs on the surgical subjects.

### FREDERICK CARL BUSCH, M.D.,

BUFFALO, N. Y.

Dr. FREDERICK CARL BUSCH, professor of physiology in the Medical Department of the University of Buffalo, N. Y., since 1900, and assistant in the State Institute for the Study of Malignant Disease, died at the hospital of the Institute on January 3, aged 40 years. Dr. Busch was graduated from Cornell University in 1895 and from the Medical Department of the University of Buffalo two years later. He was a member of the American Medical Association, the American Association for Cancer Research, the Medical Society of the State of New York, and the Erie County Medical Society, and a fellow of the American Association for the Advancement of Science. He had done much experimental work on the problems of cancer and on various phases of physiology. His death was due to cancer from which he had suffered for several years.

## Correspondence.

### OUR LONDON LETTER

(From Our Regular Correspondent.)

SIGHT TESTING FOR SEAMEN, RAILWAY DRIVERS, ETC.—LONDON AMBULANCES—RESEARCH—HOSPITAL DISPUTE—MEDICAL WOMEN FOR INDIA—PAYING HOSPITAL—KING EDWARD'S HOSPITAL FUND—OBITUARY.

LONDON, December 19, 1913.

ALL through the month we have been talking about the sight tests in use. The discussion seems to have arisen in consequence of the Board of Trade having made some alterations in the tests to which it requires officers in the mercantile marine to be subjected. Some of these officers seem to have feared that a too severe or faulty test might interfere with their employment—a natural enough fear perhaps; but what is more surprising is to find that certain vested interests have made an outcry against increased efficiency as likely to interfere with business, and declared the Board of Trade has acted on account of the pressure of scientific opinion rather than in obedience to the needs of practical life at sea, and on the railways. This contention has brought the public, as well as the profession, into the discussion, for no one would care to find himself on board a ship under the command of a color-blind captain or in a train driven by a man with such defective vision. The position is that we have different tests for the navy and for merchant ships, and, again, for railway companies. Cases occur of one authority accepting men who are rejected by another. An officer who had passed the Board of Trade was only saved from causing the loss of his ship by the appearance on deck of another officer just in time to prevent collision. On reaching home he had himself examined again by the Board, and again passed. Dr. Edridge-Green, the leading medical authority on the subject, points out that the fact which makes color-blind men most dangerous is that though they may name lights correctly under ordinary conditions they will under unusual conditions confuse red and green or perhaps feel sure that one is the other. The error can be demonstrated by his lantern, which is used by the Admiralty but will not be detected by the Board of Trade tests, and yet this Board often rejects men whom Dr. Eldridge-Green afterwards finds competent. He regards an inquiry as urgently needed in order to establish a standard both for color and form, based on a series of careful experiments. This seems a most reasonable proposal, and the inquiry should be conducted by experts, all kinds of lights at different distances, under various conditions being used.

The late Mr. Nettleship, whose book on "Accidents from Defective Light" you are no doubt familiar with, collected the cases of disaster due to such defects, and also a large number in which there had been a narrow escape. Both these lists could now be greatly lengthened, but practically nothing has been done. Nettleship urged that persons concerned in accidents ought always to be carefully examined, but one scarcely ever hears of this being done. Simple as it is, witnesses and others might well be tested with a view of weighing the value of their evidence. For conflicting statements—obviously made in good faith—are often heard at investigations as to the cause of accidents.

The railway companies generally leave the testing of candidates to their medical officers, to whose department it naturally belongs.

The Liverpool Pilotage Authority, which controls the testing for the Mersey, makes hundreds of examinations every year, and its regulations are somewhat less severe than those of the revised Board of Trade, but are considered efficient. The Holmgren wool test has been discarded. The lantern test is conducted in a room shaded by heavy curtains, the coloured lights being exhibited at about 6 feet away from the candidate. The lights are about ¼ inch in diameter, but can be reduced to a pin-point as the Board of Trade uses. But this is not often done, and a further difference is that at the Board's test the candidate stands behind the lantern and looks over it at the pin-points in a mirror some 15 feet in front of it, having previously been in a dark room for a time. Another test for color at Liverpool is looking through a series of tinted glasses held up to the light. For form the Snellen card test is employed—the candidate being required to read three of the five letters on the last line but two at a distance of 16 feet. The last two, though required by the Board of Trade, are regarded as unnecessary. If a candidate does not quite satisfy the examiner he is taken on the Mersey at night and put through a full trial as to the vessels passing up and down the river.

The ambulance service for illness and infection is effectively carried on by the Asylums Board with some 60 horse and 30 motor vehicles. Four years ago a Home Office committee recommended that the Board should further enlarge its work by providing for an accident service. At once the jealousy of the County Council was roused, and although it had no experience whatever on the subject, by dint of political efforts it secured an Act of Parliament authorizing it to undertake this service. Nothing has so far been done, unless complicating matters by displays of the difficulty of co-operation be so considered. Most boards or committees are ready to extend the sphere of their operations, and when more than one will be affected by a proposed change different policies are sure to be put forward. It is so in this case. There are in working order a number of ambulances under several public bodies, and the Asylums Board, with its large staff, eight or nine stations and some 100 vehicles, could easily take the control of the whole. But the County Council's desire to dominate every service it can grasp has stood in the way these three or four years. At length the public intimated that something ought to be done, and that co-operation should be easy. Thereupon the Council asked the Asylums Board to prepare a scheme which that body with its experience quickly did, only to see it rejected without any reasonable discussion, and a resolution passed for the Council to prepare a scheme of its own, as it would have to bear the cost and would not submit to the control of the Board which had the experience. The truth is these opposing opinions and jealousies are those of the officials, and the members of the two bodies ought to set them aside, exercise their proper control over their servants and compel them to pull together. As to the cost, whatever is incurred will come from the pockets of the rate payers.

At the meeting of the Council this week there was a good deal of lively talk which on the whole perhaps indicated discontent of the majority at the way time had been frittered away, and perhaps a

consciousness among some of the unworthiness of their jealousies. At any rate, the chairman of the committee which inquired into the matter, advocated co-operation, and said at a conference they found the Board emphatic in the expectation of holding the control. This really seemed the one point at issue which caused difficulty, for all the others were mere details easily altered. Yet, while saying the need of London was a crying one, he held with the majority that co-operation should be supplementary to a new service of their own. If anything could disturb the apathy of London rate-payers we might expect them to wake up and insist on the Council abandoning its domineering attitude, and handing over the service to the Board that has experience in the matter and would carry it out at far less cost.

The trustees of the Beit Memorial for Medical Research have elected to Fellowship 11 out of 35 candidates at the fifth election.

Mount Vernon Hospital began legal proceedings against the British Medical Association on account of a "warning notice" issued in the *Journal* respecting the dispute concerning the medical staff. The judge has adjourned the action expressing the hope that on the first day next session the parties may be able to announce a satisfactory ending of the whole business.

The Association of Registered Medical Women protests against a scheme of service proposed for India on the ground that no first class medical woman will work under a lay committee which has power of punishment for acts which that committee may disapprove.

A paying hospital was opened on Monday for patients of moderate means who do not wish to receive charity but cannot afford some of the expensive nursing institutions. They will be attended in the new hospital by their own medical men, and a separate room for every one will be provided.

King Edward's Hospital Fund will benefit by about £465,000 from the will of the late Sir Julius Wernher.

Mr. Sydney Jones, consulting surgeon to St. Thomas' Hospital, has died after a distinguished and long career, at the age of 82. He was elected on the staff of the hospital in 1860, and served in several departments, and taught in the school. In 1871 he became full surgeon and lecturer on surgery, and in 1891 consultant. At the Royal College of Surgeons he had been a councillor, and at the Sister College surgical examiner. The later office he afterwards also filled for the University of Glasgow. He was consulting surgeon to several dispensaries and medical charities. He contributed to St. Thomas's Hospital Reports and the museum catalogue.

Dr. J. C. Grey of Telford met his death on the 10th from strychnine taken in mistake. He instantly telegraphed to his medical neighbors the fact, and they attended at once, but on arriving by motor found he was dead. He was 63 years of age, and had practised at Telford most of his professional life.

## OUR LETTER FROM THE PHILIPPINES.

(From Our Regular Correspondent.)

A PLAGUE CASE—OPPOSITION OF NATIVE PHYSICIANS TO THE CAMPAIGN AGAINST CHOLERA—GARBAGE COLLECTION — LEGISLATION AGAINST PUBLIC HEALTH.

MANILA, P. I., November 29, 1913.

AFTER an absence of two months, another death from plague occurred in a house located in a lumber yard at No. 745 Interior, Calle Echague. This address is in the same general neighborhood in which plague appeared over a year ago. Extensive rat catching has been done in this section during the past few months but no plague rats were found. Considerable difficulty has been experienced in eradicating rats from lumber yards, owing to the impracticability of moving the heavy timbers about on account of their size and number. The spaces between and under the different dimensions of the timber afford excellent harboring places for rats. The last case of human plague occurred in Manila on September 20 and the last case of rat plague occurred on September 6.

Much opposition has been encountered by the Bureau of Health in its campaign against cholera from the physicians of Manila on account of an order which required an autopsy in practically all cases of death. The order was issued for the purpose of detecting cases of cholera in the dead bodies of persons in which death was ascribed either purposely or accidentally to some other cause and on that account the premises in which they died escaped the usual disinfecting and other anticholera measures. That the order of the Bureau of Health was fully justified was shown by the fact that in the space of a week in twelve of the cases that were autopsied the deaths which had been reported as due to other causes were found actually to have been due to cholera. It is also of interest to observe that in two bodies in which death was obviously due to strangulated hernia and purulent peritonitis that Koch's vibrios were isolated from the intestines. On the other hand, the private practitioners claim that it is a reflection on them and injures them in the eyes of their patients whenever bodies are sent to the morgue for autopsy in which they have already reported the death as due to other causes. The Bureau of Health has now issued additional instructions that rectal specimens shall be taken from the bodies of all dead in Manila in order that an examination for cholera vibrios may be made. All houses in which deaths occur, regardless as to the reported cause, are disinfected in so far as toilets, linen, receptacles, and other articles with which the deceased might have come in contact are concerned.

The private company which was organized in Manila some time ago and to which was awarded the contract for collecting the city garbage has encountered many difficulties in complying with its contract. Up to the present the company has failed to dispose of the city garbage and refuse in a sanitary manner and the Municipal Board threatens to cancel its contract. The plant which the company erected for the reduction of the garbage and for destroying the refuse is entirely inadequate in capacity to meet the demands of the situation and in order to dispose of all the material which arrives at the plant daily the company has begun to dump garbage and refuse on the beach. This has been responsible for the breeding of flies which up to the present time has reached proportions which far exceed anything that has been seen in Manila in many years. A veritable plague of flies on the garbage dump has resulted and these are gradually extending to the city and on account of the presence of cholera are regarded as a very serious menace to the health of the community.

A garbage ordinance which provides for placing garbage and refuse in separate receptacles and which gives the householder an opportunity to rent a sanitary garbage pail from the city of Manila at

a cost of $1.50 per annum has finally been passed by the Municipal Board. This ordinance met with violent opposition from the Filipino press, which thought that it was unnecessary to have a tight and separate receptacle for garbage, and it was only after the strong support given the measure by the new Governor-General that it was finally enacted into law. The object of the ordinance is two-fold: first, to provide a closed, impervious receptacle for garbage so as to avoid smells as much as possible and to make it inaccessible to rats and thereby aid in the anti-plague campaign and, second, to insure householders a garbage can at a reasonable outlay. Up to the present time the Director of Health has had authority to compel householders to provide themselves with garbage cans, but these were so frequently stolen and the hardship on householders became so great that it was deemed impracticable and unfair constantly to require them to buy new receptacles. Under the new plan a garbage can of one type will be used and properly marked and as the city is responsible for replacing the can in the event that it is stolen there will be no object to steal cans because there will be no place at which they can be sold.

Recently the Bureau of Health has published a small "Sanitary Inspector's Handbook" in which the simple procedures for sanitating towns in the provinces were outlined in detail in simple language. These books were sent out with instructions that in the course of a few months an examination would be held in order to determine whether medical officers and sanitary inspectors had acquainted themselves with their contents. This has also produced violent opposition in the Filipino press on the ground that it is beneath the dignity of a doctor to be called upon to pass an examination on a sanitary inspector's handbook, more especially as the diploma which he holds from his medical school is sufficient assurance that he has all the knowledge required on the subjects dealt with. These critics did not state how the diploma of a medical officer would assist him in acquainting himself with the advances and new discoveries in sanitation which have been made since he left the medical school.

There is also before the Legislature a bill which provides for the establishment of a Council of Hygiene which is to have power to annul any sanitary ordinance or legislation which in its opinion interferes with the habits or customs of the Filipino people.

## Progress of Medical Science.

### Boston Medical and Surgical Journal.

*December* 25, 1913.

Some Medical and Social Aspects of Mental Disease Due to Alcohol: Notes of a Conference Held at the Psychopathic Hospital, Boston, Massachusetts, Before the Legislative Commission on Drunkenness, November 24, 1913.

1. Introductory Remarks. W. Channing.
2. Work of Massachusetts Legislative Commission on Drunkenness, 1913. M. J. Murray.
3. Report of Clinical Demonstration of Alcoholic Mental Diseases. H. M. Adler.
4. Consensual Amyosis to Blue Light as Shown in Certain Alcoholic Cases. G. E. Eversole.
5. Alcoholic Amentia. A. W. Stearns.
6. Notes on After-Care and Moral Suasion Work with Alcoholics. A. W. Stearns and M. C. Jarrett.
7. On Institutional Requirements for Acute Alcoholic Mental Disease in the Metropolitan District of Massachusetts. E. E. Southard.

3. **Alcoholic Mental Diseases.**—H. M. Adler states that after excluding simple drunkenness and delirium tremens, both of which are specifically excepted by law from the scope of work of the Psychopathic Hospital of Boston, one has to deal with the following types of alcoholic mental diseases: pathological intoxication; acute alcoholic hallucinosis; Korsakow's psychosis; alcoholic jealousy-psychosis; dipsomania; alcoholic epilepsy; various residual dementias following various forms of alcoholic disease; and forms as yet ill-defined or not yet generally recognized (e.g. the peculiar variant of delirium tremens called Stearns' alcoholic amentia).

7. **Institutional Requirements for Acute Alcoholic Cases.**—E. E. Southard points out that the metropolitan hospital for acute alcoholic cases should have an adequate staff of physicians, investigators, and trained workers in every department, and should maintain a high standard of efficiency, combining the practical equipment of the best general and surgical hospitals. The facilities for isolation of patients preserving their relative freedom, so that noise shall disturb neither other patients nor the public, the facilities for approved methods in hydrotherapeutics, and the quota of specially trained nurses and attendants should be as good as obtainable. Opportunities for the teaching of students and practising physicians concerning the diagnosis and treatment of these diseases should be afforded; and the institution should be so managed as to attract the best grade of physicians and nurses, as well as investigators, to its wards. One of the most prominent functions of such a hospital is the out-patient and after-care service. Every arm of social service should be extended to increase the number of persons now being saved, from recurrence of alcoholism. The out-patient department should adopt every device of mental and social hygiene which can be used to correct and control the drunkenness evil. Voluntary resort of prospective patients should be encouraged, and the work of the churches, and various existing social agencies, should be supplemented so far as possible. Highly trained officers from the institution should be detailed to visit the lockups at stated hours or on special call, to pick out alcoholic or other cases of mental disease from among those arrested for drunkenness.

### New York Medical Journal.

*December* 27, 1913.

1. The Cancer Research Hospital. J. Ewing.
2. Ileocolitis with Meningeal Symptoms. A. L. Goodman.
3. Serodiagnosis (Abderhalden) of Cancer and Pregnancy C. F. Ball.
4. Chronic Suppuration of the Middle Ear. J. Auerbach.
5. The Resorts We Visited. H. P. Collings.
6. Acromial Breathing as an Aid in the Diagnosis of Apical Pulmonary Tuberculosis. N. Magida.
7. The Etiology of Pellagra. P. Bartholow.
8. The Treatment of Broncho-pneumonia in Children. A. Goltman.

1. **The Cancer Research Hospital.**—J. Ewing states that one may never know just why cancer cells grow lawlessly, but one can elucidate a vast number of conditions under which they are observed to do so, and perhaps remedy the conditions. The influence of racial, local, and personal habits upon the nutrition and functions of different organs; the traces of heredity; the evidence and nature of local tissue and general constitutional predisposition; the influence of chronic infection, of trauma, and many other matters enter into the etiology of tumors, and should be pursued in a cancer hospital by observation, analysis, and experiment, by clinician, chemist, and pathologist. The cancer hospital offers conditions where the natural history of tumors can be observed and recorded in all its phases, and where one's knowledge of this vast and comparatively neglected department of medicine can be greatly amplified. For this purpose, a well organized department of pathology is essential, every type of

patient in any stage should be admitted, and the public should be educated to the necessity of postmortem study of every fatal case. Therapeutic studies are bound to claim a large share in the activities of a cancer research hospital. In fact a hasty tour through such institutions in England and the Continent might suggest that this is their only real interest. It would at least convince the visitor that the partial success of the palliative treatment of inoperable cancer fully justifies all the support these institutions have received. To the harsh critic, the treatment of inoperable cancer is nothing more than a form of euthanasia, and such as a rule it proves to be. Yet the palliative treatment of these patients is a worthy service, demanding far more patience and skill than are involved in most routine functions of the physician. It is an intellectual rather than a mechanical occupation.

2. **Ileocolitis with Meningeal Symptoms.**—A. L. Goodman notes that any form of enteritis may give rise to cerebral symptoms. Genuine cholera infantum, however, does not cause meningitic disturbances, because, as a rule, the patient rapidly becomes comatose, and the nervous system has no time to react in the form of excitement. Convulsions in the course of enterocolitis are sometimes observed, and these cases must be differentiated from those forms of intestinal infection occurring in epileptics. Gastrointestinal autointoxication in children may give rise to conditions very closely approximating the picture of meningitis. The gastric symptoms, the indicanuria, and the prompt effect of intestinal evacuation, permit the differentiation of these cases from meningitis. Lumbar puncture may also assist in the differential diagnosis.

3. **Serodiagnosis of Cancer and Pregnancy.**—C. F. Ball presents a comprehensive review of this subject, and reports some of the interesting results of his own investigations. His further work with the different kinds of tumor tissues appears to make the diagnosis of cancer rather more complicated than suspected, but more interesting, inasmuch as there appears a possibility of being able to designate the kind of tissues involved. He has been led to think of such a possibility when comparing the clear cut differences of reaction in his first series of cases, using the sarcoma protein, with subsequent tests made with the protein prepared from an epithelioma of the cervix. When using this kind of material he was not able to get satisfactory results. Pregnant conditions would, apparently, give the malignancy reaction in cases known not to be malignant, probably because of the ability of the pregnant ferment to digest uterine tissue as well as placental tissue. The author believes this is also an explanation for some of the adverse findings by others in giving their reports, but not specifying the kinds of tissue used. The same result was obtained when using albumin prepared from an epithelioma of the skin of the hand. He used this tissue only a very few times, fearing to continue on account of the possibility of the sweat glands complicating the test. Some of the conflicting reports relative to the value of the test are attributed to the use of different and poorly prepared materials. In conclusion the author emphasizes the following points: (1) The desirability of always working with at least two kinds of tissues, one of these necessarily to be carefully prepared placenta; (2) the necessity of designating the kind of material used in all experimental work when other than placental tissue is used; (3) the advisability of associating this test with experimental tumor transplantations in animals; and, (4) further experimental work directed toward eliminating, if possible, all sources of error in the present technique, or the substitution of a trustworthy modification.

6. **Acromial Breathing in Diagnosis of Apical Tuberculosis.**—N. Magida confirms the value of auscultation at the acromial process in the diagnosis of early lesions of the pulmonary apices. In looking over the histories of fifty-two cases, consisting of twenty-eight in the first stage, fourteen in the second, and ten in the third, he found acromial breathing present in all the first stage cases, in eight of the second, and in two of the third. It would seem that it is a valuable method in first stage cases, and since that stage is the most important from a diagnostic point of view, and as the method is so easily acquired, it should be universally employed. It should also help toward ascertaining the advanced stages of tuberculosis, as the further advanced a case is, the less probability there is of getting evidence from auscultation of the acromion process.

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## Journal of the American Medical Association.

*December 27, 1913.*

1. Control of Cancer. J. G. Bloodgood.
2. The Municipal Regulation of Milk-Supply. E. O. Jordan.
3. Seven Cases of Epilepsy in Children Traced to Single Alcoholic Intoxications on the Part of One or Both Parents Otherwise Teetotalers. M. Woods.
4. Results of Staphylococcus Spray Treatment in Forty-two Cases of Diphtheria Carriers. W. A. Womer.
5. The Desirability of Early Diagnosis of Mental Defect in Children and Mental Tests as an Aid. A. C. Rogers.
6. Amnesias of Tobacco and of Malarial Origin, with Report of Two Cases. S. P. Goodhart.
7. A Case of Apparent Food-Poisoning of the Type Known as Botulism or Allantiasis. P. G. Stiles.
8. Burn of Eyes from Contents of Golf-Ball Core. H. Lowell
9. Quinin and Urea Hydrochlorid in the Treatment of Sciatica. H. A. Cables.

1. **Control of Cancer.**—J. C. Bloodgood points out that the proportion of cures of fully developed cancer is small, but cures have been made and the possibility of increasing their number is by no means out of the question. In the Johns Hopkins Hospital Surgical Clinic 80 per cent. of the cases that could be diagnosed only by exploratory incision or after operation were cured, while in the cases that could be diagnosed as cancer by retraction of the nipple or skin adhesion the proportion of cures after five years was 25 per cent., but both tumors alike were pathologically the same. Waiting for a possible clinical diagnosis means greatly lessening the chance of cure. This is true of all types of cancer in all parts of the body. The author, in studying 820 pathologically developed cancers, found no well-taken history that did not reveal a previous defect that might be accepted as one of these so-called benign growths. He calls these "precancerous" growths, and believes that with their early recognition one can greatly reduce the cancer mortality, especially that from external or mucous membrane cancer. In cancer of the internal organs it is more difficult to demonstrate the precancerous lesion. In cancer of the stomach the patient is fortunate if the appearance of obstruction is early, and his chances are greatly lessened if the early symptoms are slight. In curable cancer good surgery is important, and delay or too restricted operation may be disastrous. In most external cases of precancerous growths the lesion can be cut out under local anesthesia at slight expense and inconvenience. In any apparently benign growth a properly performed operation does not harm, and if malignancy is found existing it may remove a probable focus of future malignant disease. It is the education of the public on these matters that is needed at the present time.

4. **Diphtheria Carriers.**—W. A. Womer presents the results of his experience in the use of staphylococcus spray in the endeavor to lessen the period of isolation of diphtheria patients. The spray consisted of a bouillon culture of *S. aureus* at least twelve hours hours old, or a fresh suspension in salt solution. It was prepared in the municipal laboratory and delivered personally to the

attending physician or nurse with explicit directions as to its use. Only one strain was used; the directions were to spray copiously both nose and throat three or more times a day and not to use any other treatment. The author draws the following conclusions: (1) The use of the spray causes no unpleasant symptoms. (2) The use of the spray does not appreciably lessen the period of quarantine. (3) The preparation and distribution of the spray entail a large amount of work if there are many cases. (4) Apparently most of the carriers do not spread the disease after sixty days from the day the disease begins. (5) Public health officials could work more effectively if they had some practical method of determining the virulence of diphtheria bacilli found in the throats of carriers.

**6. Amnesias of Tobacco and Malarial Origin.**—S. P. Goodhart reports two cases of temporary amnesia, one from the excessive use of tobacco, the other a result of malarial infection. The first patient was a prominent lawyer and teacher, who had indulged in excess in the use of tobacco on account of recent mental and emotional stress. The amnesia appeared suddenly with a dazed condition for a half hour followed by three weeks of nearly complete forgetfulness of past and current events, but apparently without any mental symptoms other than those dependent on the amnesia. Then it gradually began to disappear but the complete rehabilitation was as sudden as the onset, and seemed to take up the normal mental activity at the point where it had been interrupted. Withdrawal of tobacco, rest, and nutritional care were all the treatment used. This was several years ago; since then slighter amnesic attacks have followed the excessive use of tobacco and have been relieved by similar treatment. The second patient was a woman teacher, aged 27, whose mother suffered from epilepsy and who was herself somewhat high-strung and nervous. The attack, in this case, was sudden after intense emotional strain and fatigue and was immediately preceded by severe occipital headache. The amnesia was complete for the events of the previous forty-eight hours but less so for events more remote. Malarial symptoms appeared two days later, and the case was a typical tertian with finding of the plasmodium. The amnesia continued long after the malarial symptoms ceased and there is yet only partial restoration of past recollections.

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## The Lancet.

*December* 20, 1913.

1. Gunshot Injuries of the Arteries. G. H. Makins.
2. On the Diagnosis, Prognosis, and Treatment of Sydenham's Chorea. F. Langmead.
3. Oil-Ether Anesthesia. J. T. Gwathmey.
4. Development of the Pharynx by Muscular Exercises After Operation for Adenoids, with Special Reference to Feeble-minded Children. F. Warner.
5. On a Fatal Case of Pellagra in an Insane Patient. F. E. Rainsford.
6. The Use of Vaccines Graduated by Their Capacity. L. C. Bruce.
7. Cancer of the Tongue and Larynx Removed by Operation. W. S. Keer.
8. The Repair of the Flexor Tendons of the Hand: a Revised Technique. C. M. Page.
9. A Case of Ratbite Fever Treated with Neosalvarsan. N. F. Surveyor.

**1. Gunshot Injuries of the Arteries.**—G. H. Makins points out that there have been changes in the shape of the rifle bullet since 1900. That used in the Balkan wars was longer, narrower, and more pointed than that used in the South African war, and as a result the character of the injuries was different. The chief features in the wounds of vessels produced by bullets of small caliber are lessened liability to external secondary hemorrhage, and the greatly increased frequency of the development of some form of aneurysm. These peculiarities are attributed partly to improved surgical treatment, and partly to the narrow clean track of the bullet. It is a primary rule in surgery that the bleeding vessel should be secured as soon as possible after the injury. In military surgery this rule cannot be generally applied, and an anomaly in surgery thus arises. The author is led to discuss the methods by which Nature controls the bleeding from arteries thus injured. The vessel may be occluded primarily by provisional thrombus, and the wounds in the vessel may cicatrize. This has been observed post-mortem in the superficial femoral fifteen days after injury in a case in which the patient died of typhoid fever, and in the abdominal aorta in a case in which the patient died seventy days later from subphrenic abscess. Adhesion of the vessels and nerves may provide another means of occlusion. Spontaneous cure may be the end result of hematoma due to injuries to arteries, of contraction to form circumscribed traumatic aneurysms, and, eventually, of consolidation. The development of pure aneurysmal varix is regarded as another of Nature's methods of cure; it is a permanent arrest of hemorrhage by a spontaneous process of healing. The difficulties of treatment are considerable. Primary ligature is the only operation which can be performed on the field, and it is limited to cases in which hemorrhage is endangering life. The results of primary suture of the injured artery have so far not given much ground to hope that this method of treatment, which may be considered the ideal, can be applied, chiefly because of the length of time which must elapse before the patient can be brought to a hospital where an operation demanding such delicate manipulations is possible, and also because of the nature of the injury to the wall of the vessel, and the accumulation of blood clot around it. In military surgery the treatment of secondary results of wounds of arteries is of chief moment. That is to say, not the wound of the artery itself but its sequela—arterial hematoma, traumatic aneurysm, arteriovenous aneurysm, or aneurysmal varix—has to be dealt with. Arteriovenous aneurysm is a surgical condition known from antiquity, but it has been enormously increased in frequency in modern times by the employment of the small caliber bullet. The author discusses five methods of treatment, each of which has its own suitability. His general conclusion is that progress in the branch of military surgery concerned with arterial wounds by bullets of small caliber is in the direction of greater conservatism and more watchful expectancy—an experience similar to that with regard to injuries caused by the same agents in bones and nerves and in the abdomen.

**3. Oil-Ether Anesthesia.**—By J. T. Gwathmey. (See MEDICAL RECORD, Vol. 84, pages 1082 and 1138.)

**6. Vaccines Graduated by Their Opacity.**—L. C. Bruce has devised a method of graduating vaccines by their opacity instead of by counting the microorganisms. The results of treatment have been equally satisfactory, and the labor has been reduced to a minimum. His method is to grow the cultures on agar, blood agar, etc., and to make an emulsion of the growth with normal saline. The emulsion is then placed in a ⅝th inch test-tube and diluted with normal saline until it is possible to read clearly certain type through the medium of the tube containing the emulsion. The type he employs as a meter is the ordinary type of Muir and Ritchie's "Handbook." The vaccine is then sterilized by heat or it is sterilized by chloroform or by ether. Satisfactory results were obtained by all three methods of sterilization. If the vaccine is to be used by the author he uses it in the above density, making the initial dose in every case 0.1 c.c. If the vaccine is to be used by a general practitioner the author dilutes the original emulsion to 2½ or 5 volumes, and the dose will

then be either 0.25 or 0.5 c.c. Subsequent doses can be increased or diminished according to the reaction obtained from the first injection.

### British Medical Journal.

*December* 20, 1913.

1. Injuries of the Arteries. G. H. Makins.
2. Typhoid-Paratyphoid Vaccination with Mixed Vaccines. A. Castellani.
3. Typhoid Cholecystitis. E. Morison.
4. A Case of Hysterical Monoplegia Following Electric Shock. P. Stewart.
5. A Case of Gastric Tetany; Recovery. W. T. Mills.
6. A Case of the So-called Rat-bite Disease. M. I. Diek and W. J. Rutherford.

**2. Typhoid-Paratyphoid Vaccination with Mixed Vaccines.**—A. Castellani concludes from his experiences with this method that in the use of the mixed typhoid + paratyphoid A +paratyphoid B vaccine, either the dead or the live (attenuated) one, is harmless. As there is such a general objection to the use of live vaccines, the author now recommends for routine use the mixed dead vaccine, which consists of an emulsion of typhoid and paratyphoid A and B bacilli, killed by heat (53° C.) and standardized, so that 1 c.cm. contains approximately 500 million typhoid bacilli and 250 million each of paratyphoid A and B. The inoculation of human beings with the above vaccine in doses 0.6 c.cm., the first time, and 1.2 c.cm. the second, induces a production of agglutinins for all three germs: *B. typhosus, B. paratyphosus* A, and *B. paratyphosus* B. The amount of agglutinins elaborated for each germ seems to be practically the same as in individuals respectively inoculated with typhoid vaccine only, paratyphoid B vaccine only, paratyphoid A vaccine only. In countries in which, besides typhoid fever, there occur paratyphoid A and paratyphoid B, a mixed vaccine should be used instead of the simple typhoid vaccine. This has been done in Ceylon for the last five years with good results.

**3. Typhoid Cholecystitis.**—A. E. Morison notes that it is not so generally known that inflammation of the gall bladder without stones may produce the same symptoms and signs. It is important to bear in mind that there may be no history of typhoid fever, and no record of any exposure to infection, and yet typhoid cholecystitis may be the cause of a serious illness. It is also important to remember that the illness may be a source of danger to the patient, and that as a typhoid carrier he may be a menace to the community for several years. Unfortunately in many cases of this kind a definite clinical diagnosis cannot be arrived at, because the Widal reaction may be negative, and the cause of the cholecystitis can only be cleared up by operation and subsequent bacteriological examination. The condition has been diagnosed as gallstones, but on opening the gall bladder none are found, only an inflamed mucosa. Simple drainage (cholecystostomy) does not always cure; after it the symptoms subside for a time, but the drainage wound closes, attacks recur, and the only effectual cure may be removal of the gall bladder.

### Berliner klinische Wochenschrift.

*December* 15, 1913.

**Contact Infection in the Epidemiology of Cholera.**—Eckert has studied this malady during the Balkan wars with the following conclusions: That cholera may originate "explosively" as a result of the contact of many people is shown in the epidemic at Tschataldscha. On the other hand, at Sofia, with its sanitary precautions and cholera hospitals, there was no contact infection among the attendants, despite the lack of personal hygiene in the latter. Flies seem to play no part in transmission. In order to explain contact infection whenever this occurs, the author can do no more than guess that ordinary vibriones occur here in an actively virulent form, no separate causal element playing any rôle. Hence, despite sanitary prophylaxis, we must always bear in mind that the possibility of contact infection can never be left out of sight. It is possible also that fear of infection plays a part here. Suppose that the wounded develop cholera when under treatment, should a special station be set apart for such cases? The answer is no, beyond a ward or pavilion in a general field hospital.

**Pock Exciters.**—Fornet insists that despite all apparent recent progress in this field the cause of variola is still unknown, although carriers of the parasite may be in evidence in various bodies. He repeats the various modifications of technique, the ether addition, new stains, etc. Something has been cultivated which seems to be able to cause certain phenomena seen with variola, but we cannot produce from this a separate lymph. These "single and double formations" cannot be made responsible for the production of variola or vaccinia. Other minute forms must exist which perhaps are definitely related to the larger bodies, as a developmental form. These larger structures, which the author terms "microsoma variolæ," have long been known—for ten years at least they have been described under different names. They do not answer to Koch's requirements as a cause of disease, and thus cannot be set down as the cause of variola.

**Vaccinotherapy of Cancer.**—Blumenthal believes that malignant tumors may be favorably influenced by vaccines, which introduce new progressive concepts of cancer therapy. This is an element which, like several others, is encouraging. The idea must be greatly expanded. A desideratum is the treatment of one's own tumor by products of its own, yet without exposing the growth to infection. An entire tumor may be extirpated and vaccines prepared to inoculate against recurrence. Generally a serum must be made from a tumor in a second person and having the same nature. Lunckenheim has prepared tumor extracts which have given positive clinical results.

**Chemical Constitution and Physiological Action.**—Langgaard makes no reference to the monumental work of Fraenkel in this field. He gives numerous examples in which members of a series produce different physiological results. Every student of new synthetic drugs is assured that this relationship acts throughout in building them up. We may select a few cases of the author: thus caffein = trimethylvanthine in various groupings. It excites the cerebral cortex, heart, and kidneys. Theobromin = dimethylvanthine acts only on the kidneys, as does only theocine. In coffee is the xanthin base; three methyl units are bound by ammonia in three different portions of the molecule. In theobromin and theocoll two units of methyl are bound to the xanthin in different portions of the molecule. The $CH_3$ group is recognized in caffein by the figures 1, 3, and 7; theobromin by 3 and 7; theocoll 1, 3. The much greater power of caffein is therefore bound up in the extra methyl unit.

### Münchener medizinische Wochenschrift.

*December* 2, 1913.

**Radiology and Chronic Appendicitis.**—Singer and Holzknecht sum up their study as follows: The appendix itself is not represented, and its course is fixed only through the situation of the conducting organs, checked up by the character and direction of the pain. Hence in painless intervals we cannot carry out the method so

that the utilization of the method is restricted to the algid (?) stage. We nevertheless believe that in the diagnosis of important diseases of the right iliac fossa we have introduced a new and fairly accurate resource which seems suited to remove the obscurity heretofore attendant upon methods and judgment. The method should prove of especial value in pseudo appendicitis and simulation.

**Plumbing Tuberculous Lungs.**—Gwerder has made a short priority claim in regard to some work done in his sanitarium at Arosa. The author states that when compression therapy by artificial pneumothorax cannot be carried out, we have pneumolysis or Baer's plumbing to fall back on, before we have to perform a thoracoplasty. Mere pneumolysis has no great merit, and Baer's resource is of a character too localized. The author has been at work since Baer's publication in animal experiments in the same direction, but substituting for solid plumbing the use of air, introduced in bags. The pressure may be varied, and the apparatus has no weight. The process need not be limited to small superficial cavities, for the rubber balloon, when inflated slowly, will adapt itself to the compass of any cavity.

**A New Type of Typhus in East Asia.**—Furth, who is stationed in China reports an episode which tends to bear out Naunyn's recent claim that typhus is more a syndrome than a disease. In the group of six cases treated, the exciting cause appeared to be the usually saprophytic bacillus fecalis alkaligenes. Ordinary typhoid was readily excluded. The bacillus just named was found in the blood and intestinal discharges. The patients were sailors on the same vessel. The symptoms which ushered in the attack were violent headache and pain in the limbs with great fatigue. Fever of 39° C. Aside from a slight pharyngeal congestion there were no local symptoms whatever. The pulse was accelerated, but the heart and blood-picture unaltered. There was barely a leneocytosis. The urine gave a positive diazo but nothing further abnormal. The fever curve showed great variation but was of the same type for all. All patients recovered unharmed, save one left with myocarditis. An exanthem is not mentioned and Naunyn implies that the existence of one is not indispensable. Neither are sopor and apathy mentioned, perhaps because of the benign character of the episode. The febrile period extended between three and four weeks, and two patients had a relapse. Naturally the *B. fecalis alkaligenes* may have been associated in the blood with an invisible causal germ, and may have simply played a saprophytic role save that its liberated endotoxins may have modified the disease picture.

**The Active Ingredient of Beek's Bismuth Paste.**—Wacker takes part in a small controversy which is in progress just now in Germany. Recently Rost advanced the opinion that the paraffin alone was responsible for the round granulation. To test this theory the author has made some experiments as a result of which he finds that certain raw paraffin oils obtained from brown coal tar stimulate epithelization. This of course leads one to recall the paraffin epithelioma, which, however, results only from many years of continuous irritation. It can also be shown that ordinary petrolatum and lard are actually healing, *i.e.* granulating (experiments on the rabbit's ear). The active constituents of these oils and fats are doubtless present in minute amounts, suggesting hormones.

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## Deutsche medizinische Wochenschrift.

*December* 4, 1913.

**Tabes in Brazil.**—Austregesilo of Rio, after discussing typical tabes and the incipient and few symptom form sums up as follows: Tabes is common in Brazil, as elsewhere where the world is thickly populated. The factors of race and climate do not seem to exert any influence on this frequency. Incipient tabes is of course common and passes into the classic type, while "few symptom" tabes never shows but few symptoms. There is no monosymptomatic tabes. One symptom can as most suggest pretabes. Tabes is a quarternary syphilitic affection, an electric fiber disease of the posterior columns. Early diagnosis is necessary for then Hg and salvarsan can abort the condition. General and physical therapy must back up the specific.

**Exanthematic Typhus.**—Naunyn believes this to be a collective term, which indicates several distinct members. Naturally we could not form a distinct conception of this affection until abdominal typhus had been thoroughly dissociated from it. In fact our knowledge of the spotted typhus as an entity dates only from 1849, and is not necessarily the terrible typhus of the Napoleonic wars. The two new diseases were studied side by side. In the author's time they were badly confused, autopsy results giving the lie to diagnosis. Critically speaking there are no post-mortem appearances which characterize typhus. Much stress was laid on the quality of the rash *intra vitam*, and this exhibited great fluctuations (maculæ, petechiæ, marmorisation). Many acute infectious diseases present a picture not unlike typhus, as Weil's disease, certain cases of malaria, Brill's disease, Manchurian typhus, etc. Brill's disease is especially instructive, as illustrating the impossibility of separating it wholly from true typhus, tabardillo, etc. In times of great epidemics typhus and the bubonic plague behave in much the same manner. Indeed judging only from this behavior one might decide that they represent one and the same epidemic. This view was expressed by Murchison many years ago who added that spotted typhus played the very same role in the temperate zone that bubonic plague did in the tropics. We have not yet found the germ of any of the typhuses; and when we do, should not be surprised to find several of different sorts. In any case the author feels confident that ultimately "typhus exanthematicus" and "fleckfieber" will disappear from our nomenclature.

**Pneumococcus Influenza.**—Walb takes up this subject purely from the clinical aspect. Influenza and pneumonia flourish at times side by side, and in some epidemics of influenza the mortality from pneumonia is high. It is commonly held that the latter furnishes an ideal soil for the former. A number of epidemics of influenza have shown the absence of the specific cause, and instead the presence of the pneumococcus. Some authorities simply call the latter pseudo-influenza and point out clinical differences, notable the incubation stage which in true influenza is extremely brief. Influenza proper may attack the entire organism, while false influenza is localized to the respiratory tract. Influenza crops out at times in all parts of the world as a pestilence, while false influenza is perennial.

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**A New Operation for Edema and Varicosities of the Lower Limb.**—Guiseppe D'Oria has adopted a suggestion made by Biondi, of Siena, that a new operative method of treatment be utilized in the case of edema and varicosities of the lower limb resulting from thrombosis of the femoral or iliac vein, such as occurs in typhoid fever and other infectious processes. The principle of the method consists in reducing the afflux of blood to the limb in proportion to the reduction of its efflux. This is accomplished by the simple technique of applying a double ligature to the superficial femoral artery. This interruption to the superficial circulation of the lower limb results in a diminution of the edema and a disappearance of the varicosities.—*La Riforma Medica.*

## Insurance Medicine.

**A Few Remarks on Blowing Heart Sounds and Their Significance for Insurance Practice.**—Dr. Goliner of Erfurt refers to the frequency with which cardiac murmurs are erroneously called "accidental," "anemic," "chlorotic," etc. The diagnostician often overlooks the fact that the rhythm of the heart may often determine the presence of respiratory sounds which simulate cardiac blowing murmurs and are, in fact, blowing murmurs which greatly resemble those due to organic heart disease. Yet differentiation is not difficult here. In 1894 l'otain first called attention to these cardiopulmonic murmurs, and emphasized the differential points. Sounds of all kinds are best differentiated by their seat and rhythm, and this generalization is easily recognized in cardiopulmonic sounds. These may be heard at two points, both coming under the head of basic cardiac sounds, viz.: the origin of the aorta and the origin of the pulmonary artery. In addition they may be heard over the median cardiac auscultatory zones, left ventricle only. In the apical area cardiopulmonic sounds are never heard, which might suffice to exclude them but for the fact that the apex is the seat of many organic murmurs. It can be shown that the vesicular murmur of the lungs can be transferred to the heart, the rhythm of which seemingly converts them into heart murmurs. Nothing seems more simple, yet the behavior of the heart and lungs in special cases may give great variation to the murmurs. They may appear and disappear, and change daily their kind, rhythm, tone, etc. Thus the first examiner notices a blowing murmur, while another, later, hears nothing. A murmur can pass from one ausculatory zone to another. Inorganic murmurs are often distinguished from the organic type by mere change of position. This should be tested fully in suspected cardiopulmonic murmurs. H. Müller of Zurich believes that many subjects rejected for insurance on account of organic heart disease are in reality victims of false diagnosis (see his monograph, Über accidentelle Herzgeräusche," 1907). The time will doubtless come when "cardiopulmonic" and other "accidental" sounds will be readily recognized by the examiner. But what course will be taken by the companies cannot now be foreseen.—*Blätter für Vertrauensärzte der Lebensversicherung*, May-June, 1913.

**Altruistic Selfishness as Exhibited in Life Insurance Work.**—The activities of the life insurance companies in the conservation of the lives of their policyholders have been somewhat cynically described as "altruistic selfishness." So far as the public and the policyholder are concerned, it is enough for them to know that the end results are altrustic—they can well afford to forget the alleged selfishness. Business selfishness that strives to prevent human misery and premature death is not exactly a destructive force in the community. Furthermore, those who commence this work in a spirit of selfishness haply may have some of the dark corners of their minds opened up and ventilated as they gain a knowledge of the extent of human suffering and of the stupid, pitiable social misrule which permits it to continue, generation after generation; the same old aches and pains, the same old physical and mental miseries and inefficiency; the same old futile charities that utterly fail to lift the burden of accomplished evil. Eugene Fisk, Medical Director, Postal Life Insurance Company, thus succinctly presents the situation and further says that during many years of contact with business men, he has become impressed with the fact that sympathy for human suffering is such a common, normal trait among them as to render its absence the mark of a detective, using the term in a pathological sense. In many people the feeling is not strong enough to move them to self-denial, or to any great amount of effort for human betterment, but certainly in the average man it is strong enough to give him a sense of satisfaction if the successful development of his business provides a vehicle for the relief or prevention of sickness and suffering. Altruistic selfishness, so called, is not confined to the life insurance business, where it is merely in a first stage of development. Employers of labor are discovering that the human machine, if well cared for, works with greater energy and precision and turns out a better product. There is a great hope for mankind as these simple truths slowly filter into the minds of practical men of affairs. When "big business" moves naturally along lines that make for health and well-being in the community, much of the sordid misery that is a reproach to our civilization will disappear and with it the quack, charlatan, and vendors of nostrums, whether political, medical, or social, who exploit humanity's ills.—*Lancet-Clinic*, August 9, 1913.

**Medical Conditions Encountered in Egyptian Insurance.**—Dr. Day shows that the only serious endemic diseases that attack the European residing in Egypt are typhoid fever with its congeners and dysentery. The possession of trained servants and the habitual observance of due precautions are necessary safeguards against oral infections, while the rapidly growing practice of typhoid vaccination has diminished the incidence and virulence of this disease. Sufferers from chronic lung or joint trouble, who have settled in Egypt for the sake of their health are generally ineligible for insurance at home, but when all signs of disease have disappeared, they may ultimately be accepted for a limited term. The common diseases of Western Europe are equally important in Egypt. Rheumatic fever, tuberculosis, and syphilis—the three most important for life insurance—are as frequent as at home. Syphilis is spoken of without shame, the affection being referred to the father or mother of the patient equally indifferently. The native adult has little susceptibility to typhoid, having been protected by an attack during infancy or childhood. Appendicitis and carcinoma are still relatively rare compared with their incidence in England; diabetes is much more frequent. Most tropical diseases are endemic in Egypt, but are largely avoided by personal cleanliness and sanitation. Ankylostomiasis, pellagra, splenomegaly (Banti's disease), relapsing fever, and typhus, although common among the peasantry, rarely attack a member of the upper classes. In boyhood, bilharziasis is often contracted, but the severe cases are only seen in the field workers who are exposed to repeated infection. A slight lesion of the bladder wall, but without obvious hematuria, does not endanger life, provided a fresh infection can be excluded. Attacks of renal colic in Egypt are frequently due to bilharzial disease of the ureters without the presence of calculi. Provided the attacks have not recurred since early manhood, and no signs of bilharzial disease remain, such cases may be accepted. Life Assurance Medical Officers Association, May 7, 1913.

# Book Reviews.

MEDICAL ELECTRICITY. A Practical Handbook for Students and Practitioners. By H. LEWIS JONES, M.A., M.D., Fellow of the Royal College of Physicians of London; Consulting Medical Officer to the Electrical Department in St. Bartholomew's Hospital; Honorary Fellow of the American Electrotherapeutic Association; Member of the Société Française d'Electrothérapie et de Radiologie; Associate of the Institution of Electrical Engineers. Sixth edition, with illustrations. Price $4 net. Philadelphia: P. Blakiston's Sons & Co., 1913.

THE author comments in his preface to this edition on the recent changes in conceptions of medical action of electricity. The subject of $x$-rays in diagnosis has also increased in importance and he only attempts to give an introduction to special works. There are new paragraphs added to this edition on anions and kathions, on Leduc's apparatus for interrupted currents, Finsen's lamp, Cooper Hewitt's lamp, Kromayer's quartz lamp, multostats and polystats, mercury jet break, diathermy, stereoscopic work, ionic medication, condenser discharges, Sprengel's deformity, $x$-rays in anterior poliomyelitis, paralysis agitans, acromegaly, Raynaud's disease, intermittent claudication, asthma, rectal fissure and ulceration, esophageal spasm, gonorrhea, amenorrhea, dysmenorrhea, endometritis, vaginitis, uterine fibromyoma, ovarian neuralgia, vomiting of pregnancy, parturition, the mammary glands. There is an additional chapter on the affections of the joints and the fibrous tissues, and ocular and auricular disorders have now a separate chapter. Two appendices, a table of electrochemical equivalents and of relative ionic velocities, together with a list of towns giving the character of their electric supply, complete this extremely useful manual. There are thirteen more anatomical plates illustrating the applications of electrical treatment described in the text.

THE ELEMENTS OF BACTERIOLOGICAL TECHNIQUE. A Laboratory Guide for Medical, Dental, and Technical Students. By J. W. H. EYRE, M.D., M.S., F.R.S. (Edin.). Director of the Bacteriological Department of Guy's Hospital, London, and Lecturer on Bacteriology in the Medical and Dental Schools; formerly Lecturer on Bacteriology at Charing Cross Hospital Medical School, and Bacteriologist to Charing Cross Hospital; sometime Hunterian Professor, Royal College of Surgeons, London. Second edition, rewritten and enlarged. Price $3. Philadelphia and London: W. B. Saunders Co., 1913.

IN this volume the reader finds the usual bacteriological procedures described and illustrated without any attempt to depart from the field of actual technique. Every laboratory worker needs some such book as a working guide and the present one may be recommended as well adapted to fulfill this particular object. The illustrations are both numerous and good and the text for the most part is satisfactory. In this edition various new methods have been added, but it is not quite clear why the technique of the Wassermann reaction has not been included, for although the determination of the opsonic index, for example, is described, and there is a brief account of the method of performing complement fixation tests in general, the actual application of this principle to the diagnosis of syphilis is not given.

ESSENTIALS OF PATHOLOGICAL CHEMISTRY, INCLUDING DESCRIPTION OF THE CHEMICAL METHODS EMPLOYED IN MEDICAL DIAGNOSIS. By VICTOR MYERS, M.A., Ph.D., Professor of Pathological Chemistry New York Post-Graduate Medical School and Hospital, and MORRIS S. FINE, Ph.D., Instructor in Pathological Chemistry, New York Post-Graduate Medical School and Hospital. Price $1.25. New York: The Post-Graduate Medical Journal, 1913.

WHILE the present volume is not very large, it summarizes conveniently so much of the recent work on metabolism that it must be regarded as an important addition to the list of books on laboratory diagnostic methods. The subjects covered are gastric and intestinal digestion; the physical properties of urine; albuminuria, glycosuria, and other types of mellituria; acidosis; pigmenturia; urinary sediments; the chemistry and physiology of milk; blood and other fluids. These separate chapters appeared at intervals during the past year in the Post-Graduate and have now been assembled in book form together with an appendix devoted to general laboratory suggestions. Under each heading there is given first a general discussion of the subject in question, followed by working directions for carrying out the various laboratory procedures involved. These are thoroughly modern and many of them have not yet found their way into the ordinary textbooks; for example, there are given Rose's method of pepsin determination, a newly modified test for beta-oxybutyric acid, methods for blood sugar and for amino acids, Folin's microchemical methods for blood and urine, etc. The only criticism to be made is that the authors have, if anything, erred on the side of conciseness, so that some of the procedures described could hardly be carried out successfully by a beginner without more detailed directions than those provided. The book could advantageously be somewhat enlarged in subsequent editions for, as is unavoidable, many things of interest have, perforce, been omitted. For example, the phenolsulphonephthalein test is the only one mentioned for the purpose of estimating renal efficiency.

DIE GESCHWÜLSTE DER HAUTDRÜSEN. Von Prof. Dr. G. RICKER, Leiter der pathologisch-anatomischen Anstalt der Stadt Magdeburg, und Dr. JOHANNES SCHWALB, Assistent. Mit 13 Abbildungen im Text und auf 5 Tafeln. Price 10 marks. Berlin: Verlag von S. Karger, 1914.

FOR many years there has been a discussion on the nature of certain rare tumors of the skin. They have been called adenomata sebacea, multiple benign cystic epitheliomata, epitheliomata adenoides cysticum, syringomata, syringocystadenomata, endotheliomata, etc. Numerous articles describing individual observations or small collections of cases have appeared from time to time, without clarifying the situation. The difficulty lies in the impossibility of recognizing on microscopical examination of a well-developed growth the source or organ from which the epithelial cells of the particular tumor are derived. The dermatologist, however, has an unusual opportunity to see benign and malignant tumors during their earliest period of development and most of the studies have emanated from workers in that field. Unfortunately absolute uniformity has not been reached, either as to nomenclature or as to classification, nor does the monograph before us add any great clarity to the topic. There is a good deal of discussion of a polemic nature, especially in the conclusions, which might well have been omitted. The first 180 pages are devoted to a description of twenty-four personally observed cases of epithelioma of the sweat and sebaceous glands. It is unfortunate that the word epithelioma is used in this connection, because these tumors in most instances lack any quality of malignancy which that term connotes to the surgical mind. In consequence, many of the magic effects of radium which have been so widely heralded in the daily press are observed during the treatment of these, in many cases, perfectly benign "epitheliomata." A series of five fairly good plates with ten figures illustrate some of the varieties of tumors which the authors have considered in their text. While an enormous amount of labor has been spent in collecting this material, it is still perfectly evident that the question of the exact origin and nature of these tumors is not at all settled, and that there is room for a good deal more investigation.

THE PRACTICAL MEDICINE SERIES. Comprising ten volumes on the Year's progress in Medicine and Surgery. Under the general editorial charge of GUSTAVUS P. HEAD, M.D., Professor of Laryngology and Rhinology, Chicago Post-Graduate Medical School. CHARLES L. MIX, A.M., M.D., Professor of Physical Diagnosis in the Northwestern University Medical School. Volume II. GENERAL SURGERY. Edited by JOHN B. MURPHY, A.M., M.D., LL.D., Professor of Surgery in the Northwestern University, Attending Surgeon and Chief of Staff of Mercy Hospital, Wesley Hospital, St. Joseph's Hospital, and Columbus Hospital, Consulting Surgeon to Cook County Hospital and Alexian Brothers' Hospital, Chicago, Ill. Series 1913. Price $2. Chicago: The Year Book, Publishers.

THIS volume recounts the past year's work in surgery. It treats of diagnosis and improved operative technique, new instruments and rare surgical cases. Considerable stress is laid on refinements in surgical technique and in experimental surgical work. The volume should prove of special value to the surgeon.

The Practical Medicine Series. Comprising Ten Volumes on the Year's Work in Medicine and Surgery. Under the general editorial charge of Charles L. Mix, A.M., M.D., Professor of Physical Diagnosis in the Northwestern University Medical School. Volume V. Pediatrics, Edited by Isaac A. Abt, M.D., Professor of Pediatrics, Northwestern University Medical School, Attending Physician Michael Reese Hospital. Orthopedic Surgery, Edited by John Ridlon, A.M., M.D., Professor of Orthopedic Surgery, Rush Medical College. With the collaboration of Charles A. Parker, M.D. Series 1913. Price $1.35. Chicago: The Year Book Publishers.

Many interesting pediatric cases reported during the past year are here recorded. Mention is made of the valuable points that have been gained from a study of the work of the Infant Welfare Association and Boards of Health in their effort to reduce infant mortality. The section devoted to orthopedics is a helpful résumé of the literature of the past year on the subject.

Mechanical Treatment of Abdominal Hernia. By William Burton De Garmo, M.D., Professor Special Surgery New York Post-Graduate Medical School and Hospital, Fellow New York Academy of Medicine, Member of the American Medical Association, New York State and County Societies; Honorary Member of the Medical Society of Virginia, Member of the Clinical Congress American Surgeons, First Lieutenant Medical Reserve Corps, U. S. Army. Price $1.50. Philadelphia and London: J. B. Lippincott Co., 1913.

This little book is intended as a guide in the selection and fitting of trusses and especially as an aid to those who have no interest in the surgical side of the subject. For the hundreds of men who are doing truss fitting and who are not medical men this work has been prepared in response to repeated requests from them. It is hoped that these truss fitters will find this work useful and suggestive and that it will lead to more intelligent work. No attempt has been made to deal extensively with the anatomy or pathology of the hernia. The main chapters deal with the mechanical treatment of each of the following: 1. Inguinal hernia. 2. Irreducible inguinal hernia. 3. Inguinal hernia in infancy and childhood. 4. Femoral hernia. 5. Traumatic ventral hernia.

Gout, Its Etiology, Pathology, and Treatment. By James Lindsay, M.D. (Edin.), M.R.C.P. (Lond.), Hon. Physician, Formerly Hon. Pathologist and Res. Med. Officer Royal Mineral Water Hospital, Bath. Price $1.50. London: Henry Frowde. New York: Oxford University Press, 1913.

The object of this small book is chiefly to present to the profession the results of the author's observations in the study of about 600 cases of gout. The list of the cases comprises those admitted to the Royal Mineral Water Hospital during the past six years. The book contains excellent photographs and skiagraphs. The chapters are systematically arranged beginning with the etiology of gout, continuing on through morbid anatomy and pathology, symptoms and forms, differential diagnosis, and concluding with the treatment of this disease.

Hemocytes and Hemic Infections. A Hand-Book for Students and Practitioners. By Frederick W. E. Burnham, M.D., C.M. With 226 microphotographs by the author. Price $6. New York: E. B. Treat & Company, 1913.

The illustrations are the most striking feature of this volume on the blood and blood diseases. They are all photomicrographs of very high magnification and show the defects to be expected in the use of even the best of lenses to give magnifications larger than they were designed to yield. The author has included many parasites which are of no interest to the medical student, such as, for example, a long series of pictures and descriptions of the various trypanosomes found in the batrachians, birds, rats, and domesticated animals. He disarms criticism by a frank statement in his introduction that the volume is without pretension to being a complete treatise, and was written merely to furnish information to the student and general reader on parasites and diseases of the blood.

Collected Papers from the Research Laboratory Parke, Davis, and Company. Vol. I. Detroit, 1913.

This book consists of thirty papers collected from articles published in English, German, and American medical, veterinary, and other scientific journals. Most of the articles are accompanied by charts and illustrations. The titles of some of the papers are as follows: 1. Administration of diphtheria toxin in a collodion sac. 2. Insecticides—fumigants. 3. Etiology of canine distemper. 4. Soaps from different glycerides. 5. Sleepy grass of Mexico. 6. Depressor action of pituitary extracts. 7. Catgut and sterilization. 8. Serum treatment of hemorrhage and blood dyscrasias. 9. Pharmocological requirements for cannabis sativa. 10. The heart tonic unit. 11. Bacteriological standardization of disinfectants. 12. Tobacco extracts; their comparative values as insecticides. 13. Pituitary extract in obstetrics and gynecology, et al.

A Code System for the Hospital Pathological Laboratory. Part I. Autopsy Work. Being a student's guide to the description of autopsy organs. By O. C. Gruner, M.D. (Lond.), pathologist to the Royal Victoria Hospital, Montreal. Price 65 cents. Toronto, 1913.

While anything which will lighten the labor of recording autopsies may be of interest, it is very questionable whether a code system of numbers, as suggested in this pamphlet, is of value. Its use would result in a very much compressed autopsy protocol, but also in one which, if the code were unknown, would be absolutely useless from a medicolegal standpoint. To the reviewer this supposedly labor-saving device seems to be one of those which increases rather than diminishes the difficulties of hospital records.

Traitement de la Syphilis par le Serum Organique du Dr. L. C. Query. Observations Cliniques. Paris: Laboratoire de Serotherapie Specifique et de Microbiologie, 1913. Price 2 francs.

The appearance of this little volume is opportune; it draws attention to the importance of serum therapy in the treatment of syphilis, and it shows how some of the more important sequelæ of this disease may be prevented.

The Wellcome Photographic Exposure Record and Diary. 1914 U. S. A. Edition. Price 50c. London: Burroughs, Wellcome & Company, 1914.

The edition for the coming year of this well-known exposure record contains a considerable amount of new matter in regard to recent improvements in developing technique, color photography, etc. Especially full directions are given for producing colored effects in the development and toning of prints and transparencies. All of the tabular information of the previous editions has been retained and the usual exposure meter is still to be found at the back of the volume. For the benefit of those not already familiar with the little book it may be said that it represents one of the greatest conveniences the amateur or professional photographer can have.

Progressive Medicine. A quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College Philadelphia, assisted by Leighton F. Appleman, M.D., Instructor in Therapeutics, Jefferson Medical College, Philadelphia. September 1, 1913. Price $6.00 per annum. Philadelphia and New York: Lea & Febiger, 1913.

The current issue of this valuable quarterly is on the same lines as heretofore, and contains four sections, each giving a most useful summary of the recent advances in some special branch of medical science. Dr. W. Ewart is responsible for the section on diseases of the thorax and its viscera, including the heart, lungs, and blood vessels. Dr. W. S. Gottheil contributes the section on dermatology and syphilis. The chapter on obstetrics is by Dr. E. P. Davis, and that on diseases of the nervous system by Dr. W. G. Spiller.

A Compend of Diseases of the Skin. By Jay F. Schamberg, A.B., M.D., Professor of Diseases of the Skin, Philadelphia Polyclinic and College for Graduates in Medicine; Fellow of the College of Physicians of Philadelphia; Member of the American Dermatological Association. Fifth Edition, Revised and Enlarged, with 112 Illustrations. Price, $1.25. Philadelphia: P. Blakiston's Son & Co., 1913.

This new edition is longer than its predecessor by about two pages, these pages being taken up with a brief account of the salvarsan treatment for syphilis and the use of carbon dioxide and vaccines in the treatment of skin diseases.

# Society Reports.

## NEW YORK ACADEMY OF MEDICINE.

SECTION ON MEDICINE.

*Stated Meeting, Held October 21, 1913.*

DR. LINSLY R. WILLIAMS IN THE CHAIR.

THE communications were from the medical wards of the Montefiore Home and Hospital.

**Case of Auricular Fibrilation in a Child.**—Dr. S. G. EHRENREICH presented this case. He said that a certain type of irregularity of the heart was so common in childhood as to be designated the youthful type, that was, the sinus form of arrhythmia. Extrasystoles were also found, and heart block, though rare, had been described repeatedly during the course of diphtheria and acute articular rheumatism; certain cases of heart block had been attributed to previous diphtheria. Perpetual arrhythmia was so rare that up to the present time he knew of no case that had been reported as occurring in a child under thirteen years of age. The case presented was a typical example of auricular fibrillation which was first observed when the child was nine years of age. The characteristics of this condition were absolute irregularity of the heart action and of the pulse, the absence of any "A" or auricular wave in "A" the jugular portion of the polygraphic tracing, the absence of the "P" or auricular wave in the electrocardiogram, and the presence of the electrocardiographic curve of undulatory waves at the rate of several hundred per minute preceding the "R" or ventricular curve. Most of the cases of auricular fibrillation in younger adults occurred on the bases of an old rheumatic endocarditis, usually of the mitral valve; there was another group of cases of adults or older individuals in which the fibrillation occurred in hearts which were sclerotic. The patient presented was now ten years of age and was admitted to the Montefiore Home three and one-half years ago. Her family history revealed nothing of importance. She had had measles when two years of age and two or three attacks of pneumonia later, and an attack of influenza at the age of six years. For a week or so following she gave an indefinite history of acute articular rheumatism. Five months later cardiac palpitation and precordial pain appeared, followed a year later by dyspnea; since that time she had had a few attacks of cardiac decompensation but always recovered after complete rest in bed. On admission to the home her heart action was regular, there was dilatation of both sides of the heart, and a double mitral murmur was audible, with marked accentuation of the second pulmonic. On May 25, 1912, the patient had one of her decompensation attacks, when she was put on digitalis and complete rest in bed. At this time the pulse rate and heart action were still regular but two days later an arrhythmia was first noticed, and on taking the polygraphic tracings typical curves of auricular fibrillation were observed. This arrhythmia had apparently never been absent since.

Dr. T. STUART HART said he was very much interested in this case; he had never seen a similar one in a child so young.

Dr. LINSLY R. WILLIAMS said that they should always consider the possibility of an adherent pericardium in these cases of auricular fibrillation.

**Further Contribution to the Rigid Spine with Presentation of Two Cases of the Rhizomélique Type.**—Dr. GEORGE R. ELLIOTT presented this communication which was demonstrated with lantern slides.

**Congenital Pulmonary Stenosis with Electrocardiograms.**—Dr. B. S. OPPENHEIMER said that congenital stenosis of the pulmonary artery was clinically the most important and the commonest of all cardiac anomalies and was described as long ago as the time of William Hunter. With the introduction of the electrocardiograph and of the orthodioscope a renewed interest was being taken in congenital cardiac defects, in the hope that these newer methods would be of aid in diagnosing the lesions. A clinical case was presented in which an absolutely positive diagnosis of the congenital lesion could not be made. The patient was a spinster, 42 years of age, who had been in Montefiore Home for the past sixteen years and had been under observation in Bellevue Hospital for several years preceding. Her mother while carrying her was subjected to a severe fright during the fifth month of pregnancy. She was a so-called blue baby. Her chief complaints were hemorrhages from the lungs, nose, and bowels, dyspnea, palpitation, precordial pain, and dizziness. She showed only one other congenital malformation, that was, a bifid uvula. She had a marked cyanosis, clubbing of the fingers, a somewhat bulbous nose, and was rather stunted in stature. The physical examination of the heart showed an enlargement to the right. There was a palpable impulse at the base synchronous with the second sound. On listening to the heart over the apex both sounds were audible; and following the second sound, there was a rather faint diastolic murmur. Over the pulmonic area, the first and second sounds were present, the latter merging into a prolonged, loud diastolic murmur which in turn persisted until the first sound. Patient had a polycythemia; her erythrocyte count varied from 6 to 9 millions; hemoglobin was 100 to 125 per cent.; Systolic blood-pressure was 114 mm. The *x*-ray examination showed a dilatation of the pulmonary artery, but not any unusual pulsation such as had been found to be characteristic of cases with patent ductus arteriosis (Bass and Wessler). The case was considered one of congenital pulmonic stenosis with associated lesions, probably a septal defect, possibly patent ductus arteriosis or pulmonary insufficiency. The heart from a second case of pulmonic stenosis was presented. It was obtained from a boy eight years of age who during life had been deeply cyanosed and had marked clubbing of his fingers and toes. He had had rheumatoid pains in his ankles, and had had scarlet fever. The heart presented the typical combination of (1) stenosis of the infundibulum and of the pulmonary artery proper; (2) a patent septum ventriculorum; and (3) position of the aorta to the right. There was hypertrophy of the right auricle and of the right ventricle, the latter forming the apex of the heart. The foramen ovale was closed, but its membrane showed numerous fenestrations. The tricuspid valve, really bicuspid in this case, was stenosed and was lined with numerous vegetations; and it also presented hemorrhages which were situated rather on the auricular than the ventricular side of the cusps. There was only one cusp at the pulmonary orifice that could have functionated; the other one that was present was rudimentary. At the stenosis there was a vegetative arteritis, and distal to that the pulmonary artery was dilated and hypoplastic. The ductus Botalli was closed. The mitral and aortic valves were lined with vegetations. The aortic valve consisted only of two cusps instead of three. The cause of the vegetations on the valves could not be stated with certainty, as the rheumatic nodules described by Aschoff were not to be found, nor any evidences of malignant endocarditis in the kidney (Baehr) or other organs, and on staining the vegetations for bacteria a number of different organisms were found which had to be considered post-mortem invaders. The electrocardiograms of both cases gave the usual evidence of extreme right-sided hypertrophy. In addition in the first case the regular rhythm was interrupted by an occasional isolated premature beat which originated in the right basal portion of the ventricle. In addition in the second case, lead II was marked by a very high "P" wave which might be correlated with the hypertrophied right auricle. Both cases presented a striking amplitude of the electrocardiographic waves in the various leads, a phenomenon characteristic of congenital cardiac defects.

**A Study of Twenty-seven Cases of Advanced Pulmonary Tuberculosis Treated by Artificial Pneumothorax.**—Dr. LEO KESSEL and Dr. MAX TASCHMAN presented this paper. They stated that the advantages claimed for this method of treatment were: (1) The lung was immobilized. (2) New connective tissue grew in the atelectatic lung particularly around the bronchi and the vessels. (3) The tubercles were replaced by fibrous tissue. 4. Cavities collapsed and became obliterated. (5) Stasis in the circulation of the lymph set in, favoring a diminution in the degree of toxemia. (6) The total amount of blood in the lungs was reported to diminish but the experimental evidence for this finding was unsatisfactory. The twenty-seven cases, forming the basis of this report, were studied at the Bedford Hills Sanatorium of the Montefiore Home during the past six months. The observations were made during routine treatment. The patients were in all the cases in the third stage of the disease. In their procedure they gave the patients morphine (gr. ⅛ to ¼) and atropine (gr. 1/150 hypodermatically) with tincture of iodine and the excess was removed with 95 per cent. alcohol. The area was anesthetized with novocain (1 per cent.) and adrenalin (1-10,000 about one to two c.c.). The apparatus introduced by Floyd and Robinson was used together with the Floyd needles. A large caliber needle was employed for the first inflation and a small one in subsequent treatments. The patient was placed on his side on a pillow, to widen the intercostal spaces, and the skin was punctured and not incised with a fine cataract knife protected with adhesive plaster, to prevent injury and to avoid bleeding.

As the needle carrying the stilet was introduced through the anesthetized area into the pleural cavity the operator experienced a sense as of withdrawal of resistance and this sensation was quite characteristic. A water manometer was attached to the needle and when this was in place several readings were taken. When these were constant and the respirations regular, and when the oscillations in the manometer were free and the intrapleural pressure negative, nitrogen gas was permitted to flow. The rate was approximately 50 c.c. per minute. The intrapleural pressure was read after each 100 c.c. had entered. In the early cases the total nitrogen was 700 to 800 c.c., but later this was reduced to 300 to 500 c.c., and better results were obtained with the smaller amount of nitrogen. When the needle was withdrawn, the index finger of the opposite hand was pressed firmly over the site of the puncture and a pressure bandage was applied. This procedure prevented the occurrence of subcutaneous emphysema. The best area for the site of the injection was one most likely to be free from adhesions. The axilla was preferred because here the intercostal spaces were wide and there were fewer layers of muscle. The places to avoid were those over cavities, the precordium, the region of the large vessels, the breast tissue in women, and the region posteriorly below the ninth space. When pain and hyperalgesia were referred to the region of the shoulder on the side treated they formed a diagnostic point of much interest. Mackenzie had called attention to the fact that when the diaphragmatic pleura was irritated stimuli ascended from it by the phrenic nerves to the nuclei of the fourth and fifth cervicals. Nerves from these centers were distributed to the shoulders and it was to these that the pain was referred. He had observed the phenomenon in cases of diaphragmatic pleurisy. When complete collapse of the lung was established the physical signs underwent great changes. There was exaggerated breathing on the untreated side, but they had failed to note the disappearance of signs of consolidation mentioned by several observers. Râles became less marked or were absent and the signs of cavitation disappeared. To determine the presence of complete collapse by physical signs alone might be misleading, for many factors influenced the breath sounds in pneumothorax. Many complications had been reported as occurring during the production of artificial pneumothorax, among them pleural reflex, shock, or eclampsia, pain from direct injury of an intercostal nerve or one of its branches, subcutaneous emphysema, deep emphysema, blood stained expectoration due to puncture of the lung, rupture of the mediastinum with bilateral pneumothorax, of embolism, attacks of vomiting, or a small amount of pleural effusion. In only one instance did they encounter pleural reflex or eclampsia; this complication had been attributed by some to gas emboli, but this factor seemed to be excluded in their case. They had had no personal experience with deep emphysema. In a few instances they had encountered blood-stained sputum due to puncture of the lung but this disappeared promptly. In one instance there had been a rupture of the mediastinum with bilateral pneumothorax, but no untoward results ensued. They had had no personal experience with embolism and this complication was probably easily avoided by careful technique. In five cases they had observed a small amount of pleural effusion, which was always accompanied by a sudden rise of temperature to 102° or 103° F. and by pain in the side. The fluid aspirated from these cases was either straw colored and turbid or sero-sanguinous and showed a large number of lymphocytes. This fluid inoculated into guinea pigs produced tuberculosis. The contraindications to artificial pneumothorax included the following: (1) All cases in the first and second stages who were doing well under hygienic and dietetic treatment. (2) Cases exhibiting marked mental apprehension. (3) Patients who had chronic heart disease. (4) Patients who had definite intestinal tuberculosis. The indications for the treatment might be summarized as follows: (1) Extensive unilateral progressive cases who had failed to improve under hygienic and dietetic treatment. The earlier it was recognized that sanatorium treatment was useless the better the chance of succeeding with the pneumothorax treatment. (2) Extensive chronic unilateral cases who remained stationary and showed no constitutional symptoms but who were distressed by cough and excessive expectoration. (3) Cases of involvement of a single lobe containing a cavity. (4) Patients showing extensive unilateral progressive lesions but having small inactive involvement on the opposite side. (5) Bilateral cases having extensive lesions as shown by physical signs in whom the disease was slowly progressive, but in whom activity was limited to one side, the other presenting little, if any, activity. (6) Patients who had had repeated hemoptyses which did not cease under the usual treatment. Also those less frequent cases of large pulmonary hemorrhage in whom the loss of blood was great enough to warrant a fatal prognosis. (7) A group of cases included among those of advanced progressive tuberculosis in whom one must predict an early fatal issue. Under ordinary circumstances the indication of an artificial pneumothorax was here contraindicated, but a certain number of them by proper care and selection could be found who afforded gratifying improvement in very distressing symptoms where none had otherwise been possible. The clinical history of patients who had been favorably influenced by pneumothorax showed a decrease either abrupt or gradual in the temperature, a slowing of the pulse rate, disappearance of night sweats, improved appetite and digestion, and a feeling of improved general well being. The cough and expectoration in many cases were at first aggravated but after two or three days these symptoms decreased in severity or disappeared. It was noteworthy that no gain in weight commensurate with the amelioration of symptoms took place. Numerous observers had reported a marked diminution and in some cases a disappearance of the tubercle bacilli from the sputum but in our cases no appreciable change was noted. The promotion of fibrosis was best secured by the introduction of moderate amounts of the nitrogen gas frequently repeated, rather than with larger amounts at greater intervals. The most desirable condition was that in which a slightly positive intrathoracic pressure was maintained at all times. A study of the pleural adhesions in each case was important. The treatment should, therefore, be guided by studying skiagrams and *x*-ray photographs and by using the manometer during the induction of an artificial pneumothorax. The operation was usually devoid of danger if a careful technique was observed. A consideration of the physical signs alone yielded insufficient data to form the basis of treatment. In all cases of progressive pulmonary tuberculosis the induction of artificial pneumothorax should be considered. In hopeless cases it had been useful for it had brought remarkable relief from distressing symptoms, not obtained by any other measure.

Dr. Linsly R. Williams asked if they had ever seen in the treatment of these cases of pulmonary tuberculosis by artificial pneumothorax with nitrogen gas any of the old-fashioned hemorrhages coming on after ten or twelve hours.

Dr. Alfred Meyer said that he had never seen a case of hemorrhage occurring after the injection of nitrogen in cases of pneumothorax. Although an admirer of the antiseptic effects of iodine, in these cases he was inclined not to make use of this agent because it hid the pallor of the skin which indicated the appearance of anesthesia. In regard to the induction of pneumothorax the value of the manometer should be accentuated. It was the safest guide by its fluctuations as to whether the eye of the needle was in the pleural cavity. There should also be a limit to the number of punctures that were made. He recalled one case reported by a well-known sanatorium physician in which 2,000 c.c. of nitrogen escaped into space via the mouth because the needle was pushed through the pulmonary pleura and into one of the bronchioles. After the injection there was often a drop in the temperature of one or more degrees; and it remained at the lower level for a varying number of days, and then began to rise, and fall again with the next introduction of gas; after the first twenty-four hours there occurred sometimes an increase in the amount of expectoration as though a cavity or cavities or bronchiectases were being emptied more or less permanent, and then a decrease. The rule was that there was no gain in weight, rather a loss in weight, and with fever disappearing and symptoms improving this seemed a very strange anomaly. But there were exceptions to this rule also. Success in these cases depended largely upon the proper selection of the cases to be treated by artificial pneumothorax. For beginning the work in an institution he urged two points: selecting intelligent patients for cooperation, and selecting cases in whom a complete, rather than a partial, pneumothorax was probable. With regard to local anesthesia, Dr. Meyer stated that he never would make even an exploratory puncture of any human chest unless that chest was anesthetized down to and through the costal pleura. He said that he had been struck with the fact that so many cases of artificial pneumothorax did not show the classical signs; that hyperresonant note and decreased respiratory murmur were common, but amphoric breathing and voice less frequent.

Dr. S. Adolphus Knopf believed that in justice to the history of American medicine it should not be forgotten that Dr. John B. Murphy of Chicago produced artificial pneumothorax at about the same period as Dr. Forlanini. The operation was successfully performed a number of

times by Dr. Murphy, although without a manometer. Regarding the best method for the production of artificial pneumothorax Dr. Knopf stated that the authorities differed widely. There was the Brauer method, the Forlanini method, the modified Brauer method, etc. Dr. Knopf preferred the Forlanini method because the employment of a fine needle was safer. Even if lung tissue was penetrated with a small needle no great harm would result, and if by reason of multiple adhesions one had to make several punctures one was more sure to avoid infection. Ten minutes before the operation he gave the patient a hypodermic injection of morphine to allay apprehension and fear. Dr. Knopf believed that this might also help to avoid the much feared pleuritic shock. Prior to the insertion of the needle for the injection of novocain he used ethyl chloride. He considered the safer way to begin in all cases with the injection of 500 c.c. of oxygen gas and then follow with nitrogen gas. He answered the chairman's question considering a hemorrhage following the insertion of a needle by saying that it had occurred once in his practice without any serious consequences. Dr. Knopf thought the indications enumerated by the reader of the paper excellent and emphasized uncontrollable hemorrhage as one of the most important. In bilateral involvement with one side but little involved though possibly active, Dr. Knopf thought there were no contraindications. Dr. Knopf cautioned against the use of cold gas. He had devised a little lamp connected with a metal coil whereby the gas might be heated to body temperature by passing through the heated coil, thus avoiding the shock from the cold and also any depressing after-effect from the expansion of the gas in the intrapleural cavity.

Dr. George Mannheimer said there seemed to be some misconception as to the meaning and interpretation of the forms of pleural shock, pleural eclampsia, etc. He recalled a case where a pneumothorax was induced by an apparatus that had just been carried into the operating room from the cold outer air. The gas was cold. As soon as it entered the pleura the patient was seized by a violent spasm of the glottis. No healthy pleura would stand a traumatism of that kind. This was a normal pleural reflex. Dr. Mary Lapham last year reported similar accidents. As she put it, some of her patients could not catch their breath for a moment. That was entirely preventable by keeping the gas at the temperature of the ordinary operating room. The speaker said he had seen Brauer make a pneumothorax by his incision method and after opening the costal pleura he introduced a probe and tickled the inner layers. The patient at once went into slight syncope; that was, he turned pale, perspiration broke out upon the face, and pulse and respiration became rapid. After the withdrawal of the probe, the patient's condition returned to the normal. Brauer then cocainized the pleura, introduced the probe again, and nothing happened. This was another normal pleural reflex. It could be prevented by a previous hypodermic injection of morphine. The latter was known to diminish reflex excitability throughout the body. In contrast thereto, the more formidable accidents, like unconsciousness, convulsions, paralyses, and local spasms, were due to gas embolism. They could be avoided by careful observation of the manometer and of the patient and by careful technique. But in spite of all that, it might happen that the parietal pleura would be pierced where it was adherent to a tuberculous lung focus. If the needle happened to enter a pulmonary vein, the walls of which were held stiffly open by infiltrated tissue, the patient with the next breath actively sucked in air from the needle and tubing without the gas being turned on. This air might then be carried along through the larger collecting branches into one of the terminal pulmonary veins and enter the left heart and the systemic circulation. If the embolism was caught in a coronary artery, or in the artery supplying the medulla oblongata, instantaneous death resulted. Other symptoms would depend on the area the blood supply of which might be blocked by the embolus. An alarming accident was bound to occur in spite of all their precautions, for after all they were working in the dark. The operation itself was a splendid palliative measure in suitable cases. Dr. Kessel had admirably stated the indications. They should insist on safe and sane indications, because Italian and French physicians insisted on performing the operation in incipient cases. This was wrong, because one of the great questions, as yet unsolved, was this: "Did artificial pneumothorax really accomplish what was expected of it?" "Did the tuberculous areas really heal, and the lung re-expand after cessation of treatment?" There were cases on record in experimental animals as well as in human beings where the healthy portions of the collapsed lung had undergone fibrosis, that was, permanent alteration in structure and functions. This certainly was not desirable in early cases and, therefore, the operation should be confined to cases where all the well known methods of treatment had failed to arrest the progress of the disease.

Dr. Leo Kessell said that morphine had been used in all the cases, giving it ten minutes before the operation.

**The Frequency, Mechanism, Diagnosis, and Effects of Cardiac Displacements in Pulmonary Tuberculosis.**—Dr. Maurice Fishberg presented this paper. He called attention to the fact that cardiac displacements were much more frequent in pulmonary tuberculosis than was generally appreciated and that most clinicians overlooked them. In advanced cases of tuberculosis it was exceptional to find the heart in its normal place. Even pathologists overlooked it in making autopsies probably because post-mortem conditions did not show vividly the true location of the heart and its relations to the surrounding lungs, especially in the minor degrees of displacement. In the tuberculosis ward of the Montefiore Home he had found among 18 far advanced cases with lesions in the right side, or in which the lesion was more extensive in the right side, only one that showed no dislocation of the heart. Fourteen had dislocations to the right, and four to the left. Of 19 left-sided lesions, or in which the lesion on the left side was more extensive, 15 showed displacement to the left, one to the right, and one no displacement at all. Of 115 consecutive cases of tuberculosis in private practice in the early and second stages of the disease, he had found 50 per cent. of the hearts dislocated. Among 86 in the early stages of the disease, 36 per cent. showed cardiac displacements; of these 70 per cent. were dislocated to the left. Of 29 far advanced cases, 15 showed cardiac dislocations to the left, and 12 to the right. Most of these dislocated hearts were not pushed over from the affected to the healthy side, as was the case with pleural effusions, pneumothorax, etc., but were pulled toward the affected side. Shrinkage due to pulmonary fibrosis and collapse, cavitation, and retraction were effective as a *vis a fronto,* while vicariously, emphysematous lung on the opposite side encroaching with its bulk across the sternum, acted as a *vis a tergo,* to bring the heart out of its normal position. The heart was more easily moved toward the left than toward the right side, because of its strong attachment to the central tendon of the diaphragm as well as because of its oblique position in the chest. In cases with strong fibrous bands running from the right pleura to the pericardium, especially where there was cavitation in the right lung and the left lung was emphysematous, pushing the mediastinum to the right, all obstacles might be overcome and the heart dislocated to the right side. In extreme cases of this kind one might get dextrocardia, with the apex bent to the right of the sternum. The position of the diaphragm greatly influenced the location of the heart in tuberculosis, as had been shown by Pottenger. Elevation of the diaphragm elevated the heart, and if the elevation of one-half of that muscle greatly exceeded the height of the other half, it also pushed the heart to the opposite side, or attracted it to the same side in cases with strong pleuro pericardial adhesions which contracted and shrunk the affected lung. In many cases the heart was also rotated on its vertical or sagittal axis. Traction on the right side due to massive pleural adhesions, pulmonary fibrosis, etc., dragging the heart, when combined with an emphysematous lung in the left hemithorax, might give complete dextrocardia. In these cases there was not a complete rotation of the heart with swinging all the way around on its point of fixation at the great vessels, as was formerly supposed, but there was a complete shifting of the mediastinum to the right, bringing the heart into the right hemithorax, but retaining its natural position in the chest. Dextrocardia might also occur in cases of left sided pleurisy with effusion, pushing the heart to the right, where it was fixed by pleuropericardial adhesions and did not return to the left side after the disappearance of the fluid. They also got some cases of dextrocardia which showed that the direction of the long axis of the heart was from the left to the right, suggesting congenital dextrocardia without displacement of other organs. The cause of these dislocations was usually pushing of the heart to the right by a serous effusion in the left hemithorax and there it was fixed at the apex by pleuropericardial adhesions, so that when the fluid was absorbed or removed the base returned to its normal place, while the apex remained fixed at the right side sometimes beyond the mamillary line. Similarly in right sided lesions one sometimes met with cardiac displacements to the left, which were due to adhesive pleurisy of the left base which fixed the base in that position. The diagnosis of the heart dislocation in phthisis was at times difficult. The cardiac dullness at the side adjoining the affected lung merged with the dullness of the infiltrated lung or thickened pleura and

was difficult to separate. In some of these cases radiography was of no avail. In dextrocardia it should be borne in mind that when one found a cardiac impulse, it was usually the right ventricle and not the apex, because in these cases the latter was turned away from the chest wall; if one found two points of pulsation, the one to the left represented the apex and the one to the right the base or right ventricle.

**Observations Concerning the Liver in Acquired Syphilis.**—Dr. Harlow Brooks read this paper which was based on a post-mortem anatomical study of the liver in 50 consecutive cases of acquired syphilis and of a large series of clinical cases. He found the liver diseased in practically all cases. In 14 instances the liver was enlarged post mortem, in 18 atrophied, and in the remaining 18 cases it was normal in bulk. Typical syphilitic cirrhosis, that was, with deep bands of scar-like connective tissue was present in seven cases. A diffuse fibrosis, like that found in most alcoholics, was found in 12 instances, and this was the most frequent fibrous change in syphilitic livers. Gummata of varying size were found in seven cases, none being clinically diagnosable. The most frequent degenerative change naturally was a fatty degeneration found in 26 instances. Brown atrophy was found in seven cases and amyloid degeneration in an equal number. Acute yellow atrophy was apparently due to syphilis in one case. That the changes in the liver indicated individual and not general tendencies was suggested by the fact that they differed from the renal lesions in their general character in the same case in 34 instances and were analogous in 16. Liver symptoms rarely dominated; even in those cases where extensive liver lesions were present, the chief symptoms of the case were hepatic in but one instance. The most frequent symptom indicating liver involvement occurred in the secondary period and this was jaundice. It was generally supposed to be catarrhal in nature. They had showed it to be caused by true syphilitic inflammatory lesions, at least in most cases. Other symptoms were the general ones of hepatic fibrosis-ascites, pain, tumor, or atrophy. In most cases and excepting in gummata of large size the diagnosis of liver involvement was difficult to make in late lues. The lesions, except gumma, might be absolutely simulated by liver disease of other origin than from lues. The Wassermann reaction was almost always positive where the liver was extensively involved, and might be activated by a dose of salvarsan or mercury. Treatment was very promptly successful in the early stages. In the late stages, while it might cause the absorption of the gumma and the healing of syphilitic exudates, it would not usually be followed by reabsorption of the fibrous tissue; in some cases it might check progress in this direction, but in most cases the fibrosis or cirrhosis continued to advance even after vigorous and correct treatment. Treatment then to be entirely successful must be very early instituted.

**Radium and Röntgentherapy in Cancer.**—Dr. Isaac Levin read this paper. (See Vol. 84, p. 1064.)

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SECTION ON OBSTETRICS AND GYNECOLOGY.

*Stated Meeting, Held October 28, 1913.*

Dr. Geo. Gray Ward, Jr., in the Chair.

The program was furnished by the staff of the Lying-in Hospital.

**A Review of the Craniotomies Recently Done at the Lying-In Hospital.**—Dr. Edward S. Gushee presented this report. He stated that from 1903 to 1913 there were delivered in the Outdoor and Indoor departments of the Lying-In Hospital 52,133 patients. In the Outdoor department there were 30,549 deliveries, among which there were 64 craniotomies, or about one-fifth of one per cent. In the hospital proper, during this period, there were 21,584 deliveries, among which were 258 craniotomies, or one per cent. of the cases delivered. This great discrepancy in the percentage of cases outside and inside the hospital was due to the fact that nearly all the cases outside the hospital were under the observation of the hospital staff, whereas in the hospital over one-half were emergencies and 125 had been unsuccessful attempts at delivery by outside physicians or midwives. This left 91 craniotomies which occurred directly under the hospital supervision, or two-fifths of one per cent. of the hospital cases. Of these 91 craniotomies, 21 were eclampsias, and seven were placenta previas with premature dead babies. In 29 cases craniotomy was done for the following causes: hydrocephalus, chondrodystrophia, impacted face, impacted brow, tuberculosis with dead fetus, diabetes melitus, endocarditis, and chronic nephritis. There were 23 borderline cases. In the hospital service, although there was an increase in the last five years of 4,000 deliveries, there was a decrease of two per cent. in the number of craniotomies from the previous five years; and in the tenements, although the increase of deliveries was only slight, there was a decrease of 20 per cent. in the craniotomies from that of the previous five years. In the hospital there were 37 deaths, which was 10 per cent. of the craniotomies, while in the outdoor service there was only one death. Of the 37 deaths in the house, six were due to complicating causes with one exception. Of 31 emergency cases 18 died of shock or hemorrhage, 10 of sepsis, and three of eclampsia. The high mortality rate inside the hospital was accounted for by the fact that the cases were sent in at all stages of delivery and had been tampered with on the outside. The low percentage of deaths in the outdoor service was due to the fact that the cases were under observation early enough so that they might be transferred to the hospital in time to permit of cesarean section. That the operation itself was not necessarily responsible for the death of the mother, but rather the state of shock to which she had been subjected or to some complicating condition was shown. All things considered, the maternal death rate in the hospital was not high and in the tenements it was practically *nil*.

**Set of Obstetrical Instruments Available for the General Practitioner.**—Dr. James W. Markoe said that every general practitioner should have such a set of instruments which could be used in any emergency, a simple and cheap set of instruments. What he presented covered almost every obstetric operation except that of cesarean section, pubiotomy, etc., which the general practitioner was not supposed to perform. The use of the instruments presented was well within the province of the general practitioner.

Dr. John O. Polak said that he was impressed with the simplicity of the instruments presented.

**A Specimen of Microcephalic Fetus at Nine Months.**—Dr. Robert Edward Pou exhibited this specimen in which the fontanels were practically closed up and there was contracture of the fingers of both hands.

**Esophagotreacheal Fistula, with Report of Two Cases.**—Dr. J. R. Losee reported these cases. He pointed out that esophagotracheal fistula was among the most common anomalies of the esophagus, for of 62 cases collected by McKenzie 43 had communication with the air passages. The first case occurred in an infant delivered normally at term. It was soon observed that the infant became asphyxiated at intervals of thirty minutes to an hour and that this condition was promptly relieved by the removal of a large quantity of yellow mucus from the pharynx. The baby nursed only for a few minutes, when it became asphyxiated and was relieved only when its head was lowered. Dr. Truesdell made a diagnosis of the exact condition owing to the fact that he had seen a similar case a year ago. A catheter could not be passed more than ten or twelve cm. from the alveolar border. With a No. 16 F. in this position a radiograph was taken which showed the level of the lower end of the sac. The patient gradually lost weight and on the eighth day a gastrostomy was done and feeding was carried on through a tube. It was later noted that milk placed in the stomach regurgitated into the mouth. Meconium was passed the first three or four days after birth, but after that there was very little stool. The child developed pulmonary symptoms and died of inanition and bronchopneumonia on the tenth day. At autopsy the esophagus was found to rise in its normal position and to terminate in a blind pouch three and one-half cm. lower down and two and one-half cm. from the bifurcation of the trachea. This pouch was one cm. in diameter, its walls were hypertrophied, its lumen distended, and there was no communication with the stomach. The stomach was normal in size and position and contained some food particles. There was a wound in the anterior wall one cm. in length and one and one-half cm. from the pylorus. The esophagus took its normal position from the cardiac end and terminated at the bifurcation of the trachea with which it formed an anastomosis. Its lumen was patent and communicated with the trachea and bronchi. The intestines were for the most part empty and there was a small diverticulum of the ileum about 10 cm. from the cecum. In these cases gastrostomy afforded little or no relief unless the cardiac end of the stomach was closed. In many of these conditions in which the esophagus ended in a blind pouch there was a fibrous cord extending from it to the cardiac end of the stomach; in others there were a few muscle fibers running from the termination of the sac downward on the posterior wall of the trachea. Then there was a variety in which there was absolutely no

traceable connection with the stomach. Cases had been reported where the rudimentary esophagus was from two and one-half to four cm. in length and again the fistulous communication with the trachea did not always take place at its bifurcation, but united with its posterior wall, one, two, or three cm. above it. About a year ago such a case was observed by them, and at autopsy the same conditions were found as had been here reported except that the lower portion of the esophagus communicated with the posterior wall of the trachea one cm. above its bifurcation. These infants all died, regardless of any treatment, from two to twelve days after birth. Such cases as these should be reported in order to keep ever before the eyes of the attending physician the occasional occurrence of these anomalies so that early diagnosis and definite prognosis might be made.

**Further Observations on Birth Fractures.**—Dr. Edward D. Truesdell read this paper, which was based on a series of fourteen cases of birth fracture occurring at the Lying-In Hospital. A series of eleven cases had already been reported in the Bulletin of the Lying-In Hospital, Volume VIII, No. 4. Since that time three additional cases had been added to the series. Of the entire series of fourteen, three had died, and the remainder had been under constant observation for eighteen months. Frequent *x*-ray examinations had been made, and where union with deformity had occurred this permitted inspection of the bone during the process of straightening, as nature moulded the bone into a form indistinguishable from that of the uninjured side. Ten of the fourteen fractures had taken place during version and breech extraction, three during simple breech abstraction, and one in a spontaneous vertex delivery in which difficulty was experienced in extracting the anterior arm from a narrowed pelvic outlet. The line of fracture in all cases but one was practically transverse in direction, a typical pipe-stem fracture, the site of the fracture being at or near the center of the shaft of the bone, apparently just below the insertion of the deltoid muscle. Deformity was absent at the first observation in some instances, but this, as a rule, appeared to some degree quite promptly, due to the necessary handling of the infant or to the infant's own activity. The more common type of deformity was an external angulation, in some cases of alarming degree, evidently aided by the deltoid pull. The second type observed was a lateral displacement, the fragments lying parallel, but at some distance from each other. Overriding was conspicuously absent. Wrist drop had been noticed accompanying every fracture. This evidence of nerve injury was not readily explained; as in each instance it had been present from the first it could not be due to either callus formation or pressure of extravasated blood. It might be that sufficient pressure had been brought to bear on the nerve, as this crossed the posterior surface of the bone to cause a traumatic paralysis before the bone itself gave away. An infant, dying within the first twenty-four hours of associated injuries, had afforded an opportunity for the examination of a fresh fracture by dissection. Extensive extravasation of blood was found in the deeper portion of the subcutaneous fat and beneath the deep fascia between the muscle planes. There was no evidence of violence to the brachial vessels or to the musculospiral nerve. There was an extensive tear in the periosteum anteriorly. The bleeding had taken place from the fractured bone ends, the torn periosteum and the surrounding lacerated muscle. The fracture was located just below the insertion of the deltoid. In the treatment of these cases a splint had been devised which had seemed more satisfactory than other appliances formerly tried. This splint was made of sheet lead, cut and folded in such a manner as, with the forearm flexed upon the arm, to press the upper fragment inward and the lower fragment outward, and at the same time to immobilize the fragments thus meeting the indications in either type of deformity. An extension of the splint across the infant's back fixed the whole arrangement to the body, immobilizing the entire arm. Later sheet aluminum was substituted for sheet lead, which, while less readily moulded and more resilient, was permeable to the *x*-rays, permitting examination through the dressing. From reading the radiographs alone it would seem that it did not matter how badly these cases were put up or whether they were put up at all. Apparently nature at this time of life is equal to dealing successfully with any degree of deformity in the upper extremity. However, the demand for relief from pain was present and with the application of the retention dressing, deformity, if present, should be overcome as far as possible. No case of non-union had occurred, although this might be possible in the presence of excessive deformity and absence of immobilization. Union had been firm in the majority of cases in three weeks. In one of the cases the wrist drop was still marked at the end of six weeks. The striking feature in the study of these fractures of the humerus had been the evidence of nature's ability to completely eradicate deformity apparently of an extent sure to be permanent when looked at during the first three months of life. It had proved that it was unnecessary, if not actually wrong, to refracture these bones before the second year of life. One case of Erb's paralysis complicated by fractured humerus had been followed with interest. The repair of the fracture itself took place as promptly as in the other cases, there being a slight degree of angular deformity. At the end of eleven months there was but slight improvement in the paralysis. It was noted here that nature had done less to eliminate the deformity in eleven months than in similar uncomplicated cases. Ten cases of fracture of the clavicle had been under treatment and followed, although not so closely as the cases of fracture of the humerus. Eight of these had occurred during version with breech extraction, one during a forceps delivery and one during a normal vertex delivery. The fracture was situated about the middle of the shaft of the bone, or at the juncture of the middle with the outer third. The displacement had been but slight in most cases, moderate in a few. The displacement had been of the sort observed in adults, the inner fragment being displaced upward, the outer downward and inward. These fractures had been treated simply with a Velpeau bandage in most cases; in others by means of a figure eight bandage across the back. Union had taken place promptly in all cases, usually with the formation of a visible callus mass. The final results had been good, both as regarded function and the restoration of the normal contour of the bone itself. Two cases of fracture of the femur had been under observation. The first occurred during version and breech extraction. This was treated by means of coaptation splints and bandages, no attempt at extension having been made. No *x*-ray examination was made at the time. The child was lost sight of for a year, at the end of which time she was observed to limp, the gait being of the waddling type seen in cases of dislocation of the hip. The injured leg was found to be fully one-half inch shorter than that of the other side. Radiographs showed no angulation laterally, although the upper portion of the shaft of the femur was thickened and the bone appeared more compact. On lateral inspection the bone showed well-marked anterior curvature, easily accounting for the shortening of the entire limb. The second case came under their care when one month of age. The labor had been an easy, spontaneous one, but the infant not beginning to breathe as promptly as was thought proper had been grasped by the legs and swung around in the air, fracturing its right femur. The injury had gone entirely untreated until the time of admission to the hospital. Union was firm, but the radiographs showed excessive angular deformity, both externally and anteriorly associated with well-marked over-riding. Callus was abundant and firm, and it seemed best to correct the external deformity only. This was done partly forcibly and partly by continuous traction. There was some improvement in the deformity under this treatment. Three cases, one treated not at all, and the others inefficiently, showed the tendency in this injury not only to excessive angular deformity, but to overriding that might result in permanent disability due to shortening of the femur, particularly if the child became rachitic later in childhood. These fractures of the femur in infants demanded traction for the relief of over-riding, as did corresponding fractures in adults. A long side splint could be employed arranged to provide extension by means of adhesive plaster straps applied from the site of the fracture to the ankle, and, if necessary, coaptation splints could be applied in addition about the thigh itself to counteract the tendency to angular deformity. This series of infantile fractures occurred during a period of one and one-half years in all the services of the hospital in a total of about 9,000 cases delivered.

Dr. Leon Theodore LeWald said that while it was not difficult with modern apparatus to make an instantaneous radiograph of an infant, yet to duplicate the results which Dr. Truesdell had obtained in his large number of cases showing the progress and final result in each case showed great patience and skill. It was of interest to all to note how union had occurred, even in cases showing considerable separation of the fragments. A good prognosis could therefore be given in this class of fractures, if reasonable care was taken in their treatment.

**Statistical Review of the Work of the Lying-In Hospital for the Past Five Years.**—Dr. Ross McPherson made this report. He stated that during the past five years

the Lying-In Hospital had taken care of 26,997 confinements and attended 27,326 births. During this time there had been 225 cases of placenta previa, making the frequency of this complication 0.8 per cent. of all cases. There were 204 cases of eclampsia or a frequency of 0.7 per cent. There were 33 deaths of mothers in eclampsia or 17.65 per cent. of all deaths in confinement. The total number of deaths of mothers was 302 or a mortality of 1.1 per cent. The total number of still births was 1,213 or 4.06 per cent. The total number of ectopic pregnancies was 58 or .21 per cent. The number of hydatidiform moles was 17 or 0.06 per cent. The total number of abortions was 1,310 or 4.9 per cent. The total number of twins was 314 or 1.19 per cent. The number of triplets was 10 or 0.04 per cent.

**Additional Experiences with the Dialyzation Method for the Serodiagnosis of Pregnancy.**—Dr. C. F. Jellinghaus and Dr. J. R. Losee presented this communication. They stated that the dialyzation method for the serodiagnosis of pregnancy was difficult, not because of any one detail but because of the very many details, a break in any one of which would spoil the test, no matter how perfect the rest of the technique had been carried out. For example, when a dialyzer was filled with non-pregnant serum and placenta, and the mixture was covered with a layer of toluol, if any small particle of placenta remained in the inside wall of the dialyzer without being covered with toluol, this particle would putrefy during the sixteen hours in the incubator, aminoacids would be formed, and thus the test would be spoiled. Another important step was the boiling of the ten c.c. of dialysate with 0.2 c.c. of a one per cent. solution of ninhydrin. This amount of ninhydrin did not react to very small quantities of amino-acids, such as were found in the dialysate of even non-pregnant cases, when the latter was boiled one minute. But even when boiled the amount of evaporation might differ, depending upon the flame, etc. It was important that evaporation should always be the same. In order to ascertain the amount of evaporation the fluid that was left after boiling one minute was measured. If this was not done one could readily fall into error. Given a non-pregnant serum to test, the control of placenta and inactivated serum came out negative, while the serum plus placenta came out positive. This result might lead one to condemn Abderhalden's claim unless the fluid remaining after boiling were measured; if measured, the control might show six c.c. left, while the dialysate of placenta and serum showed but five c.c. left after boiling one minute. In other words not Abderhalden, but the method of boiling was at fault.

Dr. Ralph G. Stillman said that this method was of the greatest importance, not so much as a method for the diagnosis of pregnancy as that it furnished good confirmatory evidence for Abderhalden's theory. Abderhalden's theory was apt to hold an important position in the development of theories of immunity and also in certain branches of physiology and the authors had done well to select a test the accuracy of whose findings were susceptible of positive demonstration. The application of this method would rapidly widen as time went on.

Dr. Jellinghaus said that in the dialyzation method for the serodiagnosis of pregnancy the work was difficult not because of any one detail but because the break in any one detail spoiled the general test. A point he wished to emphasize was the boiling for one minute; it was a great mistake in boiling the contents of the dialyzer too long.

Dr. J. R. Losee, in reply to Dr. Bailey's question in regard to the late toxemias of pregnancy, said that this reaction was more intense in eight of their cases of eclampsia, but it was not of great diagnostic value. He hoped that they would soon be able to graduate their results so that they might be of more value.

**Intravenous Injection of Weak Solutions of Magnesium in Puerperal Infection.**—Dr. James A. Harrar read this paper. He said that the use of magnesium sulphate intravenously for the treatment of puerperal infection was first proposed by Huggins in 1910. In 1911 Lobenstein reported a case of streptococcemia cured by the method. Dr. Harrar had now employed the injections in fifteen cases of severe puerperal infection, the bacteria having been demonstrated in the blood of six by repeated culture. A two per cent. solution of chemically pure magnesium sulphate was prepared with freshly distilled water. This was filtered and sterilized in half-liter flasks in an autoclave. This solution would not hemolyze human red blood cells suspended in salt solution, and from experience in over 100 injections would not cause any rigor or temperature reaction in the patient. A simplified salvarsan apparatus was used, and 300 or 400 c.c. of the solution was run into a vein of the arm. The injections might be repeated daily or at longer intervals. Thirteen injections were given in one case. The effect upon the bacteriemia might depend upon an agglutination of the streptococci or might depend merely upon the increased bulk of body fluid and alternation in surface tension of the body cells. Dr. Harrar reported the recovery of four women who had hemolytic streptococci in their blood out of the six with positive cultures. In the case of streptococcic toxemia but with negative blood cultures there was evident improvement after the injections. The value of the method for the present must depend more upon the clinical observations than on any theoretical consideration. In 46 cases of bacteriemia previous to 1910 in the hospital, the mortality was 93 per cent. In the six cases treated with magnesium sulphate since 1910 the mortality had been reduced to 38 per cent. The method was harmless if the injections were made very slowly and in the proportions described. The technique was simple and the materials cheap as compared with the use of antistreptococcic sera and the preparation of autogenous vaccines. The method appeared to be of more value early in the course of the blood infection before secondary localization had occurred. The cases were obviously few in number, but a record of four consecutive cures out of six cases of puerperal bacteriemia was a distinct improvement over any form of treatment in vogue at present.

Dr. Samuel J. Meltzer said that he had been especially interested in Dr. Harrar's report on the use of magnesium sulphate in the treatment of puerperal streptococcemia. The introduction of magnesium sulphate intravenously was not without danger, especially if the ratio of the infusion was not taken into consideration. Even a two per cent. solution might endanger the respiration if injected rapidly. There was reason to suspect from their recent laboratory experiments that fatty hearts might not stand well intravenous injections of magnesium sulphate even if carried out slowly. In the intraspinal injections very small quantities were used and the results were due to a local effect upon the central nervous system. On the other hand there was no remedy known for the ill effects of the intraspinal injections except artificial respiration, while against the toxic effects of the intravenous injection calcium intravenous injections were an excellent remedy. The antagonistic action of the two salts was marvelous and one who used intravenous injections of magnesium should familiarize himself with this action. Dr. Meltzer said he could not find any plausible explanation for the favorable action of the magnesium injection in puerperal fever. In half a dozen experiments on rabbits infected with virulent streptococci there was no evidence of a favorable action of magnesium injections. In clinical observations a dozen cases did not prove much. It should further be considered whether simply the water brought about a favorable result. A report had recently been published of a larger number of puerperal cases, 130 or more, which received merely injections of water with very satisfactory results. Perhaps the presence of the magnesium salts added to the diuretic effect of the water, and thus relieved the circulation of toxic products.

Dr. J. A. Harrar, in closing the discussion, said he believed it was always dangerous to draw definite conclusions from a few clinical observations. The exact value of the procedure was not yet proved. Magnesium sulphate did have one special action upon streptococci—it agglutinated them in saturated solution after an hour's incubation at 37° C. In culture growth it had no bactericidal action. It was necessary to prepare a homogeneous emulsion for agglutination tests, as streptococci grew in clumps and masses. The results immediately following the injections in some fulminating cases of streptococcic toxemia were impressive. One case of streptococcic bacteriemia recovered after two injections without secondary localization. Another case of bacteriemia recovered after six injections, also without development of secondary localization. The other two cases of bacteriemia were rather prolonged. One had an embolus in the pons with crossed paralysis and was in the hospital 160 days. The two patients that died were desperately ill on admission and went rapidly to a fatal termination without being helped by the magnesium injections. One developed panophthalmitis just before death. The other had an intense hematogenous jaundice.

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## Philadelphia Neurological Society.

At a stated meeting held November 28 Dr. Charles S. Potts presented a specimen of "Tumor of the Right Temporosphenoidal Lobe in Which the Only Symptoms Were Mental, with Intense Papilledema." The patient was a blacksmith, 32 years old, who for a year had complained

of headache, with impairment of memory, and disorientation as to time and place. On one occasion he fell in an attack of what he designated "blind staggers" without convulsions or loss of consciousness. At a later period causeless vomiting took place. The gait was ataxic, as in cases of cerebellar disease, with a tendency in walking to fall toward the right. The right pupil was larger than the left and immobile, and there was marked papilledema of the corresponding optic disc. There was no history of syphilis and the Wassermann reaction was negative. Consciousness became clouded and a decompression operation was performed, but the patient failed to respond, and death ensued. On post-mortem examination a tumor was found infiltrating the right temporosphenoidal convolution, and histological investigation proved it to be a glioma.

Dr. William Drayton, Jr., presented "A Case of Spasmodic Torticollis." The patient was a postman, about 28 years old, with a history of gonorrhea, but none of syphilis, who, however, presented suggestive specific symptoms and also a positive Wassermann reaction. On a given occasion he had suddenly thrown his head back forcibly and he was immediately seized with pain in the nape of the neck, followed by the development of torticollis. Marked improvement followed treatment with salvarsan, mercury, and deep, vigorous massage of the involved area.

Dr. Francis X. Dercum demonstrated "A Case of Aphasie Motrice Pure (Déjerine) or Anarthrie (Marie)." The patient was a machinist, about 48 years old, who suddenly developed paralysis of the entire right side of the body, with loss of the power of speech. Ability to read and to write both from dictation and from copy, however, remained. A positive Wassermann reaction being obtained, salvarsan was introduced into a vein and active mercurial treatment was instituted. Improvement in the symptoms speedily took place and articulate and intelligent speech gradually returned.

Dr. Charles K. Mills presented a communication entitled "Impressions of the Recent International Congress, Especially with Reference to Neurology and Its Representatives."

Drs. F. X. Dercum, T. H. Weisenburg, and W. G. Spiller made remarks on the same subject.

## State Medical Licensing Boards.

### STATE BOARD EXAMINATION QUESTIONS

State Board of Medical Examiners for the State of Texas.

*Austin, June 24-26, 1913.*

ANATOMY.

1. Give the course and distribution of the trifacial nerve.
2. Name and give the origin of the arteries supplying the stomach, small intestines, large intestines.
3. Give the course and branches of distribution of the femoral artery.
4. Name the ligaments of the knee-joint.
5. Name the structures forming the larynx.
6. Give the formation of the brachial and lumbar plexuses and name main branches given off from each.
7. Enumerate the bones forming the orbit.
8. Give origin, insertion, nerve supply, and action of the pronator radii teres muscle.
9. Describe the diaphragm, its principal openings and nerve supply.
10. Give the characteristic points of cervical, dorsal, and lumbar vertebræ.

PHYSIOLOGY.

1. Give average normal temperature, rate of pulse and of respiration in (*a*) the infant, (*b*) the adult, (*c*) the aged.
2. Define protoplasm, and give the characteristic properties of living protoplasm.
3. Describe the heart sounds, and state to what they are due.
4. What digestive changes take place under the influence of saliva and of gastric juice.
5. State the origin and function of bile; give quantity secreted in twenty-four hours.
6. Describe the process by which digested food is absorbed.
7. Describe the physical properties of the blood, and name its constituents.
8. State origin of urea in the body; give average amount excreted in twenty-four hours.
9. Give function of (*a*) medulla oblongata, (*b*) the cerebellum.
10. Describe in detail how the placenta performs its function.

CHEMISTRY.

1. Complete the following equation: $NaCl + H_2SO_4 =$ ——— and name resultant compounds.
2. Differentiate ethyl alcohol from methyl alcohol, giving formula of each.
3. Name three extensively used carbon compounds which under certain conditions are dangerous to life.
4. State source of cyanogen gas and name two most important compounds.
5. Give a reliable test for nitrites.
6. (*a*) From what is the alkaloid muscarin derived; (*b*) give symptoms of poisoning; (*c*) fatal dose; and (*d*) physiological antidote.
7. How would you test water suspected of sewage contamination?
8. Describe a reliable method of determining the quantity of urea in a specimen of urine.
9. Describe a test for (*a*) albumin, (*b*) sugar, (*c*) pus, (*d*) blood, (*e*) indican, and (*f*) chyle.
10. Name chemical antidote for nitrate of silver or lunar caustic, and say how it acts.

PHYSICAL DIAGNOSIS.

1. State physical signs of pyloric stenosis.
2. Differentiate lobar from bronchopneumonia.
3. Give the physical signs of Raynaud's disease and describe the different grades.
4. State the principal diagnostic symptoms of scarlatina, diphtheria, variola, rubeola.
5. What is Cheyne-Stokes' respiration, Argyll-Robertson's pupil, Widal's test, Wassermann's reaction, Koplik's spots?
6. State briefly the principal diagnostic points of tetanus, exophthalmic goiter, chorea.
7. What are the plantar reflexes. What is the diagnostic value of the plantar reflexes.
8. In aortic and mitral insufficiency, where is the murmur heard most distinctly, and what is its direction of transmission.
9. Give differential diagnosis in ascites and cystic ovary.
10. Give differential diagnosis in cerebrospinal meningitis and acute anterior poliomyelitis.

### ANSWERS.

ANATOMY.

1. Trifacial nerve. *Superficial origin:* From the side of the pons Varolii. *Deep* (sensory root), from the medulla and upper part of cord; (motor root) from the floor of fourth ventricle and side of the aqueduct of Sylvius. *Exit:* The ophthalmic division, through the sphenoidal fissure; the superior maxillary division, through the foramen rotundum; the inferior maxillary division, through the foramen ovale. *Ophthalmic branch* distributed to conjunctiva, skin of upper eyelid, cornea, skin of forehead, and nose, lacrymal gland. *Superior maxillary,* to skin and conjunctiva of lower eyelid, nose, cheek, upper lip, upper teeth, and palate. *Inferior maxillary,* to external auditory meatus, side of head, mucous membrane of mouth, anterior two-thirds of tongue, lower teeth, and skin of lower part of face. Also to muscles as indicated below. It supplies sensation to all the parts mentioned above; but, in addition, inferior maxillary supplies motion to the muscles of mastication, the mylohyoid, and anterior belly of the digastric.

2. The *stomach* is supplied by the gastric (from celiac axis), pyloric (from the hepatic), right gastroepiploic (from the gastroduodenal), left gastroepiploic and vasa brevia (from the splenic). The *duodenum,* by the pyloric and pancreaticoduodenal (from the hepatic), the inferior pancreaticoduodenal (from the superior mesenteric). The *rest of the small intestine,* by branches of the superior mesenteric (from abdominal aorta). The *large intestine,* by the ileocolic, right colic, and middle colic (from the superior mesenteric); left colic, sigmoid, and superior hemorrhoidal (from inferior mesenteric). The *rectum,* by superior hemorrhoidal (from inferior mesenteric); middle hemorrhoidal (from internal iliac), and inferior hemorrhoidal (from internal pudic).

3. The femoral artery is the continuation of the external iliac, beginning behind Poupart's ligament, passing down the front and inner side of the thigh, and terminating at the opening in the adductor magnus, where it becomes the popliteal artery. It passes through Scarpa's

triangle. *Branches.* Superficial epigastric, superficial circumflex iliac, superficial external pudic, deep external pudic muscular, anastomotica magna, and profunda femoris (with branches, external circumflex, internal circumflex, and three perforating).

4. *The ligaments of the knee-joint* are: Capsular, anterior, posterior, internal lateral, two external lateral, external crucial, internal crucial, transverse, coronary, and two semilunar fibrocartilages.

5. *Structures forming the larynx:* Nine cartilages, viz., thyroid, cricoid, epiglottis, two arytenoids, two cornicula laryngis, and two cuneiform. The thyrohyoid membrane, cricothyroid membrane, thyroarytenoid ligaments, capsular ligaments, hyoepiglottic ligament, thyroepiglottic ligament; and, interiorly, the vocal cords.

6. The *brachial plexus* is formed by the union and subsequent division of the anterior divisions of the fifth, sixth, seventh, and eighth cervical and the first dorsal nerves. The union of the fifth and sixth makes the upper trunk; the seventh forms the middle trunk, and the eighth cervical and first dorsal make the lower trunk. Each of these trunks is divided into an anterior and a posterior branch. The anterior branches, from the upper and middle trunks, make the upper or outer cord of the plexus; the anterior branch of the lower trunk becomes the lower or inner cord; the three posterior branches unite to form the posterior or middle cord. The plexus lies between the Scalenus anticus and medius. The *branches* are: (1) Above the clavicle; communicating, muscular, posterior thoracic, and suprascapular. (2) *From outer cord:* External anterior thoracic, musculocutaneous, and outer head of median. (3) *From inner cord:* Internal anterior thoracic, lesser internal cutaneous, ulnar, and inner head of median. (4) *From posterior cord:* Subscapular, circumflex, and musculospiral.

The *lumbar plexus* is formed by the union of the anterior divisions of the first four lumbar nerves. The arrangement of the plexus is variable. The iliohypogastric and ilioinguinal come from the first lumbar nerve; the genitocrural comes from the first and second; the obturator comes from the second, third, and fourth; the external cutaneous comes from the second and third; the anterior crural comes from the second, third, and fourth; the accessory obturator, from the third and fourth.

7. The *bones which form the orbit* are: Sphenoid, ethmoid, superior maxillary, malar, lacrymal, frontal, and palate.

8. Pronator radii teres. Origin: Just above the internal condyle of the humerus and the common tendon, the fascia of the forearm and intermuscular septum, and from the inner side of the coronoid process of the ulna. *Insertion:* The middle of the outer surface of the shaft of the radius. *Nerve supply:* Median. *Action:* Rotates the radius upon the ulna; if the radius is fixed, it helps in flexing the forearm.

9. The *diaphragm* is a musculofibrous septum which divides the thoracic from the abdominal cavity; it is fan-shaped; the broad, elliptical portion is horizontal, and the crura are vertical. It is attached to the ensiform, to the internal surfaces of the lower six costal cartilages, to bodies and intervertebral substances of first, second, and third lumbar vertebræ. Its *openings* are: (1) The aortic, transmitting the aorta, vena azygos major, and the thoracic duct; (2) the esophageal, transmitting the esophagus, pneumogastric nerves, and some small esophageal arteries; (3) the opening for the vena cava, transmitting the inferior vena cava, and small branches of the right phrenic nerve; (4) the right crural, transmitting the right splanchnic nerves; (5) the left crural, transmitting the left splanchnic nerves and the vena azygos minor. *Nerve supply:* The phrenics, lower intercostals, and the phrenic plexus of the sympathetic.

10. The *cervical vertebræ* are distinguished by possessing a foramen in the transverse process. Further, they are smaller than those in the other regions; they have no facets for the ribs; the spinous processes are generally short and bifid; the spinal foramen is large and triangular; the superior articular process is directed upward and backward, and the inferior articular process is directed downward and forward.

The *thoracic vertebræ* have a heart-shaped body with a facet or demi-facet on each side for articulation with a rib; the laminæ are broad and deep; the spinous process is long and points downward; the transverse processes are long and articulate with the tubercle of a rib; the superior articular process is directed backward and slightly outward; the inferior articulate process is directed forward and slightly inward; the spinal foramen is smaller and circular.

The *dorsal vertebræ* have a large body, wider transversely, and with no facet or demi-facet; the laminæ are short and thick; the spinous process is horizontal; the transverse processes are "rudimentary"; the superior articular process is directed inward and slightly backward; the inferior articular process is directed outward and slightly forward; the spinal foramen is larger, and triangular.

PHYSIOLOGY.

1.

| | TEMPERATURE. | PULSE (per minute) | RESPIRATION (per minute) |
|---|---|---|---|
| Infant. | 98.6 to 99.6 F. | About 115 to 130 | About 40 |
| Adult.. | About 98.6 F. | About 70 to 80 | About 16 to 18 |
| Aged.. | About 99°F. | About 60 to 70 | About 18 |

2. *Protoplasm* is the material of which cells are made; it is living proteid material. The *characteristic properties of living protoplasm* are: Power of movement, of absorption, of ingestion, of excretion, of growth, of reproduction, and of response to suitable stimulation.

3. There are two normal heart sounds which follow in quick succession, and are succeeded by a pause. The first, or systolic, sound is dull and somewhat prolonged; the second, or diastolic, sound is sharper and shorter. The sounds may be expressed by the syllables *lubb—dup.*

The first sound is heard best at the apex beat in the fifth left intercostal space; the second sound is heard best over the second right costal cartilage.

The *causes* producing the *first* sound of the heart are not definitely ascertained; the following are supposed to be causatory factors: (1) the vibration and closure of the auriculo-ventricular valves, (2) the muscular sound produced by the contraction of the ventricles, and (3) the cardiac impulse against the chest wall.

The *second* sound is caused by the vibration due to the closure of the semilunar valves.

4. The *ptyalin* of the *saliva* converts cooked starch into maltose. The *gastric juice* converts proteids into proteoses and peptones and curdles milk.

5. *Bile* is *formed* in the liver cells. The *functions of bile* are: (1) to assist in the emulsification and saponification of fats; (2) to aid in the absorption of fats; (3) to stimulate the cells of the intestine to increased secretory activity, and so promote peristalsis, and at the same time tend to keep the feces moist; (4) to eliminate waste products of metabolism, such as lecithin and cholesterin; (5) it has a slight action in converting starch into sugar; (6) it neutralizes the acid chyme from the stomach, and thus inhibits peptic digestion; (7) it has a very feeble antiseptic action. The *quantity secreted* in twenty-four hours is said to vary between 500 c.c. and 1000 c.c.

6. The products of digestion find their way into the blood by two routes: (1) By the blood-vessels of the gastrointestinal tract, which unite to form the portal vein, and (2) by the lymph vessels of the small intestine, which converge to empty into the thoracic duct. The water, inorganic salts, proteids and sugar go by way of the portal vein to the ascending vena cava; and the fats go by way of the thoracic duct to the junction of the left subclavian and internal jugular veins.

The process by which absorption is accomplished is partly physical (osmosis and filtration), and is also due in part to selective action. To be absorbed by the blood-vessels or lacteals the substances must be in a fluid state, and the more dilute the solution the more rapid the absorption. The absorbed matter must be rapidly removed and fresh blood supplied to the capillaries.

7. The *physical properties of blood:* Fluid, somewhat viscid, red, specific gravity from 1055 to 1062, alkaline reaction, saltish taste, characteristic odor, variable temperature (average about 100° F.).

The *constituents of the blood* are:

1. Plasma.
2. Corpuscles { Colored. Colorless. Blood-plates.

8. "The greater part of the urea produced in the body is formed in the liver. The liver cells form the urea from two sources: (1) The larger amount, produced by the liver cells, is derived from the aminoacids which have been absorbed from the small intestine, and which are not required by the tissues; this constitutes the *exogenous urea.* (2) The smaller amount, produced by the liver cells, is derived from the ammonium carbonate, which is derived from the tissues; some is also produced by the action of the uricolytic enzyme upon uric acid; this constitutes the *endogenous urea.*" (Lyle's *Physiology.*) The

average amount of urea excreted in twenty-four hours is about 500 grains.

9. The *functions of the medulla oblongata:* (1) It is a conductor of nervous impulses or impressions from the cord to the cerebrum, from the brain to the spinal cord, also of coordinating impulses from the cerebellum to the cord; (2) it contains collections of gray matter which serve as special nerve centers for the following functions or actions; respiration, salivary secretion, mastication, sucking, deglutition, vomiting, voice, facial expression; it also contains the cardiac and vasomotor centers.

*Functions of the cerebellum:* Coordination of muscular movement, the maintenance of equilibrium.

10. "For the purposes of understanding its general function it is sufficient to recall that the placenta consists essentially of vascular chorionic papillæ from the fetus bathed in large blood-spaces in the decidual membrane of the mother. The fetal and the maternal blood do not come into actual contact; they are separated from each other by the walls of the fetal blood-vessels and the epithelial layers of the chorionic villi, but an active diffusion relation is set up between them. Nutritive material, proteid, fat, and carbohydrate and oxygen pass from the maternal to the fetal blood, and the waste products of fetal metabolism—carbon dioxide, nitrogenous wastes, etc.—pass from the fetal to the maternal blood. . . . We are far from having data that would justify us in supposing that the exchange between the two bloods is effected by the known physical processes of osmosis, diffusion, and filtration. . . . It is generally assumed that the chorionic villi play an active part in the process." (Howell's *Text-book of Physiology.*)

CHEMISTRY.

1. $NaCl + H_2SO_4 = NaHSO_4 + HCl$.

The resulting compounds are monosodic sulphate and hydrochloric acid.

2. Ethyl alcohol is $C_2H_5OH$; it boils at 173° F., and solidifies at —203° F. It attracts moisture from the air. On oxidation it gives ethyl aldehyde and acetic acid.

Methyl alcohol is $CH_3OH$; it boils at 151° F; it is not much affected by exposure to air, and when burned it gives less heat than ethyl alcohol does. On oxidation it gives methyl aldehyde and formic acid.

3. Ether, chloroform, and chloral.

4. Cyanogen gas may be obtained by heating the cyanide of silver or of mercury.

Two compounds: Potassium cyanide, and hydrocyanic acid.

5. *Test for nitrites:* (1) A solution of potassium permanganate is promptly decolorized by nitrites. (2) On addition of dilute sulphuric acid, a yellow gas ($N_2O_3$) is given off.

6. *Muscarine* is derived from some poisonous mushrooms, also from putrefying fish. *Symptoms of poisoning:* Increased secretion of saliva and tears, vomiting, diarrhea, contraction of pupils, slow pulse, cold perspiration, diminished respiration, and death. The *physiological antidote* is atropine. The fatal dose is small, probably 1/10 of a grain might cause death.

7. Water suspected of sewage contamination can be tested by being boiled with a solution of potassium permanganate of known strength. One liter of water should not decolorize ten milligrams of pure potassium permanganate when acidified with five cubic centimeters of sulphuric acid, and boiled for ten minutes.

8. A comparatively easy test for *urea* is that of Fowler, based upon the loss of the specific gravity of the urine after the decomposition of the urea of hypochlorite. "To apply this method the specific gravity of the urine is carefully determined, as well as that of the liquor sodæ chlorinatæ (Squibb's). One volume of the urine is then mixed with exactly seven volumes of the liquor sodæ chlorinatæ, and after the first violence of the reaction has subsided, the mixture is shaken from time to time during an hour, when the decomposition is complete; the specific gravity of the mixture is then determined. As the reaction begins instantaneously when the urine and reagent are mixed, the specific gravity of the mixture must be calculated by adding together once the specific gravity of the urine and seven times the specific gravity of the liquor sodæ chlorinatæ, and dividing the sum by eight. From the quotient so obtained the specific gravity of the mixture after decomposition is subtracted: every degree of loss in specific gravity indicates 0.7791 gram of urea in 100 c.c. of urine. The specific gravity determinations must all be made at the same temperature; and that of the mixture only when the evolution of gas has ceased entirely."—(Witthaus' *Manual of Chemistry.*)

9. *Test for albumin:* "The urine must be perfectly clear. If not so, it is to be filtered, and, if this does not render it transparent, it is to be treated with a few drops of magnesia mixture, and again filtered.

"The reaction is then observed. If it be acid, the urine is simply heated to near the boiling point. If the urine be neutral or alkaline, it is rendered *faintly* acid by the addition of dilute acetic acid, and heated. If albumin be present, a coagulum is formed, varying in quantity from a faint cloudiness to entire solidification, according to the quantity of albumin present. The coagulum is not redissolved upon the addition of nitric acid."

*Test for sugar:* First remove any albumin that may be present, then "render the liquid strongly alkaline by addition of sodium carbonate. Divide about 6 c.c. of the alkaline liquid in two test-tubes. To one test-tube add a very minute quantity of powdered subnitrate of bismuth, to the other as much powdered litharge. Boil the contents of both tubes. The presence of glucose is indicated by a dark or black color of the bismuth powder, the litharge retaining its natural color."

*Chemical test for blood in the urine:* To the urine add a solution of potassium hydroxide to distinct alkaline reaction; heat nearly to boiling (do not boil). A red precipitate is produced.

*For pus in the urine:* Acidify the urine with acetic acid, then filter it, and treat the filter with a few drops of freshly prepared tincture of guaiacum; a deep blue color denotes the presence of pus.

*Test for indican in the urine:* The urine is mixed with one-fifth its volume of 20 per cent. solution of lead acetate and filtered. The filtrate is mixed with an equal volume of fuming hydrochloric acid containing 3:1000 of ferric chloride, a few drops of chloroform are added, and the mixture strongly shaken one to two minutes. With normal urine the chloroform remains colorless, or almost so; but if an excess of indoxyl compounds be present the chloroform is colored blue, and the depth of the color is a rough indication of the degree of the excess. (From Witthaus' *Essentials of Chemistry.*)

In *chyluria,* the urine contains granular corpuscles like leucocytes and finely divided fat globules. The urine may be milky in color and contain filariæ.

10. The chemical antidote for nitrate of silver is sodium chloride.

It acts by forming the insoluble silver chloride:

$$AgNO_3 + NaCl = AgCl + NaNO_3.$$

PHYSICAL DIAGNOSIS.

1. *Physical signs of pyloric stenosis:* The stomach is dilated, and the outline shows the distention; palpation shows a tumor at the pylorus and also extended gastric peristalsis; succussion sounds may be elicited; a tympanitic note may be elicited on percussion if the stomach is empty, and this note extends to or below the umbilicus.

2.

| LOBAR PNEUMONIA. | BRONCHOPNEUMONIA. |
|---|---|
| Generally a primary disease. | Generally secondary (to bronchitis or an infectious disease). |
| Age has little influence. | Generally found in very young or very old. |
| Sudden onset. | Gradual onset. |
| Fever is high and regular. | Fever is not so high, and is irregular. |
| Ends by crisis between sixth and tenth day. | Ends by lysis, at no particular date. |
| Generally only one lung affected. | Generally both lungs affected. |
| The physical signs are distinct, and there is a large area of consolidation. | Physical signs indistinct, and the evidences of consolidation are indefinite. |
| Sputum is rusty. | Sputum is rather streaked with blood. |

3. *Raynaud's disease.* "The onset is sudden. Two or three fingers of both hands are usually involved. At first, or in a mild form, there is coldness, numbness, and waxy pallor of the fingers. They feel as if dead, the skin appears shrunken and there is slight anesthesia. This condition disappears, but returns again, and may become almost constant. All the fingers may be affected, more rarely the toes, tip of the nose, and the ears. This mild form (*digiti mortui,* dead fingers, local syncope) is due to a slight exposure to cold. In the more severe form the fingers are blue and swollen. There are burning sensations and much pain, without anesthesia. Gangrene follows this "local asphyxia." In the gangrenous stage the tips of the fingers become the seat of small blisters, which fill with bloody serum and then dry up. Beneath the scab

thus formed a shallow ulceration begins, which soon heals and leaves a scar. Occasionally hematuria may be present. The condition of *digiti mortui* may last a few days or weeks, perhaps months. The gangrenous stage usually continues for about three weeks." (Butler's *Diagnostics of Internal Medicine.*)

4. *Scarlatina:* Period of incubation, from a few hours to seven days. Stage of invasion, twenty-four hours. Character of eruption, a scarlet punctate rash, beginning on neck and chest, then covering face and body; desquamation is scaly or in flakes. The eruption is bright red on a red background, punctiform, and is uniform; the temperature is high, the pulse quick; the tongue is of the "strawberry" type; the lymphatics in the neck may be swollen, and there is sore throat; Koplik's spots are absent.

In *diphtheria* the onset is gradual; the temperature rises to about 101° to 103° F.; the tonsils are not much enlarged; there is an exudate of a thick grayish membrane which is very adherent, is removed only with difficulty, and leaves a bleeding surface; this membrane soon reforms, and may be found on the fauces and pharynx as well as on the tonsil; in the exudate the Klebs-Loeffler bacilli may be found.

*Variola:* The eruption usually appears first on the forehead and wrists, and on the third or fourth day; it is first macular, then papular, then vesicular, and finally pustular; it does not appear in successive crops; the spots are multilocular, and do not collapse on being punctured; the papule is hard and shotty, and does not disappear on stretching the skin.

*Rubeola:* Period of incubation ten to twelve days. Stage of invasion, four days. Character of eruption, small, dark red papules with crescentic borders, beginning on face and rapidly spreading over the entire body; desquamation is branny. As compared with scarlatina, the eruption is darker, less uniform, more shotty; the temperature is lower, pulse slower, the tongue is not of the "strawberry" type; coryza, coughing, and sneezing may be present; Koplik's spots are present.

5. In *Cheyne-Stokes respiration* the respirations gradually increase in volume and rapidity until they reach a climax, when they gradually subside, and finally cease for from ten to forty seconds, when the same cycle begins again.

*Argyll-Robertson pupil* is a condition in which the pupil accommodates for distance but not for light.

*Widal test* is an agglutination test more or less relied on in the diagnosis of typhoid fever. It depends upon the fact that serum from the blood of a typhoid patient if mixed with a recent culture of typhoid bacilli will cause the latter to lose their motility and gather in clumps.

*Wassermann's reaction* is said to be diagnostic of syphilis. A watery extract of syphilitic fetal liver is used as the antigen to fix the syphilitic immune body in the serum.

*Koplik's spots* are small red spots with a bluish central area, found on the buccal mucous membrane, in measles.

6. *Tetanus:* Dysphagia; pain and stiffness in the muscles of the lower jaw and neck; tonic spasms of the muscles of the back, legs, and abdomen; the jaws become rigid and locked; opisthotonus and risus sardonicus are present.

*Exophthalmic goiter:* Protrusion of the eyeball, goiter, tachycardia, and muscular tremor.

*Chorea:* Irregular, spasmodic, fibrillary movements of groups of muscles, made worse by excitement; irregular and tumultuous heart action.

7. *"The plantar reflex* is produced by tickling or scratching the soles of the feet. This causes usually, when carefully done, a slight flexion of the toes. In many cases there is, however, no response. In irritable persons and children there is a sudden dorsal flexion of the foot, and often a contraction of the inner hamstring muscles. In pathological conditions involving the pyramidal tracts of the cord or even the motor centers and tracts in the brain there is a dorsal extension of the great toe. This is called the sign of Babinski. A similar phenomenon, *i.e.*, extensor response of the big toe, is produced by firmly compressing the muscles of the calf (Gordon reflex), and by causing the patient to draw his leg up sharply flexing the thigh on the abdomen and the leg on the thigh (Oppenheimer flex). With this dorsal flexion of the toe there is usually a slight plantar flexion of the other toes." (Dana's *Nervous Diseases*).

8. In *mitral insufficiency* there is a blowing murmur, heard best near the apex, systolic, transmitted to left axilla and under left scapula; it modifies or replaces the first sound. In *aortic insufficiency* the murmur is soft and blowing, is heard best over the aortic area, is diastolic, is transmitted down the sternum, and modifies or replaces the second sound.

9.

| ASCITES. | OVARIAN CYST. |
|---|---|
| 1. Previous history of visceral disease. | 1. No such history. |
| 2. Enlargement comparatively sudden. | 2. Gradual. |
| 3. Face puffy; color waxy; early anemia. | 3. Facies ovariana. Anemia absent, or later. |
| 4. Patient on back, enlargement symmetrical; flat in front. | 4. Asymmetrical until tumor is quite large; prominent in front. |
| 5. Sitting up, abdomen bulges below. | 5. No appreciable change. |
| 6. Navel prominent and thinned. | 6. Navel usually unchanged. |
| 7. Fluctuation decidedly clear, diffuse throughout abdomen, but avoids highest parts in all positions, and always has a hydrostatic level. | 7. Less clear; limited to cyst; not modified by change of position. No hydrostatic level. |
| 8. Intestines float on top of fluid; hence percussion gives clear tympanitic note over the highest parts of abdominal cavity, and dullness in lowest parts for all positions, *i.e.* areas of resonance and dullness change with position. | 8. No change in areas of dullness and resonance with change of position. Dullness over cyst. Clear resonant note in all parts beyond cyst limits, *i.e.* in flanks and toward the diaphragm. |
| 9. Vaginal touch detects fluctuation, bulging into vagina. | 9. Vaginal fluctuation less clear or absent. |
| 10. Uterus in prolapsed location, but position unchanged. Size and mobility unchanged. | 10. Uterus displaced forward or backward, or laterally by pressure of cyst. |
| 11. Hydragogues and diurectics temporarily remove the fluid. | 11. Medicines have no effect. |
| 12. Fluid light straw color and thin. Coagulates spontaneously. | 12. Fluid light or dark and of varying consistency; albuminous, but does not coagulate spontaneously; may contain colloid matter. |

(Dudley's *Gynecology.*)

10. *Symptoms of acute anterior poliomyelitis:* Some fever, chills, and convulsions may precede the paralysis, or the onset may be sudden; certain groups of muscles (generally in the extremities) are paralyzed; hemiplegia is rare; the reflexes are generally lost; the paralysis is irregular in its distribution, and tends to ameliorate, but the recovery is only partial; the affected muscles waste, and the limb is cold and livid.

*Cerebrospinal meningitis* begins with a chill, vomiting or convulsions, and rise of temperature. The pulse is full and strong. There are hypersensitiveness to light, sound, and touch and excruciating pain in the head, back, and limbs. A petechial rash appears and sometimes herpes is present. Leukocytosis is the rule. The urine is scanty, high colored, and may be albuminous. If the meninges of the brain are most involved, delirium, stupor, semiconsciousness, paralysis of the ocular muscles, disturbed vision, and deafness may be present; if those of the cord are most affected, there will be opisthotonos, hyperesthesia, paresthesia, rigidity and tremor of the extremities, localized spasms, and convulsions. *Kernig's Sign*—The patient should be propped up in bed in the sitting posture; then, on attempting to extend the leg on the thigh, there is contraction of the flexors, which prevents the full straightening of the leg. In the recumbent position the leg can be extended. *The diagnosis* is made by the history, mode of onset, character of the eruption, absence of physical signs, symptoms, and lumbar puncture. (*Pocket Cyclopedia.*)

*(To be continued.)*

**The Tuberculous Soil in Gonorrheal Arthritis.**—L. Tomassi refers to the teaching of Pellizzari that gonorrheal arthritis occurs only in individuals predisposed to or suffering from tuberculosis. He cites his own clinical experience in support of this view. In fact, gonorrheal arthritis may serve as the first indication of the tuberculous habitus, and demands a dual treatment, that of the local joint condition and that of the constitutional disease caused by the bacillus of Koch. —*La Riforma Medica.*

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## Original Articles.

### THE DIAGNOSIS AND TREATMENT OF LUMBOSACRAL PELVIC PAIN.*

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I ACCEPTED the invitation to take part in this symposium rather impulsively. When I received it I was suffering from a sharp attack of lumbago, and it seemed to me that so far as the diagnosis and symptomatology of that particular form of lumbosacral pain were concerned I had nothing to learn and a great deal to say. After my letter of acceptance had been dispatched I noticed, what had previously escaped my attention, that the treatment of the various forms of lumbosacral pelvic pain were to be discussed and began to reflect upon the inefficacy of treatment in my own case. I then regretted that I had been so impulsive.

The commonest form of lumbar pain is undoubtedly lumbago. Very few escape it. Some have had it in their youth and outlived it, or think they have; some have outlived their youth and have not yet suffered from it, but they are a negligible quantity, and even they are not immune. In most cases the patient, if he is well advanced in years, will tell you that he has suffered from it at intervals of months, or even years, in early manhood, in middle life, and in old age. It is not, in my experience, a disease of adolescence. I have had such a personal interest in lumbago that I have looked up the word in the lexicon. It is not a classical word. It was first employed by a certain Sextus Pompeius Festus, a grammarian, who wrote in the early part of the eighth century, A. D. The fact that the first person who used the word was a grammarian suggests the idea that he suffered from the affection himself and coined the word which, ever since his time, has been applied to it. He defines lumbago as a "vitium et debilitas lumborum." The word vitium, literally vice, naturally suggests the idea of syphilis, but there is no causal association between lumbago and syphilis. I do not mean to imply that they are mutually exclusive, but, in my experience, the syphilitic are no more liable to lumbago than the non-syphilitic. The sufferer from lumbago has sometimes almost wished that the affection were syphilitic, for in that case he would have specific remedies at his command.

The diagnosis of lumbago is, in most cases, a very simple matter. Its sudden onset in the midst of health, usually after some trivial exertion, such as lifting a child from the ground, putting up a dumbbell, or even leaning over to tie one's shoestrings, with the simultaneous conversion of a yielding and flexible into a rigid and painful spine—these symptoms, together with the seat of the pain in the lumbosacral region are usually all sufficient. Tenderness on deep pressure over the sacroiliac symphysis may usually be elicited, and it is sometimes limited to one side or, if bilateral, is greater on one side than the other. The general health is usually not in the least impaired. Now, while the disease seems generally to be caused by some kind of muscular exertion, it will be found on careful inquiry or equally careful introspection that there were some slight premonitions of the attack beforehand. In other words, the disease was already present when the movement called into play the muscles and tendinous structures involved in it. Or one might almost suppose that the disease was present, but unperceived until the muscular movement had, in some unknown way, opened up paths of sensory conduction which had been previously blocked.

I have said that the diagnosis of lumbago is easy, but I have known it to be confounded with abdominal aneurysm. I was once *particeps criminis* in such a diagnostic blunder. At the time, it was in the seventies, I was one of Dr. Strawbridge's assistants at his eye infirmary. The patient was a young man with syphilitic retinitis. I can recall him to mind most distinctly; I even remember his name. His eye-ground presented such a beautiful picture that we encouraged him to come almost daily to the infirmary and we gazed at his retina while he complained bitterly of his backache. We attributed it to syphilis and were right in so doing. One Sunday morning Dr. Strawbridge received word that this patient, in whom he took a great interest, had suddenly died, and he summoned me and his other assistant, Dr. Nancrede, to go with him to the man's house to make an autopsy. It did not take us long to find the cause of the lumbago. The abdominal cavity was filled with clots from a huge ruptured aneurysm which had deeply eroded the bodies of two or three of the lower lumbar vertebræ. I have never made the same mistake again, but I came very near it a few years ago at the Philadelphia Hospital. I was going through the ward with my resident, who had just completed his term of service in the neurological department and knew the name of every reflex, tendinous or cutaneous, and seemed especially interested in the subject of spasticity. He called my attention to a patient who was seated in the chair at the foot of his bed in a doubled-up attitude and told me that he ought to be transferred to one of the so-called nervous wards. On asking his reasons for this opinion I was told that the man had all sorts of exaggerated reflexes and a well-marked spastic paralysis. The backache which was the man's chief complaint seemed to be a minor consideration. I did not examine the patient, but consented to my resident's request that one of the chiefs

*Read at the meeting of the College of Physicians of Philadelphia on December 3, 1913.

of the neurological department should be consulted. This chanced to be Dr. Burr, who found the patient in bed, and on turning down the bedclothes to examine him detected an abdominal aneurysm as big as a football. I never saw any one more mortified than my resident, who was kind enough to acquit me of all responsibility in this case of mistaken diagnosis on the ground that I had never examined the patient. Shortly afterward the aneurysm ruptured and the cause of the spastic paralysis and of the lumbago was plainly manifest. The lumbar vertebræ were eroded to such an extent as to lay bare the anterolateral columns of the cord.

Obstinate "lumbago" in the female should invariably lead to a uterine examination. I recall the case of a woman of fifty who had suffered for more than a year with severe "lumbago." She also had rheumatoid arthritis, which association had misled others into the belief that the "lumbago" was rheumatic. On uterine examination I found the cervix occluded by a fibroid polypus almost as large as a walnut. It was removed with immediate and permanent relief of the lumbago. The case is reported in detail in Vol. VIII, Path. Soc. Trans. Phila.

The so-called typhoid spine, to which attention was first called by Gibney of New York, is an affection of which I have had little experience, and that fact is sufficient to make me doubt its connection with typhoid fever. I say so because I have been in continuous service in large hospitals in this city since 1874, when I was elected visiting physician to the Episcopal Hospital, and during this period of about forty years have, as a matter of course, treated many hundreds of cases of typhoid fever. It seems to me, therefore, that if there existed any regular association between spondyilitis, or perispondylitis, or any other affection of the spine, and typhoid fever, it would not have escaped my attention.

The spondylose rhizomélique of Marie is neither more nor less than osteoarthritis of the intervertebral articulations, but its symptoms are so definite and so peculiar as to justify its separate place in nosology. Leaving lumbar pain out of the question, although that is the only symptom which warrants me in referring to the disease, it is recognized when well advanced by spinal rigidity, cervical kyphosis, and the regular involvement of the shoulder and hip joints.

There is one variety of lumbar pain of which the diagnosis is of the utmost importance. I refer to the pain, which may be intense, that is dependent upon metastatic carcinoma of the vertebræ. When the primary seat of carcinoma is the breast the metastasis referred to may occur and the question of operation under such circumstances is one which, I believe, would be decided by most surgeons in the negative. The diagnosis of this condition, *i.e.* the decision whether metastasis has or has not, occurred, can only be the result of the most careful investigation of the sensation and motion and reflexes of the parts inervated by the painful spinal area. I recently had under my care a patient, seen also by Drs Gibbon and Spiller, whose case illustrated the vital importance of this differential diagnosis.

To return to the subject of lumbago. This word, like indigestion and jaundice and every other symptomatic term, is liable to abuse. In speaking of indigestion I once remarked (see preface of the seventh edition of Flint's "Practice of Medicine") that it is a "serviceable cloak for ignorance but had been worn threadbare and is about to be discarded." The same is not altogether true of lumbago. It is undoubtedly a serviceable cloak for ignorance, but it is not likely to be discarded because it is the name of a genuine disease for which, as yet, we have none that is better. So far as I know, Gowers has done more to elucidate the obscure subject of lumbago than anyone else (*British Med. Jour.*, January 16, 1904). There are some diseases which we look at as through a glass darkly, while of others which we now see face to face it may be said that there was a time when we were actually looking away from them. Notable instances of these latter are malaria, yellow fever, infantile paralysis, and many others. Of lumbago it can be said that while we may not yet be seeing it face to face, we are, at least, not looking at it back to back, *i.e.* away from it.

Gowers regards lumbago as an inflammation of the fibrous tissue of the muscles and not of the sensory nerve endings, basing this opinion chiefly upon the fact that the disease, beginning apparently in the substance of the muscles, extends to the tendinous structures. By such extension sciatica, *i.e.* inflammation of the sheath of the sciatic nerve, often arises. Gowers considers this extension of lumbago to the tendinous structures, and especially to the sheath of the sciatic nerve, as of fundamental importance in determining its nature, for if, says he, "a morbid process, by extension, presents itself as manifest inflammation, it must be originally inflammatory in nature." He acknowledges that the inflammation is of peculiar type, inasmuch as it does not produce induration or suppuration and coins the word *fibrositis* to designate it.

The same process, fibrositis, which gives rise to lumbago, is found, as a matter of course, in other muscles than those of the lumbosacral region. We are all familiar with it in the trapezius muscle, but, according to Gowers, it reaches its maximum severity in the muscles of the arm. He gives a vivid description of this brachial myalgia or muscular fibrositis, as he prefers to call it, and speaks of it as "a terrible malady." The slightest attempt at motion, either active or passive, causes the most intense pain and the joints of the shoulder, elbow, and wrist may be fixed as though by adhesions. When this affection is the result of an injury and involves the deltoid, fracture of the upper part of the humerus may be suspected. I have seen such cases before the days of the *x*-ray, when the patient had to be etherized in order to make a diagnosis. We are all familiar with a variety of sore throat in which, with no inflammation of the mucous membrane of the pharynx, there are pain and aching greatly exacerbated by deglutition. We call it rheumatic and treat it accordingly and often with brilliant success. It is due to the muscular fibrositis of Gowers as are also pleurodynia and other varieties of myalgia. Nevertheless we cannot take strict issue with those who apply to them the more popular term of neuritis for they all tend to involve the nerve sheaths and, in some cases, eventually the tissues of the nerve itself, with consecutive muscular weakness and atrophy and disturbance, or loss, of sensation. The fact appears to be that the distinction between the muscular fibrositis of Gowers and muscular neuritis is largely hypothetical, a distinction with little difference. The sensory structures of muscle, the so-called "*muscle spindles*," convey the sensations characteristic of lumbago, but their anatomical structure is such as to cause them

to be regarded as belonging to the fibrous tissue of muscle, "to that which sheathes and connects the muscular fibers, rather than to the latter." If, therefore, as Gowers maintains, lumbago is an affection of the interstitial muscular fibrous tissue, a muscular fibrositis, and the sensory nerve endings, the "muscle spindles" are part and parcel of that tissue, it stands to reason that myalgia and muscular neuritis are inseparable.

I have consumed most of the time at my disposal, but I have wasted none of it in discussing the fallacy that lumbago is the result of dislocation of the sacroiliac joint. I have no doubt that luxation or subluxation of this joint may occur and that it may be reduced by surgical manipulation. I have not, however, been speaking of a surgical affection. I have been discussing a variety of inflammation which is common to the muscles of the lumbosacral region and to those of the shoulder, the arm, the throat, the thorax, in a word, to the entire muscular system, and the fact of this general participation in the process is sufficient refutation of the fallacy to which I have alluded.

I will confine my remarks on treatment to the therapeutics of lumbago. The question whether lumbago is a manifestation of gout or articular rheumatism is an interesting one from the pathological standpoint, but has little bearing on therapeutics for, in most cases, the salicyl compounds and their congeners, as well as colchicum, are of not much avail. Gowers holds that the anamnesis will reveal that the victims of lumbago, while they may never have had a well defined attack of gout or rheumatism, are, in most cases, the descendants of gouty or rheumatic ancestors. They are suffering vicariously for the excesses of their progenitors, or, to employ the figure of the prophet Ezekiel: "The fathers have eaten sour grapes and the children's teeth are set on edge." Nevertheless, the salicyl compounds should be given a trial, especially at the beginning of the attack, and they will sometimes abort it. I have seen excellent results from a single large dose of quinine, meaning thereby from ten to twenty grains, administered at the onset of the affection. The late Dr. Fagge taught that lumbago is generally due to a hyperacid state of the urine and there are many who still hold this opinion. The indication, from this therapeutic standpoint, is to make the urine alkaline as rapidly as possible with sodium or potassium bicarbonate or potassium citrate which seems to be the favorite drug for this purpose employed by the English practitioners. Half-drachm or drachm doses of Rochelle salts are, I think, preferable. They may be administered every hour or two until the urine is alkaline and the bowels freely moved.

Lumbago affords one of the best examples of the importance of early treatment. The attempt to "walk it off," at its commencement, may succeed if the exercise is accompanied with free perspiration, but, in my experience, those who suffer from lumbago do not perspire readily. A Turkish bath in the early stage is safer and more effective than exercise. When the affection is established, rest is imperative. Then, also, local treatment consisting of dry cups, deep massage, and the faradic current should be instituted, and if the salicyl compounds and their numerous succedanea have failed, successful resort may be had to iodine. This drug I have found most efficient in its combination with a vegetable protein. I have had no experience with acupuncture which is strongly recommended by Osler.

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## DISORDERS IN CHILDREN BY IMITATION AND INDUCTION.

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### PHYSIO-PSYCHOLOGY.

The study of children reveals their extraordinary endowment of imitation; this constitutes a factor of fundamental importance, playing a paramount rôle in the evolution of psychic life in both the normal as well as the pathological direction. The origin of the properties that form human character, such as good or bad habits or emotions, to a great extent may be traced back to the age when instinctive imitation—unconscious of purpose and without judgment—represents almost the only psychic faculty; we may observe everywhere how this faculty influences and directs other impulses with irresistible force. Imitative-reactive actions are recognizable at a very early stage of life. They represent then, as a matter of course, a form of imitation that is of the lowest grade and purely without consciousness of purpose; only later does the understanding of the movements prompted by imitation supervene.

Even the nursling may give evidence of a neuropsychic contagion—however primitive—as, for instance, if one of several infants begins to cry, soon several others, often all, will follow suit. Or a single nursling likewise may begin to cry from hearing others cry. This kind of an imitative act occurs without volition—that is, without the apparent influence of a conscious will—giving rather the impression of a direct reflex action of a subcortical order.

The capacity of imitating, becoming later more complex and associative through the interpolation of consciousness, volition and purpose increases for some time during infancy and childhood, but it later decreases with growing intelligence and, finally it is the less, the higher the degree of the psychical development, the personal originality, the intellect acting as a kind of brake, inhibiting the imitation reflex, and coordinating it with the opposite motives of self-affirmation and independence. Yet, in no sphere of our life, esthetic, moral, practical, or theoretical, are we really free from the inclination to imitate; in fact, it is one of the fundamental and most important social instincts; and we can see in social life at all times the masses following and aping their leaders, and regulating their actions according to a standard with which they regularly compare themselves. Society is a fabric or structure, built up by the instinct of imitation in all its various forms, as custom, fashion, education, prejudices, heroic acts and crime or reflex-imitation, etc.; the spirit of the times in the political and business life is led by this basic force. Imitation and psychic contagion, however we may term the factors, that we shall consider here, have their cause in the "suggestion" or reflex receptibility which is a cardinal attribute of psychic life. They may operate upon one or several individuals, upon many or whole masses of persons; they may spread like an epidemic among mankind, leaving some unaffected, others only slightly influenced, and the rest deeply and forcibly stirred up.

The pronounced inclination of the young child to mimicry is evidently an indication that the stimuli which affect the eye or ear, pass through the nervous system without much cortical inhibition, thus calling forth immediately a reaction similar to that which the child sees or hears in another. Con-

sidering the coercive character of these imitative impulses we shall find them especially strong, and aggravated to a pathological degree, in the echokinesis (echomimie) and echolalia of some feeble-minded children, in dementia præcox, in psychic infantilism, etc., where there is lack of the physiological cortical control. Some idiotic children, indeed, are hardly able to refrain from immediately reproducing gestures or other movements that they see others executing, or from repeating automatically words or syllables just heard. Especially do the mongoloids yield to their uninhibited imitativeness. These conditions of reflex automatism, which represent to a certain degree a transitory evolutionary stage of the normal child, thus persist in these individuals. When existing in the presence of less marked psychic defects, they may be misinterpreted as naughtiness.

We shall encounter hysteria repeatedly in the course of our dissertation with its great suggestibility, not only the abnormally increased effectiveness of extraneous suggestion, but also of autosuggestion, as a prolific soil for the development of neuropathic or psychopathic imitation states.

### SPEECH DISTURBANCES.

The development of speech is founded upon the faculty of imitation. The earlier speech activities are only concerned with a purely instinctive form of imitation, in which the acts of another are repeated as accurately as possible, without necessarily any conscious purpose to imitate. The sensations of the vocal sounds made by others seem to discharge immediately in articulatory reactions in an almost reflex manner, more or less closely resembling the stimulus. The sensory (acoustic) impression represents thus the stimulus that evokes the speech movement, as though by reflex action. It is plain that an especially important period of development in the acquisition of correct speech is that in which the baby has learned to be attentive, *i.e.* not only to hear, but to listen. Here the phenomenon of imitation has become akin to a still higher reflex. Therefore this is the time that the foundation is laid for the various speech disturbances and anomalies by imitation; here the occasion presents itself for the child to acquire apparent or potential defects of speech. Wherever the linguistic exemplar is defective and shows anomalies, we must not wonder at finding later similar defects in the speech of the child. The purer and more beautiful the vocal sounds, the better the enunciation of the child's exemplar, the more may we be assured of the acquisition of perfect speech by the normal child.

We cannot dwell at length on the subject of speech disturbances and will only make a few general remarks. In lisping, the influence of imitation is generally admitted to be very important. Gutzmann, for instance, observed that this speech defect in one instance was brought into a family by a lisping maid, so that all of the five children copied the same disorder. Rhinolalia (nasal speech), as the result of imitation, has also been repeatedly observed among brothers and sisters of persons afflicted with cleft palate. In stuttering, while the imitation of the identical defect in relatives or playmates is certainly a factor not to be undervalued, it must be admitted that its influence may not be very great, unless there is predisposition or heredity. Psychical infection is blamed in 9 to 13 per cent. of the cases. Gutzmann reports a case of stuttering through imitation from only a short exposure.

A gentleman voluntarily commented on the fact that after talking for a time with a friend who stutters he himself temporarily exhibits the same fault, unless he consciously avoids it. Similar conditions exist in dyslalia.

### IMPORTANCE OF THE MILIEU.

Imitative or induced disturbances of the nervous system and psychic sphere and vegetative functions of children are very important; they are manifold and protean, and known even to the laity, who recognize the special proneness of the children to imitation; the latter are very susceptible to impressions and suggestions by the immaturity, instability and undevelopment of the character. The mighty, almost magic, force of example upon them may be seen at every turn in both the pathological as well as the psychological direction. Children indeed also participate very vividly in the excitement, emotions, and passions of the adult, though in a way of their own. Historical examples of this last mentioned fact are presented on the grandest imaginable scale by well known occurrences in the middle ages, when phantastic religious and political passions gained such a control over the world of childhood that here they manifested themselves in stronger expressions and with more intensity than even in adults; this will be dwelt upon later.

In the presence of these peculiarities of the psychic life, and on account of its tendency to discharge physical reactions upon impressions, the environment or milieu of the child is possessed of momentous import. Therefore no wonder that a disease, observed in another person, may give rise to similar morbid symptoms in children. In this field of imitativeness and suggestion it may not always be possible to draw the exact boundaries or lines of demarcation between healthy and morbid conditions. If one person by yawning induces others to yawn, or if a man made a wager that he could make a whole class, even including the teacher, yawn and won, as in an authentic case, we will hardly declare this pathological. The contagiousness of laughter, cheerfulness, worry, panic, or inspired terror and the imitative choking of pertussis are also well known. Horace ("Ars Poetica") gives expression to these facts in saying: "As laughter creates laughter, as tears cause tears to flow, so do miens understand each other." Montaigne justly says in regard to nervous contagion: "The aspect of pain in others gives me pain, too, and a person that coughs uninterruptedly irritates also my own lungs and throat." The phrase of Mme. de Sevigné, written in a letter to her daughter, who coughed, became celebrated: "J'ai mal à vôtre poitrine." So when confronting a person afflicted with tic convulsif or stereotypia, we may feel forced, at least temporarily, to similar muscular contractions to find relief from the peculiar sensation of tension due to the influence of the exemplar.

It is therefore not strange that a neuropathic, hysterical person should render others permanently in contact with him likewise nervous in the course of time, and that the latter should acquire and appropriate, as it were, certain nervous habits. The danger of forming and developing such nervous disorders by imitation and autosuggestion is, of course, with the child, greater than with the adult.

### PSYCHIC EPIDEMICS.

Such disturbances may afflict not only the individual child but even large groups of children;

indeed the history of medicine abounds in examples of such psychic epidemics of an imitative origin. As a vibration struck brings into sympathetic vibration similar instruments, so a psychogenic epidemic in its spread draws with irresistible power the individuals of similar susceptibility into its magic circle. This simile, though being no explanation, is very descriptive. The manifestations of passion or sensation in one individual call out similar psychic effects in the other persons. These processes seem to us so natural that they appear independent of volition. While the single individual may still be able to successfully set criticism and inhibitory motives, conscious or subconscious, against an extraneous alien psychic influence, yet these barriers may be broken or swept away by the impetus and weight of passions if they seize upon large masses; psychic phenomena may then be manifested by persons not at all of a neurotic predisposition and individually even healthy. An idea, even morbid or irrational, strengthened in its impression by passion, seems to constitute the contagion in the adult more than is the case in childhood, where oftener a more or less automatic imitation or inducement takes place by simply sensory impressions without other more complex psychic agencies, although both factors, of course, may sometimes co-operate, when it might be difficult to say to what extent the "contagion idea" is the motor power in an epidemic.

### HISTORICAL EXAMPLES.

The famous avalanche-like commotion of the children's migrations and crusades of medieval times are to be explained on the ground of psychic contagion, as are likewise the epidemic dancing manias in which also children participated. The persons afflicted by the dancing mania moved through cities in frantic ecstasy, performing phantastic dances, in which they reached a state of unreasoning rapture, and finally fell to the ground exhausted by the physical and psychical overstrain and overexertion. As is known, this frenzy, principally arising from religious fervor, seized whole masses and spread gradually over the whole of Germany and the northern countries, as the hosts affected with the disease wandered from place to place, and from country to country. Thus this prodigious epidemic raged in certain regions for two centuries. A number of chroniclers relate how children participated in this phenomenon among the adults, nay, how they even performed their mad dances independently by themselves. For instance, in the year 1237 more than 100 children were suddenly seized by this dismal disturbance and passed, dancing and jumping, from Erfurt to Arnstadt, where they fell to the ground from exhaustion. Not a few of them, restrained by their parents or brought back home, are said to have either died soon or remained afflicted with tremor throughout their lives. (Hecker.) It is assumed that the peculiar psychic predisposition was due to the marked effect of misery from the famines, frequent wars, and terrorizing plagues that swept over Europe, in the presence of religious excitement and dire superstition, so characteristic of medieval times; this deep commotion of the nations may also explain the extent and long duration of these extraordinary conditions. In 1458, when the great chorea (St. Vitus' dance) was prevalent in Germany, more than 100 children started against the will of their parents from Hall in Suebia for Mont St. Michael in Normandy. The mania for martyrdom, in the beginning of the fourth century, ranks in the same category of induced epidemics, according to Hecker's view. Here also children in great numbers participated; likewise in the performances of flaggellantism, in which children carried out the rôles of flaggelants, partly in association with adults, partly also entirely by themselves or alone, as for instance, at Speier.

The materio-realistic spirit of our times, *der Zeitgeist*, is much less conducive to the origin of psychical aberrations of religious color in such vast epidemic and prodigious forms; not only on account of education and enlightenment, where these exist, but possibly more because the terrific anxieties of the middle ages, are fortunately wanting with their profound, intense, and almost continuous strain. On the other hand, modern era is apt to create in the child a predisposition to various functional nervous disorders, producing nervousness and abnormal mental states, due to the overburdening in our schools and the artificial manner of life.

### CRIMES.

The development and propagation of pathological phenomena from one to another, to several or many persons, and finally to whole masses, is not limited to psychoneurotic diseases in the stricter sense, but manifests itself also in suicide and crimes, especially in mob crimes, and in false testimonies through influencing the memory pictures even of otherwise truthful children.

Moreau in his work, "Insanity in Childhood," reports the occurrence in France during the last decade of several epidemics of hysteria, and cases of bloodshed, murder, and suicide, in which imitative impulses were responsible to a great extent. Sensational suicides of famous persons were repeatedly followed by multiple suicides, even semi-epidemics from the numbers, and suicides of several members of a family in distress are well known. This interesting subject is dealt with at length by Scipio Sighele in his work on collective psychology, and by Morselli. Epidemics of crimes are recorded by Despine. Juvenile crimes are to be referred to imitation and inducement, where a corrupt environment is the most conspicuous if not the only factor, with an effect more or less strong, according to the degree that moral resistance is lacking.

### RELIGIOUS PSYCHIC EPIDEMICS OF OUR TIMES.

The literature of our times abounds with reports of psychic epidemics, whose character may bring them often near or within that morbid entity which we term hysteria. I must content myself with specifying a few occurrences that will characterize the various aspects and symptoms of these phenomena. There occurred in Sweden as late as 1842 the so-called preaching disease among children, mostly girls, as a manifestation of some underlying religious agitation. It derived its name from the fact that the children affected felt themselves irresistibly forced to preach; at the time they showed various morbid nervous symptoms. Many suffering from headaches and convulsions drifted into a stage of the disease in which they had religious visions and hallucinations, and began to preach. These convulsions consisted in involuntary shaking movements of the arms and the body; they would begin whenever the patient was reminded of anything "sinful," as, for instance, by hearing tabooed words (satan, sin, oath, etc.), or whenever some one contradicted them. In a more advanced stage these "convulsionaires" would tumble backward

and fall into a sleeplike state, in which they saw certain religious apparitions, clapped their hands, and laughed. Strange to say, children exclusively, especially girls, never adults, were affected by this singular disturbance. During the attacks the afflicted was overpowered by an impulse to preach, as mentioned before. This preaching mania seemed to result from a mere irresistible impulse rather than from an intention to edify, for they made exhortations, preached penance, conversion, and reform, even when entirely alone, as, for instance, in forest or field. Meanwhile their domestic work and other duties were performed in their ordinary course, and their family life suffered no disturbance. (Spengler). The phenomenon pervaded whole provinces like an epidemic and affected children in great numbers. Similar epidemics of preaching mania were observed also elsewhere, as, for instance, in Baden in 1852 and 1853, where likewise children exclusively were affected. Increased nervous irritability, religious reveric and fanaticism, belief in sorcery, and imitation were blamed. (Rees). Also, in 1861 the revivals in the orphan asylum of Elberfeld were characterized (Veltusen) by religious ecstasy, pathological affects and emotions, caused by sermons and accompanied by hysterical convulsions, representing conditions essentially identical with those observed in the revivals of the English Methodists in North America (especially among the negroes) and Ireland.

An analysis of occurrences of this character seems to establish a common psychic agitation of whatsoever purport, as the first phase, for instance, a religious commotion, stirred up by sermons and ceremonies. Then, whenever under its influence one person or the other manifests conspicuous physical reactions, another phase takes place; a spreading of these physical symptoms, sweeping like an epidemic among the others, through the agency of contagion or nervous sympathy (suggestion) by sensory (visual) impression. In the "hystero-demonopathie" epidemic in Morzine in Savoy (Kuhn) a great number of girls, 12 or 13 years of age, were seized with convulsions, illusions, hallucinations, and fits of violence.

### SCHOOL EPIDEMICS.

However psychogenic institution epidemics appear at the present time, rather than the great psychic epidemics of the Middle Ages, which were principally of religious origin. The number of these imitation epidemics in educational or other institutions, especially in girls' boarding schools, hospitals, and prisons, is perhaps greater than is generally believed, since it is to the interest of these institutions to prevent such occurrences from becoming generally known.

The cases in the hospital at Haarlem are much quoted, where an epileptic by his seizures through imitation transmitted his convulsions to all the other patients. Van Swieten observed spasms, from which small children suffered, mimicked by all those who were unfortunate enough to be witnesses. Palmer, in 1892, observed in a girls' school in Biberach (Germany) about 13 children from 11 to 13 years of age who all manifested sleeplike conditions. Rembold, in 1893, reported a psychic epidemic in a girls' school at Stuttgart. After a girl had fainted 25 cases of nervous disturbances occurred. Fifteen girls were affected with tremor and screaming, 10 with unconsciousness and sleeplike states. Hirt, in 1893, reported that 20 girls among 38 between 5 and 12 years of age were taken ill with hysterical spasms and disturbances of the sensorium near Lignitz, in Germany, in the village school of Gross Tinz. Szegoe observed at Budapest in 1895 a singular cough prevalent in a girls' institution (chorea laryngis). Bokay witnessed a very unique and spectacular psychic epidemic in a girls' school near Budapest. Fifteen girls between 9 and 15 years of age who were affected imitated the cries of various animals by peculiar expiratory sounds. A pupil, who had previously suffered from catarrhal cough, suddenly had an expiration that resembled the sneezing of a horse. Soon after two other pupils produced also peculiar expirations, which, however, sounded more like barking. Still other girls reproduced the hissing of geese, the shrieking of parrots, the neighing of horses; the majority, however, imitated the barking of dogs. Whenever one girl started the rest apparently had to join in, thereby creating a confusion of noises as if "from the animals of a menagerie." Bokay excluded intentional imitation. Von Holwede described an epidemic of light attacks of spasms with sleeplike states in a high school in Braunschweig.

Singultus is not infrequently marked by its epidemic spread. In 1897, when I was still in Vienna as a medical student, there occurred an epidemic of hysterical singultus in a class of a girls' school in the second district, in which 28 girls among 35 were victims, so that the class had to be closed. Dr. Berdach, who has reported this imitation epidemic, in addition to this made a similar observation in another school in which 20 girls among 30 were affected. Schuette describes the occurrence of "trembling disease" in a girls' school at Meissen.

Unique and very interesting were the observations made by Schoedel of a peculiar disturbance of handwriting that spread among the children of a class in a public school in Chemnitz, 21 of the 35 pupils being affected. During the first days of the disturbance the children, girls and boys, would write well at the beginning of their lessons, but gradually in the course of the hour the handwriting became more and more tremulous. During the following days the characters and figures were tremulous even at the beginning of the lessons and became finally very grotesque and unreadable. This peculiar ataxia of the hand and arm movements appeared only in writing, not in other kinds of work. There were no signs of nervousness, exhaustion, or excitement present. Shortly before the outbreak of this epidemic the daily newspapers published repeatedly articles about a school epidemic of trembling disease in Meissen, where 134 children, mostly girls, were unable to hold any light object, such as a penholder, during the attack. It was proved that the first patient in Chemnitz had heard of this epidemic. In the opinion of Schoedel, this example and the suggestion of the teacher in expressing to his pupils the hope that they might be spared the trembling disease of Meissen served actually as the provoking agent of the epidemic in Chemnitz. In this case the children imitated the peculiar disturbance of the writing of their near neighbors. Schoedel is averse to classifying this or similar psychic epidemics among the manifestations of hysteria, as some authors do, because it dealt mostly with well nourished, healthy, not neuropathic children, of average education and healthy parentage and for other very plausible reasons. He applies to these phenomena the unprejudiced term,

"induction or imitation diseases." Certainly such conclusions must be approved for a great number of psychic epidemics, though in others hysteria, as the underlying factor, is too conspicuous to be denied. "It is the physiological underdevelopment of the child's psychic organ with its great tendency to imitate, and the impressionability of mind and the vivid imagination that render such epidemics possible. A real disease is not necessarily a factor, as idiosyncrasies and aberrations may be imitated. Girls are possessed of these childish characteristics in a more pronounced degree than boys and enjoy more leniency, and this factor is apt to aggravate such evils."

When children, in aping instinctively the bad habits of adults, suddenly exhibit the morbid manifestations seen in others, we must not always necessarily presume an abnormally increased imitative tendency a morbid impressionability; in such cases the milieu may be sufficiently influential to affect the child. Finally, we must remember that a certain theatrical talent exists in the normal child, which becomes evident in their play; undoubtedly this may aid at least in inducing the children to copy and ape others, including abnormal persons, especially if their desire is directed towards "playing a rôle." The more conspicuous the feature of the example the more will the instinct of mimicry in the child be aroused.

I shall only cursorily point to the occurrence of enuresis nocturna in previously healthy children as due to psychic contagion by unconscious imitation of classmates and friends who are afflicted with this disturbance. Also the so-called school headaches, which as a rule are of neurasthenic nature, seem to be due to hysterical imitation and suggestion in a number of cases. Thiemich, as school physician, relates the experience that in some classes one-third or more of the pupils, mostly girls, between 10 and 14 years of age, upon inquiry asserted that they suffered from headaches, while in other classes with the same number of pupils of the same age only sporadic cases were present. A suggestive therapy with tinctura amara was generally followed by speedy and permanent cure, though the neurasthenic forms remained uninfluenced. Thus we see that these epidemics present an endless variety of symptoms, and we realize that the phenomena are too many to enumerate. One feature is common to all of them: psychic contagion in a limited circle of children who spend many hours together and are more or less embraced by the same bonds, as in schools or other institutions.

### SPORADIC CASES.

Though the individual physician may not often meet imitation or inducement diseases in epidemic extent, he will have the greater opportunity to deal with sporadic, isolated, individual cases with a great variety of induced disorders. We have seen imitativeness within this limit call forth hysterical symptoms, especially of irritative, though also of paralytic character, in predisposed individuals. In truth, this very factor in hysteria of childhood prevails over all other provocative circumstances (imitation hysteria). Very marked and typical is Oppenheim's observation: A boy acquired through psychic contagion a hysterical contracture of both feet with well developed varoequinus position after seeing a bilateral pes equinovarus in a child. Its true nature remained unrecognized for a long time. Finally the posture of the feet became normal again after a single treatment. Hutinel narrates the experience of Dufour with a young hysteric who visited a hospital at Berck (Tuberculosis Sanatorium) and became coxalgic. I saw a Jewish girl, 10 years old, who began to limp after having seen limping patients while spending a short time at Hot Springs (Ark.) with her mother. The limping occurred in attacks during the following months. In walking, the left leg was swung forward, but the right leg could not be brought farther forward than the side of the standing left leg. Cure followed suggestive treatment. In another case, a boy, suffering from paresis of the legs after diphtheria, was mimicked by his ten-year-old brother, who after having been bedridden on account of bronchitis, suffered from abasia and astasia.

Terrien in his sanatorium gave a report of a patient who was moribund from uremia. To demonstrate the rhythm of Cheyne-Stokes breathing he himself reproduced this symptom. A few hours later he was hurriedly called to a young female who had listened to that demonstration; she presented this very symptom of Cheyne-Stokes and declared she must die from uremia.

As well known, the acute or slow psychic trauma, the deep impression made upon the mind of a person witnessing epileptic or hysterical seizures may provoke in him similar convulsions; or even more severe manifestations, exaggerations may be produced. The Romans therefore forbade such persons participation in public meetings and gave this disease also the name "morbus comitialis." Similarly chorea minor has been transmitted by psychic contagion. We see occasionally, though not often, in one and the same family where a child is affected with the infectious (rheumatic) form, that a second child manifests very similar symptoms by imitation, the mimetic form (chorea nervosa, imitatoria). Also small epidemics of imitatory chorea minor were observed in whole classes of girls' institutions, where imitation of the hysterical symptoms is especially conspicuous. Of course this imitatory form can not be regarded as genuine chorea minor, though the clinical resemblance may be great in some instances. Such hysterical cases may represent merely choreiform movements or movements without a certain rule and difficult to define; generally they are characterized by more monotonous, regular or rhythmic and coordinate muscular movements, *e.g.*, trampling; they have been described by Charcot and others under the term "chorée rhythmique." They may cease suddenly and be of short duration. Wichmann describes an epidemic of so-called St. Vitus' dance at Wildbad in 1885 and 1886, in which hysteria however was conspicuous mostly in the form of chorea rhythmica; but a few cases represented the clinical features of chorea minor and major. The same holds true of the epidemic chorea in Necker (Brichteau) and others collected from the literature by Wichmann.

We shall not wonder that motor disturbances belonging to organic diseases as, for instance, the tremor of paralysis agitans, etc., have also been mimicked by children with more or less exactness of the crude clinical picture, particularly if it was a family member who suffered from this tremor of organic cause.

I lately saw a school girl, age 10 years, who had had trembling of both hands for a few days; this also was apparent in the handwriting. This disorder was most probably due to imitation of the

tremor of her 53-year-old father, inasmuch as shortly before she had manifested attacks of a peculiar nervous dyspnea, imitating similar attacks of her hysterical mother.

Peritz made the following observation: Electrical treatment in a girl 14 years old provoked hysterical chorea, wherein the choreic movements were an imitation of the muscular contractions by the electrical current. The case bore a great semblance to chorea electrica (Henoch's).

The various vague and painful sensations of children due to psychogenic reproductions of and the vivid sympathy for other people's pains, which sensations resemble organic disease of the inner organs, are a matter of more common experience. These deal mostly with headaches or pains in the abdomen or chest. In a greater number of cases than is usually believed visceral and sensory disturbances, in hysterical girls especially, can be traced to the suggestive influences of their parents' example, most often the mothers', who complain day by day of their ailments and pains, imaginary or real, in the presence of their children. A child may complain of backache, or headache, or of pains in the chest or abdomen or the limbs, merely because the mother suffers from such pains. The father has a "bladder or kidney trouble" and consequently the imaginative child begins to complain of similar pains. I have seen a number of such cases.

These pains prove very amenable to suggestive treatment, especially if the parents cease complaining of their own ills.

In one case a girl suffered from attacks of pains in the back and the heart, and of palpitations, so that she could not attend the school for a while; the only explanation was the imitation of her nervous mother, who much disturbed the family life by her complaints of similar and other symptoms.

It is evident that in so far as the parents and other family members are the most important examples and the principal part in the child's milieu, their conduct is of paramount import. If the former manifest more or less pronounced nervous disorders they awake in the child corresponding ideas, and guide its imagination in a certain pathological direction; such parents also by the anomalies of their character in the sphere of emotion or volition are bound to be of immense educational detriment to their children. In such families we see the effect of a hereditary neuropathic constitution aggravated by the injurious and permanent influence of a morbid environment. Evil examples not only deprave good morals and manners, but also may directly and seriously interfere with the normal health of the nervous system, and good examples are better than the best sermons or lectures; nothing is more conducive to healthy nerves than a family life with happiness, love, and an atmosphere of tranquillity.

The unconscious or subconscious remembrance—the latent idea—of the act of vomiting observed in another person, from whatever cause, may make the child vomit. In one instance a child suffered for a long time from nervous vomiting that began from the moment she saw another child regurgitate medicine given him. In another case a girl vomited daily for months after she saw her mother seasick when coming to this country. Prompt results were obtained by suggestive treatment. In a family with children already convalescent from pertussis, when one of them began to vomit again, all the others started vomiting anew and continued for 8 to 10 days. Likewise the inability for keeping down certain food may sometimes be traced to unconscious mimicry or verbal suggestion. Cramer cites in his article on hysteria (Bruns' Handbuch, etc., page 87) a very illustrative case in an eight-year-old girl of hysterical constipation, brought about by the fact that the parents, who suffered from constipation, frequently discussed their ailment in the presence of the child and showed themselves solicitous about the child's digestion. Immediate cure followed the removal from the home but recurrence of the symptom occurred upon return home. Instances of pseudoappendicitis induced by suggestion and imitativeness have been seen. The following observation is quite typical (Cramer): A girl complained of the symptom complex of appendicitis after several of her friends had been operated upon for this disease. A well-known surgeon diagnosed hysterical pseudo-appendicitis. As Czerny observes somewhat sarcastically in regard to such and similar cases: "repeatedly have such cases been successfully operated upon where success could have been obtained by a simpler therapy." It is unnecessary to say that such a diagnosis requires great caution and care. Also upon closer inquiry we may in a number of instances of nervous cough, or dyspnea, or asthmatic conditions successfully trace the affection to unconscious mimicry. Pertussis as an imitation neurosis of hysterical nature occurs only among older children and seems to be very rare. The absence of nocturnal paroxysms facilitates the recognition of its true nature. Haase reported an epidemic in an orphan asylum, that was at first considered to be pertussis, but later it was recognized as hysterical laryngismus.

Deficient training and psychic contagion play an important etiological or provocative rôle in the acquisition of the various forms of tic convulsif, especially in the young, although an inherited neurotic constitution has to be present to furnish a basic cause or predisposition. Not infrequently is the twitching voluntary, at least in the beginning, for instance, in thoughtless imitation of some ticing child or teacher. In some instances one might be at a loss to decide whether to consider these muscular contractions merely as a bad habit, acquired by imitation, or as a real disease. Thus, making grimaces, belching, etc., are observed especially among boys. Intentional mimicry is strong in the child's nature and bad habits are quickly contracted. Should a child be tainted with nervous weakness in addition, he is apt to tic at the slenderest pretext; in such a case it would be dire misfortune to encounter, or still more to be associated with a subject of tic. A novel gesture on the part of anyone catches the child's attention and he forthwith attempts its reproduction, finding therein a source of complacent satisfaction. On the morrow the movement is repeated, and again, till it oversteps the bonds of habit and enters the realm of tic (Meige and Feindel). In Tissier's case imitation was not only the pathogenic but also the therapeutic agent. An ocular tic was acquired by an eight-year-old girl from her mother and transmitted by imitation to a second child; the cure of this second child was followed by a cure of the others through imitation.

One meets not infrequently in schools and eye clinics children, mostly pale, delicate, nervous ones, who from seeing myopic classmates with eyeglasses, partly by imitation, partly by the desire for eyeglasses mimic myopia and bring objects near to the eye, nearer than necessary, in cases where an in-

significant anomaly of refraction is present. Plane glasses will satisfy the child and induce it to hold the object at a proper distance. On the other hand, strabismus (convergens), which the laity is so ready to explain by imitation of a squint-eyed person, has nothing to do with it. Its cause lies in the relationship of accommodation and convergence.

In regard to the vita sexualis of childhood we can not ignore the imitative tendency especially, because it lacks the many inhibitory considerations and concepts of the adult life; it might play for this reason a great rôle in conjunction with the desire to reproduce certain sensations that have once been learned. We must remember that actions, outwardly of sexual appearance, may not always be the result of a premature sexual impulse, but merely the product of imitation, as, for instance, if a boy runs after a girl and both flirt, merely to do what they see others do, or, perhaps, with the added desire to be taken for grown-up persons. Or, when children, playing father and mother, denude themselves, they may do so from a dawning sexuality, but undoubtedly in some instances from mere imitation. A great number of sexual crimes and abnormalities observed among groups and certain circles of persons in an epidemic-like fashion owe their existence to the same agency of suggestion and imitation.

### AUTO-IMITATION.

The child's own diseases influence its psyche even more than do the ailments of others. The effect of the original organic disease may be a deterioration of the whole organism or of the nervous system; perhaps in most instances the psychic alteration being the causative factor of the subsequent disorder. This is pain as a rule; it is, so to speak, the reverberation of a previously actual pain that accompanied some organic disturbance, but after the complete cure of this organic disease became fixed as psychalgia, as douleur d'habitude (Brissaud's) habit pain. Such disturbances represent a condition, brought about by autoimitation of the original disease; it is the psychogenic "declaration of permanence" (Bruns) of the previous subjective symptom of an organic disease, the psychogenic residue.

Thus, after a cure of acute rheumatic polyarthritis, hysterical pseudorheumatism may make its appearance, the nervous nature of which might be recognized from the entire negative objective findings, perhaps, from the presence of paroxysms of various other pains, of vertigo, twitching of muscles, singultus, attacks of heart palpitation, etc. These arthralgias may be so intense as to forbid the slightest touch while the child is aware of it, but disappearing entirely during sleep, so that the child may even lay upon the very extremity. Likewise, there will be no painfulness upon pressure if the child's attention is diverted. In other cases the painful sensations appear and persist subsequent to a perhaps insignificant trauma or at any location of the body that was the site of an operation. An appendix operation, for instance, not so infrequently is followed by such psychogenic neuralgias in the environment of the normal and perfect scar, especially if the solicitous parents imprudently and permanently call the child's attention to this location. In the same category is the preservation and continuation of anomalous positions of joints (stiffness contractures) that children may manifest subsequent to the cure of organic pathological joint processes, as they have been mentioned before, or of furuncles. Cramer and others observed hysterical torticollis after lymphadenitis acuta (*l. c.*, page 56). It may not always be easy to decide at what time the organic stage becomes merely psychogenic, for pains of organic cause may not give clinical findings.

Recurrences of infectious chorea are far from being rare; however, a number of apparent relapses are not to be considered as genuine (infectious) chorea minor, but as its hysterically automimicked, aped picture. The distinction may *prima vista* be very difficult or impossible, but its nature is often recognizable from the rather sudden onset, the short duration and speedy cure by some suggestive treatment, and by the lack of muscular hypotonia; or, perhaps, from the presence of other hysterical manifestations, though both conditions may be combined. Among other irritative symptoms blepharoclonus and blepharospasmus after the disappearance of the primary disease may be mentioned. As a rule, it follows a reflex blepharospasm, due to inflammatory processes in cornea or conjunctiva or to a foreign body and persists, and it then represents the "declaration of permanence" of the previous state. By its intractability and other featurs it approaches the maladie des tics convulsives and the stereotypias. Respiratory troubles of hysterical nature that simulate diseases of the respiratory organs not infrequently develop from corresponding organic diseases, through the psychic "declaration of permanence." A child who has suffered from tachypnea and dyspnea, accompanying an extensive bronchitis, may later, when affected with a slight catarrhal affection, produce the same manifestation by autoimitation and hysterical reproduction of the former symptom (Thiemich). Or even after or during recovery from laryngitis, bronchitis, etc., the little child may burst forth into violent coughing, while in the physician's office, though it is without coughs for a great part of the day while at play. Likewise may the vague pains in the chest after pneumonia or bronchitis, or aphonia after tonsillitis and laryngitis be merely the psychogenic residuum.

Also spastic cough, stridor, and asthma-like attacks may, as I have seen, be of auto-imitative nature, the recognition of which may prove important for the treatment. The mimicry of pertussis attacks even months after the subsidence of the infection, at a slight irritative affection of the respiratory tract, as from bronchitis or pharyngitis, is rather a frequent occurrence. The process of facilitation, a certain degree of "Bahnung" of the nerve tracks in use in the cough reflex and its characteristic discharge, comes here in consideration; *i.e.* the nerve tracks, that for weeks or months during the whooping cough have been in constant use, become "beaten tracks," over which the slightest impulse will tend to take its course; the one branch line of the reflex arch being the nervus laryngeus superior. In whooping cough we may assume two phases: the first, in which the characteristic attacks have an organic cause, the other merely of neurogenic conditions (Bahnung). That also a psychogenic factor may occasionally be present must be inferred from those cases where suggestive therapy (faradization) resulted in surprisingly rapid cure.

To this process of "Bahnung," the law of which is really the law of habit, must be attributed a certain rôle in some processes of "declaration of permanence," as, for instance, in blepharospasm or in some tics.

Not so infrequently organic gastrointestinal affec-

tions are followed by various sensations in the abdomen of psychogenic, autoimitative origin, or diarrhea of any cause gradually may turn into one of merely neuropsychic character, *i. e.* dejections, that are frequent, though otherwise normal; however, when the frequency may disappear, when the child's attention is engrossed otherwise by play, visiting friends, etc. These cases may almost immediately yield to a faradic treatment, though they had proved very refractory to the various styptics and dietary regimens. Also the subconscious or unconscious remembrance of its own previous act of vomiting may suffice to induce the child to transform this mental picture into the corresponding muscular action, whenever opportunity offers itself. Anorexia as psychogenic residuum may reach serious degrees.

The autoimitation of previous diseases of organic nature, the fixation of a symptom in the subconsciousness, indeed often is directly cultivated and fostered by the overanxiety, morbid solicitude, overindulgence and imprudence of some parents, who would yield to every desire and wish, however foolish, of the sick child, and cannot in their belief sufficiently multiply their manifestations of parental care and sympathy; so that there seems to the child to accrue more advantages from being sick than from being healthy. Everyday experience shows that the child's psychic reaction from slight injuries depends on the attitude of the surrounding persons: the child will soon forget his pain, when met by a smiling face, but will even cry harder from seeing worried, frightened faces. Indeed, there are not a few nervous, hysterical mothers who rather indulge in the fact that the general interest is centered on some unusual manifestation of the child's sickness, and who, as it were, bask in the inordinate vanity of being interesting to others and of being sympathized with and spoken about. Clinical pictures of this character in such environment, it must be conceded, may border on conscious simulation or may be considered as downright simulation; though in regard to this possibility we must not lose sight of the fact that simulation itself may often be the expression of a pathological character, the psychically normal child having generally little proneness to sham disease.

The observations gathered here will suffice to convey an appreciative idea of the peculiarity of these states in their more important and common forms. The varieties, modification, and possibilities cannot be exhausted, and manifold deviations and combinations as protean as the pictures of hysteropathology itself may occur. The phenomena represent an interesting chapter not only of theoretical physiopsychology, but have an important bearing upon our therapeutic and prophylactic considerations and pedagogic principles. They emphasize our duty to familiarize ourselves more with the normal psychic life of childhood and its dispositions, so that we may successfully combat faulty tendencies by timely education and lead the all-important instinct into the channels of the good, noble, and beautiful. They remind us of Hecker's words, that "the human race * * * moves in body and soul as an individual Whole."

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## ALCOHOL AND RACIAL DEGENERACY.

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THE widespread custom of using alcoholic beverages is a perplexing and difficult problem to attack, on account of the prestige it holds with a large number of men and women of social prominence who still retain very liberal views regarding their use. Many people believe drinking essential to sociability and good fellowship, while others drink because they have inherited a weak and unstable nervous system from drunken parentage and are unable to resist its craving.

From time immemorial man has used some potent narcotic to increase the joys of life or deaden the edge of sorrow. The ancient monuments of Egypt show the use and abuse of alcohol, and the oldest Chinese manuscripts contain records of drunkenness. In the Vedas we find prayers to the Deity beseeching him to descend to earth and enter into a drunken orgy with his followers so that he might grant their prayers.

The hereditary effects of alcohol have been recognized from the earliest times. Plato forbade newly wedded couples to drink, knowing that drunkenness begat drunkards. Aristotle taught that drunken mothers brought into the world children like themselves. Both Buddha and Mahommet understood the degenerating influences of alcohol and interdicted its use through religious dogmas. Diogenes declared that stupidity in children resulted from intoxicated parents, and we are informed by mythology that Vulcan's lameness was the result of Jupiter's intemperate habits.

Dr. Norman Kerr says: "Men and women of the highest culture, the purest life, the most exalted aims, have become reckless drunkards. The clearest minds, the keenest intellects, the most subtle reasoners, have been enslaved by alcohol. The warmest hearts, the kindest souls, the most unselfish spirits have been transformed under the siren influence of this 'bewitching spirit' into the coldest, most cruel and selfish votaries at the shrine of Bacchus."

There are multitudes of people of both sexes, and in all positions of society, who enter the world with the "hallmark" of alcohol stamped upon them and spend their lives in fighting to lead a sober life, and there is no more pathetic sight on earth than to see these poor blighted souls endeavoring to elude the fearful temptations which beset them on every side. Thousands of those who were born under alcoholic influences finally drift into the habit and pass away at an early age.

Occasionally we find brilliant but warped minds among the degenerates of alcoholic families, many of whom live on the borderland between sanity and insanity. Some of them may be wonderful geniuses, brilliant orators and writers, but they are a strange, erratic people, who rapidly pass across the horizon of life after leaving a dazzling but evanescent trail. They are the last members of a once gifted family and, like the flicker of a candle, burst into a full blaze before extinction.

Following the general use of whiskey as a beverage fifty years ago, we find that many of the prominent families of the country have become extinct. The progeny of such families became drunkards and died childless or left children cursed with some form of degeneracy which rendered fertility impossible. It is only necessary to search the records of the noted families of both North and South to find that alcohol has been the underlying cause in the majority of those which have passed out of existence.

The moral, mental and physical condition of children is largely dependent upon the health and character of their parents. It might be said that the fate of every child which enters the world is written on its forehead, because its fortune for good or bad is settled in advance by the character and habits of its parents. How far this determining influence may extend it is impossible to say, but certainly in many cases for generations.

Many who have used alcohol for years notice an absence of vigor and freshness, which only returns after months of abstinence. One of the earliest indications of alcoholic poisoning and permanent injury is severe fatigue and breathlessness on slight exertion, or a disinclination to normal effort. It is not a pleasant thought to feel that we are dying daily through the influence of wine, beer, whiskey and brandy, but that is exactly what is taking place in every man and woman who indulges regularly in intoxicants, even in small quantities.

The custom of taking a drink to stimulate intellect and facilitate speech is logically unsound. No mind is capable of making its best effort when under the influence of even a small amount of alcohol. Helmholtz, the cultivated physicist, declared that even in small quantities alcohol served to banish from his mind all possibility of creative effort or the solution of any abstract problem. For such reasons thousands of the most progressive intellects of the country have entirely abandoned the use of alcoholic beverages.

Premature senile decay and loss of memory are the marked results of alcohol among its regular habitues. The loss of memory is progressive and appears in the form of verbal amnesia. Regular and constant drinking, although in moderation, also causes the loss of judgment and lessens clear and consecutive reasoning.

Alcohol interferes with the process of metabolism, inasmuch as it possesses an affinity for oxygen, and hence robs the tissues of this important element, which is so deeply concerned in ridding the system of the poisonous wastes which clog the body and invite chronic organic diseases.

The hindrance and delay in tissue changes from this cause lead to increased weight, arteriosclerosis and general mental and organic degeneracy with marked waning of the intellectual faculties. A definite alcoholic egotism is noted among many regular drinkers, whose weakened constitutions and intellects are apparent to every one but themselves. This condition is not infrequently found among confirmed drinkers occupying important positions in business, governmental and public life.

The great scientist Metchnikoff has taught us that the white corpuscles of the blood are the natural guardians of health. They have the normal function of resisting and destroying malignant germs which gain entrance into the circulation and tissues of the body. When influenced by alcohol they lose this power of defence and become powerless against the invading enemy.

Two Belgian observers, Massert and Bordet, found that alcohol strongly repelled the white corpuscles, and that small quantities circulating in the blood prevented their migratory character when called upon to functionize. Abbott found this peculiarly the case in erysipelas and cellulitis. The blood plasma has also a defensive quality of guarding the body against malignant germs, which is destroyed by alcohol.

This occurs especially among many drinking men between the ages of 40 and 50 years, who are handicapped when attacked with pneumonia, influenza, typhoid fever or any disease of microbic origin in which depressing toxins are generated. A man from 40 to 60 years of age should enjoy the most useful part of his life, if properly born and has taken care of himself, especially with reference to alcohol and other poisons, such as morphine, cocaine, or syphilis.

In view of what medicine has taught us regarding the effects of alcohol on racial degeneracy, it seems inconceivable that so many of her disciples should continue its use. Physicians certainly know that they enjoy no advantage in immunity over the hundreds of thousands of men who die annually from its effects. Besides, they must be aware of the fact that the constant use of alcoholics results in intellectual stagnation, if not regression, a cessation or diminution in mental growth, as the addict approaches middle life. Many drinking men who started out in life with brilliant minds are far outstripped in the battle of life by the constant plodding mediocre.

There remains no longer any doubt regarding the ruinous effects of alcohol on the human race, and it becomes not only the duty of the state, but the duty of every intelligent man and woman to join in the crusade against the common enemy. Society must prevent its own ruin and degradation at any cost, and defend the innocent members of the community against the ravages of the great destroyer, alcohol. The country would be electrified if called upon to appropriate $2,000,000,000 annually to suppress some dreadful epidemic, and yet the American people are spending that sum every year in the interests of crime, disease and death.

During the past year there were about 2,000,000,000 gallons of wine, beer, whiskey, brandy, gin, and other alcoholic drinks consumed in the United States, which cost the people as many dollars. The

expenditure of this vast sum of money is not only materially responsible for the misery, poverty, robberies, murders and crimes of our people, but for hundreds of thousands of deaths and the large army of "intellectually dead," who are to be found in our insane asylums, feeble-minded and epileptic institutions.

Recent studies of the vital statistics of the country have revealed an alarming increase in the diseases of degeneracy, and it has become necessary to take an inventory of the moral, and physical stock of the people. This condition is principally due to intemperance, immorality and vice diseases, and unless there be a general reformation in the moral conscience and habits of the people our great republic, like ancient Babylon, Nineveh, Greece and Rome, will in turn wither and die.

From a careful study of the statistics of the country, it is believed that America is inflicted with nearly a million degenerates and criminals at a cost of at least $250,000,000 annually.

Among these unfortunates we find:

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|---|---|
| Insane | 200,000 |
| Feeble minded and epileptics | 250,000 |
| Deaf and dumb | 100,000 |
| Blind | 100,000 |
| Juvenile delinquents in institutions | 50,000 |
| Paupers | 100,000 |
| Prisoners and criminals | 150,000 |
| Which gives a grand total of | 950,000 |

"Ill fares the land, to hastening ills a prey
Where wealth accumulates and men decay.
Kings and lords may flourish or may fade.
A breath can make them, as a breath has made;
But a good yeomanry, the country's pride,
When once destroyed, can never be supplied."

For this widespread national degeneracy we must look principally to the "racial poison," alcohol, which directly or indirectly is largely responsible for the majority of the mental and physical wrecks brought into the world. A generation ago the progeny of our people was fairly sound, because the high-minded mothers of the land rarely indulged in alcoholic beverages. But to-day the growing tendency of the youth of both sexes to the use of cocktails and other intoxicants is becoming the greatest menace of the age, and threatens the integrity of the race.

Not only does alcohol destroy the unfortunate habitué, mentally and physically, but it ruins the happiness and prosperity of the family. Those who drink do not seem to realize that the alcoholic habit not only spells suicide by slow degrees, but entails a curse on the children which descends to the third and fourth generations. When the general public learns that the diseases and evil traits we possess were transmitted by those who are mouldering in the grave, thousands of defective sons and daughters will curse the memory of their dead parents who fastened upon them the seeds of degeneracy.

Dr. L. D. Mason, of Brooklyn, from a study of 7,000 inebriates, found that 60 per cent. had alcoholic ancestry, either parents or grandparents. Legrain, of France, after an exhaustive study on this subject came to the same conclusion. A great many of the greatest authorities who have spent their lives in the study and care of alcoholics agree that from 40 to 70 per cent. of these unfortunates owe their condition to heredity, among whom may be mentioned, Crothers, Horstley, Sullivan, Kerr and a host of brilliant American and European physicians.

One of the Lord Chief Justices of England once said, "If sifted, nine-tenths of the crime of England and Wales could be traced to drink." There is little doubt but that this is true of every country and land where intoxicants are in common use. The famous investigation of the Massachusetts Bureau of Labor Statistics revealed the startling fact that 84 per cent. of all the criminals under conviction in the state owed the condition, which induced the crime, to intemperate habits.

Dr. Hatch, superintendent of the State Hospital, California, points out alcohol and alcoholic heredity as the principal predisposing cuases of insanity. We have the testimony of Berkeley, Spitzka, White, Sullivan and a host of other brilliant and reliable alienists. Madam Tarnowsky found parental alcoholism in the parents of 82 per cent. of the women of the town and Workmüller in 42 per cent. of juvenile criminals of weak intellect.

The child born of an intoxicated parent never equals the child born of sober parentage and rarely rises above mediocrity. While there is more or less immunity to the alcoholic addict, there is never immunity to the parental germ plasm or the maternal ovum, which is invariably injured by the slightest dilution of alcohol in the blood.

Bezzola found that 35 out of 70 idiots were conceived during the wine harvest of fourteen weeks in which the Swiss carouse, while the remaining 35 idiots were conceived during the rest of the year. Leppich claims that he has observed ninety-seven children who were conceived at the time one or both parents were intoxicated, only 14 of whom were born without noticeable defects. Dr. W. C. Sullivan reports seven authentic cases of this character, one of whom was stillborn, while the remaining six died only a few weeks after birth.

The disorders of development among children from parental intoxication vary greatly in character. They range from moderate enfeeblement in mental and physical growth to the lowest grade of idiocy and monstrosity. According to Dr. W. C. Sullivan, 55 per cent. of the children of alcoholic mothers are stillborn, or die before attaining their second year, while many of those who survive are epileptics, feeble-minded, or idiots. A large number of the remainder suffer from a peculiar degeneracy of brain and nerve supply, which places them in that large and sad army of "erratics."

Tuberculosis is also a common result of intemperance and is far more common in drinking communities than in prohibition territory. We frequently find the children of the intemperate afflicted with hip-joint disease, spinal affections, swollen joints, glandular enlargements, scrofula, and consumption of the lungs. The International Congress on Tuberculosis, which met in Paris in 1905, passed the following resolution: "That in view of the close connection between alcoholism and tuberculosis this congress strongly emphasizes the importance of combining the fight against tuberculosis with the struggle against alcoholism."

Alcoholism is a very common cause of suicide. Prof. Hillier, of Kiel, reports 135 suicides among 230 alcoholics, whose deaths came under his observation. Dr. Sullivan reports that in 220 suicides or attempts, 172, or 78 per cent., were due to alcohol. While it is impossible to secure correct statistics, it is more than probable that hundreds of "floaters," annually found in the harbors of our large cities, committed suicide as a direct or indirect result of alcohol.

Many who denounce ardent spirits claim beer a wholesome and sustaining food. Beer drinkers are especially liable to fatty and enlarged heart, diseases of the liver and kidneys, complicated with dropsy, arteriosclerosis, gout and rheumatism. As sequelæ of beer drinking we find an infected and loaded circulation, embarrassed respiration, functional perversion, hepatic and renal congestion, with a stupor tending toward paralysis and a diminished vitality which invites disease and death.

The mortality of brewers between the ages of 50 and 60 is about three times as great as that of individuals who follow the ordinary occupations of life. In fact, the mortality of liquor dealers and brewery men, with few exceptions, is greater than that of any other occupation. Doctors Bauer and Bollinger, of Munich, report that beer drinkers' heart of that city causes one death to every sixteen from other causes. Instead of being a healthy drink, malt beverages are not only unwholesome luxuries with no food value but are factors in blood vitiation and a fertile cause of organic degeneracy and death.

The critics say that something is the matter with prohibition as it does not prohibit. In reply, the prohibitionist would like to know what is the matter with Kansas. During the recent drought in the West when asked whether they wanted assistance, the governor replied that Kansas with a tidy bank account of $200,000,000 could weather worse storms than the drought of last summer without hardship.

In 97 of 105 counties there were no insane. In 54 of these counties, no feeble minded; 96 counties with no inebriates; 38 county poorhouses were empty; less than 600 paupers in the state; the jails in 53 counties empty, and 65 counties had no prisoners serving time in penitentiaries. Some counties have called no juries to try criminal cases for 10 years. Instead of mortgages, as was the case 20 years ago, the people of the state hold $67,000,000 mortgages. Illiteracy is only 2 per cent, next to the lowest in the land. Decidedly something is the matter with Kansas, and that is constitutional prohibition.

The last census of the United States, 1910, showed 187,454 institutional cases of insanity and probably enough cases under private care to raise the number to 200,000 at the least. The cost of buildings to house these unfortunate intellectually dead aggregates $250,000,000, while the annual outlay for their maintenance amounts to $50,000,000.

In India, with a population of 300,000,000, insanity is almost infinitesimal compared with that of Great Britain, notwithstanding her scourges of famine, plague, and pestilence. China, with a population of 400,000,000 has an exceedingly low rate of mental alienation; in fact in no part of the world is there less mental trouble. Mulhall, in 1903, stated that in India there was one case of insanity to 4,340 population, while in the United States there was one to 490 people.

New York State, with a population of 9,113,000, has 31,265 cases of insanity, 1 to 290 as compared with 15 southern states, Kentucky, Tennessee, Alabama, Mississippi, Texas, Oklahoma, Arkansas, Louisiana, New Mexico, Florida, Georgia, South Carolina, Virginia, and West Virginia with a population of 27,886,000 and only 31,734 cases of insanity, or 1 to 880.

While other causes no doubt influence the large ratio of insane in the state of New York, 1 to 290 of the population, as compared with the 15 states of the south and southwest, 1 to 880, it is believed that the great preponderance of liquor dealers in the former, 35,275, over those in the 15 states, 12,000, is the principal cause of the difference.

The relative proportion of insanity in the following states is in keeping with its legislative policy regarding salese of intoxicants:

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| Kansas | 1 to 873 |
| Indiana | 1 to 609 |
| Maine | 1 to 590 |
| New Hampshire | 1 to 473 |
| Ohio | 1 to 449 |
| Illinois | 1 to 437 |
| Rhode Island | 1 to 436 |
| Michigan | 1 to 419 |
| Wisconsin | 1 to 376 |
| Virginia | 1 to 375 |
| Connecticut | 1 to 311 |
| New York | 1 to 290 |

In order to remove this great racial curse, it becomes necessary to educate the masses and secure prohibition. Teach total abstinence in every school, college and university throughout the breadth and depth of the land. Teach the young men to avoid clubs in which alcoholic drinks are sold. Drinking clubs are responsible for the ruin and downfall of thousands of our most promising young men and women and should be abolished.

No woman should marry an intemperate man with the idea of reforming him. It is a dangerous risk and nine times in ten will end in misery and sorrow. Alcoholics, as a rule, are hereditary degenerates and are no more able to resist the call for alcohol than a man with ague can prevent shivering.

Young men should likewise inquire well into the character of the woman before taking a partner for life. Study well the character and family history of the parents, remembering that the daughter is a chip from the same block and will develop on similar lines. Avoid the silly young woman, who belongs to the moron class and cares little beyond dress and the frivolities of life. Such women make poor wives and miserable mothers, should they by chance have children. Many women of this class are charming and bewitching but are hopeless blanks.

In the history of the world there never was a time when men and women of strong character and fearless courage were more greatly needed—ardent apostles of the higher standards of life, to counteract the vicious tendencies of the age, through religious, moral, and temperance instruction, adopting "A sane and healthy nation" as the motto for their war cry.

## THE THERAPEUTIC VALUE OF CROTALIN IN THE TREATMENT OF EPILEPSY.*

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Crotalin is the dried, yellow residue of the venomous secretion of the American rattlesnake, and the physiologic analogue of the human saliva. All snake venoms are possessed of like physiologic properties, and Felix Fontana, an Italian investigator, was the first to make a profound study of this substance as early as 1787. Some of these venoms have been given by the mouth by our Hahnemannian colleagues for almost a century in the treatment of various disorders, but it is the writer's belief that he was the first to inject snake venom

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into the human system for the relief of epilepsy, or of any other disease.

Pharmacologically, crotalin is closely allied to the cyanides. In fact, it was largely due to a study of the action of the latter that the writer was led to investigate the clinical properties of rattlesnake venom. By comparison it will be seen that the following effects which are produced by hydrocyanic acid have their exact equivalents in snake poisoning. In animals: Difficult breathing, dizziness, spasms, convulsions, and death through respiratory paralysis.

Small doses in man cause a flow of saliva, tendency to vomit, difficult swallowing, dizziness, laborious respiration, constriction of the chest, and palpitation of the heart.

Poisonous, but not immediately fatal doses, bring about slow and labored respiration, cold sweat, thready pulse, nausea, twitching, convulsions, and death through respiratory paralysis, while the heart continues to beat. After death the blood is uncoagulated.

The back of the forearm has been selected as the site for the clinical administration of this drug, although there is no reason why the upper part of the arm, or shoulder, or back, in close proximity to the neck should not be utilized. The needle is well introduced through the skin and underlying fascia, and, in order to avoid throwing the solution into a blood-vessel, it is important to withdraw the needle a very short distance before the injection is made.

The immediate local effects after hypodermic injection of crotalin are a slight burning, stinging pain at the seat of injection, with general tingling and numbness along the course of the ulnar nerve, or a darting sensation along the shoulder. The pain is not severe and of short duration, as can be attested by anyone who has experimented with it on his own arm, as was done by the writer at the inception of the crotalin investigation. In the course of an hour or two, and sometimes sooner, considerable edematous swelling occurs at the seat of injection, which may radiate as far as the wrist and the elbow, especially in the first-injection cases. Neither the pain nor the swelling become excessive in the great majority of instances, nor has the writer experienced a single abscess, nor a serious complication of any kind in probably more than ten thousand injections which he has given. In the case of undue pain or swelling, the application of a cloth well soaked in a saturated solution of magnesium sulphate will alleviate the trouble.

*The Essential Nature of Epilepsy.*—Whatever the cause of epilepsy may be, it must be admitted that it is fundamentally a nervous affection, and that one of its most prominent and active manifestations consists in a disturbance of the regulating center of voluntary muscular motion, resulting thereby in an irregular clonic contraction of the general muscular system. Whether the original impulse that incites this originates in the cortex or in the periphery, matters not, so long it is true that no genuine and complete seizure can occur without implicating the muscular co-ordinating center in the medulla oblongata, which is also known as the convulsive center. In other words, while irritation of the brain cortex, or of an extremity, may initiate a seizure, the course pursued by an impulse so generated eventually involves the controlling center of muscular motion in all full-developed seizures. This center being in such close proximity to those which control respiration, circulation, swallowing, vomiting, etc., these functions also become implicated, and as a result we have embarrassed and stertorous breathing, accelerated heart-action, salivation, vomiting, etc.—symptoms which accompany almost all convulsive processes.

It may be said, then, that the essential nature of epilepsy resides in a hyperirritability of the nerve centers to which reference has already been made, and which being excited by stimulants or irritants, either on the inside or on the outside of the body, call forth a disproportionate number of alternate contractions and relaxations of the voluntary muscular system, as one of the principal manifestations of this disease.

This hyperirritable mechanism is also responsible to a large degree for the existence of the various forms of seizures which accompany this disease. Thus the *petit mal* seizures are the direct result of a higher degree of irritability of the musculomotor center, than that which obtains in the *grand mal* seizures, and as a sequence the nerve discharges emanate from a less stable base, have less volume, are less accumulative and more frequent, and are more readily provoked in the former than in the latter.

In connection with this line of thought it may be said that there is one point in the pathologic process of epilepsy which is seldom given the consideration which it deserves, and that is the trivial link which divides the paroxysmal from the nonparoxysmal state in this disease. During the interval between two paroxysms the susceptible nerve area, although in apparent health, suddenly becomes transformed into a violent form of disease, but resumes its normal function as soon as the paroxysm is over—showing seemingly that it requires but a minute change in the morbid process to bring about repair in the breach. It also gives us reason for believing that health and disease are not divided by hard and fast lines, but that one shades off in the other. That which is health at one moment may be disease at the next, and *vice versa*. The size of each territory depends on the degree of bodily resistance. If this is weak on the side of health, disease extends its area or its intensity, and if this is weak on the side of disease health will extend its domain and crowd out disease.

Figuratively, the action of crotalin may be likened to the form of a pyramid, the ascending line on one side of which represents its physiologic or its stimulant action, and the descending line on its opposite indicates its pathologic, or toxic action. Its physiologic effects are exhibited by the increased vigor and strength which it infuses, and its toxic influences shows itself in tetanus, convulsions, and paralysis. When crotalin stimulates a nerve tract which has departed from its normal level, it gradually forces the line of resistance or of health upwards and in the direction of disease until the apex of the pyramid is approached. This constitutes the danger line of poisoning, and must never be crossed. It thus displays an uplifting power which diffuses a health-giving influence, for example, into the functionally deranged center of muscular co-ordination, and forces it into a healthier attitude. The prototype of such action is found in strychnine when it corrects the disordered contraction of the heart muscle. Thus irregularity, palpitation, etc., of this organ manifest themselves in profligate and extravagant muscular contractions—a miniature epilepsy—wholly due to a loss of nerve restraint, yet strychnine comes in often and

restores this defective motion solely by invigorating the function of the cardiac nerve center and its radiating branches.

Proper dosage is an important matter in the administration of crotalin in epilepsy. It has already been observed that epilepsy is largely a question of hyperirritability of the nervous system, and since the nervous system is very susceptible to the action of this drug, it is very obvious that the amount which is prescribed must be adapted to the various degrees of irritability which are present in the several types of this disease. Thus, patients who suffer from petit mal seizures alone, even when these are associated with the grand mal variety, are, as a rule, more sensitive to the action of crotalin than those who suffer from the grand mal variety alone. Children, of course, require smaller doses than adults, but the child with petit mal seizures is also more susceptible to it than the one having the grand mal seizures. Neglect to bear this point in mind, especially in the beginning of treatment, often leads to failure.

Evidence of such mishap is found in the following incident: A patient suffering from both forms of seizures, received minimum doses of crotalin in the beginning of treatment, and in the course of a month the seizures began to diminish in number. But as the treatment progressed, and the former doses no longer produced their local reaction, which was supposed essential to secure the full therapeutic effect of the drug, larger doses were resorted to, and before long the diminution of the attacks ceased, and became more aggravated than they were before the treatment was begun, and the drug was, of course, abandoned. About a year later the treatment of this case was resumed with smaller doses, which were continued for some time, and then gradually increased, and from recent information it is learned that he is making satisfactory progress both in the diminution in the number of fits and in the improvement of his mental condition.

The average hypodermic dose of crotalin in epilepsy is five minims of the solution, or gr., 1-100, although this is too much for a beginning dose in the great majority of cases. In patients having the *petit mal* type of seizures, it is always advisable to begin with one or two minims, gr., 1-500, or gr., 1-250, given every fourth or fifth day. The initial dose should be continued for two or three weeks and then gradually and slowly increased to four or five minims in the course of six weeks or two months. This dose is to be continued for three or four months, or longer, and if it be deemed advisable it may be increased gradually in time to ten minims, or gr., 1-50, which should hardly ever be exceeded, and should, if given, not be persisted in for a long period at any time. If at any time during treatment the seizures increase in number or in intensity beyond their original limit, the dose should be diminished.

The following formula has been employed in making a suitable solution for hypodermic purposes:

℞ Crotalini .....gr. 1.
Glycerini .....min. 100.
Aquae destil.....min. 400.
℔ Five minims represent gr. 1-100.

In addition it is the writer's privilege to refer in a statistical way to 64 cases of epilepsy treated with crotalin, and which have been collected from the practice of his colleagues, and from that of his own, and which he hopes to report in greater detail in a future publication. These cases have been treated for periods varying from two to seven months, and are here divided into two groups—one consisting of 38, and the other of 26 cases. The number of seizures which the patients had is taken as a criterion of the *statu quo* of the disease at any given time, and in each case the number of seizures was noted during as long a time before the treatment was instituted as that which was occupied in the administration of crotalin.

Of the 38 cases there were 14 who had grand mal seizures; one with petit mal seizures, and 23 who had both types of seizures.

The total number of seizures of the 38 patients before the commencement of the crotalin treatment was 1291, and during the time of treatment there were 761 seizures—or a decrease of 41 per cent. The 14 grand mal patients had 789 seizures before, and 367 during the crotalin treatment—or a decrease of 55 per cent. in the seizures. The one petit mal case had 60 seizures before treatment, and 112 during treatment—an increase of 86 per cent. of seizures. The 22 patients with both forms of seizures had 442 seizures before, and 282 during treatment—a decrease of 36 per cent.

It is also of interest to trace the influence of different doses of crotalin on the various types of seizures. Thus in 4 cases of grand mal, the maximum dose of which ranged from gr. 1-35 to gr. 1-25, the seizures before treatment numbered 373, and during treatment 110—a decrease of 70 per cent. in the seizures. In five others of the same type, whose maximum dose was gr. 1-50, before treatment were 310, and after, 128—a decrease of 58 per cent. In five others of the same type, whose maximum doses were from gr. 1-100 to 1-125, the seizures before treatment numbered 267, and during treatment 107—a decrease of 60 per cent.

In six patients suffering from both types of seizures, whose maximum doses ranged from gr. 1-25 to gr. 1-35, the number of seizures before treatment was 85, and during treatment 54—a decrease of 36 per cent. In 8 other patients of the same type, whose maximum dose was gr. 1-50, the seizures before treatment numbered 236, and during treatment 126—a decrease of 42 per cent. In three similar patients, whose largest dose was gr. 1-100, the seizures before treatment were 13, and during treatment 6—a decrease of 53 per cent.

The one petit mal case, whose seizures increased 86 per cent., received the maximum dose of gr. 1-25, and it is very probable that this dose was excessive.

From the foregoing it appears that the appropriate maximum dose of crotalin in grand mal cases ranges from gr. 1-35 to gr. 1-100, and cases with both types of seizures the indications here point to gr. 1-100 as the maximum dose. Of course it must be borne in mind that in all the cases referred to above the beginning of treatment was made in small doses.

The group of 26 demands a somewhat different analysis. They are institutional cases, and were treated for seven months without crotalin, and for the succeeding seven months 13 received the different bromide compounds, calcium lactate and crotalin, while 12 were treated with crotalin alone—a most impartially and scientifically conceived experiment.

Now, by dividing the first seven months in which no crotalin was given into two equal parts of three and a half months each, it will be found that the

total seizures of the first half period were 2108, and in the second half 2610, showing an increase of 20 per cent. in the seizures during the first seven months. The same analysis applied to the seizures of the 25 patients, of whom a complete record is given during the last seven months, shows a total number in the first half period of 3365, and in the second half period 3265, or a diminution in the seizures of 10 per cent.

On the other hand the seizures of the 13 patients who received crotalin, the bromides, and calcium lactate, during the last seven months, show that 2234 seizures took place in the first, and 2234 in the second half, or an increase of 0.8 per cent. of seizures. While the 12 patients who received crotalin alone during this period had 1431 seizures in the first and 998 in the second half period, showing a diminution of 30.39 per cent. in the seizures. This seems to indicate rather conclusively that the exclusive use of crotalin gives by far better results than when it is given with the bromides and the calcium lactate.

Now, if the above deductions are confirmed by further experience, the following therapeutic points will be established in the administration of crotalin:

1. As a rule, crotalin has the power of relieving the paroxysms of epilepsy if given in appropriate doses.

2. The average maximum dose lies between gr. 1-100 and gr. 1-50, although the former must be preceded by minimum doses in probably every case.

3. Crotalin has more power to relieve epilepsy than the bromide compounds.

1829 Spruce Street.

## SOME FURTHER EXPERIENCES IN THE EXTRACTION OF IMMATURE CATARACT BY THE HOMER C. SMITH METHOD.

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The success attending the application of the Homer C. Smith method of treatment to two unusually important cases of immature cataract has been so satisfactory that I feel warranted in presenting the subject for consideration. It may be said that the results would have been equally good without the preparatory capsulotomy and by the ordinary operation. Yet I can't help believing that the ordinary extraction would have been attended by retention of lens debris with possibilities of iritis, dense membrane in the pupil and other obstacles to a useful eye. However, my experience does not warrant emphatic advocacy of this operation, although I believe it to be a solution of the vexed question of operative treatment of immature cataract. There may be objections to be urged against it. I have operated upon ten cases, five of which were reported in the discussion of Fridenberg's paper, which was read before the American Medical Association, June, 1912.

Extraction of the lens in its capsule has not found favor among American operators. I have never performed an Indian extraction and think I never will. On the other hand, the method practised by Stanculeanu of extracting the lens in its capsule has certainly much to recommend it. By means of a pair of special capsule forceps he grasps the lens capsule on each side of the center and by a gentle, persistent sideways movement dislocates the lens and capsule out of its fossa and then expresses it by well-directed and regulated pressure through the cornea. The operation is thus described by W. Likely Simpson, in the *Ophthalmic Record*, May, 1913. The incision in the cornea is a trifle larger than the ordinary. The puncture and the counter-puncture are made well back in the limbus and the knife is brought out at the anterior edge of the upper limbus; he makes a small conjunctival flap; performs iridectomy and effects dislocation of the lens by one, two, or three steady side movements: expression. Should the capsule be torn without dislocation of the lens, the forceps are withdrawn and the operation thereafter is continued according to the usual procedure. With this operation, also, I have had no experience, but I believe its advantages over the Indian method are decided.

Having, therefore, mentioned the two principal intracapsular operations and dismissed them as impracticable in the light of present experience in America, we are still face to face with the problem that has so often and so seriously been discussed, namely how to treat immature cataract. The disadvantages, annoyances, deprivations, and depression of slowly advancing blindness are familiar. No argument is needed to convince us of the need of an operation that may be safely and successfully performed at the beginning of the loss of usefulness because of diminishing sight. The artificial ripening operations are not generally practised because of their danger. Immature cataracts differ in their degree of hardness as much as in their opacity, and while it is generally true that advancing years mean hardening of the lens, the exceptions to the commonly expressed opinion that a lens in an individual over sixty years of age is sufficiently sclerosed to assume that its extraction will be unattended with the retention in the anterior chamber of soft cortex are so numerous that it is quite impossible to state accurately before operation the immediate result of extraction. It has been my practice in the past two or three years to irrigate the anterior chamber in all cases of extraction of immature cataract, and in practically all those believed to be mature. A clear pupil following expulsion of the lens is no criterion. The remaining cortex may be perfectly clear and so will escape even careful inspection until the eye is opened a day or two later. In following the Homer Smith method I do not deviate from this rule.

Of the five unreported cases in which preparatory capsulotomy was performed I wish to dwell particularly on two which presented unusual difficulties in deciding the best course to pursue:

Case 1.—Mrs. F., aged 47, consulted me in October, 1911, stating that for three years vision had been slowly declining. She had consulted an oculist in a Southern city and had been a resident in his hospital for three months and had undergone both surgical and medical treatment for the eyes at his hands. At the expiration of this time vision was worse rather than better. She consulted other oculists, some of whom gave her an unfavorable prognosis and advised against operation. I performed preliminary iridectomy on both eyes and with a hyperopic glass vision was improved from 20/200 to 20/50. Both lenses were opaque only in their posterior layers. The nucleus and the remaining portions of the cortex of each were clear. From the history and condition of the lenses the diagnosis of choroidal cataracts seemed justifiable. Syphilis and diabetes were excluded from the etiology. Recovery from the iridectomy was prompt. In May of the present year the patient returned. Vision had declined to 5/200. The opacity had invaded the layers posterior to the nucleus extending out to nearly the circumference, while the remaining cortex and anterior section still retained their transparency. Extraction, successful both in its performance and sub-

sequent healing, was the only hope, but was one justified in advising its performance? After thoughtful weighing of the pros and cons I decided in the affirmative. I divided the capsule on May 8 and extracted the lens on the following day. The patient was exceedingly nervous and I was obliged to close the eye without irrigating the anterior chamber. The wound healed in forty-eight hours and there was no complication. Vision, six weeks later, with a correcting glass equalled 20/30 mostly, and the patient could read, comfortably, ordinary newspaper type.

Case II.—The patient was also a woman, aged fifty-five. I performed preliminary iridectomy on the right eye January 25, 1913. Vision equalled 20/200. The nucleus of the lens was opaque but the entire cortex was clear. By April 30 the opacity had advanced to include more of the cortex and vision had declined to 5/200. Preparatory capsulotomy was made May 1 and extraction the following day. In this case the anterior chamber was irrigated. In five weeks vision, with correcting glass, equalled 20/20.

The three other cases operated on presented nothing unusual. The patients were all over sixty, the cataracts were nuclear and immature and all were successful.

The technique of operation of preparatory capsulotomy has been described by both Smith and Fridenberg. The former advocates a special knife. My earliest operations have been done with the knife-needle of Knapp and the later with Zeigler's knife-needle, both of which answered the purpose admirably. The procedure is not unattended with danger. The difficulty lies in making the incision just deep enough to surely divide the capsule and the lens cortex immediately beneath it, and not to dislocate the lens. The form of the incision in the capsule is, in my judgment, unimportant. I have found it easiest to make two incisions which approach each other or meet at their upper extremities—much like the V-shaped incision of Ziegler in after-cataract. The aqueous in nearly every instance escapes, but this is of no moment. Smith advises the extraction within six hours of the capsulotomy—I have extended the interval to twenty-four hours.

A word of caution during the expulsion of the lens is not out of place. After the iridectomy, or if the iridectomy has been previously performed, after the incision, one should remove all pressure by the speculum and wait a moment. If the lens shows no intention of expelling itself automatically I introduce the capsule forceps, remove the central portion of the capsule and express the lens, but usually the successful opening of the capsule on the previous day will obviate the necessity of the introduction into the eye of any instrument after the iridectomy.

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## THE CASE AGAINST THE EUGENISTS.

By Joseph Eastman Sheehan, M.D.,

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Everybody to-day is talking about social progress. Physicians, ministers, lawyers, college professors, the ordinary layman and social workers are falling under the influence of eugenics. Little did Sir Francis Galton, who practically established a basis for a relative study of a better breed of humans, probably after taking the hint from Darwin, dream of promoting a league of faddists. There is nothing really new in the study of eugenics. Plato even taught its principles. In ancient times, however, they studied questions more scientifically; in our day questions of serious import must, in order to receive any notice at all, become fads. The motto of the eugenists: "The fittest must and shall survive" briefly sums up the creed of our present-day social and medical reformers. To breed human beings as one does plants and domestic animals may become, in the near future, a national issue, if the eugenists have their way. The men and women who are administering the estate's temporal and spiritual of humanity have undertaken a movement that does credit to their emotions, if not to their judgment.

Eugenics represents an effort to bring together those people who have complementary qualities and complementary interests, who are capable of maintaining congenital relationships in the present and creating able offspring in the future. "Selection and parenthood," declare the eugenists, "are the cradle of the future." Hence the individual who in the exercise of his choice overlooks their significance overlooks one of the most important responsibilities.

Nietzsche gave us the word "superman"; George Bernard Shaw defined it. This brilliant Irish wit and iconoclast holds that "the union of a physically sound Anglo-Saxon and an imaginative Jewess would in all likelihood bring into the world a superchild after Nietzsche's heart." We do not know whether the experiment suggested by Shaw has ever been tried, but there is every reason to believe that, when the eugenists succeed in Burbanking the human race, if they ever do, we shall have to love according to legal statutes. Love and affection will no longer have its place in Dan Cupid's curriculum. We might have laws commanding an Irishman to marry a Russian woman; a Frenchman to marry a Polander; an American to marry an Italian, etc.

The objectors to the theories of the eugenist schools maintain that Mother Nature has already forestalled the "new science." Under actual human conditions nature accomplishes in due time what the eugenists wish to accomplish in a minimum of time. Dr. Saleeby of Edinburgh strikes a new note in the "science" by his doctrine of materialism. Not everyone, however, can accept his teachings *in extenso*. Dr. Saleeby upholds the dignity of motherhood. He says that "life begins at home, and the true politics of the world is domestic science." He wages incessant war against infant mortality, for once "the life is in being it ought to continue in being. Once the unfit are in being, we must make the best of them." He then contends, rather ingeniously, "that it is the psychical element in man which has the best survival value, and this psychical element, moreover, is not merely intelligence, but it is also love. Without love no baby could live for twenty-four hours. Every human being that exists is the product of mother-love or foster-mother-love. No morals, no man. There is no wealth but life, and if the quality of life fails, neither battleships, nor libraries, nor symphonies, nor anything else will save the nation. Empires and civilization have fallen despite the strength and magnitude of their superstructure, and all because the foundations decayed."

Further objections against the eugenic "system" are made by the philosophers and theologians, who declare that the teachings of the Galton school are not ultimate enough. The churchmen declare "the root-cause of degeneracy to be sin, and the root-cause of betterment to be virtue." Will-stimulus is at the origin of the church's suggested race-improvement ideas. They also argue that what they

aim at and accomplish, though sacramentally, is the production of genius in morality. Aiming solely at the development of spiritual life the church is able to carry out her own system of eugenics. As a matter of positive eugenics she teaches that marriage is a sacrament through which is conveyed a divine strength enabling the married pair to perform all the duties of their state. As a matter of negative eugenics, she places impediments against undesirable unions. In imposing or in taking away impediments the church always puts religious considerations first, for if the sanction of religion is destroyed other sanctions are ineffectual.

Eugenists lose sight of the *moral* worth in man. They forget that the dominant factor in eugenics is for men and women to lead pure lives. It goes without saying, however, that the influence of eugenics may be exercised through legal statutes touching upon sanitary conditions, but religion will have to do its part with individuals as well as sanitary laws.

One of the chief mistakes made by eugenists is in believing that *social* improvement and *racial* improvement are one and the same. It is generally admitted that with no change in rational capacity the combined efforts of generations to better life might produce a change in our social structure, and it appears that by such process the actual achievements of mankind have been brought about.

Now nobody will deny that society is composed of men and women whose qualities determine the nature of their interactions. Since men and women are of mixed dispositions it follows that their qualities are very complex. To quote an eminent sociologist: "That which is absolutely pure lacks strength. And that which has strength to resist friction lacks absolute purity. You can't make a hard tooth of pure gold. Examine closely the life of Augustine, Francis of Assisi, a Washington, or even Lincoln, you find the alloy." It is the alloy that enabled these great men to do hard work in spite of friction and fighting. Circumstances, however, may decide whether the gold or the alloy is to show on the surface. The ultimate determinants that urge society to advance or retrograde are the qualities of individuals. The efforts that individuals make to improve their conditions and the social order about them are themselves the result of these qualities. Now the eugenists admit that the quality of the stock is of high importance. They likewise admit that natural selection is no longer capable of performing its function of weeding out inferior stocks. But they reluctantly admit that to revert to the use of natural selection destroys the characteristic work of civilization. It has taken centuries upon centuries, they contend, probably millions of them, for society to have made the civilized progress of our times. Man has aided with mutual forbearance in this civilization; consequently he cannot undo the structure without destroying himself. What man can do is to substitute for natural a rational selection.

Eugenists also hold that the perpetuation of inferior stocks can be prohibited simply by having "a rational conception of fitness and a knowledge of the loss of heredity." Improving the stock by rational selection is quite legitimate, it is thought. Once having been born the child has a right to live; its claim upon society cannot be ignored without destroying the principles of the humanized social order. The claim, however, to bring children into the world is another question.

Many eugenists do not possess true conception of man's *social* worth; many have not the faintest knowledge of the laws of inheritance, the two elements that are strictly necessary to have a competent understanding, not only of the eu, but of the genics. Some of the more careful of the eugenists honestly aver that a well-established social philosophy for a thorough application of their principle is needed; others believe that mere enactments of law are alone sufficient to bring about the superman and the superwoman. As to the causation of many of the highest human qualities little is known; they readily admit that, before passing sentence of condemnation on any stock which perhaps may possess good elements mixed with blemishes, care should be exercised. They say that we do not want insanity, nor feeble-mindedness, nor alcoholism, nor syphilis. These are evils *in se*. Those infected with these diseases should be prevented from bringing children into the world after their own likeness.

It will readily be admitted that humans contain blemishes which are not serious in themselves, but which are insufficient adequately to condemn a stock. Take the subject of tuberculosis. Volumes upon volumes have been written as to the cause of this terrible malady, but we do not know even to this day whether this disease is hereditary or not. Every physician knows that some splendid specimens of manhood and womanhood have been stricken down with tuberculosis, whose qualities were of the highest, and whose infection involved no mental or moral turpitude.

Now if the tuberculous tendencies were stamped out what other qualities are we not stamping out along with it? If an otherwise talented stock contains this blemish will there result in its disappearance a net loss or net gain? Who can say? Consider the rapid advancement society has made along these lines of social progress in the last one hundred years. Society has gone forward in leaps and bounds by the development of the arts and sciences, both of which have helped millions who without such aid would have perished. It might well be asked whether if the tubercle had been left to carry on its ravaging work unchecked would there have been any social progress at all? If we may succeed in eliminating the tubercle by the development of scientific hygiene instead of eliminating the tuberculous—unless correlated with some other irremediable disease, tuberculosis will no longer be considered a defect. If the marriage of members of such stock had been prohibited the population and all that they might have contributed to society's permanent gain would have been lost.

Society in seeking to eliminate the vicious should be cock sure that its removal would be a net gain to society. We must be certain that the vice so often complained of by eugenists is irremovable, that it is dependent on conditions which we can modify. It is an open question whether eugenists in their strange program of a superhumanity would not be violating traditions of civilization and creating tendencies to rebarbarize the race.

Let us consider the case of the feeble-minded. This class represents a type which can be identified with a certain amount of accuracy. If we should categorize this class we would include men and women whose existence depends chiefly upon the state or the bounty of relative or friends. These dependents lack capacity; they are "drifters," who usually find their way to some jail or workhouse,

and whose condition is said to be hereditary in a high degree.

Cases such as these eugenists may well press for social solution, whether it be physiological or medical. It is a commonly accepted fact of life that a man's position and relation to society depends upon his social worth. But even in the well-to-do class are the pauper characters, "drifters," who neither spin nor work, but simply live to dissipate their patrimony. Society at large never hears of the well-to-do pauper character. Some men are brought to the top of the world by sheer good luck. The qualities by which men get up in the world are admixtures of good, indifferent, and bad. As to the predominating force of these three elements, consideration must be given as to the character of the social organization.

In these times what proof have we of actual deterioration? No report that would serve as a basis for studying physical deterioration of the race has ever been undertaken, and until such a program has been started we had better not rush into print and lament over the decline of society. Some years ago a committee was organized in England to study the question of race deterioration. The committee was not biased, and all available evidence in favor of deterioration was given serious study. It was found that there was not sufficient material at hand to warrant any definite conclusion on the question of the physique of the people examined by comparison with data obtained in times past, yet says the committee "the impressions gathered from the great majority of witnesses examined do not support the belief that there is any general progressive physical deterioration."

If we take up the matter of insanity we shall have to consider the causes of the increase of the insane. It is a most difficult question to determine the real elements that cause the increase of lunacy. Whether we can interpret the increase as evidence of physical deterioration, especially in industrial centers, may it not be connected with density of population; may it not be rather an effect of the worst side of our social environment, the rush and crush and strain of our industrial life than of deterioration of stock?

Since we have no inductive evidence of race deterioration we can go on inquiring why natural selection should be suspended within the limits up to which this suspension is possible to lower the social standard.

Like most biologists, the eugenists cannot concentrate their activities along direct lines. A great many biologists believe that environment has no direct effect upon the development of stock. On this point they dogmatize. On the other hand, there are other schools of biologists who assume to speak to the contrary, but they make the mistake of not differentiating between *racial* and *social* progress. Not until sociologists come to understand the biological points of race and environment—nature and nurture—will they appreciate that there is a great difference between *racial* and *social* progress. It is a question whether all social legislation has not been based on the assumption that better environment meant race progress.

That the Malthusian principle has tended to lower the general rate of reproduction among the wealthy class is true. The eugenists are nobly serving society by calling attention to the dwindling of the family among this particular class. The wealthy cannot cry out and say it is wrong for them to bring children into the world for whom no provision in life could be made. But that economic conditions affect the birth rate in different classes is unworthy of disputation. The poorer class seem to care very little about economics as this question affects the birth of their children. They seem to believe true happiness can come only with a large number of offspring. They know little about biology, environment, nature, and nurture, racial and social progress, and care less. And they seem to be happy in their set lives. What a great social work eugenists could accomplish, what a boon they would give to their cause if they could eradicate from the minds of the wealthy, and even the great middle class who ape the rich in all things, the belief that the reproduction of children is a social burden which they are not called to shoulder.

Suppose that the inferior stocks are actually more prolific in breeding than the better ones, the question remains whether the effect on the *race* is as serious as some believe. If we consider the average of congenital endowment in the race, we should ask how far this will be affected by the greater fertility of inferior stocks. It is assumed by the older biological theorists that "the race progressed by the constant cutting off of the tail and the consequent shifting forward of the mean point of capacity." According to some anti-eugenists "racial progress depends, not on the summation of small fluctuations that are constantly arising and dying away again, but on more definite mutations which, once arising, give birth to a new stock with a new mean point of its own. The individual descendants of the new stock will exhibit qualities which fluctuate about the new mean, but which tend always to return to it. The fluctuations, even if they persist for a generation or two, are not permanently transmitted. They arise and die away again. The mutations, on the other hand, are of permanent significance."

Applying biological conceptions scientifically we know that large fluctuations may have the same exterior appearances as true mutations, but their effect will be very different in after generations. However, in scientific practices we should be able to particularize on classing the stock evidencing some bad qualities. It cannot be denied that the fundamental strains constituting a population are intricately interwoven; neither can it be denied that in individuals are certain variations that arise from the conditions due to breeding and germinal quality. Should not physicians and those who are displaying an ultra-interest in eugenics first turn their attention to psychological conditions resultant from the laws of blending to see whether these conditions would not be more important for serious study than physical genetics?

Before we can safely advance along the lines of social progress there is a vast amount of work to be done in the line of heredity; there is exploring to do; there is scientific research work. We have yet to come to an appreciable understanding, a point to which eugenists have not yet brought us, why roving and undisciplined characters—the vagrant class—show strains which when mated produce originality and genius; why persons evincing the gentler strains give rise to weaklings who have influenced the coarser material of their mates.

The strict application of eugenic ideas must await the progress of biological knowledge. Those who believe in and advocate every social panacea and legislative interference for the uplifting of the human race should remember that inherent vice can-

not be converted into innate virtue, nor can they change "leaden instincts into golden conduct," nor "transform a sow's ear into a silken purse" by any known social progress.

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## VENESECTION IN CEREBRAL HEMORRHAGE, WITH REPORT OF CASES.*

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In our mad rush after medical novelties like women after a new style bonnet; in our oftentimes pathetic and almost hopeless search for curealls and specifics, it is a comfort to speak of a remedy which is not new and whose origin goes back beyond the ken of man, even to the age of mythology and prehistoric times. It has shared the lot of the animate as well as the inanimate. It has been proposed, become popular, been employed for every conceivable condition, and then has been abused and suffered obscurity on account of its indiscriminate popularity.

Venesection was in full use in the days of Hippocrates and was employed at the siege of Troy by a son of Aesculapius upon the warrior king, Menelaus. The Greeks, however, claim that Pedalirius, another son of Aesculapius, was the first to practice venesection among them. It is related that he cured Syrma by bleeding at a time when her life was despaired of because of a fall from the roof of a house. Hippocrates recognized three indications for blood-letting: First, as an evacuant; second, as a means of diverting the blood from a part predisposed to congestion, and, third, to relieve congestion. Themison, in 63 B. C., bled in apoplexy and even employed the trepan for the relief of the engorged blood vessels. Galen, in 131 A. D., strongly commended bleeding in apoplexy and syncope. Ambrose Paré obtained great relief from hemicrania in his own person as well as in patients by bleeding from the temporal arteries. During the eighteenth century the harmful results of the indiscriminate employment of bleeding became so evident that there raged in the profession and among the public a battle royal between the vehement adherents and the no less strenuous opponents of the practice. The latter dwelt with emphasis upon the serious complications which often ensued—ulceration of the tissues at the elbow, phlebitis, rupture of the biceps tendon, endocarditis, septicemia, and tetanus. The treatment of apoplexy was the subject about which this battle raged most fiercely. It was recognized even then, however, but not always with well defined clearness, that there was a form of apoplexy in which bleeding might not be indicated. "But in the severe cases of true apoplexy, the 'hemorrhagia cerebri' of the books, bleeding is demanded and unless the case be seen late it cannot be safely omitted."

In spite of its evident value in certain cases it passed into absolute neglect due largely to the influence of that master clinician Trousseau. In our day one fails to find anything more than its merest mention and our authoritative text books suggest the advisability of its employment with much questioning or with faint praise. Strumpell says: "Bleeding was formerly universally practiced, but of late its usefulness is doubted." Dieulafoy merely makes the pathetic statement: "Apoplexy is treated by bleeding, leeches behind the ears, enemata, purgatives, and counterirritation of the lower extremities." Osler recommends venesection, and then condemns it by quoting Cushing's experiment on intracranial blood pressure. Spiller, in Musser and Kelly's "Practical Treatment," says: "When the pulse is very full, 8 to 16 ounces of blood may be removed. It is questionable whether such bleeding is of benefit to the patient." Grinker, in Forchheimer's "Therapeusis of Internal Diseases," says (in small type): "In plethoric and robust individuals venesection is indicated. On several occasions I have seen beneficial results from the withdrawal of large quantities of blood in comatose patients. In many cases no good is accomplished by this measure. Bleeding seems to do good in the milder cases only." On the other hand, Tyson, in the last edition of his "Practice," states with emphasis that the patient should be bled at once unless the pulse is small and feeble. Tooth, in Allbut's "System of Medicine," says that "bleeding in cerebral hemorrhage has passed through a long period of disrepute, brought about by its indiscriminate use. It is doubtful whether its discontinuance as a mode of treatment is not almost as discreditable as its abuse. On physiological grounds it is difficult to see that it can do anything but good when used with discrimination."

In apoplexy there is a hemorrhage usually from a branch of the artery of the fissure of Sylvius. The blood escapes under a pressure nearly equal to the general arterial pressure and subjects the adjacent soft substance of the brain to the possibility of destruction by this pressure which is transmitted in every direction. The vital indication is to promote coagulation at the point of rupture and thus stop the hemorrhage and minimize the pressure upon and thereby the destruction of the soft tissue. Coagulation of the blood, according to the theory of Howell, is due to the action of the enzyme thrombin. This arises from the cells, the intima and the leucocytes, and when liberated by rupture of the intima splits up fibrinogen into fibrin. This destroys the balance normally present between antithrombin, which possibly comes from the liver and thrombin. The vascular pressure plays an important but secondary part in the stability of the clot. It is very doubtful whether we can increase the coagulability of the blood in a way to be of service in apoplexy. Horse serum is certainly a valuable hemostatic in many cases of vascular hemorrhage, and Wright has advised the use of calcium salts to hasten coagulation, but personally I have seen no mention of the value of either in cerebral hemorrhage.

It is, however, within our power to modify the vascular pressure. Two means are at our disposal: 1. Horsley and Spencer have shown by experiment that hemorrhage from the middle cerebral and its branches may be controlled for a considerable time by compression or ligature of the carotid on the same side and this in spite of the anastomosis of the circle of Willis. 2. Venesection or arteriotomy of the temporal artery. Both tend to lower arterial pressure and, even though temporarily, lessen the hemorrhagic effusion and allow coagulation to take place. Of all the drugs employed for the reduction of blood pressure it is more than doubtful if any one of them has much more than a suggestive effect and that almost entirely on the physician himself. In a full-blooded patient with face flushed and pulse full, bounding, somewhat slow and of high tension (200 mm.), venesection will immedi-

*Read by invitation at the seventh annual meeting of the Fourth District Branch of the Medical Society of the State of New York, at Fort Edward, N. Y., Oct. 14, 1913.

ately reduce the tension, if only temporarily, fifty or more millimeters, thus aiding the organism to firmly fix the clot. What else have we to offer? An ice cap to the head, hot applications to the feet, croton oil on the tongue and nitroglycerin or its congeners.

Truly pathetic is this inactivity when immediate masterful activity is demanded to save the patient from a fate often worse than death. Two criticisms seem possible. That of diagnosis and, second, the ability to do this simple operative procedure. The diagnosis in the vast majority of the cases is evident after a superficial examination. In fact, the laity usually make the diagnosis. They appreciate the gravity of the condition and send for the physician at once at the most opportune time to help. But even if the diagnosis is obscure the indication is no less insistent. This treatment is purely symptomatic and is indicated only when abnormally high blood pressure is present. Although I appreciate that our interpretation of blood pressure is as yet in its infancy and that many of our present theories regarding the same may in the future be much modified or even discarded, still I believe it is a fact beyond dispute that any patient suddenly becoming unconscious or presenting symptoms of cerebral insult with a blood pressure of more than 200 mm. should be immediately bled. With the common use and ease of employment of the various sphygmomonometers and the certainty thereby of the accurate determination of the blood pressure the merest tyro is able to recognize with absolute exactitude this indication. The act of venesection itself has assumed an unnatural formidableness to those of us who are not surgeons because it is not in common practice. In the unusually stout person there may be some difficulty in finding easily a vein at the bend of the elbow, but in these patients there are usually in the legs varicose veins which stand out imploring to be relieved. There is no need of speaking of the complications common a century ago. Today there should be none to the physician who uses even ordinary care. The following cases are illustrative:

Case I.—W. J. H., male, aged 44, married, and has one child. Office work. Weighs stripped 260 pounds. Seen in consultation. Has smoked excessively—20 heavy cigars a day. Drank freely up to two years ago and since then moderately. A hearty eater. Denies venereal history. Thirty-five years ago had a mild fever lasting two weeks and three years ago had neuritis affecting his left arm after a fall. His father died from tuberculosis at 58. Mother found dead in bed, probably apoplexy, when 64. One sister aged 54 in good health. On July 4, 1913, he returned home, having traveled the previous night in a sleeping car with window open and exposed to the draught. As he attempted to leave the train at 8:30 a. m. he noticed his left leg seemed heavy and he had a little difficulty in walking. Later his left arm appeared awkward and by noon both the arm and leg were moved with difficulty; the tongue was protruded to the left and the mouth was slightly drawn to the right side. Pupils equal and reacted normally. Reflexes active. Urine free from albumin and sugar. Heart and lungs negative. Pulse full, bounding, 110 in frequency and blood pressure was 235 mm. Temperature normal. Twelve ounces of blood were removed from a vein in the right arm. The following day the improvement was so marked that the patient urged the removal of more blood when one and a half pints were drawn from a varicose vein in the patient's leg. On July 6, 10 ounces more of blood were removed. His blood pressure dropped to 180 mm. then very gradually went up to 200 mm. He was placed on a light diet, largely buttermilk and salines. July 28th he was able to walk about the house without assistance and felt in excellent spirits. His weight is now 225½ pounds, a loss of 35 pounds and the blood pressure is 180. He walks out with a slight hitch and exercises to a point of fatigue. Sleeps well. His diet now consists of milk, buttermilk, all kinds of green vegetables, fruits, eggs and fish.

Case II.—Mrs. H. B., a widow, aged 54, was admitted August 1, 1913, to St. Peter's Hospital, Albany, in profound apoplectic coma. Seen in consultation with Dr. Fromm The family history was essentially negative. Up to within two years of her admission she had always enjoyed good health. During the past two years the patient suffered two seizures, one of which was pronounced by her family physician to be uremic and the other a very slight cerebral hemorrhage. She recovered from the latter with no paralysis. Her present illness was of two days' duration and occurred at a summer resort not far from Albany; in the middle of the afternoon of July 29 while at table she complained of a numb feeling in the left arm. She was taken to her room, put to bed and in an hour became unconscious. The patient, a large framed plethoric woman of the German type, was in deep coma with stertorous breathing. The left arm and leg presented marked rigidity; there was no inequality of the pupils. The lungs and heart were negative with the exception of a moderate accentuation of the second aortic sound. The radial and temporal arteries were slightly sclerotic. The urine with a specific gravity of 1005 showed the presence of a large amount of albumin and a few hyaline and finely granular casts. The systolic blood pressure by the "Tycos" instrument was over 260. Venesection was now resorted to and 12 ounces of blood abstracted from the right median basilic vein. One hour later the systolic pressure was 185. The next day the rigidity of the left arm and leg gave way to a well-marked flaccid hemiplegia accompanied by a ptosis of the left eyelid and a dilation of the corresponding pupil. The systolic pressure was 195. There was no amelioration however in the comatose condition. On August 3rd the systolic pressure was 170 and two days after admission without regaining consciousness the patient died. The severe hemorrhage from which this patient apparently suffered precluded hope from any line of treatment.

Case III.—Mrs. F. B., 65, widow, was brought to St. Peter's Hospital, Albany, September 7, 1913, in the ambulance unconscious and with no control of bowel or bladder. Her family history is not significant. Father, one brother, and one sister died of pneumonia; another sister, from heart trouble, and a brother from cancer of the stomach. Her mother died from puerperal fever at 28, and one sister is living and well. She had scarlet fever at eighteen which was followed by some cardiac disturbance. She has had no children and no miscarriages. She drinks two cups of strong coffee each morning and two cups of tea for dinner and for supper. She has never used alcohol in any form or drugs of any kind. She was unconscious on entrance with frothing from the mouth. The mouth was drawn slightly to the right side and there was apparent rigidity of the entire right side. Eyes were normal but the patella reflexes were absent. The heart and lungs were negative and the urine contained a large quantity of albumin but no casts were found. The blood pressure was 260 mm. Venesection was done at once and the pressure fell to 175 mm. She remained unconscious for 24 hours and then was very dull and apathetic. No hemiplegia was present. The pressure gradually rose and three days later reached 240 mm. On Sept. 26 she was out of bed and about the ward though still somewhat dazed and uncertain in her movements. She was discharged improved from the hospital October 1, 1913.

This is apparently a case of cerebral congestion without vascular rupture, but the indication for venesection was equally marked.

Case IV.—D. W. C., aged 70. An active, wiry man. Seen in consultation with Dr. John J. Beard, September 20, 1905. While attending the Fulton County Fair the patient noticed a weakness of one side which rapidly developed into a hemiplegia. The median basilic vein was opened and a quart and a pint of blood were removed. The paralytic symptoms rapidly improved and in about three weeks the patient was out and about with only a slight limp and weakness of his hand. He lived actively for a number of years after this attack.

274 State Street.

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**Permanent Alopecia Following X-ray Treatment for Tinea Tonsurans.**—G. Pernet reports the case of a little girl who had been *x*-rayed two years previously. There was complete alopecia. As there were a few small crusted lesions the author ordered a diluted white precipitate ointment, and the mother was sure some of the hairs had grown since. A few stray hairs were now to be seen.—*Proceedings of the Royal Society of Medicine.*

## A PRELIMINARY REPORT UPON THE SPECIFIC ACTION OF ETHYL HYDROCUPREIN ON PNEUMOCOCCUS INFECTION OF THE EXTERNAL TISSUES OF THE EYE.

BY ALFRED WIENER, M.D.,

NEW YORK.

AN ulcus serpens upon the cornea of an eye is a very serious affection. It is so malignant in its nature that partial or complete blindness is the usual outcome. If the eye escapes destruction, the poor vision which remains is due to the dense corneal opacity which follows the healing of the ulcer. Even in the mildest cases the sight is interfered with to such an extent that an iridectomy is often necessary to obtain fairly serviceable vision. In the *Klin. Monatsblätter f. Augenheilkunde* there appeared in the October and November numbers of this year two articles which called attention to the excellent results obtained by the use of ethyl hydrocuprein, a derivative of quinine. Morgenroth and his associates had proven that the chemotherapeutic influence which this preparation has upon the pneumococcus, the germ responsible for such a malignant ulcer, is practically specific. M. Goldschmidt, working in the clinic of Prof. Dr. H. Sattler in Leipzig, and Max Schur in the clinic of Prof. Dr. G. V. Schleich in Tübingen, have made use of this chemical clinically and reported their results in the above-named journal. They were so convincing and so astonishing that I was persuaded to make use of this preparation in a case which recently came under my observation.

M. K., 45 years old. A sufferer from dacryocystitis for a great many years, developed about three days previous to the time that I first saw him an ulcer of this nature. He was attacked with sudden pain and redness of the right eye. On the following day he noticed, as he expresses it, a white spot over the pupil. The pain became intense. There was marked photophobia and epiphora. His vision was very much interfered with. I saw him on the third day, and his status was as follows: Right eye showed a central ulcer of the cornea. There was present intense epibulbar and ciliary injection with conjunctivitis. On the conjunctiva, and from the sac, one could express a mucopurulent secretion, more purulent than mucus. The ulcer appeared progressive towards the inner and lower part of the cornea, sloughy on its surface, and an infiltration deep into the parenchyma. The cornea was hazy throughout, and there was a distinct hypopyon. Vision equal to hand movements. The patient was admitted to St. Luke's Hospital. He was placed at once under the treatment as prescribed by Goldschmidt and Schur. The ulcer was bathed with a 1 per cent. solution of ethyl hydrocuprein for one-half minute every hour. This was done for six hours on the first day, and twelve hours on the next. Just previous to using the drops the sac was expressed, and the conjunctiva thoroughly cleansed with boric acid. On the morning of the second day the hypopyon had vanished, and the cornea, with the exception of a minute spot on the surface of the ulcer, was transparent. The edges of the ulcer were clean, and no progression noticeable in the parenchyma. On the third day, with the exception of a slight depression and faint macula in the region of the ulcer, the cornea was practically normal in appearance. The bulbar and palpebral conjunctiva still showed some injection, and a mucopurulent secretion could still be expressed from the sac. This secretion, however, was different in nature from that found early in the disease. There was now more mucus than pus. A culture still showed the pneumococcus. On the seventh day the sac was removed. The eye is now practically well and the culture is sterile.

I have only this one case to report, but its threatening and treacherous outlook was so evident, its response to the treatment after eighteen hours so astonishing that I felt the result should be recorded. It is for this reason that I report it as well as with the hope that others will make use of this chemical preparation, and place their results upon record, so that we may come to some definite conclusions in regard to its value.

616 MADISON AVENUE.

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**Massive Coagulations of the Cerebrospinal Fluid.**—R. Debré and J. Paraf allude to the rarity of this condition, twenty instances of which have been reported. They report the case of a girl aged 14 years suffering from tuberculous meningitis. The cerebrospinal fluid removed by lumbar puncture completely clotted in a few minutes. The authors point out that in the majority of cases in which the cerebrospinal fluid behaves in this manner, the patients present the symptoms of meningomyelitis or of spinal compression with paraplegia.—*La Presse Médicale.*

**Splenic Enlargement, Hemorrhage, Anemia, with Oral Sepsis.**—W. Essex Wynter reports the case of a man aged 50 who had severe epistaxis in May, 1913. He went to the hospital and the teeth were attended to after the bleeding had been stoppd. On August 10 there was sudden pain below the left ribs; the spleen was found enlarged, and when the patient was admitted to the hospital on August 20 it extended to within 1½ inches of Poupart's ligament, and 2 inches beyond the umbilicus in the middle line. It was firm and not then tender. The heart and lungs were normal. On September 10 sudden and severe pain occurred over the spleen, with subnormal temperature, vomiting, and collapse. Friction could be heard over the organ, which was apparently the seat of an infarct. A similar attack occurred two days later, but less severe, and no friction could be detected. On September 18 severe and persistent epistaxis occurred, which was only arrested by plugging the nostril. On September 25 this recurred with less severity, both attacks being preceded by severe headache. No lesion of the mucous membrane could be detected. Apart from the leucocyte count the picture was that of splenic leukemia. The urine contained 0.3 per cent. of albumin, but was otherwise normal; specific gravity 1020; it was acid and clear; albumoses were not found. The teeth were much decayed, have been entirely neglected, and there was extensive pyorrhea.—*Proceedings of the Royal Society of Medicine.*

**Actinomycosis of the Cheek Treated by Parenchymatous Injections of Formalin.**—G. H. Makins reports the case of a boy, aged 17, who was admitted into St. Thomas' Hospital in January, 1913. Two months previously an alveolar abscess had developed in connection with some carious teeth. The abscess was incised, and shortly afterward a hard, brawny swelling developed in the right cheek. On admission this swelling occupied an area of about the size of a half-crown piece. It was bluish red in color, very hard, and firmly fixed to the surface of the maxilla. Four discharging sinuses were present, and on examination of the pus exuding from these the streptothrix of actinomycosis was discovered. During the month of February iodide of potassium, beginning with 5 grain doses, rapidly increased to 20 grains, was administered internally three times daily. On February 21 two hypodermic syringefuls of 4 per cent. formalin solution were injected around the periphery of the indurated area and into the margins of the area itself. The injection was followed by considerable swelling of the cheek and lower eyelid. A second injection was made on April 4, after which all the sinuses closed. Meanwhile considerable diminution occurred in the extent of the induration. Further injections were made on April 22, May 30 and July 16. Each injection was followed by considerable local edema which rapidly subsided, after which the indurated tissue became less in extent and freely movable upon the maxilla. The injections were necessarily made around the circumference, since the fluid could not be freely forced into the indurated area. At the present time the cheek is nearly normal, the only fixed spot corresponding with the cicatrix of the largest of the sinuses present when the formalin treatment was commenced.—*Proceedings of the Royal Society of Medicine.*

# MEDICAL RECORD.

*A Weekly Journal of Medicine and Surgery.*

THOMAS L. STEDMAN, A.M., M.D., EDITOR

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## THE NATURE OF OLD AGE AND OF CANCER.

THE conception is not new which regards cancer as in some way allied to senile changes in the tissues. Yet probably no hypothesis has yet been advanced which so ingeniously coordinates the phenomena of both old age and cancer as does that put forward by Hastings Gilford in the *British Medical Journal*, December 27, 1913. He points out that one feature of cancer which suggests a developmental origin is the variability in its rate of growth. In this variability, however, there may frequently be perceived an acceleration and a retardation suggestive of the rhythmical or cyclical changes of normal development. That which points most conclusively to a developmental origin of cancer is the fact that this process originates in cells whose development has been arrested. The secret of cancer, according to Gilford, is to be sought in the proper conception of the declining period of life. The involution of the organism must be regarded as a necessary phase of development, which may be graphically represented by a curve that reaches its summit in middle age and then descends to terminate in death.

What is the essential nature of senility? This is not merely disorganization and decay, but is an orderly biological phenomenon that is shown in each of three ways, namely, in decay, in fibrosis, and in proliferation. In the process of decay the higher types of cells are stricken first, and each organ seems to have its own standard of longevity. The process of fibrosis is intimately associated with that of decay. The effete materials resulting from the senile deterioration of the cells are taken up by the fixed connective tissue cells, which undergo proliferation in order more effectually to perform this function. These connective tissue phagocytes when they have fulfilled their rôle, settle down as inert fibrous tissues. This conception of the fibrosis incident to old age is based upon Metchnikoff's observations. Gilford, however, emphasizes the fact that neither decay nor fibrosis is the essential factor in senility. Each of these changes is merely the expression of the fundamental phenomenon of old age, namely, regression.

Between the higher type of cells which exhibit most prominently the changes incident to senile decay and the lower type, such as the connective tissues cells which serve a mechanical purpose or act as phagocytes, there is a type of cells that display a combination of the properties of the above two groups. The last type consists of the epithelial cells whose growth does not cease with old age. There is a tendency for epithelial structures to undergo proliferation during old age. As examples may be mentioned the development of corns and callosities, the renewed activity of the mammary gland at the menopause and the overgrowth of the renal epithelium in old age.

Gilford applies the conception which regards senility as a condition whose dominant note is one of regression, in the interpretation of cancer. This he attributes to the same fundamental process. "Certain somatic cells become aged while the tissues around them are still in a state of comparative youth. They express their senility by returning to a more embryonic form, and as they do so they increase in number, the faculty of multiplication being one of the manifestations of regression." Cancer cells are derived from the lower type of cells whose senility is characterized not by decay but by proliferation. The cells that give rise to cancer are in a state of suspended development or infantilism, and just as human beings who are in a condition of infantilism are prone to premature senile decay, so also the infantile group of cells take on early the senile tendency, which in the case of these cells is one of lawless proliferation.

The question now arises, how can one account for the suspended development or infantile condition of the cells that give rise to cancer? The answer is that this suspended development is but an instance of the fluctuations to which all living things are subject. The latent or normal fluctuation of a certain group of cells may be intensified or exaggerated by some external irritation, such as the friction of a rough surface. As a result the cells which lag behind in their development and behave as embryonic residues, are stirred into a senile proliferative activity. In this capacity they become alien to their environment, giving rise to the reactive proliferation of the surrounding connective tissue elements and to other secondary changes.

The essence of Gilford's theory of cancer is the conception of premature local senescence or cell senilism.

## SUCCESSFUL REMOVAL OF AN EMBOLUS FROM THE ABDOMINAL AORTA.

THE lodgment of an embolus in the abdominal aorta is a rare occurrence; but the successful removal of such an embolus, as reported by Fritz Bauer (*Zentralblatt für Chirurgie*, Dec. 20, 1913) is so much more of a rarity that it deserves special mention. At the beginning of last September, a man, 39 years old, suffering for 16 years with articular rheumatism, entered the medical side of the General Hospital at Malmö, Sweden, the diagnosis on admission being insufficiency and stenosis of the mitral valve. Not long after admission the patient was suddenly seized with severe pains in both legs, especially the left, and found that he was unable to move them. At the same time he noticed that they were blue and cold. Dr. Brahme was summoned and after making a diagnosis of embolus in the aorta, no-

tified the surgical division and had the patient transferred there. Examination showed severe pains in both legs and upward to the abdomen, the skin on both legs and on the abdomen up as far as the navel was livid, marbled, cold, a little more on the left side and in the peripheral parts; no pulse was palpable in the lower extremities; there was complete loss of sensation in the feet and lower legs, not complete in the thighs or in the lower part of the abdomen; inability to move the legs; abdomen not distended; no edema; no ascites.

There was no doubt that an embolus caused these symptoms, and that most probably it was lodged firmly in the abdominal aorta just above its division, since there were no symptoms pointing to any acute disturbance of the abdominal organs or the kidneys. It was further clear that the threatening gangrene in both legs made necessary the removal of the embolus as soon as possible. About three hours after the beginning of the attack an incision some 20 cm. long was made in the linea alba, and another incision in the posterior peritoneum to the left of the root of the mesentery laid bare the aorta and iliac arteries to the extent of about 10 cm. The pulse could be felt in the aorta to about 3 cm. above the point of its division, but there was no pulsation below that. Just below the point of pulsation one felt a firm mass which extended a little way down both iliac arteries. Under digital compression of the aorta by an assistant, an incision about 2 cm. long was made lengthwise over the embolus which immediately came into view and was easily removed. The wound in the artery was closed by means of four No. 0 twisted silk sutures and between these, two Carrel sutures. The bleeding stopped after short, light compression over the sutures; both iliac arteries then pulsated. The extracted mass was 3 cm. long and shaped like a great tooth with two short roots; the crown in the aorta, the roots in the two iliacs. It had a nucleus about the size of a small hazelnut, yellow-gray, fairly firm, as the embolus proper; around this, a red mass of clotted blood. The patient made a perfect recovery.

Key successfully operated for thrombosis of the femoral (*Hygiea*, lxxv, 1913), and found three cases of operation for embolus of the peripheral arteries in the literature; one successful and two failures. Willy Meyer (Trans. Am. Surg. Asso., Vol. XXXI, 1913) states that in Trendelenburg's clinic twelve operations have been done for pulmonary embolism, and four in Sauerbruch's clinic, all the cases terminating fatally. These quotations refer to work in the other large vessels under somewhat different conditions and different degrees of difficulty; but, nevertheless, make Bauer's brilliant result appear all the more remarkable. We have found no other report of removal of an embolus from the aorta in current surgical literature.

## PUBLICITY.

Food is good for man unless it happens to disagree with him, in which case the resulting indigestion causes him a certain amount of discomfort and may do him actual harm. Publicity is likewise a good thing, but if the matter made public is beyond the ability of the readers to digest it, it can produce an almost incalculable amount of damage. One of the chief advocates among the daily press of publicity for medical reports, in discussing the recent and still active controversy about radium, divides the opponents of such publicity into three groups: (1) those who have been passed over by the reporters and are opposing because of envy; (2) those who have not had opportunities of working with the methods in question and are resentful of the publicity accruing to those with greater advantages; (3) those doctors who are annoyed when their patients are initiated into any of the preciously guarded medical "mysteries." Of course there is no doubt that these three classes of individuals exist and it may be that some of the noise in opposition to this publicity has arisen from among their ranks. The article in question, however, completely ignores the existence of a large class of thinking physicians who deplore the premature and incomplete presentation of a few experimental results to a heterogeneous mass of readers, the great majority of whom are wholly incapable of giving to them their true worth or of assimilating them without serious mental indigestion. One can easily call to mind the numerous cures of various kinds that have been heralded in the public press within the past few years. Eosin-selenium shows a pronounced effect upon certain mouse tumors and the public is told that cancer is no longer to be dreaded. The whole vogue of the Friedmann vaccine for tuberculosis was a product of newspaper publicity methods, and at the present time radium is being held up as the only sure hope of the cancerous. As a result of these immature outbursts of hysterical enthusiasm it has fallen to the lot of almost every physician to interview some patient suffering with incurable cancer or tuberculosis, to listen to the confident expression of a belief that here at last has been found a cure for his disease, and then as gently as possible to tell him that the confidence is founded on nothing more substantial than reportorial imagination. The patient is not justly to be blamed if he goes away cursing his doctor as a hide-bound conservative. We never love the man who destroys the bubbles of our fancy with the hot wire of fact. The responsibility for raising these false hopes rests directly upon the press which so eagerly disseminates this variety of partial information. After a veritable orgy of ill-considered enthusiasm, the cold facts concerning radium are beginning to filter into the public press and the public is at last being told that, while this wonderful element has its own place in the treatment of cancer, this place is distinctly limited and it cannot be relied upon to cure every case. How much wiser it would have been to have started the discussion with this premise.

In this same article this paper claims that it "can truthfully assert that it has promulgated no sensational or harmful statements." In another column of the same issue is an article entitled, "The Artificial Kidney," which is based on an article by Abel, Rowntree, and Turner (*Jour. Pharmacol. and Experiment. Therap.*, 1914, V, 275), in which they

report their experiments on the removal of substances by dialysis from the circulating blood of living animals. Nowhere in their report do these authors intimate that the apparatus in question offers a cure for nephritis or could be substituted for a diseased kidney. Yet this newspaper says "an 'artificial kidney' has been invented . . . . to do the work which the kidneys refuse to do, as also the work for which they may be incapacitated from doing." And later, "As a substitute for the work of the kidneys in an emergency and to tide over dangerous crises, this 'artificial kidney' should be available and useful in the hands of skilled surgeons." It is almost certain that as a result of this article many surgeons will be importuned to save the lives of patients in uremic coma by making an artificial kidney, and it will be difficult for them to convince the relatives that such a thing is impossible. Again hopes will be raised only to be crushed, and doubtless the newspaper will disclaim responsibility. It is, of course, not to be expected that a few hours' rest such as would be afforded by the use of this apparatus would enable a badly diseased kidney to resume functioning, but many readers who lack special knowledge will be unable to appreciate this fact. It is just this sort of ill-advised publicity to which the thinking members of the medical profession are strongly opposed and which has turned many physicians against what was at one time the newspaper of their preference.

### The Alleged Epidemic of Syphilis in Europe Following the Discovery of the Antilles.

Sudhoff, one of the few great medical historiographers of the school which look always into original sources and collateral sources, announces that after many years of research he is quite unable to verify the tradition regarding a general venereal pestilence in Europe after the discovery of America, and supposedly brought from that continent. Many years ago F. A. Simon reached the same conclusion, but under very different conditions. Simon took such data as came to him and analyzed them vigorously. Sudhoff and his congeners, on the contrary, are recreating the past with all the thoroughness of one who makes an ordnance map. Hence at times they may not be at work on a medical problem, but on something which will eventually throw light on the latter. There was no venereal plague in Charles VIII's army in the spring of 1495; nor did such a one break out later in Charles' army of occupation. The pest which did "annihilate" his army at this time was beyond doubt typhus. No venereal plague proceeded from Italy to Germany and elsewhere. Syphilis was known in Germany as early as in Italy—perhaps earlier. The author has studied hundreds of files of archives of European cities from which alone could we expect to find traces of a new pestilence. In these we find mention of vagabonds cared for, among them syphilitics, but none migrants. The amounts appropriated for these diseased outcasts were very small, far too small to control any pestilent disease. The author devoted much time to Augsburg, one of the large medieval cities of Europe. In November, 1494, the first evidence is seen in the purchase of a house which soon became known as the Blatterhaus-Syphilis House. Complete records exist of this hospital from 1497 to 1550, including cost per year of maintenance, which is plotted into a curve. The figures are very low but occasionally shoot up, indicating that during that year some severe pestilence, as typhus or plague, increased the appropriation, but the low figures prevalent from 1497 to 1520 show that no pestilence of any sort was present. The one exception, 1511-12, was a bubonic plague year. Thus Sudhoff (*Münchener medizinische Wochenschrift*, December 9) seems to have proved indirectly that no great venereal plague ever reached Augsburg, but instead only a certain small number of local paupers required asylum treatment for the malady.

### Left-Handedness.

At a recent society meeting in Germany, Bardeleben (*Münchener medizinische Wochenschrift*, December 2) discussed the anomaly of left-handedness from the viewpoint of its relationship to mental and bodily inferiority. That a few great men were left-handed, such as Leonardo da Vinci, does not neutralize the prevalent belief—in all ages—that left-handedness implies a substandard subject. The percentage of left-handed recruits is but 6.8; of school children somewhat higher. These figures are very deceptive, however, for of the left-handed who became right-handed, the percentage is some 26. This, added to the persistently left-handed, raises the original percentage of left-handed considerably. This left-handedness may be shown to be left-sidedness, the entire side of the body showing evidence of a greater development on that side. In the brutes the preponderance of one or the other half of the body may vary according to race. Thus the gibbon and orangoutang are as a rule right-handed; the gorilla and chimpanzee left-handed. In brief, there is no evidence at all that a left-handed or left-sided subject is physically or mentally inferior. Left-handedness appears to be familial or racial. It is the predominance of right-handedness that requires explanation.

## News of the Week.

**Infant Mortality in 1913.**—The Babies' Welfare Association in its annual report places the death rate among infants in New York City during 1913 at 102 per thousand births, which is probably the lowest of any large city in this country. The total number of deaths during the year of children under one year of age was 13,779, as against 14.259 in 1912. The decrease in the number of deaths took place in Manhattan, the Bronx, and Brooklyn, while in Queens and Richmond, where but little infant welfare work was carried on, there were slight increases. The birth rate during the year dropped also from 26.22 per thousand in 1912 to 25.15 in 1913, the actual number of births being 135,655 and 135,134 in the respective years.

**Typhus on Steamship.**—On January 7, for the first time in at least twenty years, a case of typhus fever was brought into the port of New York, coming on the steamship *Roma* from Marseilles. The disease developed in the steerage during the voyage and was first discovered when the *Roma* arrived at Providence, to which port almost all of her passengers were bound. After being held in quarantine at Providence for a short time the ship was sent on to New York, by ar-

rangement between Surgeon-General Blue and Health Officer O'Connell, because of the inadequate quarantine facilities at Providence. On its arrival here one passenger suffering with the disease was transferred to Swinburne Island and thirty suspects were sent to the new hospital on Hoffman Island for observation. One death occurred on the ship during the voyage, but the disease was not then recognized and the diagnosis of tuberculous meningitis was made.

**Beriberi in New Jersey.**—A report from Surgeon-General Blue of the Public Health Service shows that during the last three years there have occurred in the county jail at Elizabeth, N. J., twenty-two cases of beriberi. The investigation showed that at one time all of the inmates of the jail who were serving sentences of over sixty days had contracted the disease.

**Pasteur Treatment by the Department of Health.**—The administration of the Pasteur treatment for rabies, which until January 1, 1914, was carried on at the Research Laboratory of the Department of Health of New York and at the Brooklyn Borough Office, was on that date transferred to the Bureau of Infectious Diseases, and a daily clinic from 1 to 4 p. m. was established in Room 802 on the eighth floor of the Department Headquarters, 149 Centre street, New York. On Sundays and holidays, patients from Manhattan are referred to the Brooklyn Clinic, held at the Brooklyn Borough Office, Flatbush avenue and Willoughby street, between the hours of 10 and 12 A.M. A clinic will also be established in the near future at the Bronx Borough Office. For the present cases from the Borough of Queens are referred to the Brooklyn Clinic, and cases from the Borough of Richmond to the Manhattan Clinic for treatment.

**Investigation of Lourdes.**—The Medical Society of Upper Bavaria, Germany, at a meeting on January 8, adopted a resolution requesting the Bavarian Government to investigate the propaganda of the Lourdes pilgrimages and the "exaggerated and misleading reports of alleged cures there."

**City Death Rate.**—For the week ending January 6 the death rate in New York City was 14.43 per thousand of population, the total number of deaths being 1,544, as against a rate of 14.75 and a total of 1,519 deaths for the same week of 1913. The deaths from measles, scarlet fever, influenza, and lobar and bronchopneumonia were considerably decreased, while those from diphtheria and croup, Bright's disease, pulmonary tuberculosis, and nephritis were increased.

**Harvey Society.**—Prof. Victor C. Vaughan of the University of Michigan will lecture before the Harvey Society at the New York Academy of Medicine, on the evening of January 17, at 8.30. Prof. Vaughan will speak on the "Phenomena of the Infection." On the evening of January 24 Prof. Sven G. Hedin of the University of Upsala will lecture before the society on "Colloidal Reactions and Their Relations to Biology."

**Tuberculosis Hospital.**—The Camden County Hospital for the care and treatment of persons suffering from tuberculosis, which is situated at Ancora, N. J., has just been opened. The hospital, which has been erected at a cost of about $50,000, is a frame structure, 368 feet long, 25 feet wide, and three stories high. It consists of an administration building which is connected by corridors with two wings, each 92 feet long and surrounded on both floors by spacious porches for outdoor treatment. There are four public and four private wards.

**College and Hospital.**—Under an agreement between the trustees of Western Reserve University and the Department of Public Welfare of Cleveland, O., the university secures the right of appointment of the medical and surgical staffs of the Cleveland City Hospital, and the sole privilege of using the patients for purposes of instruction and medical research. This will give the School of Medicine of the university the control of a hospital of 1,300 beds and will be greatly to the advantage of both institutions. The appointments which will be made by the Department of Public Welfare on the nomination of the university trustees will go into effect on February 1, 1914.

**Gifts to Charities.**—By the will of the late Mrs. R. S. Blumenthal of New York the Montefiore Home for Chronic Invalids receives $3,000 and Mount Sinai Hospital $300.

By the will of the late Annie Grandon of Philadelphia the sum of $5,000 is bequeathed to St. Joseph's Hospital and the sum of $3,000 to St. Vincent's Home and Maternity Hospital.

The Jefferson Medical College, Philadelphia, has received from Mrs. Lucy Henderson of New Castle, Pa., a fund yielding an income of about $2,500 annually which is to be used for the investigation of the effect of radium upon cancer.

**Personals.**—Dr. W. W. Keen of Philadelphia was recently re-elected president of the American Philosophical Society.

Dr. Wallace R. Hunter of Erie, Pa., has been appointed by Governor Tener as a member of the commission to select a site for the State institution for inebriates.

Dr. Edward Osgood Otis of Boston has recently, after twenty-seven years of service, announced his retirement as senior physician of the Boston Dispensary. He will remain on the staff as a consulting physician.

**Medical Society Elections.**—SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION: Twenty-sixth annual meeting at Atlanta, Ga., on December 16 to 18. Officers elected: *President,* Dr. John Wesley Long, Greensboro, N. C.; *Vice-Presidents,* Dr. Arthur Carroll Scott, Temple, Tex., and Dr. James F. Mithell, Washington; *Secretary,* Dr. W. D. Haggard, Nashville, Tenn.; *Treasurer,* Dr. Le Grand Guerry, Columbia, S. C. The next meeting will be held in Asheville, N. C.

ST. JOSEPH-BUCHANAN-ANDREW COUNTY (MO.) MEDICAL SOCIETY: Annual meeting at St. Joseph on December 3. Officers elected: *President,* Dr. J. J. Bansbach; *Vice-Presidents,* Dr. F. H. Spencer and Dr. F. H. Ladd; *Secretary,* Dr. W. F. Goetz; *Treasurer,* Dr. J. M. Bell.

SUMMIT COUNTY (O.) MEDICAL SOCIETY: Annual meeting at Akron on December 2. Officers elected: *President,* Dr. David H. Morgan, Akron; *Vice-President,* Dr. Thomas K. Moore, Akron; *Secretary,* Dr. A. S. McCormick, Akron; *Treasurer,* Dr. S. J. Metzger.

MIAMI COUNTY (O.) MEDICAL SOCIETY: Annual meeting at Piqua on December 4. Officers elected: *President,* Dr. J. E. Murray, Piqua; *Vice-President,* Dr. J. R. Eichelberger, Fletcher; *Secretary-Treasurer,* Dr. R. H. Spencer, Piqua.

GREENWOOD COUNTY (S. C.) MEDICAL ASSOCIA-

TION: Annual meeting at Greenwood on December 4. Officers elected: *President,* Dr. J. S. Fooshe, Ninety-Six; *Vice-President,* Dr. J. D. Harrison, Greenwood; *Secretary-Treasurer,* Dr. J. F. Simmons, Greenwood.

MAURY COUNTY (TENN.) MEDICAL SOCIETY: Annual meeting at Columbia on December 1. Officers elected: *President,* Dr. O. J. Porter; *Vice-presidents,* Dr. E. M. Ragsdale and Dr. P. H. Faucett; *Secretary-Treasurer,* Dr. P. D. Biddle.

JEFFERSON COUNTY (TEX.) MEDICAL SOCIETY: Annual meeting at Beaumont on December 1. Officers elected: *President,* Dr. Louis Goldstein, Beaumont; *Vice-president,* Dr. John H. Haizlip, Nederland; *Secretary-Treasurer,* Dr. Wilbur E. Thomson, Beaumont; *Censor,* Dr. James M. Gober, Beaumont.

MCLENNAN COUNTY (TEX.) MEDICAL SOCIETY: Annual meeting at Waco on December 2. Officers elected: *President,* Dr. J. M. Witt, Waco; *Vice-president,* Dr. C. C. Collum, Mart; *Secretary-Treasurer,* Dr. E. L. Eastland, Waco.

AMERICAN SOCIETY FOR THE STUDY OF ALCOHOL AND OTHER NARCOTICS: The forty-third annual meeting was held at Philadelphia on December 3 and 4, the following officers being elected for the ensuing year: *President,* Dr. John D. Kindred, New York; *Vice-presidents,* Dr. H. G. Kress, Chicago; Dr. T. A. MacNicholl, New York; Dr. Thomas A. Williams, Washington, and Dr. K. R. M. Maus, U. S. A., Governor's Island; *Secretary,* Dr. C. H. Denton, Miami, Fla.; *Assistant Secretary,* Dr. De L. Carter, New York; *Corresponding Secretary,* Dr. Thomas D. Crothers, Hartford, Conn.; *Treasurer,* Dr. Pitts E. Howes, Boston.

MACON COUNTY (GA.) MEDICAL SOCIETY: Annual meeting at Macon on December 3. Officers elected: *President,* Dr. Thomas H. Hall; *Vice-President,* Dr. Charles M. Richardson; *Secretary-Treasurer,* Dr. R. H. Stovall.

OLDHAM COUNTY (KY.) MEDICAL ASSOCIATION: Annual meeting at Lagrange on December 4. Officers elected: *President,* Dr. J. E. L. Harbold; *Vice-President,* Dr. R. B. Cassidy; *Secretary-Treasurer,* Dr. E. D. Burnett.

SANTA CRUZ COUNTY (CAL.) MEDICAL SOCIETY: Annual meeting at San José. Officers elected: *President,* Dr. F. H. Koepke, Watsonville; *Vice-Presidents,* Dr. W. H. Keck, Santa Cruz, and Dr. A. N. Nettler, Davenport; *Secretary-Treasurer,* Dr. G. P. Tohman, Watsonville.

LOS ANGELES COUNTY (CAL.) MEDICAL ASSOCIATION: Annual meeting at Los Angeles on December 18. Officers elected: *President,* Dr. Luther M. Powers; *Vice-President,* Dr. Charles Whitman; *Secretary-Treasurer,* Dr. George H. Kress.

COWLEY COUNTY (KAN.) MEDICAL SOCIETY: Annual meeting at Arkansas City on December 11. Officers elected: *President,* Dr. W. P. Guy, Winfield; *Secretary,* Dr. B. C. Geslin, Arkansas City; *Treasurer,* Dr. W. T. McKay, Arkansas City.

DAVIESS COUNTY (KY.) MEDICAL SOCIETY: Annual meeting at Owensboro on December 20. Officers elected: *President,* Dr. J. M. Stuart, Owensboro; *Vice-President,* Dr. Z. H. Shultz, Pleasant Ridge; *Secretary-Treasurer,* Dr. J. J. Rodman.

AMERICAN PHYSIOLOGICAL SOCIETY: At the annual meeting held at Philadelphia December 29 and 30 officers were elected for the ensuing year as follows: *President,* Dr. W. B. Cannon, Harvard; *Secretary,* Dr. A. J. Carlson, University of Chicago; *Treasurer,* Dr. J. Erlanger, Washington University, St. Louis. The next meeting is to be held at St. Louis.

AMERICAN SOCIETY FOR EXPERIMENTAL PATHOLOGY: At the annual meeting held at Philadelphia December 29 and 30 the following officers were elected for the ensuing year: *President,* Dr. R. M. Pearce, University of Pennsylvania, (re-election); *Vice-President,* Dr. John F. Anderson, Director of the U. S. Public Health Service, Washington; *Secretary-Treasurer,* Dr. George H. Whipple, Johns Hopkins; *Councilors,* Dr. Harvey Cushing of Harvard, and Dr. David Marine of Cleveland.

AMERICAN SOCIETY OF PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS: At the annual meeting held at Philadelphia on December 29-30 officers for the ensuing year were elected as follows: *President,* Dr. Torald Sollmann, of Western Reserve University; *Secretary,* Dr. J. Auer, of the Rockefeller Institute; *Treasurer,* Dr. W. deB. MacNimer of New York; *Membership Committee,* Dr. Reid Hunt of New York.

TIPTON COUNTY (TENN.) MEDICAL SOCIETY: Annual meeting at Covington on December 10. Officers elected: *President,* Dr. T. B. Gassaway, Tabernacle; *Vice-Presidents,* Dr. A. S. Witherington, Munford, and Dr. G. W. Crice, Covington; *Secretary-Treasurer,* Dr. L. J. Lindsey.

SALT LAKE COUNTY (UTAH) MEDICAL SOCIETY: Annual meeting at Salt Lake City on December 8. Officers elected: *President,* Dr. E. D. Hammond; *Vice-President,* Dr. Ernest Van Cott; *Secretary,* Dr. R. W. Ashley; *Treasurer,* Dr. E. F. Chamberlain.

TRI-STATE (ARKANSAS, LOUISIANA, AND TEXAS) MEDICAL SOCIETY: Annual meeting at Texarkana on December 9 and 10. Officers elected: *President,* Dr. Preston Hunt, Texarkana; *Vice-Presidents,* Dr. J. B. Runyan of Little Rock, Ark., Dr. J. E. Kingston of Shreveport, La., and Dr. T. J. Allison of Redwater, Tex.; *Secretary,* Dr. J. M. Bodenheimer of Shreveport, La.

**Chiropractors Refused Charter.**—Justice Potter of the Supreme Court of Pennsylvania recently handed down a decision affirming an order of the Common Pleas Court of Pittsburgh denying a charter to an organization known as the Chiropractors' Association of Pennsylvania. The refusal of the charter was based on the ground that the applicant had no legal status under the medical practice act.

**The Late Dr. S. Weir Mitchell.**—At a special meeting of the managers of the Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases, held on January 5, a special committee was appointed to draft resolutions appropriate to the death of Dr. Mitchell, and to present them at a meeting of the Contributors of the Hospital, shortly to be held. The Orthopedic Hospital was founded in 1869 and the Infirmary for Nervous Diseases in 1875 by Dr. Mitchell. Subsequently the two institutions were merged and Dr. Mitchell was for many years an active member of the staff of the consolidated hospital and later a member of the Board of Managers.

At a special meeting of the Philadelphia Neurological Society, held on January 5, remarks on the death of Dr. Mitchell were made by the president, Dr. George E. Price, and by Dr. Charles K. Mills, Dr. Francis X. Dercum, and Dr. James Hendrie Lloyd, the only remaining original members. Dr. Mitchell was the first president of the society. A resolution of sorrow was adopted.

At a special meeting of the College of Physicians

of Philadelphia, held on January 6, appreciative remarks were made by the president, Dr. James C. Wilson, and by Dr. W. W. Keen, Dr. James Tyson, Dr. Frederick P. Henry, and Dr. George de Schweinitz. Dr. Mitchell was president of the college on two separate occasions and was one of its most eminent benefactors in gifts of time, energy, enthusaism, rare books, and money.

The annual dinner of the Franklin Inn Club, of which Dr. Mitchell was the first and only president, was to have been held on Franklin's birthday, the day of Dr. Mitchell's funeral, but was postponed indefinitely.

At a meeting held January 8 the Library Company of Philadelphia, founded by Benjamin Franklin in 1731, adopted sympathetic resolutions on the death of Dr. Mitchell, who for many years was presiding director of the library.

At a meeting held January 9 the executive committee of the Committee of One Hundred of Philadelphia adopted a minute of regret on the death of Dr. Mitchell. In a sealed communication opened after his death, Dr. Mitchell, the first custodian, in accordance with the conditions imposed by the donor, Dr. Robert Abbe of New York, designated Dr. Simon Flexner of New York, to succeed him as custodian of the watch formerly belonging to Dr. Benjamin Rush and now deposited with the College of Physicians of Philadelphia.

It is reported that just before his death Dr. Mitchell finished an epic poem of five thousand lines, entitled "Barabas," which is believed to be one of the most remarkable of his literary productions.

**Obituary Notes.**—Dr. ANDREW FLINT SHELDON of Lyons, N. Y., a graduate of the New York University Medical College in 1852, a surgeon in the United States Army during the Civil War and inventor of a field hospital tent which is adopted throughout the service, and a former member of the New York State and Wayne County Medical Societies, died at his home on January 4, aged 83 years.

Dr. ARTHUR BERNARD BROWN of New Orleans, La., president of the National Federation of State Medical Associations, a graduate of the Medical Department of the Tulane University of Louisiana in 1901, secretary of the Louisiana State Medical Board, and a member of the American Medical Association and the Louisiana State and Orleans County Medical Societies, died at his home, after a long illness, on December 19, aged 34 years.

Dr. HENRY STIER POLE of Hot Springs, Va., a graduate of the College of Physicians and Surgeons, Baltimore, in 1880, a member of the American Medical Association and the Medical Society of Virginia, and for over forty years a resident and leading physician of Hot Springs, died at the home of his daughter in Lewisburg, W. Va., after a short illness, on December 28, aged 66 years.

Dr. JAMES H. CURTS of Paterson, N. J., a graduate of Trinity Medical College, Toronto, Canada, in 1899, a member of the Medical Society of New Jersey and the Passaic County Medical Society, and of the staff of the Paterson General Hospital, died at his home after a long illness, on December 30, aged 36 years.

Dr. JAMES PARKER STEDMAN of Brockton, Mass., a graduate of the Boston University School of Medicine, Boston, in 1882, one of the organizers of the Brockton Hospital, and at the time of his death a member of the consulting staff, died at his home, after a long illness, on December 24, aged 56 years.

Dr. HENRY T. DUFFIELD of Pittsfield, Ill., a graduate of Washington University, Medical Department, St. Louis, in 1882, and a member of the American Medical Association and the Illinois State and Pike County Medical Societies, having served as secretary, treasurer, and president of the last, died in a hospital in St. Louis, on December 14, aged 60 years.

Dr. FRANZ REDER of New Athens, Ill., a graduate of the University of Munich, Germany, in 1852, a resident of the United States for fifty-three years, and for most of that time a practicing physician of St. Louis, Mo., died in the Deaconess Hospital, St. Louis, from chronic interstitial nephritis, on December 28, aged 84 years.

Dr. JOHN T. KELLEY of Bridgewater, Mass., a graduate of the College of Physicians and Surgeons, Boston, in 1900, died at his home, after a few days' illness, on December 29, aged 35 years.

Dr. DANIEL P. DEMING of Cass City, Mich., a graduate of the Long Island College Hospital, Brooklyn, N. Y., in 1883, and a member of the Michigan State and Tuscola County Medical Societies, died at his home, from blood poisoning following a slight injury to his hand during an operation, on December 26, aged 70 years.

Dr. JOSEPH FRANCIS DESILVER of Atlantic City, N. J., a graduate of the University of Pennsylvania, Medical Department, Philadelphia, in 1900, and a member of the American Urological Association, died at his home on January 1, aged 38 years.

## Obituary.

### EDWARD CHARLES SPITZKA, M.D.

NEW YORK.

Dr. E. C. Spitzka died at his home in this city on Tuesday of this week, at the age of 61 years. The immediate cause of death was apoplexy, though he had been in ill health for some time. He was born in New York, November 10, 1852, and was graduated from the University Medical College in 1873. After a period of study in Vienna and other European clinics he began practice in this city, paying special attention to diseases of the mind and nervous system. From 1881-1884 he was editor of the *American Journal of Neurology*, and from 1885-1887 professor of neurology and medical jurisprudence at the Post-Graduate Medical School. He was a member of the American Neurological Association, of which he was president in 1890, of the New York Neurological Society, and of the Association of American Anatomists. He was the author of a "Treatise on Insanity," published in 1883.

Dr. Spitzka was especially interested in the anatomy of the central nervous system and made many important discoveries in this field; he was one of the founders in 1891 of the American Anthropometric Society, the members of which pledge themselves to bequeath their brains to the society for measurement and examination. He was also a worker in criminal psychology, and his opinion was often sought in medicolegal cases. At the trial of Guiteau for the assassination of President Garfield he insisted that the man was insane and adhered to this opinion although the weight of medical testimony was on the other side. He also made the autopsy on Czolgosz the murderer of President McKinley. He was a man of decided opinions on sociological subjects and had the courage of his convictions, never hesitating to express his views and maintain them, if necessary, in the face of popular and professional opposition.

# Correspondence.

## OUR LONDON LETTER.

(From our Regular Correspondent.)

ENUMERATIVE METHODS OF STUDYING INFECTIONS—R. S. M. AND ITS SECTIONS—PROCEEDINGS IN SURGICAL, ORTHOPEDIC, ANESTHETIC, OBSTETRICAL, LARYNGOLOGICAL, OPHTHALMOLOGICAL SECTIONS—ANNUAL MEETING OF HOSPITAL SUNDAY FUND—MEDICAL GUILD—MEDICAL MISSIONS—OBITUARY.

LONDON, December 27, 1913.

Sir Ronald Ross, F.R.S., K.C.B., read a communication at the Harveian Society on the "Study of Infections by Enumerative Methods." He dwelt on the advantages of investigators working together in groups or teams, and went so far as to hint that the time has now arrived when advances in tropical medicine can only be made by the organized efforts of such groups. He illustrated his view by describing the investigations carried out by a small team under his own direction in Liverpool. They had worked steadily together for two years on a sum of £900 granted to him by the government. There was an enormous amount of work could be done in this way, but before it could be done further funds were needed. His own team scattered when the money came to an end. Their observations dealt chiefly with the intimate characters and phases of sleeping sickness, of which they had actually discovered a new variety. They also dealt with the effects of drugs in this disease, both in men and animals. Further, some observations were made on blackwater fever, its real nature, and its experimental production in animals. The paper was illustrated by lantern slides and microphotos, many being produced in natural colors. Sir Ronald was cordially thanked for his interesting communication.

The Royal Society of Medicine, since absorbing several other societies, and dividing into so many sections, seems always to be demanding attention. There is perhaps much to be said in favor of this division on the part of specialists who care only to consult with one another, but many fellows desire to take wider views, and for them the journeys to and fro are necessarily increased. I know one gentleman who no longer goes to any meetings, and says the only way to keep an eye on all that is passing is to look through all the journals, for not one of them reports all the meetings, so he spends his spare time in examining one after another such reports as appear. He admits that he thus gives up much of the interest of hearing the discussions, but he gains in physical repose, and obtains a condensed sketch of the proceedings which most interest him, and which he can fill out from former experiences. But to some of the sectional doings during the last two or three weeks: In the surgical Mr. Kempe related a case of brachial arteriovenous aneurism in a man of fifty-six who came for an injured wrist. On applying *x*-rays six shots were seen in the hand, and when told this he said he had been shot twenty-five years previously, and his wife added that in his other arm "they rattle about like a bird singing." A large pulsating swelling was situated below the anterior axillary fold of the brachial. It was traceable into the axilla, and another pulsating swelling was found under the clavicle. No sign of intrathoracic aneurism. It was decided to sever the communication and restore the ordinary circulation. Dissection showed indirect communication through a small but distinct bulb. Mr. Kempe detailed the operation by which he accomplished his aim, and although signs of cardiac dilation were observed, the man considered himself well a fortnight later and reported himself again after another fortnight.

Mr. V. Z. Cope read a paper on the "Early Diagnosis of Ruptured Intestine," and Mr. Raymond Johnson recounted statistics as to forty-four cases he had collected from the records of twelve London hospitals.

Mr. Betham Robinson related a case of endothelioma in the right breast of a single woman of twenty-seven. It was freely removed and the axilla cleared. Five years had passed without recurrence.

In the Gynecological Section an exhibition of specimens has been shown, among them carcinoma of Bertholin's gland, occluded vagina after total hysterectomy, sloughing fibroid and inversion of the uterus, epidiascopic demonstration of Altman's granules in tissues at point of invasion by carcinoma, *fetus amorphus acardiacus*.

Cases and exhibitions have also largely occupied the sections of pediatrics, psychiatry, laryngology, and orthopedics. The last, by the bye, is called a "subsection of surgery," though it is difficult to say why, for it cannot be said to be of less importance than several of the full sections. However, it has been so officially denominated, and the president is Mr. Muirhead Little, senior surgeon to the Orthopedic Hospital. At the meeting on the 11th there were interesting exhibits of apparatus and reports of cases.

In the section on anesthetics Mr. Flemming read an account of the fatalities reported in the newspapers from 1910 to 1912, many of which were meager and of practically no use for the purpose of the section. Sir F. Hewitt took occasion to enforce his views as to the need of reforms in administration and of inquests, and thought the section might follow the example of the General Medical Council and the Association for the Advancement of Science in appointing a committee on that subject.

In the section of ophthalmology experimental glasses, prepared synthetically by Sir William Crookes, P.M.S., were shown. He had made a glass which would intercept about 96 per cent. of the thermic rays—of great importance in reference to glass workers' cataract. Dr. Legge of the Home Office was present and contributed some valuable remarks as to the result of his study of this subject in factories, which showed the disease to be much more frequent among glass workers than had been supposed by the late Mr. S. Snell.

Mr. Bishop Harman then showed photos of an operation he had done to improve the effect of an artificial eye. By narrowing the fissure of the lids it took away the fixed stare which attracts the look of the beholder, who thus will concentrate his look on the natural eye.

At the forty-first annual meeting of the Hospital Sunday Fund, held last week, the council had to present a rather unsatisfactory report. The total sum collected was nearly £3,000 less than in the previous year, and this chiefly relates to collections in places of worship. Legacies and donations are not affected to the same extent, and the council expresses a fear that the falling off may be due to a diminution of people attending church. Sir Savile Crossley stated that notwithstanding the

decrease in the finances, more money had been distributed than in previous years. It was reported that more grants for surgical appliances and convalescent homes had also been made. One reverend gentleman urged his brethren not to accept the situation quietly, but to speak faithfully on the habit of neglecting church—often for motor excursions—and thus neglecting the hospitals through absence at collections. A proposal to make no grant to any hospital permitting vivisection in the laboratory of its medical school was rejected by a large majority.

The National Medical Guild met on Friday to talk about trade unionism for the profession. Dr. Ch. Button presided. About seventy persons were present and a resolution to support the guild was passed by a considerable majority, and the intention was expressed of asking the British Medical Association to recognize the guild as an auxiliary body. One speaker said the British Medical Association should be a purely academic body, and the guild look after material matters. The guild was registered as a trade union, and it was urged that this was the only way in which a fighting fund could be safely maintained for the defence fund of the British Medical Association had practically collapsed. It was remarked that only two institutions were above the law of this country, viz., the king and a trade union. For proof the audience was reminded that recently the law had been strained to help trade unions.

A medical missionary is sometimes welcomed by tribes which jealously exclude everyone else. The Rev. C. Len Wilson, who penetrated the hinterland of the Soudan, west of the White Nile, and into Bahr-el-Ghazal, says it was mainly through the work of the medical members and the mission that the confidence of the curious people of those regions was secured. He regards a mission that goes out without doctor and nurses as only half equipped. A teacher who cannot help the native in the time of illness will be of little use.

Sir J. J. Trevor Lawrence, Bart., died on the 23d inst., within a week of completing his eighty-second year, for he was born on December 30, 1831. He was the second baronet, having succeeded his father, Sir William Lawrence, president of the Royal College of Surgeons, surgeon extraordinary to Queen Victoria, and many years a leader in the profession. Sir Trevor qualified in 1853, and entered the E. T. Company's medical service and served in London for some ten years, including the mutiny period. In 1867 his father died. Some years later he was elected to the House of Commons, and continued a member until 1892, when he retired. He was a devoted member of the Royal Horticultural Society, elected its president in 1885, and continued to serve it in that position until the present year. It was mainly due to his energy and influence that the society's centenary was celebrated by the erection of the present hall. He was specially famed for his knowledge and cultivation of orchids, but was a noted collector of many other rare plants. In 1902 he received the K. C. V. O.

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**The Hot Air Douche in the Treatment of Suppurating Wounds.**—M. H. Roziès reports that he has obtained excellent results with this method of treatment in traumatic and operative infected wounds. The hot air is bactericidal and favors cicatrization.—*La Presse Médicale.*

## OUR VIENNA LETTER.

(From Our Regular Correspondent.)

SUGGESTIVE THERAPEUTICS IN PERTUSSIS—HEMATURIA AND RENAL ARTERIOSCLEROSIS—SYPHILIS OF THE PELVIS OF THE KIDNEY—TUBERCULOSIS OF THE STOMACH.

VIENNA, December 15, 1913.

At a meeting of the Vienna Medical Society Hamburger reported a case of whooping cough, which he treated effectively by means of the psychical or suggestive method inaugurated by Czerny of Heidelberg. The case was that of a child three and one-half years old who had suffered for more than five weeks from whooping cough and who was cured with the aid of faradization within two days. Hamburger believes that pertussis, if of more than five weeks' duration, is often but a neurosis and easily influenced by energetic suggestive therapy. For this purpose Hamburger thinks that faradization is very well adapted.

Arteriosclerosis of the kidneys as the cause of hematuria is a very rare occurrence. Broiss reported a severe case of this kind, resisting every therapy, in which nephrectomy revealed a pronounced arteriosclerosis of the kidneys. In another case a cystic kidney was the cause of the hematuria.

Schwarzwaid has observed three cases in which renal arteriosclerosis was the cause of profuse hemorrhages. He calls the hitherto unknown complex of symptoms, consisting of hematuria and intermittent colic, in analogy with other diseases having an arteriosclerotic basis, the so-called "claudication intermittente par oblitération artérielle" (Charcot), "dysprasia renis intermittens angiosclerotica." The indication for operation is an imperative one. The proper surgical procedure is to perform a nephrectomy or, where possible, a conservative operation on the kidneys; decapsulation or nephrotomy, is still better.

Syphilis of the pelvis of kidney as the only manifestation of florid syphilis is a very rare occurrence. Dr. Gottlieb demonstrated a case of this condition in which there existed a mere catarrh of the bladder and a pyelitis ascertained through catheterization of the ureters, but there was otherwise nothing to indicate syphilis except a positive Wassermann reaction. The pyelitis and cystitis fully subsided after six injections of salicylate of mercury.

Tuberculosis of the stomach or of the pylorus is a rare condition. Four different forms have been recognized: the ulcerating, the hypertrophic, the inflammatory, and the sclerotic forms, and a variety in which the pylorus is compressed by bunches of tuberculous glands. An example of a fifth variety was demonstrated by Schlesinger at the last meeting of the Vienna Medical Society. At autopsy there was discovered a submucous abscess surrounding the pylorus. This abscess communicated with the stomach through small openings. In the neighborhood of the pylorus there were small tubercles in the serosa. During life there had existed signs of stenosis. The sudden appearance of these symptoms gave rise to the suspicion that a most unusual condition was present; coexistence of pulmonary phthisis indicated the probable tuberculous character of the disease. Death occurred early. Schlesinger says that the diagnosis in these cases unfortunately can very seldom be made during the life of the patient.

# Progress of Medical Science.

## Boston Medical and Surgical Journal.

*January* 1, 1914.

1. Carbon Monoxide Poisoning. W. H. Robey.
2. Old and Recent Ideas Concerning Treatment of Flat-Foot. H. W. Marshall.
3. Hair Cast of the Stomach with Report of a Case. G. A. Moore.
4. The Workmen's Compensation Law and the Physician. J. B. Carroll.
5. The Passing of Paranoia. J. B. MacDonald.
6. Report of a Case of Brachial Neuritis Due to Periostitis of Rib. R. W. French.

**1. Carbon Monoxide Poisoning.**—W. H. Robey states that Edsall has pointed out that carbon monoxide poisoning in addition to the acute illness and possible fatality which it may cause is also responsible for the production of certain subacute and chronic disorders. Sedgwick regards the chronic effects as more important than the acute ones. The intoxication from illuminating gas is usually more severe than that from simple carbon monoxide, but the latter is the chief agent in illuminating gas poisoning. In comparing the relative toxicity of coal gas and water gas, the author states that the increased amount of carbon monoxide in water gas makes a small volume of gas fatal in a much shorter time. Coal gas by its very strong odor made its presence known sooner to other inmates of the house, and while the victim might be unconscious when found, he had not as a rule inhaled sufficient carbon monoxide to make treatment useless.

**2. Flatfoot.**—H. W. Marshall points out that normal conditions in feet depend always upon a combination of elements, and never upon any one of them independently. These underlying factors are grouped into three divisions: first, the amount of weight borne and the lengths of times it is endured; secondly, the degree of healthy vitality existing at the particular time in ligaments and muscles supporting the arches that is represented by their strength; and thirdly, favorable and unfavorable qualities of blood circulating through the feet at the given time. This is the only working formula that is applicable universally to all cases, and it should come to mind as the most practical way of viewing each patient, instead of by special features alone in each one, such as shapes of feet, height of arches, occupations, body weights, physical conditions, etc.

**3. Hair Cast of the Stomach.**—G. A. Moore presents a review of fifty-four cases of this condition, fifty-three of which have been reported in the literature. The condition is rarely found in men. Forty-eight or over 89 per cent. of the cases were girls or young women, the average age of whom was nineteen and one-half years. Confession of the habit before or after operation was obtained in less than half of the cases. Therefore, a denial of having eaten hair as in my case is of very little importance. The prevalent idea that foreign bodies in the gastrointestinal canal are found only in the insane is erroneous. But 6 or 11 per cent. of the entire number were mentally deficient or insane. Nausea or vomiting, though mentioned in but twenty-eight of the cases, probably occurs more frequently, as gastric symptoms are less pronounced when the patients are kept at rest. Hematemesis, which is considered an important symptom by English writers, is of rare occurrence. In thirty-nine of the cases a tumor was reported to have been found which was situated in the epigastrium in eighteen patients, in other regions of the abdomen in eleven cases, and the location is not mentioned in ten. These masses are sausage-shaped, very firm, smooth and freely movable. Of the diagnoses suggested, the spleen seems to be the most frequent offender, being reported in eight cases, malignant tumor in five cases, floating kidney in four cases. Omental tumor, tuberculous infiltration, twin pregnancy, hydatid, gumma and cyst of the pancreas are the rarer diagnoses. Statistics, especially of the earlier cases, prove conclusively the futility of expectant methods. Of the twenty-two cases treated without operation, nineteen died, a mortality of 86 per cent. Three vomited masses of hair or passed hair in the stools and recovered.

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## New York Medical Journal.

*January* 3, 1914.

1. Why is Nasal Catarrh so Prevalent in the United States? W. Freudenthal.
2. Treatment of Poliomyelitis by Operative Measures. G. G. Davis.
3. The Sella Turcica in Some Epileptics. L. Pierce Clark and E. W. Caldwell.
4. Alcoholism in Relation to the Heredity of Epilepsy, Consumption, and Other Nervous Diseases. T. J. Mays.
5. The Treatment of Traumatic Rupture of the Urethra. C. G. Cumston.
6. Why Electrotherapy Does Not Cure. A. C. Geyser.
7. The Diagnosis of Early Clinical Pulmonary Tuberculosis. L. Shalet.
8. Prevention of Insanity. R. A. Goodner.
9. Mixed Chancre. S. Steiner.
10. Röntgen Rays in Eczema of the Hands. F. Wise.

**1. Prevalence of Nasal Catarrh.**—W. Freudenthal states that in order to lessen the great prevalence of catarrh prevailing systems of heating should be changed so as to allow much more moisture to evaporate in each living room. This is especially important in schools or meeting halls of every kind. A pail of water in front of the heater is ineffective. One should employ other means in order to overcome the deficient humidity indoors. In order to prevent colds excessive clothing should not be worn. Young people should be hardened to exposure to draughts, rain, snow, and other inclemencies of the weather.

**3. The Sella Turcica in Some Epileptics.**—L. Pierce Clark and E. W. Caldwell note that pronounced variations of the bony formation of the sella turcica in epileptics were first pointed out by Johnston of Pittsburgh, who has not yet published his full study of the subject. Three types of the pathologically deformed and enlarged sella have been distinguished and classified by Cushing. The one which is frequently found in epileptics is associated with a thickening of the clinoid processes and dorsum sellæ. Here the enlargement is accompanied by thickening of the walls, but, inasmuch as Cushing states that this type is confined to the acromegalics and gigantics, he believes the bony thickenings are merely a feature of the osseous tendency to overgrowth which, obviously, throws no light on the condition which is present in some epileptics.

**5. Traumatic Rupture of Urethra.**—C. G. Cumston concludes that in all cases of traumatic urethral rupture perineal incision should at once be resorted to without any attempt at urethral catheterism. External urethrotomy with the introduction of the temporary catheter is the only rational treatment in complete rupture with infection and contusion of the soft parts. In incomplete rupture, when there is not much contusion of the tissues, and infection is absent, immediate suture of the urethra and soft parts of the perineum is to be attempted, with the formation of an outlet for the urine by suprapubic cystostomy or urethrostomy in the membranous urethra.

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## Journal of the American Medical Association.

*January* 3, 1914.

1. Early Use of the Roentgen Ray in the Study of the Alimentary Canal. W. B. Cannon.
2. A Statistical Study of Prognosis in Insanity. A. J. Rosanoff.
3. The Intranasal Treatment of Dysmenorrhea, with a Report of Ninety-three Cases. E. Mayer.

4. Pellagra: A Summary of the First Progress Report of the Thompson-McFadden Pellagra Commission. J. F. Siler, P. E. Garrison and W. J. MacNeal.
5. Closed Tuberculous Pyonephrosis. H. A. Fowler.
6. Gastric Ulcer from Overworking the Stomach. R. H. Pierson.
7. Notes in the Study of Potassium Mercuric-Iodide. D. Macfarlan.
8. Experimental Studies in Poliomyelitis. P. L. Dubois, B. Neal and A. Zingher.
9. The Quantitative Determination of Albumin in Sputum with Potassium Ferrocyanide. M. L. Holin and L. R. Himmelberger.
10. The Die in Gastric Ulcer and Hyperchlorlydria. J. B. Nichols.
11. The Foregn-Born Insane. A Racial Study of the Patients Admitted to the Insane Department of the Philadelphia General Hospital in Ten Years (1903-1912). C. W. Barr.
12. A Case of Multiple Serositis and Report of Necropey. S. Solis Cohen and R. M. Goepf.
13. Signed Consent to Necropsy a Condition to Admission to Our Hospitals. Ten Years' Experience in the Phipps Institute of Philadelphia. H. R. M. Landis.
14. Cough-Dilatation Time a Measure of Heart Function. J. B. Guthrie.
15. A Rapid Method of Isolating Pathogenic Streptococci from Contaminated Fields. L. L. Ten Broeck.
16. Chronic Malignant Degeneration of the Thyroid with Report of Case. F. A. Carmichael.
17. A Case of Patent Ductus Arteriosus (Botalli). With Report of a New Physical Sign. I. Simons.
18. A Previously Unemphasized Feature in the Construction of Nitrous Oxide-Oxygen Ether Apparatus. P. J. Flagg.
19. Report of a Case of the Maculotubercular Form of Leprosy. W. R. Jamieson.
20. Apparatus for Intratracheal Insufflation. J. P. Pratt.
21. A Buret for Intraspinous Medication. W. F. Lorenz.
22. Safeguarding the Ether and Chloroform Bottles. T. L. Fisk.
23. An Improved Diphtheria Culture Tube. C. C. Bass.
24. Apparatus for Artificial Pneumothorax. L. S. Mace.
25. An Improved Ear-Speculum. R. W. Place.
26. A Simple Instrument for Transfusion. Bernard F. McGrath.

**4. Pellagra.**—J. F. Siler, P. E. Garrison, and W. J. MacNeal conclude from their investigations that the supposition that the ingestion of good or spoiled maize is the essential cause of pellagra is not supported. Pellagra is in all probability a specific infectious disease communicable from person to person by means at present unknown. The authors have discovered no evidence incriminating flies of the genus *Simulium* in the causation of pellagra, except that these flies are universally distributed throughout the area studied. If pellagra is distributed by a blood-sucking insect, *Stomoxys calcitrans* would appear to be the most probable carrier. The authors are inclined to regard intimate association in the household and the contamination of food with the excretions of pellagrins as possible modes of distribution of the disease. No specific cause of pellagra has been recognized.

**10. The Diet in Gastric Ulcer and Hyperchlorhydria.**—J. B. Nichols is of the opinion that much of the current dietetic practice in gastric ulcer is based on erroneous grounds. There is one peculiar factor of this condition that he holds is of the utmost importance, namely, the corrosive action of the gastric juice. Wherever the other determining conditions may be, this is a potent factor in producing or maintaining peptic ulcers, and a fundamental and peculiar object in the treatment is the reduction to a minimum of this factor. Pawlow has shown that the flow of gastric juice takes place in two stages and under two influences when food is ingested. First, there is an immediate flow under psychic influence, and again, fifteen to forty-five minutes later, a chemical stimulation by certain of the foodstuffs. Theoretically, it would be of use to prevent the first factor by using unappetizing foods. The substances active in stimulating the secondary flow have been found to be water, impure peptones, meat extractives, and caffeine. Some ingredients of the diet, such as carbohydrates, have no special chemical action on the gastric juices, and organic acids (acetic, citric, lactic, butyric) are also included by Foster and Lambert under this head. Among substances that inhibit gastric secretion the author mentions sodium bicarbonate and fats, and the fatty diet for gastric ulcer is based on these facts. While it has not been extensively used, the author claims that its efficiency has been demonstrated and that it is capable of giving satisfactory results in many cases. Vegetable oils and milk-fat have been mostly used. The high caloric value of cream makes it of special value in gastric ulcer. One quart a day yields sufficient calories for a small person leading a quiet life and the additional calories required in others can be furnished by eggs, bread, etc., in moderate quantities.

**14. Cough Dilatation Time as a Measure of Heart Function.**—J. B. Guthrie calls attention to a symptom which he considers of importance in determining the condition of the heart muscle. He has found by the use of the light percussion method for outlining the heart borders that the act of coughing dilates the heart, as shown by the Roentgen ray and by percussion. At first he thought this only occurred in cases of extreme cardiac weakness, but with later experience he no longer holds this opinion. The healthy heart dilates on coughing to a degree perceptible by roentgenoscopy, but not by percussion. The graver the condition the longer the dilatation lasts. The test consists in measuring the horizontal distance between the resting position and the heart borders after coughing or after forcing the breath, as in horn blowing, together with the time necessary for the heart to return to resting position after cough dilatation—that is, reaction time. It is not possible to obtain correct heart outlines, except through the use of the lightest percussion blow with the minimal force necessary to produce sound waves over resonant structures. One who uses heavy percussion must fall back on the orthodiagraph or fluoroscope in studying the cough dilatation. The author has not seen any bad effects from the use of the test; the three coughs given at the word of command hardly call for more effort than the patient often makes voluntarily. From a surgical point of view it would seem from our present knowledge that it would be hazardous to operate under anesthesia on a patient who has a cough dilatation time of over five minutes. The danger line will probably be shown to be considerably below this. The use of this test in preoperative examination should reduce the number of dangerous "unknown" cardiac conditions. From a therapeutic point of view the work shows wherein lies one of the graver dangers to cardiac patients. Cough is a strain that they cannot always avoid and that calls for treatment in weak patients.

## The Lancet.

*December* 27, 1913.

1. Some Points in the Diagnosis and Treatment of Granular Kidney. Samuel West.
2. Concussion Cataract: Its Medicolegal Aspect; with Notes of an Unusual Case. P. Dunn.
3. The Relation of the Thyroid to Antitoxin. R. Farrant.

**1. The Diagnosis and Treatment of Granular Kidney.**—Samuel West states that granular kidney is a form of chronic interstitial nephritis, yet all forms of chronic interstitial nephritis, even if bilateral, are not granular kidney. For instance, the gouty kidney, so-called, is a mixture of interstitial fibrosis with cell degeneration, yet gout has nothing essentially to do with granular kidney, for even in long-standing gout the kidneys need not be granular, nor is gout more than an accidental—*i.e.* not a necessary—accompaniment of granular kidney. Both gout and lead are frequently given as causes of granular kidney. They are not infrequently associated with it, yet the true relation is probably the contrary to that suggested, the patients being especially liable to these affections, because their kidneys are granular and elimination defective, so that

they are not causes of granular kidney, but its consequences. The characteristic symptoms of granular kidney are: (1) the arterial thickening; (2) the increased arterial tension; (3) the character of the urine; (4) the hypertrophy of the heart, and (5) the retinal changes. The arterial thickening in the early stage of granular kidney is largely muscular, as can be shown by the effect of nitrite of amyl which relaxes the muscular tissue, but has no action on fibrous tissue. The arterial tension in granular kidney varies. It ought to be above normal. With a low tension the patient is not so well. The amount of albumin in the urine is small, sometimes merely a trace. The most important fact about it is that it may be absent at some time of the day or even be absent altogether for days or weeks. As a rule, however, it is persistent, and does not vary much in amount from day to day or at different times of the day. As long as albuminuria occurs as the only symptom in the young it is probably of no significance, but if it be associated with other signs, and especially with arterial thickening, even in slight degree, more caution must be taken in pronouncing it to be of no gravity. For it may be the early state of granular kidney, for this is a disease which commences in early life and is not really rare in the quite young. Even when albuminuria is the single sign, its gravity increases with every year of age after 25, because of the increasing probability of its being due to granular kidney. In the treatment of granular kidney in its early stages there are two things to be avoided: first, a drastic dietetic treatment which will injure the general health, and second, the risk of converting the patient into a renal hypochondriac. When symptoms arise they must be treated on general principles. For sleeplessness and nervous restlessness at night no sedative is better than cannabis indica. If uremia is imminent it may be staved off by free purgation, active diaphoresis, and oxygen inhalation. Pilocarpine is a great standby in granular kidney. On the basis of an experience extended over a number of years the author advocates the use of renal extract, freshly prepared from the kidney of the pig. This substance must be patiently and continuously administered for a long time in order that favorable results may be obtained.

3. **The Relation of the Thyroid to Diphtheria Antitoxin.**—R. Farrant points out that certain diseases, and especially certain toxemias, cause hyperplasia of the thyroid gland in man and animals. Among these diphtheria toxin, particularly, has been examined, and it is found that a small dose is sufficient to elicit hyperplasia in a susceptible animal, but that as immunity is acquired the thyroid no longer undergoes hyperplasia under the toxin. The hyperplasia thus decreases as the antitoxic value of the serum increases. The thyroid gland, in other words, is protected from the action of the toxin by the presence of antitoxin in the serum. There is no reason to suppose that any special relation exists between antitoxin formation and the thyroid gland—for example, the latter is not antitoxic itself. In some cases commercial antidiphtheritic serum fed to rabbits caused death with the same symptoms as thyroid feeding; this may be due to the serum of partially immunized horses containing an unusual amount of thyroid secretion from the hyperplasia. But this could not be controlled, as the amount of iodine in pure serum was too small for accurate estimation. The pure antitoxic serum does not appear to contain any estimable increase of iodine.

## British Medical Journal.

*December* 27, 1913.

1. On the Nature of Old Age and of Cancer. Hastings Gilford.
2. The Intratracheal Insufflation of Ether. F. E. Shipway.
3. A Case of a Ruptured Aneurysm of the Descending Aorta. W. H. Mackinlay and L. M. Weeks.
4. A Case of Spontaneous Hemapneumothorax. T. Bushby.
5. Lithopedion. J. B. Fraser.

1. **The Nature of Old Age and of Cancer.**—By Hastings Gilford. (See page 115.)

2. **Intratracheal Insufflation of Ether.**—F. E. Shipway points out the following advantages of this method of anesthesia: A free airway is obtained. There is an even and constant administration of a weak warm vapor. The anesthetist is out of the way of the surgeon. The recurrent air stream prevents the aspiration of blood, mucus, etc. Operations on the abdomen are facilitated by the slight character of the respiratory movements. Operations which may involve the accidental opening of the pleura can be done without risk or anxiety. Shock is diminished. The objections to this method are three in number: (1) The apparatus is costly. (2) The apparatus is somewhat cumbersome and the outfit elaborate. (3) The introduction of the catheter is the stumbling-block which at present stands most in the way. There has been such a considerable amount of evidence collected, the method has been so thoroughly tested, and the comments by onlookers on the type of anesthesia, its advantages, and the freedom from postoperative distress have been so uniformly favorable that intratracheal insufflation may be said completely to have made good its claims and definitely to have established its value.

## Berliner klinische Wochenschrift.

*December* 22, 1913.

**Physical Therapy of Surgical Tuberculosis.**—Wachsner, reviewing the various methods, old and new, in their application to surgical tuberculosis, states that we have now resumed an active therapy, after a period of passive treatment as characterized by plaster-of-paris and let alone. At present we are depending on sunlight, artificial light, chemical rays, electricity, hot air, *x*-rays, etc. Dressings, instead of being fixed, are removable. Recumbent periods may alternate with efforts at functional betterment. Modern physical therapy provides for cosmetic effects and attempts to make of the patient a social unit. It is hardly possible to carry out all these measures in an ordinary orthopedic clinic.

**Operative Cure of Multiple Metastatic Liver Abscesses.**—Heinemann gives the statistics of this sequence. In 155 cases thus treated there were two operative recoveries, and a single case without operation. This leaves the mortality about 98 per cent. The author reports an operative cure of his own and has looked over the very recent literature with negative results. The author's patient, a young man, had had an osteomyelitis of the right tibia for five years which had been operated on several times. There had been no evidence of fistula formation or sequestration —nothing beyond periosteal abscesses. At a certain date and without manifest connection with the bone, an obscure type of fever set in and in time assumed the clinical picture of typhoid. Incidentally the liver was found much enlarged and the diagnosis of typhoid seems to have been abandoned, as no blood tests seem to have been made. The contour of the liver suggested an abscess and a puncture brought away much pus, which was then removed through an incision. The fever vanished at once, but there soon became apparent evidences of another abscess. The long needle pierced the liver six times before pus was again struck. The small quantity evacuated suggested that there might be a number of small abscesses. The author was in doubt as to further surgical procedures. In the meantime the needle tract was drained by a specially

devised apparatus and healed well. In the same manner nine other small abscesses were successfully located and treated. These appeared one by one, each heralded by a chill. In four weeks 100 trial punctures had been made and no apparent harm resulted. All the smaller abscesses lay deep in the enlarged right lobe and directly in front of the vertebral column. Recovery was complete, patient having resumed his occupation.

**Simulation of Typhoid Fever by Marked Hodgkin's Disease.**—Rosenthal has discovered a new condition which can closely simulate typhoid, although the case reported is very likely unique. It was one of lymphogranulomatosis of the spleen and retroperitoneal glands of the sort seen in a fully developed Hodgkin's disease. Had the subject survived the lesions might have diffused themselves. Such conditions have been found post mortem, and K. Ziegler named them the typhoid form of Hodgkin's disease. Cases have been seen a few times in which a fully developed Hodgkin's showed a typhoid fever curve. The author's patient, aged 38, robust, was suddenly stricken with fever lasting six weeks, from which he is said to have recovered, but soon after developed a relapse or recurrence when he was seen by the author for the first time. His mind was confused and he had had one epileptic convulsion. The physical symptoms consisted chiefly of an enlarged spleen. No Widal reaction or roseola. Diagnosis continued fever of unknown origin. A recurrent type of fever later replaced the continuous type. Aside from two roseola spots nothing had been seen at any time to suggest typhoid. The hemoglobin had steadily sunk, and a stuporous state attended the latest relapse. Death occurred from severest cachexia, patient having been ill four months. Diagnosis post-partum.

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### Deutsche medizinische Wochenschrift.

*December* 11, 1913.

**Tuberculosis.**—The entire number, which is a Koch memorial issue, is devoted with one or two exceptions to articles on tuberculosis by Koch's pupils, and others. The anniversary commended is his birthday. Had he lived he would have been 70 years of age. Loeffler lays great stress on antituberculous dispensaries, an idea of Wilkinson, formerly of Sydney but now of London, which is being carried out in Germany. He regards this as a very great step ahead in the conquest of the disease. As Wilkinson was one of the earliest practitioners to use tuberculin, he thus becomes one of the forces in the warfare against tuberculosis. Ehrlich gives Koch the entire credit for solving the problem of specificity. Through the scope and success of his discoveries he becomes one of the few really great scientists of all time. Kossel states that Koch made scientific sanitation possible, as shown in the intelligent campaigns against cholera, typhoid, etc. In this way the subject of "disease carriers" became known. The soil could also be shown to act as a carrier, while drinking water could be shown to be infected. Under the head of "hosts" as transmitters of possible disease, Koch's work was entirely new. This problem led him to Africa, where he may be said to have laid the foundation of modern tropical medicine. His brilliant results on "sleeping sickness" were rendered abortive by the deferred toxicity of alcohol. Uhlenhuth and Hügel have recently sought to substitute a synthetic containing antimony, having the type corresponding to atoxyl in the treatment of spirochætei and trypanosome diseases. They have studied a number of these combinations. The latter seem to be a step in the right direction. Lockemann, writing on the biology of the tubercle bacilli says that much stress is now laid upon the determination of the weight of the cultures, since this indicates in a measure the rapidity of growth of the culture. In a few weeks the cultures attain a maximum of weight, and then slowly decline, as a result of autolysis. The different composition of culture media has apparently no influence on the growth of the human bacillus. Möllers has studied the fluid portion of cultures with reference to the presence of an antigen, and finds that the maximum antigen content against the bacillus occurs at about six weeks. The actual specific substance is a product of the metabolism of the bacillus. The course of the weight curve of a liquid culture of the latter shows a great similarity to the antigen curve. Stiner and Abelin describe attempts to increase the local resistance against tuberculous infection. Skin was treated (guinea pigs) beforehand with an ointment prepared from Old Tuberculin, but without protective results. Another ointment was made with borini tuberculin, and this appeared to delay infection and limit it to regional lymph nodes. Further study will be necessary in this province. Ruppel treats at great length of tuberculin, of the progress in our knowledge since Koch's death (nearly four years ago), with especial bearing on therapeutic preparation. Koch's ideas seem to hold good against the arguments of others. We know now that the bacillus contains at least three toxins which give to it its specific quality, to wit, a nucleinic acid, a nuclein, and a nucleoalbumin. These substances all disintegrate very easily, and it is very evident that each one contains certain toxic building stones in common, which possess a marked degree of resistance. However, clinically the toxic effect comes from all constituents jointly. More recent writers who have discovered the presence of glycerides in the bacilli attach great biologic importance to them. As a matter of fact the lipoids of the bacilli have always been the great obstacle to manipulation of the latter. A beautiful monument to Koch has recently been erected in Japan in May of this year. The dedication services were of the Shinto rite.

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**Congenital Insufficiency of Ocular and Facial Movements.**—L. Guthrie reports the case of a boy, aged 4 years, who was born at full time and after an easy labor. Imperfect closure of his eyes was noticed at birth, and his face was devoid of expression. Present condition: Intelligence normal, speech somewhat defective, general nutrition and development fair. The whole of the face is motionless as far as the mouth; the skin of the face is smooth and not tightly stretched. The visage resembles in some respects the "myopathic facies." The eyes cannot be fully closed, the eyeballs are in mid-position, and the only ocular movements which can be performed are elevation and convergence, downward and inward. The pupils are equal, active to light, less so on accommodation. When crying, tears are shed, but no facial contortions are visible; laughter is only represented by guttural grunts. The upper lip projects slightly and is flabby; the lower lip is not everted as in myopathy. The orbicularis oris is not paralyzed, for he can purse his lips and also blow out his cheeks, though feebly. The escape of the orbicularis oris is probably due to association of its action with that of the tongue, the movements of which are normal. Movements of the palate and masticatory muscles are also normal. Electrical reactions cannot be obtained in any of the facial muscles except the orbicularis oris. The condition is regarded as an unusual form of myopathy affecting the muscles supplied by the third and seventh nerves.—*Proceedings of the Royal Society of Medicine.*

# Insurance Medicine.

## SUGGESTIONS TO MEDICAL EXAMINERS.

BY THE INSURANCE EDITOR.

### THE VALUE OF MODERN METHODS FOR THE DETECTION OF SYPHILIS TO LIFE INSURANCE COMPANIES.

THE mortality among insured lives with a history of syphilis is excessive, going over 100 per cent. higher than the normal rate in some classes of cases. The selection was based on the time elapsed from the date of the last treatment and manifestation of the disease and whether or not there were any indications of the previous disorder at the time of the examination. Whenever there was a history of tertiary lesions, the applicants were rejected. This method, though crude, has been the only one available, and it is not difficult to understand how applicants with dormant disease or obscure lesions, impossible to discover in an ordinary examination, passed inspection.

The Wassermann and Noguchi tests have not been required in life insurance examinations until the technique and application of the tests have fairly passed the experimental stage, so that the results would afford a reasonable amount of assurance when carried out by experienced hands. The medical officers of the companies have utilized the tests in isolated cases, but there is a tendency towards a general recognition of these important procedures in routine work. It should not be assumed, however, that an infallible means of diagnosis has been provided in these measures and that there will be no uncertainties in the results. The first burst of enthusiasm has passed and the true value and status of the tests are becoming more evident as experience with them widens. Some confusion is created at the present time by reports that the Wassermann gives a positive reaction more or less frequently in the presence of plasmodia. If these reports prove to be well founded, the test will lose much of its practical value in malarious districts. With our incomplete knowledge of the subject, we are not certain as to the exact circumstances under which a positive test occurs in other conditions than syphilis. It has been explained that it is due to faulty technique or in drawing the line too fine instead of adhering to a certain standard. After all is said, however, the Wassermann and Noguchi tests may be employed with advantage, but only when great care and discrimination are observed.

The mortality rates for which lesions of the nerve centers and of the cardiovascular system are especially responsible are constantly increasing. It has been found through the aid of the Wassermann test that vestiges of old and supposedly cured syphilis are still present in a surprisingly large percentage of these cases. In many of them no history of specific disease was obtainable. It naturally follows that a scientific and more definite diagnosis of syphilis is of considerable value to life insurance companies in the disposal of these risks. Unfortunately, much difficulty will be experienced by the companies in determining whether syphilis of the nerve centers exists on account of the necessity of examining the spinal fluid before a satisfactory diagnosis is possible.

The preferable and most reliable plan for conducting the tests is as follows:

After the cessation of all treatment and symptoms the Wassermann should be applied every three months during the period of a year. A combined Wassermann and Noguchi would be still more valuable, as it is occasionally found by laboratory men that these two tests do not agree with each other, and it must be inferred that syphilis continues to exist if either of them is positive. After a year has elapsed without symptoms or treatment all reactions during the interval having been negative, a provocative injection of salvarsan or neosalvarsan should be administered and followed by a Wassermann or a combined Wassermann and Noguchi in from twenty-four to forty-eight hours after, and again in about ten days. The subject should abstain from alcohol for forty-eight hours previous to each of the final tests.

Some observers believe, however, that even when no tests have been made during the year following the disappearance of all symptoms and the cessation of treatment, a single provocative dose of salvarsan, followed by a negative Wassermann, is sufficient to signify that the syphilis has probably been eradicated. The companies, by force of circumstances, will likely find it expedient to exact the more simple procedure, as it will usually be impossible in practice to have the stringent precautions carried out. They should not be satisfied, however, with less than a Wassermann some time during the year after the cessation of treatment, about four or five months, and a final provocative Wassermann at the end of the year. If more than one year, in fact, if many years have gone by since the cessation of treatment, a provocative injection, followed by a Wassermann, should be required, as syphilis can never be regarded as cured unless there is some evidence.

The tests for syphilis are not complete for insurance purposes unless accompanied by the taking of the blood pressure, as cardiovascular changes may have taken place before the cure of the disease.

If the final tests are satisfactory, the applicant may be considered for an endowment contract or a rated-up policy. Applicants who have had syphilis are not eligible for life insurance on any policy which does not terminate at or about the age of fifty-five.

Owing to the peculiar circumstances under which the business of life insurance must be conducted it is not expedient or good practice to have a physician, as a medical representative of a company, take any part in the carrying out of these tests. The reasons for this objection may be summed up as follows:

First. A company is liable to be plunged into a legal controversy in the event of a real, imaginary, or simulated disturbance which may be attributed to some part of the procedure.

Second. Some applicants who have syphilis, but have considered themselves cured, might claim that the disease had been started up afresh by the provocative treatment, and it would be difficult for the legal representative of a corporation to convince the average jury that the company was blameless in the matter.

The only practicable plan is to have the tests conducted under the supervision of the applicant's attending physician. The specimens obtained by the attending physician should be sent to the laboratory of some analyst who is recognized as unquestionably competent and expert in this line of work. On receipt of a certificate furnished by the applicant on the termination of the tests the company will be in a position to decide on the merits of the case.

# Book Reviews.

KRANKENPFLEGE LEHRBUCH. Herausgegeben von der Medizinalabteilung des Königlich Preussischen Ministeriums des Innern. Dritte neu durchgesehene und ergänzte Auflage. Mit 5 Tafeln und zahlreichen Abbildungen im Text. 361 pages. Price 2.50 marks. Berlin: Verlag von August Hirschwald, 1913.

THE commission that revised this book decided that the original plan of the book, which is an excellent one, remain unchanged, and only the most recent advances in medical science and practice as they affect nursing be added. The book is for the use of male and female nurses who must possess, for its proper appreciation, the minimal education required by nurses registered in the empire. The book contains short concise aphorisms and numerous illustrations. There are 14 main divisions which deal respectively with the structure of the body, diseases and their manifestations, furnishings of the sick room, care and diet, report to the physician, aid during the physician's examination, first aid in various accidents, care of the transported sick, care of the dying, duties of nurses, their deportment toward the sick and toward the family doctor, priests, etc., cardinal principles of the care in the puerperium and of the infant, care of insane, etc. Changes or additions have been made regarding the furnishing of the sick room, the use of disinfectants, artificial respiration, detection of early cancer, etc.

THE PRACTICAL MEDICINE SERIES. Comprising ten volumes on the Year's Progress in Medicine and Surgery. Under the general editorial charge of GUSTAVUS P. HEAD, M.D., Professor of Laryngology and Rhinology, Chicago Post-Graduate Medical School. CHARLES L. MIX, A.M., M.D., Professor of Physical Diagnosis in the Northwestern University Medical School. Volumes I. and VI. GENERAL MEDICINE. Edited by FRANK BILLINGS, M.S., M.D., head of the Medical Department and Dean of the Faculty of Rush Medical College, Chicago, and J. H. SALISBURY, A.M., M.D., Professor of Medicine, Chicago Clinical School. Series 1913. Price $1.50. Chicago: The Year Book Publishers.

IN the Practical Medicine Series the field of general medicine is covered in two volumes, Volume I. and Volume VI. The first of these treats of diseases of the circulatory organs, the blood vessels, the blood, the blood making organs, the ductless glands, the kidneys, and diseases of metabolism and certain infectious diseases. The authors cite many interesting cases and call attention to the newer methods of diagnosis and treatment. The second volume, devoted to general medicine, covers the year's work in diseases of the stomach, intestines, liver, pancreas and spleen, and infectious diseases not included in Volume I. There is a short chapter on dietics. The book is valuable as it affords a rapid yet comprehensive review of the year's progress in the subjects treated.

THE MEDICAL EPITOME SERIES. PATHOLOGY GENERAL AND SPECIAL. A Manual for Students and Practitioners. By JOHN STENHOUSE, M.A., B.Sc. (Edin.), M.B. (Tor.), formerly Demonstrator of Pathology, University of Toronto, Toronto, Canada. Second Edition, Revised and Enlarged, Including a Selected List of State Board Examination Questions. Illustrated with twenty-nine engravings and a colored plate. Price, $1.00. Philadelphia and New York: Lea & Febiger, 1913.

THIS little book is intended to serve as a guide to the medical student at the very beginning of his studies, and to render more intelligible the larger and more important volumes which he is expected to read. The work seems to be well done, and we note that Dr. Stenhouse is now responsible for the whole volume.

DIET IN HEALTH AND DISEASE. By JULIUS FRIEDENWALD, M.D., Professor of Gastroenterology in the College of Physicians and Surgeons of Baltimore, and JOHN RUHRÄH, M.D., Professor of Diseases of Children in the College of Physicians and Surgeons of Baltimore. The Fourth Edition thoroughly Revised and Enlarged. Philadelphia and London: J. B. Saunders & Co., 1913.

THE many changes of opinion held by authorities on diet and the many new facts that have been added to our knowledge of foods and metabolism have led the authors to make rather extensive alterations in this edition. A section on the mechanism of digestion has been added, and the chapters on metabolism and the prescribing of diets have been rewritten. The portion of the work on salt metabolism has been rewritten and tables showing the latest additions to the knowledge of this subject have been added. Diet in its relation to several diseases has been rewritten, and a number of entirely new subjects have been considered, as duodenal alimentation and the use of the soy bean. The chapter on infant feeding has been revised in accordance with the modern trend of thought on this subject.

The object of the authors is to furnish a practical reference book on dietetics for the busy practitioner and they state that they have no dietetic fads which they wish to exploit, but that they have aimed to present the subject of dietetics as they understand it in the light of modern scientific research. While the scientific work which has formed the basis of the diets prescribed is reviewed briefly, the work as a whole is eminently concise and practical. The diet lists for various diseases and for use after surgical operations cannot fail to be both instructive and suggestive to the practitioner. The volume includes lists for army rations, diet lists for prisons and hospitals, and a carefully prepared table of the chemical composition of American foods, all of which will be found valuable to those catering to institutions or large numbers of people.

A TREATISE ON THE DISEASES OF WOMEN. For Students and Practitioners. By PALMER FINDLEY, B.S., M.D., Professor of Gynecology, College of Medicine, State University of Nebraska; Gynecologist to the Clarkson Memorial Hospital and Douglas County Hospital; Fellow of the American Gynecological Society; Fellow of the American Association of Obstetricians and Gynecologists; Fellow of the Chicago Gynecological Society. Illustrated with 632 engravings in the text and 38 plates in colors and monochrome. Price, $6.00. Philadelphia and New York: Lea & Febiger, 1913.

THIS book, being the outgrowth of the author's "Gynecological Diagnosis," naturally contains much that was in that volume, but there has been a slight change in the classification of the subject, and details of etiology and treatment have been added. The author has produced a serviceable volume, and one which, in spite of its size, will compare favorably with the best text books on the subject. Several of the chapters are of more than ordinary interest; such are those on non-operative methods of treatment, hygiene and dress, preparation of patient for operation, post-operative treatment, complications following operations, gonorrhea in women, and tuberculosis of the genital organs. The author is careful to include topics which are on the borderline between gynecology and obstetrics; too frequently these subjects are not discussed by writers on either of these branches of medicine. The classification adopted by the author is open to criticism. Hemorrhages from the genital tract are considered in the same chapter with clinical history and case records. Menstruation is considered with hemorrhages, but the disorders of menstruation are discussed in another chapter, with backache, diastasis recti, and enteroptosis. Tuberculosis of the cervix is discussed in the chapter on inflammation of the uterus and also in the chapter on tuberculosis of the genital organs. Bacteriology of the normal genital tract is considered in Chapter IV. and also in Chapter XVII. The volume is well printed and abundantly illustrated; indeed some of the illustrations might have been omitted with no loss to the reader and with the advantage of reducing the size of the book.

DIE UNTERSUCHUNG DER LUFTWEGE. Ein Vortrag zur Einführung in die Moderne Rhino-Laryngologie fur Aerzte Und Studierende. Von Dr. P. H. GERBER, A.O., Professor und Direktor der Königlichen Universitäts Poliklinik für Hals- und Nasenkranke zu Königsberg. I. Pr., mit 49 Textabbildungen und 12 Abbildungen auf 4 Tafeln. Preis, 2 M. Wurzburg: Curt Kabitzsch, 1913.

THIS is a reprint of Professor Gerber's lecture on modern rhino laryngology, which was delivered on January 13, 1913, at Königsberg, Prussia. All the latest operations are described with ample illustrations in the text and with 12 radiographs as an appendix. Professor Gerber regrets that rhinolaryngology is so frequently combined with other branches at the medical schools.

A Practical Treatise on Medical Diagnosis. For Students and Physicians. By John H. Musser, M.D., LL.D., Late Professor of Clinical Medicine at the University of Pennsylvania, Physician to the Philadelphia and Presbyterian Hospitals, President of the American Medical Association, etc. Sixth Edition. Revised by John H. Musser, Jr., M.S., M.D., Instructor in Medicine in the University of Pennsylvania; Assistant Physician to the Philadelphia Hospital, Assistant Physician and Physician to the Medical Dispensary of the Presbyterian Hospital, Physician to the Medical Dispensary of the Hospital of the University of Pennsylvania. Illustrated with 196 engravings and 27 colored plates. Price $5. Philadelphia and New York: Lea & Febiger, 1913.

This, the sixth edition of this well-known standard work, has been revised and prepared for publication by the son of the original writer of the treatise. Dr. Musser in the preface to the present edition says that he has endeavored to carry out the expressed purpose of his father to make the work an exponent of objective medicine and to point out the way to acquire precision in diagnosis. While carefully keeping this end in view the author, owing to the great advances made in medical science during the past eight years, has been compelled to practically rewrite the treatise in order to keep it abreast of the times. A good deal of new matter has been incorporated in the section on infectious diseases and new sections have been added to that part dealing with the internal secretions, and indeed the book has been efficiently brought up to date. It is an excellent specimen of the printer's and publisher's art and as a reference book to students and practitioners may be highly recommended.

Surgical Experiences in South Africa, 1899-1900. By George Henry Makins, C.B., F.R.C.S., Senior Surgeon to St. Thomas' Hospital, London; Vice-President of the Royal College of Surgeons of England; late Joint Lecturer on Surgery in the Medical School of St. Thomas' Hospital; Member of the Court of Examiners of the Royal College of Surgeons of England, and one of the Consulting Surgeons to the South African Field Force. Second Edition. Price, $3.75. London: Henry Frowde, Hodder & Stoughton; New York: The Oxford Press, 1913.

This is one of the best books on military surgery that we have, in so far as the discussion of the effects of small caliber, high velocity bullets is concerned. The first edition appeared in 1901 and was at once recognized as the most authoritative work extant on that phase of the subject. Since that time it has been widely quoted, both here and abroad, and has readily held the eminent position originally accorded to it. After an introductory chapter, modern military rifles are discussed. Chapter III. deals with the general character of wounds produced by bullets of small caliber. Then follow eight chapters devoted to a consideration of injuries to special structures or regions, namely, injuries to blood vessels, bones of the limbs, the joints, head and neck, vertebral column and spinal cord, peripheral nerves, the chest, and the abdomen. In a short final chapter shells and shell wounds are discussed. As a valuable aid to a thorough understanding of the subject the clinical history of more than 200 cases of all types is given. The book is copiously illustrated, there being 28 full page plates besides 105 illustrations scattered throughout the text. The author has a very easy diction and the book holds the attention even of one not particularly interested in the military side of surgery. This quality, plus its unquestioned value from a technical point of view, has quite naturally rendered a second edition necessary.

Radium as Employed in the Treatment of Cancer, Angiomata, Keloids, Local Tuberculosis, and Other Affections. By Louis Wickham, M.V.O., Médecine de St. Lazare, ex-Chef de Clinique a l'Hôpital St. Louis, and Paul Degrais, ex-Chef de Laboratoire à l'Hôpital St. Louis, Chefs de Service au Laboratoire Biologique du Radium, Laureats de l'Academie de Médecine. Translated by A. and A. G. Bateman, M.B., C.M. With 53 illustrations. Price, $1.25 net. New York: Paul B. Hoeber, 1913.

The widespread interest in the use of radium as a therapeutic agent in the treatment of new growths of various types may be the excuse for the publication of this small pamphlet, though the larger volume published in collaboration by the same authors gives a much more satisfactory review of the subject. However, for those who wish to inform themselves in a somewhat superficial manner of the nature of radium and some of its activities, this translation forms a convenient aid. So much has been claimed for the therapeutic powers of radium without any scientific basis for such claim, that the time has come when the entire subject must be viewed with the utmost scientific scepticism, and only those cases considered, at least in evaluating the treatment of malignant disease, as have had microscopical examinations of the tissues both before and after treatment, and have been followed for a considerable period of years, certainly not less than five. Very few of the writers' cases fall into this class. The most extravagant language is employed throughout the book. It is fortunate, however, that the writers state categorically that, "Operable cancers should be operated upon immediately, without delay; this is an absolutely fixed rule." Such a reminder is much needed as many of those who have been using radium and the *x*-ray have not followed this direction, but have treated operable cases until they have become inoperable. The reviewer has, indeed, in a certain number of tumors seen apparent stimulation of the growth instead of amelioration. The entire question of the permanent therapeutic influence of a truly malignant tumor by radium is, in fact, still open to grave doubt. In many of the reported cures the tumors have never been examined microscopically or the cases have been followed for so short a time that no conclusion is justifiable. While, therefore, it is not impossible that the application of very large amounts of radium (and by large amounts is meant quantities in excess of 300 milligrams of the element, and not the weight of a more or less impure salt) may have some influence upon those forms of epithelioma and carcinoma which run a comparatively benign course, yet practically no evidence exists in print which would warrant the statement recently made that radium will replace the knife in the treatment of cancer. In the fight against cancer, books with an optimistic point of view, such as this, are not always helpful.

The Nervous and Chemical Regulators of Metabolism. Lectures. By D. Noel Paton, M.D., B.Sc., Professor of Physiology in the University of Glasgow. Price, $2 net. New York: The Macmillan Company, 1913.

The author in this volume gives a brief but comprehensive review of the present knowledge of the so-called "ductless glands," the endocrinous glands as he calls them. He objects, and rightly, to the customary consideration of these bodies according to their anatomical distribution in organs, and classifies them according to their seat of origin, as follows: 1. Chromaffin tissue and hypophysis from the nervous system. 2. Thyroid and pituitary from the buccal cavity. 3. Pancreas and intestinal mucosa from the intestine. 4. Parathyroids and thymus from the brachial arches. 5. Gonads and interrenal bodies from the mesothelium of the genital ridge. There is a short description of the origin and structure of the various glands, followed by a discussion of what is known of their secretory activity. The book closes with a consideration of the relation of these glands to each other and to the nervous system. It presents the subject in a concise, attractive, easily assimilable manner and can be highly recommended to the profession at large.

Diagnosis of Bacteria and Blood Parasites. By E. P. Minett, M.D., D.P.H., D.T.M.&H., M.R.C.S., L.R.C.P., Assistant Government Medical Officer of Health and Bacteriologist, British Guiana. Second Edition. Price, $1. New York: Paul B. Hoeber, 1913.

This small book was designed to furnish a working knowledge of bacteriology to students and members of the medical profession. It is not well planned for this purpose. For the man who knows nothing of the subject the descriptions are wholly inadequate, while the advanced worker should be familiar with its contents. The directions for doing the Gram stain and those for making a blood smear upon a glass slide are not those which will yield the best results. The direction to fix coverslip preparations of bacteria by passing them over a flame while holding them in the fingers needlessly exposes the worker to the danger of infection. The book is not apt to find an active demand in this country.

# Society Reports.

## NEW YORK ACADEMY OF MEDICINE.

*Stated Meeting, Held December* 18, 1913.

THE PRESIDENT, DR. WILLIAM M. POLK, IN THE CHAIR.

THIS meeting was held under the auspices of the Section of Pediatrics.

**Election of Officers.**—The following officers were elected to serve during the coming year: *Vice-President*, Dr. S. S. Goldwater; *Trustee*, Dr. William H. Thompson; *Member of Committee on Admission*, Dr. John Douglas; *Member of Committee on Library*, Dr. Robert J. Carlyle.

**Resolution Endorsing Vaccination against Typhoid Fever.**—A resolution was adopted to the effect that, since the prophylactic value of vaccination against typhoid fever had been amply demonstrated, and the Board of Health was prepared to perform this operation on request, that the Academy of Medicine approved of this measure, and advised those who were exposed to infection to submit to vaccination either by a private physician or the Department of Health.

**Medical Sociology in the Public Schools.**—Dr. MARY SUTTON MACY read this paper, in which she told what was being done for the physical welfare of the children that should be of interest to the medical profession. She stated that the public schools of New York City were of two kinds, the day elementary and high schools and the day and evening industrial schools maintained by the Children's Aid Society, with some cooperation from the Board of Education. In addition to these there were the parochial and other church schools. The Children's Aid Society also maintained the so-called Soup Schools, which provided lunches and other necessities for children whose parents were unable to care for them. The Board of Education also effected a great deal of social service bordering on philanthropy in the course of its routine work. Medical inspection in the public schools was under the Department of Health, Bureau of Child Hygiene. The corps of doctors and nurses attached to the Bureau made regular and routine inspection of the children, or of many of them as possible, and had succeeded in excluding almost entirely contagious diseases. They had in this city no serious school epidemics in these days, and the Bureau of Child Hygiene deserved full credit for this relief. Many other points were included in medical inspection, defective teeth, palate, vision, hearing, nasal breathing, hypertriphied tonsils, etc. When required, recommendations for proper treatment were made to the parent or guardian. The best results were secured where there was cooperation between inspector, school authorities, and the home, but results were not always so satisfactory where one of the trio slipped in the cooperation. The remaining fields of medical sociology were under the direction of the Board of Education, if they excepted the twenty-two elementary schools in which lunches were served as an experimental effort to demonstrate their value and effect. The Board of Education was organizing to enter on another field of work, which it was to be hoped would take effective notice of the sick teacher. Dr. Macy said she had before spoken of the demoralizing effect on a whole school of a sick teacher. The children should be guarded from sick teachers without doing injustice to the teachers. It was time that the physicians took a hand in the teacher's salary campaign for the sake of their own patients, both the pupils and the teachers. The Board of Education now maintained special classes for the blind, the deaf, the crippled, the enemic, the tubercular, and those suffering from trachoma, all of which deserved the attention and cooperation of the medical profession. They all presented medical problems in which every physician should be interested. The routine of admitting children to these classes should be known to every physician in private hospital, or dispensary practice, so that he should be able to put the parents or guardians of such children in touch with the educational people. The cooperation of the physician would be heartily welcomed, as would also his suggestions for care, treatment, nourishment, hygiene, etc. The vocational training of boys and girls deserved medical inquiry and cooperation. When a child of twelve was more mature than his fellows of the same age, he should not be compelled to stick to his books for from two to four years more before he could begin to learn a trade, and then begin without the protection and supervision that the school should give. The child not fond of his books usually formed bad habits of laggardism and truancy, and was less fitted to prepare for his life work than though he had been properly trained in some vocation from the age of twelve. The doctors should find an answer to this problem. Educators would act if the doctors would make them see. Dr. Macy said she wished to speak of her own hobby, the classes for training nervous, mentally defective and backward children, the so-called "Ungraded Classes." There were no classes for epileptics, imbeciles, or idiots, and none for the observation of nervous cases simulating amentia, neither were there any for mental defectives or morons, but all of these types of children were mixed together, and some had gotten the idea that every child in the ungraded classes was a moron or an imbecile. As a matter of fact the majority of these children were border-line cases, or high grade morons, and only time treatment and teaching would determine which was which. The time was coming when these children would be sorted out and differentiated, and the physician should enter this important field. Children applying for admission to the ungraded classes were examined, physically, not inspected, and recommendations were made that the child be taken to a specialist or a clinic as circumstances warranted. When the children were once admitted to the ungraded classes they were followed up by social workers attached to the department to see that the needed treatments were obtained. Convalescent homes were found in the country for cases in which this measure seemed to be indicated, and upon the return of these cases to the city they were followed up to see that the right education treatment followed physical upbuilding. More clinics and more physicians should be interested in actively cooperating with this department. Few physicians in clinics or out of them realized all the resources at the command of the poor of this city, and if there were more cooperation between the physician and the ungraded classes of the public schools the physicians would learn many things and the children would profit immeasurably. In closing her address, Dr. Macy made a strong plea for the cooperation of all clinics, eye, ear, dental, skin, every clinic, with the work of caring for this class of children.

**A Study of the Results of Tonsil Operations on Public School Children in New York City.**—Dr. GERHARD H. COCKS read this paper in which he summarized the results of an investigation in a series of school children whose tonsils were operated upon during the last year. This investigation was made at the request of the Visiting Committee of the State Charities Organization, and had for its object to obtain information which would warrant a request for more funds from the Board of Estimate for the care of adenoid and tonsil cases in the municipal hospitals, and also to ascertain whether any improvement could be made in the methods now employed in the schools for the disposition and treatment of these cases. Dr. Cocks stated that of 107 children examined, 17, or approximately 16 per cent., failed to have the operation performed. Of 90 cases operated upon, 9 or 10 per cent. received mutilations of the soft parts adjoining the tonsils. Of 14 cases operated upon without a general anesthetic, 13, or 92 per cent., were badly done. Of 33 cases operated upon under general anesthesia, 9, or 27 per cent., were poorly done. If the number of cases receiving mutilations were added to the number of cases badly done, both with and without anesthesia, it would be seen that 33 per cent. were poorly done. In addition there were 31 children who required further treatment for nasal conditions. It was therefore clear that the system now employed, notwithstanding its usefulness, could be materially improved. The writer concluded as follows: 1. A greater number of medical inspectors were needed. 2. School physicians and nurses should exercise more care in seeing that children referred for operation carried out their recommendations. 3. When children were referred for operation to hospital or clinics they should be sent to institutions which maintained nose and throat departments. This was to avoid attacking the tonsils when the anterior nares were at fault. 4. Hospital physicians would do well to remember that a child referred with a card from the school physician, was often sent simply for diagnosis and treatment. Such a card was not an indication that an adenoid and tonsil operation was imperative or even advisable. The hospital physician should carefully examine and decide each case on its

own merits. The mere presence of a pair of healthy tonsils in the child's throat did not necessitate operation. There should be some good indication, as mouth breathing, recurring attacks of ear-ache or tonsillitis, improper physical or mental development, etc. If operation was contraindicated, the doctor should always note this fact, together with a statement of the diagnosis and treatment, on the card provided for this purpose by the school authorities. 5. All adenoid and tonsil operations on children should be done under general anesthesia. 6. Hospitals where adenoid and tonsil operations were performed should be equipped to keep their patients in the wards for at least twenty-four hours after operation. 7. The writer begged to suggest the desirability of having a list compiled each year of the hospitals which employed general anesthesia for their adenoid operation, and carried out proper after treatment. This list of hospitals should be given to the school authorities for use in directing pupils unable to pay for private operations. A committee designated by the Academy of Medicine could be relied upon to draw up such a list on an impartial basis.

**The Child in the Tuberculous Milieu.**—Dr. MAURICE FISHBERG presented this paper which was based on the study of 217 families in which either the father, the mother, or both, were found to be tuberculous. Of 274 consumptives found among these people, only 112 slept in a separate room, and 136 in beds by themselves. Their economic condition could be summed up by saying that they were at the end of their resources, otherwise they would not have applied for relief. The children of these families offered excellent material for the study of the effects of the tuberculous milieu on children. Of the 1,129 persons comprised in this group of families, 792 were under 15 years of age. Nearly all of these children had been breast fed, only 5.5 per cent. having been fed artificially. The proportion reacting to tuberculin was not found to have any relation to the manner of feeding during infancy. The children suckled by tuberclous mothers seemed to thrive as well as others of their class; most of them, however, became infected with active tuberculosis. The weight of the infants was fairly normal, but that of the children over 4 years of age was deplorably below the normal for either children of their class. The form and shape of the chest was normal in 62.5 per cent. of the children, flat in 27.5 per cent., and rachitic in 10 per cent. The large proportion of flat chests was not necessarily indicative of tuberculous habit, as the flat chest was a common characteristic of the Jewish race. Enlarged superficial thoracic veins were found in 8 per cent. of the children, while in those in whom a diagnosis of tuberculosis was made 37.5 per cent. showed these enlarged veins, and three-fourths were unilateral. In 67.8 per cent. of the children the cervical glands were swollen, but swollen glands in the axilla, groin, etc., were exceedingly rare. Hyperplastic conditions of the nose, throat, pharynx were found in 58.6 per cent. of the children. Scrofula was rather infrequent. The external stigmata of tuberculosis, such as scrofuloderma, tuberculides, phlyctenula, glandular blepharitis, etc., were exceedingly rare among these children. Among the 692 children, 65 were found to be suffering from active tuberculosis. Of these 19 were suffering from pulmonary tuberculosis, 25 with tracheo-bronchial adenitis, and the remainder with tuberculosis of the bones, joints, etc. The mortality of children under 14 years of age in these families was rather high. While only 17, or 7.3 per cent., of all the deaths were said by the mothers to be due to pulmonary tuberculosis, in 79 instances the cause of death was unknown to the parents. Many of these were undoubtedly due to tuberculosis. The opinion of many that infants under one or two years when infected by tuberculosis did not survive the disease was not supported by their investigations. Massive infections such as were found among these children were the strongest factors in propagating the disease. Prophylactic measures against tuberculosis to be effective must be directed with a view to the protection of infants and children against massive infections such as were found among the families investigated.

Dr. T. PASSMORE BERENS said that the readers of the papers had done a valuable service in bringing this subject to the attention of the profession. The work done by the Department of Health for the benefit of the school children was work that was deserving of praise, encouragement and cooperation on the part of the profession at large. It was astonishing to learn from Dr. Cocks's statistics of the large percentage of children who had been operated upon without the use of an anesthetic. Dr. Berens considered that the practice of operating on children for the removal of tonsils and adenoids without the use of anesthetic was most reprehensible, and that it should be severely condemned at every opportunity. The practice was a horrible one; it was brutal and unsurgical, and the results usually were bad. The nervous shock to the child very frequently caused grave sequelæ; for instance, chorea, post-operative neurasthenia, and last, but by no means least, a dread of the doctor. It was astonishing to think that the children were operated upon for the removal of adenoids and tonsils with or without the use of a general anesthetic, and then within a few hours were allowed to return to their homes in the care of an untrained attendant. They should not be subjected to the dangers which this pernicious practice entailed.

Dr. S. JOSEPHINE BAKER said that she wished to endorse Dr. Cocks's conclusions in regard to tonsil and adenoid operations without an anesthetic. It had been their experience that children suffered extremely from the severe nervous shock, and that from the surgical viewpoint the operations performed without an anesthetic were not successful. Frequently children were referred for operation who had already been operated upon but who were not improved by the first operation. The hospitals were not equal to the demands made upon them. There were last year 30,000 children in the public schools who required tonsil or adenoid operations, and less than 20 per cent. were operated upon. The certificate of any physician in regard to the treatment of enlarged tonsils was accepted by the Department of Health. The Department conducted five hospitals where these operations were performed. These hospitals had been in operation for eighteen months, and about 4,000 children had been operated upon during this time. There had been one fatality. After operation the children were kept in the hospitals for at least twenty-four hours, and usually thirty-six hours from the time of entrance. Aside from the one fatality mentioned there had been no unfavorable results. It was the custom in some dispensaries to send the child home immediately after operation, and this resulted in severe secondary hemorrhage; in one instance coming under her notice the operation was followed by septic sore throat, and death. Dr. Baker expressed the hope that Dr. Cocks's paper would awaken his hearers to the fact that the dispensary was not the place for these operations, and that the hospital service could be extended so that patients unable to pay could be cared for.

Dr. ALFRED F. HESS said that Dr. Fishberg's investigation was of great interest to the community, concerning as it did perhaps 30,000 to 40,000 of its children. There were three main points raised by this paper: (1) that these children in a tuberculous environment were under weight; (2) that they did not gain weight normally; and, (3) that they reacted in large ratio to tuberculin. Dr. Hess asked what standard of weight was selected as normal. If these children were really under weight what was the cause of it? Was it due to their hereditary constitutional weakness, or to their latent tuberculous disease, or to their poor food and unhygienic surroundings? These points were important if one wished to strike at the root of the question, and to attempt a solution. It might be that these children were below par because they did not have an average amount of the proper kind of food, and did not live in quarters of average healthfulness; for it was known that the tuberculous earned less than the average wage, and therefore lived under the poorest general conditions of any of the poor in New York City. As to the tuberculin test, Dr. Fishberg had shown that the majority of these children reacted to tuberculin. They saw from the chart that 67 per cent. reacted in the second year of life. This in itself must lead to the inference that this reaction did not denote tuberculous disease, and that one could not infer from it that the children would die of tuberculosis. Indeed, the question could be asked whether this reaction did not confer immunity in later life. Dr. Hess said that it had been his experience that a small proportion of these children reacting developed tuberculous meningitis. As to the failure of these children to gain in weight: At the Tuberculosis Preventorium in the course of the past five years 1,000 children had been harbored for a period of about three months, and there had been no difficulty in making these children gain in weight, although they were nearly all the children of tuberculous parents.

There was no greater difficulty in making these children gain in weight than in effecting a gain in the ordinary child, so that in this respect he could not agree with Dr. Fishberg.

Dr. GODFREY R. PISEK said that while Dr. Fishberg had done a large and commendable work, it had been among a special class—that of dependents, of one race, and living in the tenements. These factors should be taken into consideration in studying the statistics. It was to be regretted that such work had not been done in other localities, for they were in need of just such statistics. He wished that Dr. Fishberg had told them more of his ideas regarding the mode of infection. Was the infection enterogenous or aerogenous? In studying these families it should be remembered that when the father became tuberculous the mother became the bread winner, and the children were left in the father's care at home, and close to the source of infection. In this respect the children differed from the general type of child. In Germany the percentage of infections was given as 80 per cent. of those exposed; he had always been under the impression that this percentage was higher than ours, and was glad to learn the statistics. Dr. Fishberg had not told them much about the physical signs; it would be interesting to know what type of physical signs these children presented mainly. He hoped that such physical examinations would be made, and a report presented. The theory had been confirmed that adult tuberculosis was latent tuberculosis in the child, and while they did not see the signs in the prenatal state, and during infancy, they saw them in what might be called the paratuberculous conditions of later life. A lowered resistance predisposed to these paratuberculous conditions, and was certainly the result of living in a tuberculous environment.

Dr. R. OTTOLENGUI said that he was a dentist, practising more particularly orthodontia, and had been asked to discuss Dr. Cocks' paper. He presumed that he had been asked to come here to tell them that the claims of the orthodontist were exaggerated. If it was true that the Department of Health was finding that the results of tonsil and adenoid operations were not always satisfactory it was equally true that the dentist was finding the same conditions. The time was when the dentist asked the parents, "Has this child been examined for adenoids?" Now they ask, "Has this child been operated upon for adenoids?" The answer frequently was heard "Yes, two or three times." Dr. Cocks had mentioned mouth breathing and the high vault as though they were stigmata. What did high vault mean? Did it mean high from the floor of the mouth or narrow in proportion to the width of the arch?

The statement had been made by dentists that they lowered the vault by pulling the vomer down. There was not a scintilla of truth in this statement; those who made it had good intentions, but they were mistaken. There was nothing in the apparatus employed that could lower the vault. Another claim sometimes made was that more breathing space could be given by opening the median suture and this was equally an error. Radiography had shown them their mistake in this respect.

Dr. JOHN E. MCKENTY said that in his work he met with many cases in which operations on the tonsils had not been successful, but he did not suppose conditions were as bad as had been stated. Children should be sent to hospitals properly equipped to make examinations for nasal obstructions as well as to care for abnormal conditions of the tonsils. In children who had suffered from enlarged tonsils and adenoids for a considerable length of time there was usually hypertrophy of the inferior turbinates. This condition had been recognized in the clinics abroad, and they now made it a routine practice when operating on the tonsils to remove a small portion of the inferior turbinates. One cause of mouth breathing and of bad results in these operations was faulty occlusion, and he was thoroughly in accord with the work that the orthodontists were doing in their endeavor to correct this defect. Again, it often happened that a child after operation continued to be a mouth breather simply because he did not know how to breathe properly. The proper method of breathing was now being taught in some of the clinics, and this had been brought about through the influence of the orthodontists. The speaker said that he saw some instances in which only a part of the tonsil was removed and the cut surface became cicatrized and obstructed drainage, and thus the condition after operation became worse than before. The modern operation was a major operation, and should be in the hands of an expert.

As to the care of these children, it should be remembered that there were only forty or fifty beds for such cases in the city hospitals, and who was to pay for the work? If they were cared for by the city hospitals the city would lose about two dollars on every case.

Dr. JOHN WINTERS BRANNAN said that he had been interested in all the papers, but especially in what Dr. Cocks had said in regard to anesthesia in tonsil and adenoid operations. Six or seven years ago he had been impressed by the cruelty of these operations at Bellevue, and had been instrumental in having a ruling passed forbidding the performance of these operations without an anesthetic. This operation was now a major operation, and should be conducted as such. Only last week he had heard of two places where the operation had been performed without an anesthetic. In one of their hospitals a surgeon was said to have performed a tonsil operation three times without using an anesthetic. He had boasted that he could do the operation in sixteen seconds; all he seemed to think of was the speed. When the question arose as to whether this offender should be disciplined he stated that he had only removed the adenoids. This affair brought out the statement that there had recently been a change of opinion as to the necessity of an anesthetic in these operations, and that there were authorities who believed that some of these operations could be performed without the administration of a general anesthetic. He was glad to have heard what had been said this evening, and hoped it would have its influence on the trustees who were dealing with this affair. It should be insisted upon that these operations should not be performed in dispensaries and out-door clinics, but only in such institutions as had hospital facilities for caring for these patients.

Dr. FISHBERG, in closing the discussion, said that Dr. Hess had asked a very proper question. In making comparisons of this kind the race factor must always be considered. In his study he had compared the children in the tuberculous milieu with those of the same race and stock measured in the public schools in the same neighborhood. As to whether the children who made an active response to the tuberculin test were in danger of their lives, he wished to say that the infection might be massive or mild. The child with mild infection might become immune to the disease, and not only not succumb to it, but might be proof against reinfection. Those who received a massive infection during the first or second year had probably succumbed, and those who survived might carry a latent lesion which might flare up at puberty.

Dr. L. E. LA FÉTRA asked if he might reopen the discussion in order to ask a question. He said that he wished to ask Dr. Cocks if, when he spoke of operations on adenoids and tonsils without a general anesthetic, he meant that in all cases where it was necessary to remove adenoids, even if no tonsil operation was required, a general anesthetic should be administered.

Dr. COCKS replied that he considered it necessary to employ a general anesthetic for the removal of adenoids if one expected to do a complete operation.

**Election of Officers for Section on Pediatrics.**—The Section on Pediatrics elected the following officers for the year 1914: *Chairman*, Dr. William P. Northrup; *Secretary*, Dr. Royal Storrs Haynes.

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SECTION ON OBSTETRICS AND GYNECOLOGY.

*Stated Meeting, Held November* 28, 1913.

DR. WILLIAM M. POLK, IN THE CHAIR.

**Radiotherapy of Uterine Fibroids.**—PROFESSOR KROENIG of Freiburg, Germany, made this address. He declared that as yet one could not speak conclusively on the results of radiotherapy as the whole subject was still in its infancy. A discussion of these new methods was, however, of the greatest advantage; the universal discussion that took place on this subject at the International Congress at London had been of the greatest advantage in extending their knowledge. He had learned much from the Americans, especially from Dr. Abbe, who had contributed so much to the elucidation of the problems of radiotherapy. Naturally the discussion of the Roentgen ray treatment of benign and malignant growths would have to be separate, as the two kinds of growths responded in such different ways to radiotherapy that it was quite impossible to discuss

them together. Their experience with benign growths had been sufficiently extensive to enable them to draw rather concise conclusions. The Roentgen rays were well adapted to the treatment of fibromyomata and one could undertake their treatment with certainty as to the result if a combination of the Roentgen rays and mesothorium and radium were adopted. The speaker particularly emphasized the point that they differed from others in the use of radiotherapy in that they had been giving the largest possible doses. This high dosage was not necessary, however, in every case. Large doses had not in any case produced harmful results. In cases where small doses were employed, if the condition proved refractory to such treatment, much valuable time was lost which could have been saved by immediate recourse to the larger doses. In women over fifty years of age there were few cases which did not respond to small doses. The small dose sometimes had the disadvantage of increasing the hemorrhage and causing it to last longer until a condition of acute anemia threatened the life of the patient. They began to use the large doses something over three years ago and had found no case which did not respond to this treatment so far as the production of amenorrhea was concerned. Their series of cases numbered 350, and many of these had been watched for several years, so that they could speak with certainty as to the permanence of the results. The first effect of the treatment noted was a diminution of the hemorrhage and a decrease in the size of the tumor. In cases in which the growth was large they seldom attained their object and recurrences were frequent. Where enucleation of the tumor was possible this measure was preferable, as it preserved the function of menstruation and the possibility of conception, to radiotherapy or extirpation of the uterus; but radiotherapy was better than extirpation of the uterus and they had abandoned operative treatment in all cases except those rare instances where enucleation was indicated. Radiotherapy did not threaten life as did operative procedures. Again cases for operation had to be selected, the bad operative risks being rejected. There was no such restriction for radiotherapy. With radiotherapy the after effects were much less distressing than after myectomy or hysterectomy. It could not be denied, however, that radiotherapy had its disadvantages. First, the duration of treatment, five to eight sittings at intervals of eighteen days being required, lengthened the duration of treatment to three or four months. It should be remembered, however, that the patient could work during the entire time of treatment. The duration of treatment might be shorten d by the addition of the mesothorium and radium treatment. It was very important that the patient should have two or more treatments after the amenorrhea had been established. The skin lesions which were formerly so frequent in Roentgen ray work were, with the modern technique, no longer encountered. A filter was used which eliminated the *alpha* and *beta* rays, which were less penetrating and responsible for the surface lesions. The highly penetrating rays of mesothorium and radium might be applied in three ways; either the application might be made to the abdomen, or a filtered capsule might be introduced into the vagina, or a capsule might be introduced into the uterus. When the latter method was employed smaller doses would be required, but with this method there might be a rise in the temperature. Though no serious consequences had been noted by this method, there had been edema of the cervix in two cases. The speaker said that his preference was for the treatment *per vagina*, as this method had the advantage of rapidly producing amenorrhea. The treatment was much more successful with small than with large growths. This treatment had been employed in prostatic growths in three instances, in one of which the growth rapidly separated from its capsule and the hypertrophy decreased so that the change was easily perceived by the sense of touch, the second case was only partially improved, and the third was still under treatment. Goiters had also shown a recession under this treatment. In many benign tumors it would take the place of operation, but such a statement could not be so conclusively made of malignant growths. The treatment of carcinomas by the Roentgen rays presented many difficulties. The growths were apt to be too deep seated and too far from the anticathode, so that there was a great loss of rays; radium and mesothorium could be brought near the carcinomatous tissue. While permanent results had been secured in many conditions, this could not be claimed for the deep-seated carcinomas in a sufficient number of cases to warrant the expression of any great claims in this class of cases. The speaker said that they had treated in all 254 cases, 150 of which were treated therapeutically, while the remainder were treated for the prevention of recurrence. Of the 150 cases treated therapeutically, 140 were treated with mesothorium and radium, while in the other ten cases the Roentgen rays alone were used. Of these 140 cases in which the combined treatment by the Roentgen rays and mesothorium and radium were employed there were three groups: 1. Those in which the carcinoma had not spread from the primary focus. 2. Those in which there was a new growth beyond the primary focus but in which operation was still possible. 3. Those cases in which metastases had formed. In the latter group they had not succeeded in effecting a single cure, though the disease had been checked in some instances. In most of the second group it had been impossible to effect a permanent cure, but there were a certain number of cases which responded well, there being retrogression not only in the tissues but in the glands. The cases in which the carcinoma had not spread beyond the primary focus were particularly suited to radiotherapy and mesothorium treatment. In a number of these cases they had been able, after a course of treatment, to demonstrate that cancer cells were no longer present. Of 64 cases treated for the prevention of recurrence, 45 were treated with unfiltered rays and 19 with partly filtered rays; of the 45 treated with unfiltered rays, 23 died of carcinoma, while the 19 treated with filtered rays were still alive and without recurrence. Sufficient time had not yet elapsed to state that some of these cases were permanently cured. Of those treated by partly filtered and partly unfiltered rays, 60 per cent. were without recurrence at the end of one year. Dr. Kroenig said that from these results it could be seen that they could not expect too much from this method, but when one considered the high mortality in cancer of the cervix one realized that if even a small part of these were saved it would be worth while. The most striking results from the Roentgen rays and radium and mesothorium were obtained in fibromyomata, small benign growths and primary carcinoma. Professor Kroenig gave a lantern slide demonstration showing specimens before and after the application of radiotherapy.

**The Technique of Radiotherapy.**—Professor Gauss of Freiburg, Germany, presented this phase of the subject. He stated that the use of the Roentgen rays had long been confined to pathological conditions on the surface of the body as attempts to use the more penetrating rays had resulted in surface burns from the less penetrating rays. Now they had learned that by the use of metal filters they could prevent the passage of the softer rays. In their experiments on tadpoles they had learned that the filtered rays checked the growth and killed the tadpoles. They obtained a deeper action with the filtered than with the unfiltered rays provided they could get enough of them. Results were dependent upon the concentration of the dose into a short time. If the same dose that was concentrated into a short period was given over a long period of time it might even cause the growth to increase in size. The usual dose was five, seven, or ten milliamperes. By giving large doses in a short period of time almost all the patients to whom the treatment was applicable were cured. The average case of fibromyomata required from three to four months in order to effect a cure. The average total dosage in these cases was one to two thousand milliamperes. In some instances they had been able apparently to influence hopeless cases to such an extent that cancer cells no longer existed where before they had been growing most profusely. With the Roentgen rays alone they did not get results at any depth, but with the radium and mesothorium they were able to reach the deeper tissues. The *gamma* rays of radium and mesothorium could be applied successively to different sections of the diseased area. The dose contained in each capsule was about 200 milligrams, and this was enclosed in a metal filter. Where space was a consideration gold had been used in place of lead, as, for instance, in the uterus. In confined spaces the secondary rays were sometimes kept off by gauze or rubber. Treatments were repeated every three weeks until there was no trace of cancer. Then prophylactic treatments were given occasionally at intervals of perhaps three months. In general surface work the Roentgen rays were substituted for mesothorium as they had the

advantage of covering a larger surface and were cheaper. Mesothorium was employed for the malignant growths. Myoma of all sizes and occurring at any time of life could be dealt with by the Roentgen rays, and if results were delayed the vaginal mesothorium treatment was added and seemed to hasten the cure considerably. In applying the Roentgen rays the abdomen was divided into twenty or thirty sections of about four square centimeters each, and other parts were protected. Each section was exposed in turn to the Roentgen ray tube which was enclosed in its metal casing. The tube was lowered until the anticathode was from twelve to twenty centimeters from the surface of the exposed area. The tube was excited with from five to ten milliamperes and should always be of the same degree of hardness, and for the penetrating rays only a very hard tube was used. The dose consisted in five to ten milliamperes interrupted from fifty to seventy times per minute. Intervals of eighteen days elapsed between the treatments and amenorrhea was produced in from four to eight sittings. The point could not be too strongly emphasized that the treatments should not be too few. Kroenig had also used a platinum capsule.

Professor GAUSS exhibited capsules designed for introduction into the vagina, rectum, larynx, and esophagus, and for external application. He said that the application of these capsules seemed very simple, but that such was not the case; no one should attempt to use such treatment without much instruction and experience.

Dr. GEORGE P. PFAHLER of Philadelphia said that no doubt they all felt as he did that a debt of gratitude was due Dr. Kroenig and Dr. Gauss for having shown such excellent results and the method by which they were produced. There were a few points which he wished to emphasize. Dr. Kroenig and Dr. Gauss had treated ten times as many patients as he had, but his experience had extended over a longer time. They had all used the cross-firing method, but they had not used the large doses suggested this evening. In his work he had been accustomed to divide the area to be treated into four instead of twenty or thirty parts, and consequently he had given but one-fifth or one-tenth the dose, but his results had been more than one-fifth or one-tenth as good. He believed that they should take advantage of as much power as they could. They, too, had developed a filter method. Seven years ago he had demonstrated that the backs of rabbits could be protected by leather, and since that time they had been using filters. Dr. Pfahler said he had understood that the subject to be discussed was malignancy and he had prepared a lantern slide demonstration showing his results in some forms of malignant disease extending over ten years or more. These slides illustrated the results obtained by the use of the Roentgen rays on round-celled sarcoma involving the upper portion of the fibula, on an osteosarcoma with fracture on the side of the ileum, on osteosarcoma of the giant-celled variety, and on orbital sarcoma. The fact that these patients had been without recurrence for a number of years gave proof of the permanence of the cures. In one instance of sarcoma of the face there was a marked dermatitis of the opposite side, which was a very graphic illustration of the penetrating power of the rays.

Dr. L. G. COLE, after expressing his gratitude to the speakers, of the evening, said that he could not speak from a gynecological standpoint, but the cross-firing, which, although used before Dr. Kroenig and Dr. Gauss had employed it had been so emphasized by these men that they were deeply indebted to them for the development of this method. It was necessary in deep therapy to use a high vacuum tube and to keep the tube at that vacuum. These points should be recognized and emphasized. The work of Dr. Pfahler was very remarkable and every time he saw it it seemed more graphic. The case that he related which grew worse under inefficient treatment and which so quickly responded to correct treatment emphasized the importance of having as thoroughly competent men to do röentgenological therapeutic work as of having competent men to do *x*-ray diagnostic work. When this kind of work was done with the skill shown this evening he prophesied great success for röentgenological therapeutics in the next five years.

Dr. ROBERT ABBE declared that he had been almost startled by the brilliancy of the expositions of the evening. They certainly were indebted to the speakers for their enthusiasm and their moderation, and it should be left to them to continue their investigation and to tell what could be done by their methods. Dr. Pfahler's demonstration of what he had accomplished in the treatment of sarcoma by the Roentgen rays well filtered made it evident that here was a great field for work and that they had only scratched the surface. In regard to the uterine work, Dr. Abbe said he thought this was a very difficult branch of radiotherapy; he had not pursued it elaborately, but had practised the uses of radiotherapy in the heretofore uncontrolled diseases of this type. There was here and there a case where lasting benefit was obtained, but this occurred usually in the less malignant conditions. The pathology of cancer was unknown, but they knew that there were many grades of malignancy, and what would effect a cure in one grade would not do so in another. Cancer as a growth of the weak cells, the less resistant cells, and hence the cancer cell could be overcome by forces that would not destroy the normal cells or the skin. The fact that papilloma of the vocal cords could be destroyed by radiotherapy while the vocal cords themselves were uninjured was a striking illustration of the susceptibility of the weak cells and the resistance of the normal tissue. The cancer cells were not only weak but they were of varying grades. Fibroids were amenable to radiotherapy in many instances, especially the mural types. The speaker cited two cases successfully treated by radiotherapy, one dating back to 1905, which he had recalled as Dr. Kroenig and Dr. Gauss were speaking of the large doses and of Roentgen rays and of their repetition. One of these cases received but one treatment, one-hundred milligrams of radium in a tube being placed in the body of the uterus. It was left in less than twenty-four hours. The hemorrhage stopped, and there was a gradual recession of the growth until at the end of five years but a small remnant remained. With many tumors it was best to give the correct dose and then let the patient alone; if one kept on irritating the growth it got worse, so it seemed that they had a vast deal to learn about dosage, and he would not be surprised if one massive dose and a long abstinence from treatment would not be equally efficient in *x*-ray work. This was not work for the general practitioner at the present time; he should let it alone and not make a fake of it. This field of work should not be entered upon unless there was a large amount of radium at one's disposal and a large number of cases available, under such conditions that they could be watched, and where there were opportunities to compare the results with those from a large number of surgical cases. The work should also be confined to those who could work without regard to financial reward, and if these precautions were carried out he felt confident that they could add much to their present store of knowledge.

Dr. SINCLAIR TOUSEY said it had been a great pleasure to listen to the distinguished guests of the evening who had been largely instrumental in spreading the knowledge of the curative effect of the *x*-ray in uterine fibromyomata. It was important, however, that no one should carry away the mistaken idea that their method robbed the *x*-ray of the danger of over-exposure or produced a radiance which might be safely applied by one unskilled in deep radiotherapy. His own experience corroborated the fact of the curative effect, but led him to feel that the technique described should not be undertaken lightly by anyone possessing an *x*-ray apparatus, but not especially experienced and skilled in the treatment of deepseated lesions. He agreed with the essayists regarding the advantage of filtration, but it would be a grievous error, and lead to most disastrous results, to interpret this fact as indicating that the rays which penetrated to and profoundly affected deep tissues were without effect in the superficial tissues which they first traversed. This effect was present, and was exceedingly destructive in overdoses. In his practice he carried the exclusion of the less penetrating rays one step further by using a generator of his own suggestion which sent a constant current of suitable voltage through the *x*-ray tube, and so produced approximately homogeneous *x*-rays of the desired penetration. He used filtration as an additional precaution. He personally disapproved of the short distance used by the essayists. The economy of time was unquestioned, but to produce an effect upon the tissues four inches below the surface with the anticathode five inches above the surface, the skin would receive about twice the dose to which it would be exposed if the anticathode were thirteen inches from the surface with an exposure long enough to produce an equal effect at a depth of four inches. Roentgen ray ulcers of the intestine had been

reported from Germany as a remote effect of the technique under consideration. No man should apply a radiance for treatment or examination unless he knew how to measure its dose and had calculated its dose for the distance at which it was proposed to place the tube. Anything else was like giving a man a hypodermic of strychnine without knowing the strength of the solution.

Dr. ARTHUR F. HOLDING said that this meeting had given him great pleasure not only because of the epoch making work shown by Professors Kroenig, Gauss, and Pfahler, but also because of the opportunity of witnessing men who were not primarily roentgenologists become enthusiastic over the results obtained by the *x*-rays. That the gynecologists, Professors Kroenig and Gauss, drawing their conclusions from such a large number of cases, and after such painstaking research, had become more enthusiastic about the *x*-rays, mesothorium, and radium than roentgenologists would dare to become in open meeting, was a rare tribute to the efficacy of these agents. The total number of cases treated by Professors Kroenig and Gauss, 350 at the present time, was greater than the combined total of all the cases treated by the men whose work antedated theirs. The reasons for this were the ability, character, and attainments of Professors Kroenig and Gauss, and the fact that while being surgeons they were progressive enough to recognize and make use of these new agents; because of their improvements on the technique of the application of these remedies and the convincing reports of their results, and, perhaps, because they had control of their cases. This was a clear indication of the brilliant results that might be expected in all specialties when new agents should be carefully adapted to the special problems of each specialty by men who were cognizant of these conditions. Publicity should be given to this work that it might be generally known what might be accomplished with large doses of Roentgen rays. This would result in a great increase in the number of cases treated and along with the successes there would come a new era of *x*-ray calamities, therefore it could not be insisted on too emphatically that all *x*-ray treatment was not good *x*-ray treatment just as all surgery was not necessarily good surgery. Roentgen therapy was entirely dependent upon technique.

## MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

*Stated Meeting, Held October 20.*

THE PRESIDENT, DR. REYNOLD WEBB WILCOX, IN THE CHAIR.

**Tuberculous Patients Treated by a Special Method and Plan of Control.**—Dr. C. AM ENDE explained his employment of the Moro reaction as a means of diagnosis and his treatment by the internal administration of creosote and pills of quinine and iodoform, as already described by the speaker in the MEDICAL RECORD, and said that the dispensing of the remedies by the physician himself assured the advantage of control over patients. He then gave reports of a number of cases and presented three of the patients. The first of these was a girl ten years old who was brought to him in November, 1912, on account of a hacking cough. She was pale and emaciated, but the physical signs did not show any positive evidence of tuberculosis. An application of the Moro salve, however, gave a strong reaction; producing an intense, florid, almost pustular eruption. She was placed upon his special treatment, and soon began to gain in weight and improve in every way. A second inunction in January was followed by a much finer reaction, and at the present time she was entirely well. The second patient was a little boy who had had chains of enlarged glands on both sides of the neck and in whom the Moro test had given a very distinct reaction. Under the treatment his general condition had greatly improved, and at present but a single enlarged gland remained. The third was an adult male patient who had first come under observation about a year ago, when he was in quite a critical condition and the prognosis seemed very bad. Aided by some rest at the seashore, the improvement in his case had now gone so far that he was enabled to resume his occupation, which was that of a paper hanger. In addition to the pills and creosote, he was now receiving injections of tuberculosis vaccine. This had previously failed, both in England and Germany, when used by itself, but it was possible that in combination with the internal medication it might prove of service. In concluding his remarks the speaker said that if people in general could be made to understand that a person might have pulmonary tuberculosis entirely unknown to or unappreciable by himself or his friends, and thus be induced to consult their physicians concerning anything unusual which they noticed in their state of health, considerable reduction in the mortality from this disease might result.

**The Theory and Treatment of Diabetes.**—Dr. WILLIAM E. FITCH said that about one year ago he began a clinical investigation on the further study of diabetes mellitus, more particularly its control by dietotherapy, and to a card requesting information from the profession as to the propriety of allowing a liberal starch allowance, which was inserted in more than a hundred medical journals, he received over a thousand replies. While 57½ per cent. agreed with von Noorden that "the best treatment for the diabetic is the food containing the greatest amount of starch which he can have without harm," the consensus of opinion from these correspondents was that the present methods of treatment were unsatisfactory to both patient and physician. Laboratory work upon diabetes during recent years and a more careful study of its metabolic disturbances had taught us many new facts, particularly from the dieto-therapeutic viewpoint, which had been thought to be the true one but in the light of later research had been materially modified; and von Noorden, one of the best known authorities on this subject, had stated that opinions which had prevailed for two decades concerning the theory of diabetes could to-day be no longer maintained. For the sake of convenience the speaker referred to three types of diabetes; cases due to lesions of the fourth ventricle, those due to metabolic disturbances of the liver and alimentary canal, and those due to pancreatic disturbance (atrophy of the islands of Langerhans). Cases of the first class, while rare, were often puzzling on account of the absence of accompanying brain symptoms. Those of the second class, the most common, were of two broad types: (a) The stout patient, very fond of food and usually termed a "high liver," who was inclined to a sedentary life; (b) a person of ordinary build whose urine was free from uric acid sediment, but who suffered from skin complications. Patients belonging to the third class suffered from great thirst, voracious appetite, and marked emaciation, and excreted large quantities of urine loaded with sugar. He did not wish it to be inferred, however, that he believed the diseased process to be confined to any one organ, for no organ worked for itself alone. It depended upon processes taking place in other organs, together with the products of its own activity which influenced the functions of other organs. These products might be ferments stimulating decomposition in the blood or hormones regulating activity of the cells. Recent researches had tended to confirm the importance of the part played by the internal secretion of the pancreas in carbohydrate metabolism, and it had been found that many organs such as the thyroids, parathyroids, adrenals and the glandular lobe of the hypophysis influenced not only the metabolism of protein and fat, but also exerted a special modifying effect on the behavior of carbohydrates in the organism. The influence of the nervous system on carbohydrate metabolism had been recognized since the days of Claude Bernard, and there could be no doubt that nervous influences entered into the pathology of many cases of diabetes. A number of toxic influences possibly acted in a similar manner. From what had now been said it would be noticed that at the present time there was a tendency to revert to the doctrine that over-production of sugar is the main cause of diabetes. This view was now held by a number of eminent observers, including von Noorden, who considered that the hyperglemia, and consequent glycosuria, is due to an excessive output of sugar by the liver, and that this may arise from excessive stimulation or impaired inhibition. The stimulus to the liver might come from an excess of carbohydrate food, as in alimentary glycosuria, from an increased call by the tissues, from overfunction of the adrenals, etc., or from the central nervous system through the medium of the chromaffin system. Impaired inhibition might arise from suppression or impairment of the functions of the pancreas or from interference with the controlling action on that organ of the thyroid or hypophysis. In some cases also there was probably a primary anomaly of the liver cells themselves. The views at present held with regard to the interaction of the ductless glands and their part in the production of diabetes were to some extent theoretical (especially so as regards the chromaffin system), but they correlated in much more satisfactory manner than had previously been possible the experimental data which had accumulated as to the effects of these

organs on carbohydrate metabolism, and brought into line the known facts in the etiology of diabetes. With a better understanding of the theory of the origin of the disease, and a more thorough study of the metabolism of the diabetic, there had come a reaction from the severe restriction regarding the use of starch foods, favoring a more normally balanced diet. Metabolism was the all-important factor in the maintenance of life and health, and in the process of digestion starches were first of all converted into alcohol before the work on the rehabilitation of the organism could begin. We knew that any food became an irritant when taken in excess above a legitimate demand; therefore carbohydrates containing starch (untreated), given in great amount to a diabetic, would cause an irritant effect upon the sugar-producing organs, and as a result the patient would suffer from glycosuria. To the question: Why does a diabetic excrete sugar in his urine? the answer was: Because of faulty carbohydrate metabolism; the patient is not able to convert the sugar into alcohol in his system. The reason for this was at present unknown. This much was certain, however: if carbohydrates were withdrawn from his dietary the patient would feed on himself until all the fat stored in his system had been consumed, and then he would die. We could not live and have our being without alcohol in our systems, because, as had been stated, all starches must be converted into alcohol before they could yield their energy to the system, and a certain amount of alcohol was necessary for the conversion of nitrogenous food into tissue-building material. We recognized that diabetes was primarily a disturbance of nutrition in which the function of utilizing carbohydrate foods was more or less completely impaired, but as it was a malady subject to varied complications, it presented a difficult problem in treatment. There was no disease with which he was conversant which necessitated such a careful balancing of all the details of each individual case. The metabolic powers, the functional capacity of the liver and pancreas, the condition of the alimentary tract, the state of the nervous system, and the environment of the patient must be severally and collectively considered in forming a conclusion as to the advice that should be given for his daily life in the future. Winnowing the chaff from the good grain on this subject, we found that diabetes in a person free from complications was amenable to satisfactory treatment; in fact, easily curable in proportion to the accuracy and persistency of the treatment, as well as the honest cooperation of the patient. The newer researches had taught us that the manner in which the carbohydrates were allowed was a matter of the greatest importance. It was therefore the duty of the physician to study his patient carefully in order to determine just the kind of carbohydrate he could tolerate and the method of preparation best suited to his condition, so that he might be allowed the greatest amount possible without increasing the output of sugar. For the general purposes of work, warmth and nutrition all three types of foodstuffs, proteins, fats and carbohydrates served well, though the muscular tissues were most specific in their requirements; having a predilection for sugar as their immediate source of energy. It was necessary, therefore, that sugar should always be available for the purpose, and the liver fulfilled this function. It was a well-known physiological fact that all the carbohydrates of food were converted into sugar in the intestines, and carried to the liver as such; but a special protection existed for the prevention of an excessive flow of sugar into the blood after a large meal of carbohydrates. The liver took up the sugar as it arrived and stored it in its cells, where it was instantly changed into an insoluble form known as glycogen, to be used as a reserve material. This storage of carbohydrates as glycogen, and the further change of glycogen into sugar, was not all the work performed by the liver. As human beings consumed various kinds of foodstuffs, it was compelled under certain conditions to make sugar from albumens, fats and proteins also. Various carbohydrate cures had been recommended, such as the "oatmeal cure," by von Noorden, the "rice cure," by von Duhring, and the "potato cure," by Mosse, but experience taught that none of them could be relied on. The best, perhaps, was the oatmeal cure, which, however, according to Blodgett of Boston, could be used only at stated periods, "carbohydrate days," when it was advisable that it should be cooked for about seven hours. After referring to the dangers of a starch-free diet, and quoting a number of authorities on this point, Dr. Fitch said that he had tried the rigid starch-free diet, only to be disappointed, and had prescribed the various carbohydrate cures in different types of the disease without satisfactory results. He had also used gluten foods and gluten flour, and had come to the conclusion that the only virtue in these products depended upon the large percentage of starch they contained. Unfortunately, pharmacology had not provided any drug which acted directly on the sugar-forming function of the liver. Therefore, properly selected diet was more efficient than any drug or combination of drugs in the treatment of diabetes, and offered the most rational promise of relief or cure. It was, indeed, the sheet anchor of our therapy. During the past two years he had treated a series of patients with a carbohydrate food manufactured from wheat and barley cereals, the grain being ground on the old-fashioned Buhr millstone, the finished flour containing all the natural starch and salts. After being ground the flour was subjected to a certain degree of heat for a specified time, and this produced changes in the envelope of the starch atoms which facilitated digestion and assimilation. He believed personally in allowing diabetics carbohydrate, together with nitrogenous food, sufficient to build up and maintain the animal economy; but starch and nitrogen *per se* meant nothing toward sustenance until the economy had converted these elements into tissue-building material. Among the many advantages of starch-treated foods was the fact that they indirectly facilitated the absorption of other foods, especially carbohydrates of every kind, on account of the apparent "inducement" they seemed to hold out to the enzymes of the intestinal tract to assume their full amylolytic function promptly and thoroughly. He had treated a large number of cases of diabetes of various types by prescribing these starch-treated foods, to the exclusion of all other starch foods, and had been much gratified to see the percentage of sugar in the urine gradually diminish and finally disappear.

**Diabète Azoturique of the French.**—Dr. Anthony Bassler first drew attention to the scarcity of literature on this subject, stating that such as was obtainable had been contributed by French and English authors; no article having appeared by any writer on the western hemisphere. The classification which he suggested, under the term azoturia, was: (1) physiological azoturia; (2) azoturia simplex; (3) azoturia gravis; thus eliminating the confusing term, diabetes, to which the condition in its medical form might be considered somewhat allied, and giving to us terms applicable to practical medicine. In physiological azoturia an increased oxidation took place for some reason in the body, and consequently an increased output of nitrogen-bearing substances in the urine occurred. Such augmented oxidation might be due to the effect of such conditions as cold, excessive exercise, powerful emotions, physical pain, prolonged digestion of protein foods, and repeated pregnancies. The term might also be applied to certain abnormal conditions of the body, such as continued fever and some of the acute lesions and functional disturbances of the nervous system, though these were only relative. In azoturia simplex what characterized the affection was the absence or mildness of constitutional symptoms, its more acute or limited course, the fact that polyuria was absent or of only slight degree, and an output of urea and the phosphates only moderately above normal. It was met with in both children and adults, but mostly the latter. Emotions, traumatism, suffering from painful affections, and excessive indulgence in food and alcohol were factors in its production. A case of this simple form might continue for a long time, and finally pass into the grave type. In the majority of instances, however, if the condition was recognized and was properly treated it subsided after some weeks. What might be considered a case of azoturia simplex should make one hesitant in regard to the prognosis, for while the diagnosis of such a degree of the condition could be based upon the severity of the symptoms and the course under treatment, a progression might nevertheless take place. Azoturia gravis was the most important form. It was met with principally in male adults between the ages of 40 and 45 and those suffering from lesions of the brain or spinal cord, syphilis, painful affections, chronic alcoholism, and over-indulgence in nitrogenous foods. It was debatable whether the condition is brought about by a disturbance of the nervous system, as suggested by Bouchard, or a metabolic disturbance of the body in general. Argument was presented to show that the symptoms are due to constitutional causes, the nervous disturbance being consequential. The speaker believed that it was of hepatic origin and that the pancreas also played an important etiological part; for we knew that the pancreas has to do with the transformation of the nitrogen bodies, as well as the carbohydrates. The symptoms were progressive emaciation, exaggerated appetite and thirst, various neuralgias, disturbances of the special senses, loss of muscular strength, hemorrhage of the retina and vitreous, abundant sweating, and cachectic edema. To-

ward the end phthisis and gangrene might be added. During the course of the affection the tongue was usually pale, pasty and foul, with red and irritable edges. An increased craving for food might alternate with complete anorexia. As the case progressed anorexia might alternate with polyphagia, and there was usually pain in one of the loins or legs. Boils, smaller than those seen in diabetes mellitus, might occur. The principal symptom upon which the diagnosis of this and the other forms was made was the azoturia; which required the examination of a 24-hour specimen. The amount of urine excreted was usually about five liters, but was sometimes as much as twenty liters. It might be light or dark in color. It was of a very pronounced acidity, and the specific gravity often exceeded 1040 or even 1050. It became quickly ammoniacal upon standing, because of the amount of nitrogen-bearing substances being broken down by bacteria. There was no albumin or glucose in the urine, although in the beginning an albuminuria might be noticed. There might be a low specific gravity; in which case the symptoms were generally in the central nervous system and only mildly constitutional. The main feature of the urine was the azoturia, by this being meant an excess of urea, uric acid, and nitrogenous extractive substances. In the course of 24 hours the urea output was between 40 and 150 grams (normal amount, 25 grams, or, according to the latest estimate, 16); the uric acid reached 9 grams (normal amount, 0.7 gram); and the nitrogenous extractives of creatinin and uroxanthin reached or exceeded 70 grams. The chlorides and phosphates were also in excess; the former usually ranging between 15 and 30 grams (normal amount 13 grams), and the latter, represented in phosphoric acid, being between 5 and 6 grams (normal amount, 3 grams). In the absence of facilities for making the nitrogen partition, urea might be taken as the diagnostic index of the condition. Of course, the accurate methods of analysis of Morner-Sjovist and of Folin were advisable, but when these were not practicable, the ordinary urinometer, with multiplying the quantity of nitrogen obtained from 1 c.c. by the number of cubic centimeters of urine voided, was sufficient for clinical purposes. The presence of a moderately increased amount of urea suggested the simple form, while the presence of a large amount, with the characteristic general symptoms, pointed to the grave form. The Ehrlich aldehyde reaction, which was invariably positive in azoturia, should also be noted. Dr. Bassler advised that in all cases of diabetes mellitus, phosphatic diabetes, and even diabetes insipidus urea estimations should be made, since the case under observation might be a mixed one, and when glycosuria was present with azoturia it was much more serious. It might be mentioned, he said, that while diabetes mellitus was common, phosphatic diabetes (or, better, phosphaturia) was less frequent, and azoturic diabetes (or, better, azoturia in the forms that he had classified it) the rarest of all. It was important to bear in mind that azoturia might coexist with diabetes mellitus; in which case the prognosis was much worse than when either occurred alone. The treatment suggested that more urea estimations in urine should be made in a general routine way, since by this means all cases of the simpler forms would be detected sufficiently early and could be treated successfully. The condition once established, the treatment consisted in a judicious management to prevent further mischief. Refraining from work was essential, and a sojourn in the country might be sufficient for the simpler forms without further treatment. The patient should arise late and go to bed early, in order to spare the nervous system from strain, and to limit the loss of urea the avoidance of movements and fatigue should be enjoined. The bowels should be kept free, and a tepid sea water bath or shower, followed by a good towelling, had been recommended by Ralfe. While care should be taken that the patient should not be exposed to too low a temperature, it was important that he should not become relaxed by too hot rooms or too heavy clothing. While, on the one hand, it seemed advisable to reduce the amount of nitrogen in foods, on the other hand this had not proved as serviceable as placing him upon a general diet. The main point in the dietetic treatment was not so much to control the nitrogenous element as to regulate all quantities of food so that the tissues should not be oversupplied, and the patient still be sufficiently nourished. This plan controlled the general as well as the urinary symptoms, though it fell somewhat short in the way of repairing loss of tissue; but if the patient recovered sufficiently, one was warranted in increasing the amounts of nitrogen, as well as of fats and carbohydrates—which meant more food. There was some difference of opinion as to the value of different drugs, although most authorities agreed that valerian answered the best purpose. Bouchard employed it with good results in the form of the extract, in gradually increasing doses; beginning with 8 grams during the day and increasing the amount to 20 or 30 grams in the 24 hours. Others recommended the use of arsenic, potassium bromide, belladonna and hyoscyamus. It was probable, however, that the best drugs were valerian, opium, and arsenic. The prognosis in the different forms mentioned varied according to the degree, the length of time the condition had lasted, and the presence of complications. When properly treated, all cases of the simple forms were cured, while most of the grave form were relieved of their symptoms, so that life was extended for a number of years. In the presence of complications, however, but little could be expected. This meant an extreme extent of breaking down of tissues and usually marked the threshold of the end.

Dr. Edward E. Cornwall said he would like to call attention to one point of extreme importance which he had not seen mentioned in the literature of diabetes, namely, that the diet should be so arranged as to make as easy as possible the processes involved in protein metabolism. The accepted dietetic treatments for the affection looked only to the restriction and selection of carbohydrates. They failed to take into consideration the nitrogenous metabolism, and, still worse, they imposed unnecessary burdens upon it, both by giving protein in excess and also by giving it chiefly in a form the metabolism of which was comparatively difficult, namely, animal tissues. Protein in that form put upon the liver, already incapable of performing its carbohydrate-metabolic duties, the work of breaking up purin bodies directly introduced with it and products of its putrefaction by the saprophytic bacteria in the intestines. In diabetes we would naturally expect the instability of the liver as regards its glycogenic function to be increased by such treatment, and it might be that this was partly responsible for the extreme limitation of carbohydrates which had so often been found necessary in order to clear the urine of sugar. The reasonableness of the argument now presented received emphasis from the fact that a large proportion of cases of diabetes were found in families in which gout, chronic arthritis, chronic nephritis, cardiovascular disease, and apoplexy were prevalent. It was, indeed, in treating persistent glycosuria in such patients, whose nitrogenous metabolism was obviously deficient, that his attention had been drawn to the therapeutic value of an "easy" nitrogenous diet in diabetes. By this was meant a diet which, though limited in quantity to the real wants of the body, contained the various food elements in their normal proportion, but in which the protein was furnished by articles which were purin free and comparatively insusceptible to putrefaction in the intestine. Such a diet was one consisting almost exclusively of milk and its products, cereals, fruits, and vegetables.

Dr. J. Wallace Beveridge said that one important fact had not been referred to, and yet it seemed to him that it presented one of the principal obstacles in the treatment, as well as one of the fundamental causes, of diabetes. In the observation of many cases of the affection he had found, from examination of the stomach contents, that in over 80 per cent. hyperacidity was constantly present. Radiographic examination had shown also that in over 75 per cent. of the cases there was present gastric dilatation with mechanical defects in the intestine. Baylis and Starling had demonstrated that a hormone, secretin, was manufactured in the pylorus and duodenum, as the result of acid stimulation. In normal digestion there was a sufficient amount of secretin produced to activate the normal internal secretions of the pancreas; but when we had an increased acidity of the stomach contents, an over-production of secretin necessarily ensued, and this excited the pancreas to an increased production of the internal secretions which in time, if permitted to continue, would cause a degenerative change in the pancreas and interfere not only with the breaking down of the carbohydrate group, but also cause inability to attack the protein molecule. Any changes in the pylorus or duodenum, such as ulcers or stenosis, interfering with the normal production of secretion might likewise be causative factors. The intestine played an important part in the digestion of the diabetic, and intestinal putrefaction should always be carefully guarded against.

Dr. Charles Herrman said that, according to his observation, diabetes was comparatively rare in children, and especially in infancy. It was only in small infants that there was any difficulty in getting a specimen of urine for examination. It seemed probable that syphilis was a more important factor in the etiology of diabetes than had generally been supposed. It was no doubt often latent, but

now that we had the Wassermann test to guide us, the detection of its presence presented less difficulty. Dr. Fischer had spoken of the association of diabetes with pertussis. It was a fact, however, that sometimes in pertussis the urine reacted to Fehling's test without true diabetes being present. It was also necessary to differentiate alimentary glycosuria from true diabetes, for while the one was of little significance, and easily cured, the other was extremely serious; the prognosis in this disease being worse in children than in adults.

Dr. Robert T. Morris said that Dr. Beveridge was correct in approaching the surgeon's point of view in relation to diabetes. Every one of these patients should be sent to a gastroenterologist in order to obtain a report upon the question of intestinal putrefaction. Toxins which were by-products of intestinal bacteria excited the secretion of morbid secretin; hormones, which dictated function to the pancreas, gave wrong messages. In addition to this, in cases of intestinal putrefaction the pancreas was frequently in a state of chronic congestion. Indeed, interstitial pancreatitis often occurred, and was unobserved by the clinician. In certain instances the islands of Langerhans were compressed, and they ceased to functionate properly. Diabetes mellitus was never a diagnostic entity, but always a symptom; and there were several causes for this symptom. We might have irritation of the floor of the fourth ventricle from toxic, mechanical or reflex causes, and in these cases it was a symptom quite as well as when pancreatitis squeezed the islands of Langerhans. If we did not first obtain a report from the gastroenterologist in all our cases of diabetes we were not going at the subject intelligently. Surgeons seemed to know more about the subject practically than the internists did. They saw many cases of diabetes fade away after removal of gallstones, separation of adhesions in the abdominal attic, correction of eyestrain, and the employment of proper methods for securing control of intestinal bacteria.

## Books Received.

*The* Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

Spezielle Pathologie und Therapie Innerer Krankheiten. Herausgegeben von Friedrich Kraus and Theodor Brugsch in Berlin. Parts 1-4; paper; price per part 2 Mks.; illustrated; 238 pages. Urban and Schwarzenberg, Berlin and Wien.

Spezielle Pathologie und Therapie Innerer Krankheiten. Parts 5-8. Herausgegeben von Friedrich Kraus and Theodor Brugsch in Berlin. Paper; price per part 2 Mks.; illustrated; 240 pages. Urban and Schwarzenberg, Berlin and Wien.

Diseases and Deformities of the Foot. By John Joseph Nutt, B.L., M.D. Illustrated; cloth; price, $2.75; 293 pages. E. B. Treat & Company, New York.

Annual Report of Health Department of the City of Los Angeles, California. For the year ended June 30, 1913. Paper; illustrated; 112 pages.

Worcester State Hospital Papers 1912-1913. Edited by Samuel T. Orton, M.D. Paper; 198 pages; illustrated. Massachusetts State Board of Insanity, publishers.

Die Körperliche Erziehung des Kindes. By Prof. Dr. Hans. Spitzy. Paper; illustrated; 416 pages. Urban & Schwarzenberg, Berlin and Wien.

Our Nation's Health Endangered by Poisonous Infection Through the Social Malady. The Protective Work of the Municipal Clinic of San Francisco and Its Fight for Existence. By Dr. Julius Rosenstirn. Paper; 25 cents per copy; 56 pages. Baker Taylor Company, New York.

State Hospital Commission. Twenty-fourth Annual Report. October 1, 1911, to September 30, 1912. Cloth; 422 pages. J. B. Lyon Company, Albany.

American Red Cross Textbook on Elementary Hygiene and Home Care of the Sick. By Jane A. Delano, R.N., and Isabel McIsaac, R.N. Cloth; price, $1.00 net; 250 pages. P. Blakiston's Son & Company, Philadelphia.

Year Book of the Pilcher Hospital. For the period from April 1, 1912 to March 31, 1913. Illustrated; cloth; 178 pages.

The Practitioner's Visiting List for 1914. Leather; 192 pages; price $1.25. Lea & Febiger, Philadelphia and New York.

## Miscellany.

**Medicine in the Italian Parliament.**—In the recent general elections held in Italy a remarkable number of physicians and surgeons, in consultant or in general practice, entered the field. Significant is the fact that it is precisely in those regions of the kingdom where the sick-rate and mortality are highest, and where physical degeneracy is most pronounced, that the medical candidatures in question were most numerous and most actively promoted. Southern Italy, notably the Neapolitan provinces and Calabria, are the regions indicated, no fewer than five medical candidates courting as many of their constituencies. Some of these gentlemen hold university chairs, besides being in consultant practice, and the question arises: How can they possibly find time to do justice to their pupils or their patients, on the one hand, and to their constitutents, on the other? The answer is that the Chamber of Deputies in Rome does not commence business till late in the afternoon, seldom before 3 P.M., and its business is invariably over between 6 and 7. As a matter of fact, there have been many physicians and surgeons in the Italian Chamber who have combined the two rôles, of practitioner and parliamentarian. Lanza, a Piedmontese consultant, honorably refused all official salary as Prime Minister on the ground that his professional honoraria sufficed for all his wants, while he found time not only to earn the said honoraria, but to lead up to the events which brought his illustrious client King Victor Emanuel in 1870 to Rome. Guido Baccelli is another of the consultants who hold a university chair and a seat in Parliament with conspicuous efficiency in both capacities. The eminent patriot and sanitary reformer, Agostino Bertani, surgeon-general in Garibaldi's revolutionary force, is yet another exemplar of the compatibility of the medical with the political career; while as to the senators who have been promoted from the Lower to the Upper House while keeping in touch as teachers and practitioners with medical science and practice their name is legion. Italy has everything to gain by the presence in her legislature of public-spirited consultants and practitioners, who, with no ambition for office, are yet prepared to give their thought and experience to the body politic, claiming as that body does, a serious and a systematic rehabilitation, in the sanitary sense, to which no Italian with any proper sense of citizenship can now remain indifferent.—*Lancet*, October 4, 1913.

**The Choice of an Automobile.**—A writer in the *Lancet*, commenting upon the recent motor car exhibition in London, states that the doctor in search of a car will feel confused unless he relies rigidly upon one factor in his choice—namely, the price which he will give. Generally speaking, there are two classes of physicians who need motors. There is the prosperous practitioner to whom price is of little importance. The other class comprises the general and the country practitioners, and the question of expense with the major part of them has to be considered. This class can probably be again divided into two, those who merely want a two-seater for their professional work and those who desire a car which they can also use for their families. If it is a matter of expense, it should be borne in mind that the light two-seater is much cheaper, not only to buy, but also to run and maintain.

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## Original Articles.

### THE OCCUPATIONS OF AFEBRILE TUBERCULOUS PATIENTS.*

BY S. ADOLPHUS KNOPF, M.D.,

NEW YORK.

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IN discussing the occupations of afebrile tuberculous adults[1] before an association of sanatorium physicians, presumably I am expected to speak mainly on that class of patients who are under constant medical supervision, and not those discharged from a sanatorium as improved or arrested cases, who are, of course, afebrile, and constitute what is sometimes termed the economic cure; in other words, I shall not consider the patients who, though not completely cured, are discharged from the sanatorium sufficiently improved to resume their former or some other occupation whereby their earning capacity is restored.

The problem of what the patient discharged from a sanatorium should do or what to do with him has received careful consideration in a recent contribution by one of our own members, Dr. David R. Lyman of the Wallingford Sanatorium.[2] I think Dr. Lyman has clearly shown that it is wiser for the discharged tuberculous sanatorium patient to resume his former occupation under better hygienic conditions than to attempt to do work even in the open air, for which he has neither the training nor the necessary physical endurance.

Another interesting paper on the same subject is Dr. John H. Huddleston's recent publication under the title, "Is the Economic Problem of the Sanatorium Graduate Being Solved?"[3]

For lack of time I shall be compelled to omit a detailed consideration of what to do with the afebrile patients outside of institutions who are under the care of the private physician. All that can be said here is that the underlying medical principles which guide us in the management of the sanatorium patients must be the same in private practice. But when dealing with the latter class, we must remember that each case has its own non-medical problems, sometimes easy and sometimes exceedingly difficult to solve because of family, social or economic considerations.

To return, then, to the patients still under our supervision in the institution, we must first divide them into two great classes, the male and the female patients. The next distinction to make is whether the patient himself pays for his maintenance or whether he is an inmate of an institution maintained by the State, county, city, or private philanthropy. Of course, aside of these sociological considerations there are underlying medical principles which must guide us in the selection of occupations suitable for the various classes of patients enumerated. There are afebrile tuberculous patients who, although they have no rise of temperature at any time during the day or night, should do very little, if any, manual labor. I refer first to that large number of tuberculous individuals who are constantly dyspneic or who become so after the slightest physical exertion. Then come the cardiac cases with their various murmurs showing an evident lesion, or cases which merely give the manifestation of tachycardia. It goes without saying that cases inclined to frequent hemoptysis though afebrile should never perform any considerable manual labor. The same might be said of the patients who ordinarily cough little and have little expectoration, but whose cough becomes distressing and whose expectoration increases the moment they begin to do manual labor.

I also believe that the afebrile individual with a renal lesion should work but little. Then, there comes that group of patients whom you all have met with who have apparently a tuberculous lesion with very little activity, who are most of the time afebrile, but who simply go to pieces if they are put to work or perform any manual labor. Whether this condition can be ascribed to a peculiar degeneracy of the muscular system or to some other cause, I do not feel to be able to explain. This much is sure, we must individualize as far as possible in all cases, even in the sanatoria for the poor, where it is, of course, more difficult than in private practice.

I fully realize that in a State or municipal sanatorium, or one maintained by private philanthropy, where patients pay nothing or but little, by reason of the character of the inmates of such an institution, the physician in charge has to make another division of the patients able to do something, namely, those willing and those not willing to work. I know of no way to solve the difficult problem here involved except to divide the patients in some obvious way so as to make the lazy and indifferent ones ashamed of themselves, if such is possible. I would place them in a separate pavillion, and although I would give them the same food and medical care in case of need, it would seem to me perfectly justifiable to let the lazy class know that they do not awaken nearly as much interest and that the physician's attitude toward them could not be quite the same as toward the patients who are willing to cooperate for their own good and for the benefit of the institution by work and service.

In an institution like the one I am privileged to be connected with, located on an island from which escape is difficult, it is somewhat easier to induce

*Read before the American Sanatorium Association at the Ninth Midwinter Meeting at the Municipal Sanatorium, Otisville, N. Y., Dec. 6, 1913.

the unwilling worker to come to terms. One of my assistants, Dr. R. W. Grover, with the consent of the superintendent, Dr. Robert J. Wilson, instituted the practice of not allowing the patients unwilling to work to visit their friends in town. He who does not work will not receive a pass to cross the river on the department's steamers, and there are no other steamers plying between North Brother Island and the city.

As a rule, the afebrile patients who work under the supervision of the physician do well and even better than the afebrile patients who can work but do not wish to do so. To make known to the lazy class the beneficial results which are obtained for the workers of the sanatorium may be an incentive to at least some of them to change their attitude toward what is really a benevolent measure. It is a psychological fact which most sanatorium physicians have discovered that it is good policy when dealing with a large number of patients whom it is desirable to induce to work, not to make them feel that one is trying to get work out of them, but rather to show them the therapeutic value of the work for themselves. In some institutions, such as White Haven and Otisville, the patient is told on admission that when in the opinion of the physician in charge he is able to do some work, his refusal to do so will be followed by immediate dismissal.

Now, as to the character of the work the patients should do, let me state right at the beginning that I am not a partisan of the idea that every tuberculous patient, when on the road to recovery or when his disease is arrested, should do farmer's or gardener's work. The tailor, the weaver, the shoemaker, the dressmaker, or the woman or girl who has been occupied in the tenements with making artificial flowers for 50 cents a day, the bookkeeper, office or store clerk, the typewriter girl, stenographer, or shop girl, the waiter, or any other man or woman who was born and has lived in the city for years and pursued indoor occupations will as a rule make a poor farm hand. Some of these patients may be able to work a few hours on the farm, but they will rarely be satisfied, happy, or even contented, and I question whether their physique will ever be able, even when they have completely recovered, to stand the strain of a farmer's life.

What, then, is the ideal occupation for the afebrile tuberculous patient? I believe that, whenever it is possible, we must consider first the psychological, or in plainer words, the mental attitude of the patient. Whenever we can let us occupy him with something that will make him happy or at least contented, and the work must always be for a purpose. To have a patient carry a load from one end of the road to the other, or build a brick wall and tear it down again, merely for the sake of exercise, I believe is an absurd practice. If it could be done, I would even favor paying the patient, particularly if he is poor, for useful work accomplished by him; this does not lessen the value of occupation therapy, but enhances it.

Furthermore, when we consider that many patients need the money they may thus earn to support, or help to support, their families, we will perceive that besides the beneficial psychical influence, the peace of mind which is thus obtained for the patient invariably acts favorably on his physical condition.

To find an occupation for the tuberculous patient who has never had any fever is easier than for the one who has been rendered afebrile by prolonged rest in the open air. The latter is much more in danger of relapsing into his febrile condition than the former is to acquire a high temperature.

Let us consider for a moment the latter class—those who have been febrile and have been rendered afebrile. These individuals we can occupy in the open air, or indoors while there is plenty of fresh air, with an occupation that does not require much physical exertion. What we must see to is that the occupation does not demand a constant stooping attitude. The patients whom we wish to occupy by manual labor should, in order to avoid a recurrence to higher temperature, be prepared gradually for these tasks. All manual labor requiring physical exertion requires ipso facto increased respiratory function, and I do not know of any better way to prepare the patient for regular physical work than by a course of graded breathing exercises. The exercises I like best, which consist of a series of eight movements, bringing all the muscles of the body into play, I have described in my Hodgkins prize essay to be published in the early part of the new year, and reproduced recently by permission of the Smithsonian Institution's authorities in the MEDICAL RECORD of November 15.' When these exercises have been taken, say once or twice every hour for a few days, and the general condition has improved and no perceptible temperature rise is noted, I think the patient is ready for graded manual labor.

What shall the character of the manual labor be for those who have never been febrile and those formerly febrile who on trial of light work have stood the test so that they can be classified with those able to be occupied regularly?

In the sanatorium to which are attached a farm, a garden, woodland, or large grounds, workshops for tailors, bakers, shoemakers, carpenters, etc., the occupations in which a number of the patients can take part according to their former training, their physique and inclination are so multiple that I hardly need to enumerate them. Where there are woods and roads to be made, woodchopping, hut-building, and road-making offer additional opportunities. Some of the farming and gardening work can also be done by female patients. In inclement weather, sewing and embroidery or raffia work are interesting and healthful occupations for female patients, providing they do not acquire the habit of stooping and providing also that they interrupt their sedentary work by doing some deep breathing in the erect position every hour or so. I insist upon this practice in my hospital work.

In my service at the Riverside Hospital Miss Julia M. Off, formerly connected with the public schools of New York City, teaches the female patients the raffia and reed work, and as a rule they take to this occupation most enthusiastically, hardly ever tiring of it. Miss Off gives her services gratuitously, and I would like to embrace this opportunity to express our grateful appreciation of her kindness in this direction, also for her entertaining the patients occasionally with a piano selection. The Health Department very generously pays for the raffia and reed material. Very often the patients are able to dispose of their

products by sale, thus earning a little money, which increases their incentive to work. Rather amusing is the fact that because we have not sufficient occupations for the men at North Brother Island, not a few of them have taken up raffia and reed work and some have quite excelled their sisters in workmanship. I have wondered if the caning of chairs under careful supervision would not be a very suitable and in some instances very profitable occupation for the afebrile male patients.

The more the occupation of the patient in the sanatorium is like the kind of work he had done prior to entering the institution the more productive will the labor be and probably also the more contented the patient. I am reminded here of the brilliant idea which Lee K. Frankel, Ph.D., one of the vice-presidents of the Metropolitan Life Insurance Company, intends to put into practice in the sanatorium recently opened by that company at Mount McGregor for the cure of its tuberculous employees. In the work pavilion of the company, which is intended to be ideally constructed as far as sanitation, light, and ventilation are concerned, Dr. Frankel will give the afebrile patients employment very similar to that which they have been used to do in the home or branch office. The amount of work expected from the patients will, however, be prescribed by the house physician after careful examination and watching.

Of course, every patient in a public sanatorium who is able to wait on himself should do so, and making his bed, keeping the room or ward tidy, cleaning the floor and furniture with a moist mop or rag, and washing windows is not injurious to any tuberculous patient able to do the work. That class of patients who cough little and have learned to control their cough can, without any fear, be employed in the dining room and kitchen of the public sanatorium.

And now I come to a subject which perhaps may seem somewhat novel in relation to our discussion of today. I stated above that I like to prepare the afebrile patients for the more strenuous physical occupations by a series of breathing exercises, but I did not then mention that in my private practice I resort to an additional means of improving the muscular, respiratory, and cardiac conditions of my patients prior to allowing them to assume occupations demanding more or less physical exertions, walking or manual labor. This means of preparation is a carefully graded general massage.

The value of this therapeutic agent as a general stimulant and as of beneficial influence to the muscular, circulatory, and nervous systems is too well known to need more than a mention here; but that massage seems to be particularly beneficial in pulmonary tuberculosis because of its effect on the blood cells, I wish to emphasize, and quote as an authority Charles G. Taylor in Forchheimer's "Therapeusis of Internal Diseases," which recently appeared:

"The effect of massage upon the composition of the blood is a very definite one. The number of red blood corpuscles in the circulation will be found to undergo a substantial increase within half an hour after a general treatment, and to persist for an hour or more. The oxygen-carrying capacity of the blood is thereby increased, as is the elimination of carbon dioxid gas. Upon first thought, one would naturally conclude that this increase in the number of cells in the periphery is due to the stimulating effect of massage upon the circulation, and that the additional cells come from the inner recesses of the body, particularly the spleen, liver, and long bones, where we know they are constantly stored in large quantities. This conclusion is, of course, a logical and correct one, but there is also a definite influence produced upon the blood-making processes, as is clearly demonstrated by the permanent results obtained in certain anemic states when massage is given regularly. The percentage of hemoglobin in the red cells is also increased. This is notably the case in the treatment of chlorosis, where the deficiency in the coloring matter is the predominating feature of the pathological picture. Systematic massage, together with proper hydrotherapeutic methods, has proven of the greatest value in the treatment of this disease, and some authorities employ it to the exclusion of all iron preparations. In any depraved condition of the blood, general body massage given regularly every day will exert a markedly beneficial effect upon both the hemoglobin and the cell content.

"The leucocytes of the blood are also increased by massage, and to a more marked degree proportionately than the red cells. The importance of this fact is at once obvious. Since we have to depend to a great extent upon the phagocytic properties of the white cells to keep the body free from the attacks of the constantly invading organisms, and to remove the debris of exudates, etc., any agent that will favorably influence their production must be of real value."

The question has often arisen in my mind whether we cannot employ a number of afebrile fairly muscular patients to help us to apply this valuable therapeutic means to other afebrile patients less muscular and in less good condition?

It seems to me that this question can be answered in the affirmative, and I wonder if it would not be worth while for the gentlemen in charge of the larger public sanatoria to try the experiment. There is to my mind no need of great physical exertion on part of the masseur or masseuse if the massage is properly taught to them. The application of massage does not demand either great force or great skill. A relatively soft hand, a little good common sense, and a willingness to do it is all that is required. A few lessons suffice to teach simple massage which, as you all know, consists of four or five movements, that is to say friction, kneeding, tapping, and the vibration particularly indicated for the abdomen. The friction when done very gently is sometimes called stroking. Occasionally the pinching of the skin may also be indicated in individual cases of unusually sluggish circulation. All movements, friction, kneeding, tapping, are done in the direction of the venous circulation. The massage can be applied on the ordinary bed, and the masseur or masseuse can even remain seated during the greater part of the operation. The massage need not be longer than about half an hour for each patient. If there is constipation, the massuer should apply first friction in the direction of the movement of the hands on the watch dial around the umbilicus, gradually making a larger circle until he reaches the beginning of the ascending colon; he then moves upward to the transverse portion and follows the direction of this part of the large intestines to make a downward stroke in the direction

of the descending colon. An additional vibratory movement with fairly good pressure will usually prove to be a valuable means of overcoming a chronic constipation.

I have already stated that I believe in massage for the afebrile patient, but I hardly need to tell an audience of phthisiotherapeutists that massage of any kind is contraindicated in chronically febrile or hemoptic patients.

That I may not be misunderstood, I am willing to say that not everyone can become a masseur or a masseuse, but I believe many afebrile patients can do this work, help their fellow sufferers, and thus be usefully occupied. I for one would encourage a slight remuneration for such services. A patient should never be forced by the rules and regulations of the institution to do this kind of work.

In the above quotation from Forchheimer's "Therapeusis" you will have noticed the statement that systematic massage together with proper hydrotherapeutic methods has proved of great value in chlorosis. I do not think I need to emphasize how many times in pulmonary tuberculosis we find this type of anemia characterized by a marked reduction in hemoglobin out of proportion to the diminution in number of red blood cells.

Can we not also employ some of our afebrile patients in the application of hydrotherapeutic measures which, I am sure, many will admit are neglected at least in some of our public sanatoria because of lack of nurses or lack of hydrotherapeutic apparatus? I have taught and practised for years a method of hydrotherapeutic application which is so simple and safe and connected with so little expense that by training a few afebrile patients to do this work any number of sanatorium inmates would be benefited by the valuable therapeutic method which I will briefly describe:

The room should be comfortably warm, the windows closed in cold weather. An English bathtub containing about five inches of warm water is placed near the bed. Next to the tub a wash-basin filled with cold water is put on a table or stand. When beginning with these hydrotherapeutic applications in winter, the cold water should be tempered so as to accustom the patient gradually to the shock. If the douche is to be given during the day time, the patient goes to bed for twenty or thirty minutes. When thoroughly warm, he rises and steps nude into the warm water. The attendant then soaks the sponge in the cold water, which he squeezes out once over the back of the neck, once in front of the sternun, once over the left, and once over the right shoulder of the patient. The cold water will thus have reached every portion of the body except the head. The patient is dried rapidly, though not necessarily thoroughly, and then returns quickly to the bed, which should have been covered when he left it to retain the warmth. By this method reaction is assured.

The afebrile patient could also easily be trained to apply a wetpack or do partial sponging to reduce the temperature of his less fortunate febrile comrades. There are many other duties which the intelligent afebrile patient can perform as an attendant or an assistant to the nurse, such as taking temperature, applying dry-cups, giving the medicine according to prescription, etc., etc.

Before concluding the portion of my paper dealing with physical occupation and labor, may I state here what I tell every one of my private patients as the best guide to avoid excesses and the often disastrous results of overdoing? Never work, walk, or perform any physical exercise when you are tired and stop exercising when you feel that you are getting tired.

I realize of course that the sanatorium man when he has to deal with what I designated above as the lazy class will have difficulty in applying the rule, for this class of patients will probably always say that they are tired, and if this excuse would avail no work whatsoever could be gotten out of them. Leaving the lazy class aside, it would seem best that every afebrile patient should be put to work gradually, say beginning with two hours per day and slowly working up to six, interspacing the hours of work with hours of rest.

The great therapeutic value of the rest hour before and after each meal, or what is sometimes designated as the silent hour, is now, I believe, fully appreciated by all sanatorium men and phthisiotherapeutists in general. To my mind, we cannot attach too much importance to this helpful hour in the life of the tuberculous. To get complete relaxation and rest during the silent hour it is of course essential that the patient reposes either on his bed or on his comfortable reclining chair and no noise of any kind should be permitted to disturb his siesta. In institutions where the patients have to wait on tables and wash dishes afterwards, arrangements should be made by shifts to give the workers as frequently as feasible the opportunity for observing the silent hour.

I have not been asked to speak on what is known as typical occupation therapy in pulmonary tuberculosis, producing autoinoculation. Even had I been asked to do so, I have had too little experience with it to speak authoritatively on the subject. That it is indicated in some cases I do not question. Marcus Paterson to whom I believe belongs the credit of having first inaugurated this therapy, has given a complete survey of the method in his book.[4] In this country, our distinguished President, Dr. Bowditch, Dr. King of Loomis, and one of his former assistants, Dr. George W. Beach, now of the Minnesota State Sanatorium, and I believe a number of others in various American sanatoria, are trying Paterson's method. Those who are interested in this unique therapy, I advise to study Paterson's book and communicate with the gentlemen just named who are members of this association, concerning methods and the results obtained.

At the Eighth Annual Meeting of the National Association for the Study and Prevention of Tuberculosis, Myer Solis Cohen and Albert Strickler reported on the effect of graded work upon the leucocytes in pulmonary tuberculosis, which paper constitutes also an interesting contribution to the literature on the subject.[5]

Whether we should resort to occupation therapy *per se* with a view to producing higher temperature and subsequent auto-inoculation for a curative purpose, or whether it is wiser to prevent the recurrence of fever and merely employ the patients usefully and as a means of strengthening their enfeebled organism and making them become again breadwinners and useful members of society, is a question which needs further study. I am willing, however, to admit that for the time being I am inclined to favor the latter practice, for what we do know and what we see here right before our

own eyes in Otisville is the inestimable value of useful occupation of the afebrile patient under careful medical supervision. That this class of patients on their discharge from the sanatorium are physically, mentally, and morally better fitted to resume their former occupations there seems to be no doubt. It is probably this conviction, arrived at as a result of his studies of the economic problem of the sanatorium graduate, that made Dr. Huddleston, referred to above, plead ardently for the formation of farm and industrial colonies as annexes to existing sanatoria.

Our distinguished guest, Prof. Hermann M. Biggs, M. D., the General Medical Officer of the City of New York, to whom we are indebted for the inauguration of so many valuable methods and schemes to successfully combat tuberculosis as a disease of the masses, is as you know responsible for the recent passage of a bill in the New York legislature to favor the establishment of industrial colonies in connection with the tuberculosis sanatoria of the Empire State. This bill is such a model of conciseness that it may well serve other states and municipalities as an example for similar action, and I believe it well worth the while to reproduce it here:

135-a. *Workshops in Connection With Tuberculosis Hospitals.*—Any municipal corporation maintaining a hospital or a sanatorium for the treatment of tuberculosis may establish and maintain workshops in connection therewith for the production of articles of supplies required by such hospital or sanatorium, or by any other institution or department of such municipality. Except in a supervisory capacity no person shall be employed in such workshop or workshops unless he is or shall have been a patient suffering from tuberculosis in such hospital or sanatorium. The appropriate municipal authorities may appropriate or provide funds for the establishment and maintenance of the said work shops in the same manner as for the establishment and maintenance of such hospitals or sanatoria. Notwithstanding the provisions of the prison law in relation to the sale of articles manufactured in the State prisons, the products of such workshop may be used in such hospital or sanatorium or by any other institution or department of such municipality. Such workshops shall be under the direction and control of the hospital or sanatorium to which they may be attached.

2. This act shall take effect immediately.

I would not consider my paper complete were I not also to say a word on the mental occupation of the tuberculosis patient. I believe it is generally understood that most of the highly febrile patients should even refrain from any mental strain; on the other hand, I believe that reading pleasing and consoling literature to a febrile patient is not harmful and may be beneficial. Here, again, is a way in which some afebrile patients can be usefully occupied in helping their less fortunate fellow sufferers, ill with fever. Even the strains of pleasing music are, I believe, not out of place in or near the sickroom.

For the afebrile patients up and about, who are occupied for some hours with physical labor, there should be furnished some mental food along educational lines. What a wide range of subjects can be covered, particularly in the sanatorium for the people—I mean the masses who have not had the opportunity of a good education—is difficult even to describe. For every letter in the alphabet there seems to be a subject of interest to the masses—astronomy, biology, chemistry, cooking lessons for the female patients, popular dentistry, economic housekeeping, eugenics for the tuberculous, electricity, entomology, and other natural sciences down to the wonders of the *x*-rays. All these will appeal to a lay audience when rightly presented. Of course, the talks on hygiene, temperance, tuberculosis, and allied preventable diseases, the value of personal and social service as a means to increase the happiness of others and our own should not be neglected, but every one of these lectures must have a ring of optimism in it, and besides entertaining, it must tend to uplift, inspire, and encourage, but never depress.

Our main agents in the cure of tuberculosis are as yet, air, food, light, and the constant watching and guiding of our patients. Our personality, our cheerful attitude, our words of hope and encouragement or consolation, will also count for a good deal. Thus, besides praying for an abundance of physical sunshine for our poor patients, let us resolve always to carry with us as one of the indispensable factors in modern phthisiotherapeutics, an abundance of mental sunshine. The results with our patients will be all the greater and our own lives all the happier for it.

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16 WEST NINETY-FIFTH STREET.

## HYGIENE OF THE FARMHOUSE AND FARM.

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SANITARY laws in great numbers have been enacted and enforced for the betterment of the complex health conditions of our cities. Extensive public health educational campaigns have been carried on in all that pertains to health and hygiene; and in the onward movement which at the present time is being agitated more than in any former period, in behalf of better methods of living, physically, mentally, and morally, with the great advances made in hygiene, eugenics, and euthenics, the rural and urban districts, which now offer the most fruitful fields for the promotion of hygiene, in all the term implies, seem in a great measure to have been overlooked, and practically passed by, with but few exceptions, and, up to the present time, almost forgotten. This has been due in a measure to the engrossing attention paid to improving health conditions in the cities and larger towns, while the country areas have been sadly neglected. Other factors of importance in this connection are the remoteness of some of the sections from the more populous centers and environs, and partly through lack of knowledge and ignorance of the existing injurious environment, in so far that the rules for correct living and good health have been almost completely ignored.

In further explanation of the backwardness in the rural health movement, it might be said that the non-investigation into the true status of health con-

ditions in rural communities more thoroughly, has not been intentional on the part of the sanitary and health officials of any State, but partly follows as a result of the lack of interest and knowledge of the inhabitants themselves of the said areas.

If we but stop to consider for a moment, the facts are plainly brought home to us—and more especially to those of us who are somewhat familiar with rural life and rural conditions—that the main source, the fountain heads, so to speak, of a number of diseases have their origin chiefly in the country, and are there maintained by reason of the more favorable environment, that is, in being more unhygienic and more insanitary, for their propagation and spread. If we take the average farmhouse, of people in moderate circumstances, located some distance from a city, we are liable in the vast majority of instances, at least, to find that running water is not supplied in the building, that the all cleansing and health-giving bathtub is wanting, that the water closet is not placed in the house, but has a highly dangerous substitute in the way of a privy or outhouse, badly constructed, and frequently in still worse state of repair, unscreened and unprotected, located at some point in the yard, or elsewhere when no enclosure is thrown about the house. As we know, a privy or outhouse is designed primarily to prevent soil pollution, and hence to prevent the spread of disease through dissemination, but nearly always is an inferior substitute.

As a result of the neglect of attention to these simple but important, and now well-known precautions, flies, and other insects, after having access to the unprotected outhouse and excreta, readily gain access to the dwelling through the unscreened doors and windows, and convey the pathogenic organisms of disease on their legs and bodies to the food and drink of the occupants. It is now a well-established fact that typhoid fever, to which there is annually sacrificed in the United States alone the appalling number of from 35,000 to 40,000 lives, can be obviated to a very great extent by the observation of well-known and comparatively simple precautions. Typhoid fever is distinctly a disease of the country; that is, its prevalence is greater in the country than in the city; and it has been conclusively shown that the propagation of typhoid fever in the United States is from the country to the town; and based on a most moderate estimate, nearly one-half million of people are attacked annually with this disease in this country.

By inadequate, or more frequently by the absence of, screens on doors and windows, malarial infected mosquitos gain access to dwellings (I now refer more particularly to our Southern States), and infect the occupants with malaria, or *vice versa*, having fed on those suffering with the disease within, fly north after having sated their hunger, to subsequently bite and infect those who may be unprotected in the vicinity, whether within doors or without, thus resulting in much illness and suffering, loss of valuable time from work, so necessary as a means of livelihood, both for themselves and those dependent on them; a very grave condition of affairs indeed, as compared to the comparatively trivial outlay for providing the important means of protection. In such a farmhouse as I have described the source of the drinking water supply is usually a shallow well, or a spring, located frequently near the dwelling and also very often near the privy.

Colonel Waring, one of the most noted sanitary engineers this country ever had, has rightly said that a pure water supply is the most important factor in the reduction of death in a community, and the next most important after that is the proper disposal of sewage. With insanitary and unhygienic conditions existing about the farmhouse, in the manner as above stated, the result is that the soluble excrementitious matter from human beings and animals, sewage, waste water, and slops from the dwellings, whether deposited on the surface of the ground or in a privy, pit, or cesspool, assisted by the falling rains, eventually reach the ground water, and seeping through the shallow strata of earth, eventually finds its way into the well or spring, and pollutes it. In many instances, too, the ground water contains the specific pathogenic organisms of the water-borne diseases, such as typhoid fever, bacillary and amebic dysentery and diarrhea, and in addition to the pollution make the use of the water dangerous for domestic purposes and a risk to health; for in using such water the occupants of the house would be literally drinking their own excreta. Also in addition to the danger of conveyance of the pathogenic organisms to the system in the food and drink by flies and insects; where the privy is not properly closed, or is open at the back, animals, such as dogs and hogs, chickens and ducks have access to the excreta and further disseminate the pathogenic bacteria contained therein, by scattering the excreta about on the ground and further polluting the soil, and eventually the drinking water, as has just been described. It is by the above method chiefly that hookworm is disseminated in the South, by soil pollution from improper and unprotected and hence insanitary privies, and other equally as bad methods of disposal of human excreta, as practised in rural districts—the hookworm eggs being contained in the excrementitious matter.

These shallow wells, which are so extensively in use in the country districts and urban towns everywhere, are the poison of the farms and towns alike, and I cannot speak in terms too strongly in favor of their discontinuance. They easily and quickly become polluted by sewage and excrementitious matter from the nearby houses, and illness of a serious nature from the use of the water is frequently the result. We now know beyond longer doubt that the chief source of conveyance of typhoid fever is the use of impure water for drinking and other domestic purposes, while food and fingers play their part.

Having pointed out briefly some of the undesirable, insanitary and hence unhealthy conditions that exist in and about a farmhouse, what rules must be observed, say rather enforced, in the average country home, in order that the occupants may, as far as possible, be protected from disease, may enjoy more hygienic surroundings, and better health be promoted:

First, the location of the house is of great importance. If possible, it should be placed on high ground, such as an eminence. It should be properly oriented so as to receive the maximum amount of sunlight throughout the day. The foundation should be constructed in such a manner as to keep the ground moisture out of the building. Then the house should properly be provided with a modern water closet and bath, also supplied with an abundance of cold and hot water, complete water connections, and a water carriage system, and be provided with proper provisions for heating, ventilation, and lighting, both natural and artificial. The

sewage from the house, including all waste water and slops, should be disposed of in due manner, preferably by the septic tank or Waring system.

If running water can not be supplied to the house in a practical and economical manner, the next best and most accepted method of excreta disposal should be resorted to, and the privy or outhouse must be located on the ground at a safe distance from the rear of the building, and be properly constructed and screened to prevent the ingress of flies and insects, and be provided with pail or dry earth receptacles, which should be emptied at regular and stated intervals, and the contents disposed of under strict sanitary precautions, as by burning, or burying at a safe distance and away from any possible source of water supply. The water supply of such a farmhouse should be from a source of undoubted purity, a deep or artesian well, or, in case this is not practicable, the spring, if one, should be protected from inflow of surface water, and when from the latter source, the drinking water should as a rule be boiled before using, this precaution being especially carried out during the prevalence of an epidemic of typhoid fever or other water-borne disease in the vicinity. In case of the poor rural dwellers whose small houses or cabins are located in the distant valleys or in the fastnesses of the mountains, the risks to the health of the family, frequently ignorant and unlettered, are usually much greater, depending somewhat upon environmental and other conditions.

By reason of the often low pecuniary condition of the occupants (of such houses) the methods of promoting hygiene and safeguarding health in the farmhouses and homes will prove a most difficult problem in numerous instances to handle, and to successfully solve. The same sanitary rules and precautions, as heretofore stated, will apply equally as well to all, however, though they will perhaps meet with less success in many cases. The poor people of our mountainous countries as well as those of the lowlands, the former numbering some 2,500,000 to 3,000,000 souls, should not be forsaken and left to their fate, the former representing, as they do, the only pure American stock, but every effort should be made, as far as possible, to help them and provide for them the simple precautions and safeguards of health. In this class of farmhouses, too, the subject of lighting, both natural and artificial, plays an important part in the health role. To one unaccustomed to such sights, the fact of families living in houses without windows and shaded in gloom and darkness at midday is almost unbelievable at the present time, but one has to go no further away than the mountains of Kentucky, Tennessee, North Carolina, West Virginia and Virginia, and other States, to be convinced of the aforegoing statement. The methods of artificially lighting these homes of the poor are also frequently inadequate and unsatisfactory, leading to eyestrains, headaches, and other discomforts, and eventually impairing visual acuity. Poorly kept lamps, lanterns, and even tallow dips are the common methods of illuminating these homes.

The manner of cooking and serving the food plays a very important part in the health status of the poor rural dweller, as also often elsewhere. Badly cooked food deprives the person of much of the nourishment that would be contained in well-prepared food of the same quality. This results in lowered vitality and energy on the part of the consumers, and renders them more liable to contract disease. The substitution of the boiler and the pot for the "frying pan" in the preparation of food will prove of much benefit, and will rid many of the chronic sufferers of rural communities of the pangs of indigestion and kindred ailments. The excessive use of beverages, such as coffee and tea, to which many of the country dwellers and elsewhere, are addicted, has a detrimental effect on health, producing indigestion, insomnia, nervousness, and allied disturbances. The remedy for all of this is not so much good lamps, as well kept lamps, not so much good quality of food as the quality of food well cooked, and the use of the usual beverages in more moderation.

The sanitary privy as described by Stiles and others of all measures suggested to improve health conditions in rural and urban areas, when universally adopted and put into use, will, in my mind, prove the greatest boon, because of its efficiency, its simplicity and its low cost, thus placing it within reach of all. It is sincerely believed no other sanitary precaution or measure ever suggested will promote hygienic conditions and prevent the dissemination of disease-containing human excreta in rural or urban life more than the use of the privy above mentioned.

The farm, too, in the vast majority of instances is susceptible of many improvements in a hygienic way. Where lowlands, marshes, ponds, and bodies of stagnant water exist, which might harbor or furnish breeding places for disease disseminating mosquitos or other insects, ditching, draining, and filling in will greatly promote hygienic conditions. Damp, low ground has also an injurious effect on health in a general way, by lowering the vital resistance, and thus permitting the contraction of tuberculosis, diphtheria, rheumatism, tonsillitis, and perhaps diarrhea more easily; and dampness acting in conjunction with a decreased amount of sunlight makes the conditions still more favorable for the development of disease, and the harboring of insects which disseminate diseases. Hence the farmhouse should not be located in or near a thickly grown-up tract of woodland, but should stand out clear and free from such light-obstructing and insect-harboring sources, although a limited number of trees for shade and ornamental purposes, provided they do not overhang the house, are desirable.

All stables, barns, pigstys, hen houses and coops should be located at a distance sufficiently great from dwellings and source of water supply to prevent any possible contamination by flies, bugs, and other insects by direct contact with the houses, and also to prevent surface draining into the well or spring from such places. All outhouses and tenements of whatever nature occupied or used by help or employees should also be equipped and provided in the manner already stated. All cows furnishing milk for home consumption, or otherwise, should be maintained in good health, in modern sanitary stables. The milk should be taken from them in a cleanly and approved manner in clean receptacles and preserved in cool and clean containers, and at stated intervals the herd should be subjected to the tuberculosis test, to detect any case of incipient tuberculosis. The manure and refuse from all stables, animals, fowls, etc., should not be thrown out in the open and there left to serve as a breeding place for flies and other insects, but should be received in a dark fly-proof room and there remain until properly disposed of.

Many other subjects, some of a more or less es-

thetic nature, which have an important bearing on the promotion of hygiene of the farmhouse and farm, such as providing circulating libraries, moving pictures, music, societies, for diversion and amusement, and others, might well here be discussed, but time will not permit.

Having dwelt upon the insanitary and unhygienic conditions within farmhouses and on farms, naturally, the question is asked, what is the solution of this whole problem? The answer is, education in public health matters, and the adoption of a State-wide policy of improved health measures. The splendid health organizations in force in some States, cities, and larger towns, only need extension and increased scope of action to include rural districts in all of their beneficial operations, while others need to have health departments organized and put on a proper footing of efficiency.

Many of the public health problems of our country are difficult of solution, and will require the outlay of much time, talent, and money. The latter is not always forthcoming from the State Legislatures, but with it in hand the other two can be obtained. As has been said, what is most needed to improve and promote the hygiene of farmhouse and farm is the arousing of public interest in all matters pertaining to hygiene and health. This can be accomplished effectively in only one way, and that is by public education, by lecture campaigns, talks, traveling exhibits, by interested organizations and individuals; and it is to be hoped soon through the rural district nurse to advise, and under the supervision of State health and sanitary officers, to extend assistance and spread public information on these important matters, bearing so closely on the essentials of rural personal hygiene, which will penetrate the most remote settlements, away from city centers; and by this means, and by utilizing ministers, school teachers, churches, school houses, tents, stores, halls, or, possibly in instances, moving train exhibits, that all residents of such districts can be reached and interested and instructed, and brought to realize that life can be conserved and prolonged by observing certain and not difficult hygienic rules, thus insuring increase of health and happiness, and in the end greater prosperity in any rural community.

The greatest evil today in our rural States is undoubtedly the existing medieval sanitation. There are numerous sections in which sanitation in respect to soil pollution and care of milk is only one-tenth what it should be. The recent wonderful awakening on the part of the State Boards of Health and State Boards of Education in respect to these points in certain sections of our country can not be praised too highly. The initiative in solving these particular phases of rural needs is, therefore, taken, but time will be required for the development of public sentiment along these lines among these people, and for the passage and enforcement of State and local laws, that will decrease pollution of the soil and of the water, and milk supplies.

District nursing is another sad and crying need of our farm areas. The average country woman, white or black, has exceedingly rudimentary ideas on the subject of cleanliness, housekeeping, and care either of children or the sick. To meet the needs of this side of the problem the district nurse seems capable of playing a most valuable role. Highly advisable in this connection is the adoption by the States of a universal policy looking to the improvement of methods of care for the sick in rural and small urban communities. A survey of conditions in rural districts will show that in case of sickness in families, the patients will lack more or less of the care which their condition demands. The survey will show that a certain large percentage of those ill could not afford to pay for such care as is required. It will also show that hospital and institutional care will be found to be most noticeably lacking, and that of the large number who require hospital treatment, only a small percentage receive it, and still a smaller number of those who should have been admitted to other institutions were thus dealt with. Another crying need which is inadequately met in rural districts is that of housekeepers for families in which there is no wife or daughter to look after the running of the house, or in which she was the person incapacitated by illness.

While this particular mode of procedure is not in line directly with the promotion of public sanitation in rural areas, it has a most important bearing on this problem, and has for its object the bringing about the betterment of the treatment of the sick, and thereby indirectly promoting health in any community whatsoever.

## TUBERCULOSIS OF THE TESTICLE.

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A. G., aged 2 years and 10 months, was admitted to the Children's Department of the German Hospital because of a swelling of the testicle. His mother stated that the swelling became apparent only a few months before, and had been growing steadily ever since. Upon admission, the testicle measured about 3 by 2 cm. There was no pain or tenderness on pressure. Palpation of the cord was normal; the inguinal rings were normal. There was nothing in the past history of the child that would have accounted for its present condition, in the way of injury, or other accident. The family history, as far as the mother knew, was negative. The general appearance of the child was good, and he looked well nourished and developed. No glandular enlargement could be felt in any part of the body. The lungs were perfectly normal; there were no heart murmurs; the pulse rate and rhythm were regular and of good quality. The abdomen was normal; no masses could be felt. The reflexes were normal. Von Pirquet reaction proved negative.

The child was operated upon a few days after admission to the hospital. One inch incision on the left side, parallel to Poupart's ligament; fascia divided, and the testicle expressed out of scrotum; gubernaculum cut away, the tunica vaginalis opened and removed from testicle; vessels of testicle ligated; epididymis ligated, and testicle cut away; skin sutures of light silk-worm gut. The wound healed by primary intention.

The pathological report is as follows: "Anatomical Diagnosis: Tuberculous epididymitis. Gross appearance:—Specimen consists of a testicle removed from a child of three years. It measures 3 by 2 by 1.5 cm. It has been cut in several directions. The outer surface is still covered by a portion of tunica, and attached to it is about 2.5 cm. of the vas deferens. On section, the normal architecture of the organ is almost completely obliterated. The parenchymal tissue is separated in small nodules and islands by wide, glistening, white bands of fibrous tissue. The distinction between the epididymis and the testicle proper is difficult to make out. The greater portion of the mass, however, appears to be composed of enlarged epididymis, the body of the testicle apparently being represented by a small nodule about 1 cm. in diameter. In some regions are found yellowish cheesy necrotic areas, resembling tubercles. The vas deferens is exceedingly small, but does not appear beaded. No distinct tumor can be made out.

"Microscopical examination. A section through enlarged epididymis shows the normal structure to be almost completely replaced by abundant typically

formed tuberculous granulation tissue. The tubules of the epididymis are represented by scattered ducts lined by columnar epithelium embedded in this granulation tissue. The tubercles are both discrete and conglomerate. In some regions, extensive areas of caseation are found, but these are comparatively slight. Langerhans' giant cells are very numerous and large. The vas deferens appears normal as does also the accompanying tissue of the spermatic cord. The small portion of glandular tissue in body of the testicle appearing in the section, also appears normal."

Under the heading of "Three Cases of Tuberculosis of the Testicle in Infants," reported by Vignard and Thévenot,[1] the authors state that: "Tuberculosis of the testicle is relatively rare in children. The frequency of the disease being four times less in children, as compared to adults. The admitted proportion of testicular tuberculosis is one case in two hundred cases of infantile tuberculosis. Many latent cases in general tuberculosis are apt to be overlooked unless the little patients are subjected to a routine examination. The reported cases show the predominance of this disease in very young children. Of these three patients one was 11 months old, another was 14 months old, and the third was 6 months of age. Cholmeley's patient was 6 months of age, Hochsinger's patient 13 months, and two cases of Swoboda concerned nursing infants. The four patients of Lannois were between 6 and 13 months of age. Among seventeen patients of Julien twelve were under 2 years of age; Dreschsfell emphasized that the tuberculosis may be noted at the time of birth. Vignard found no analogous cases in his review of the literature.

Testicular tuberculosis may appear either as a primary isolated manifestation or as a secondary complication in the course of a visceral tuberculosis. Primary tuberculosis is, at the same time, very restricted; unilateral, and not extending above the inguinal ring, it spares the better portion of the vas deferens, the seminal vesicles and the urinary organs. Hence, it is essentially curable. It does not especially involve the epididymis, as in adults, nor is it essentially testicular, but involves both the testicle and the epididymis, blending the organs into a pathological mass in which the primary infected organ can no longer be distinguished. Macroscopical examination shows that the mass, which is at first diffuse and indistinctly outlined, has a certain tendency to become encysted; the connective tissue which proliferates in the vicinity may even infiltrate the gland in its entire extent, and atrophy through testicular sclerosis is often the outcome of the infection. In other cases, the tuberculous nodule suppurates, as in adult cases, it is adherent to the skin, then a fistula opens at the exterior, at the level of the tail of the epididymis, as is the rule in tuberculous fistulæ. More rarely, other forms of tuberculosis are observed, such as tubercular granulations or nodules scattered in the thickness of the gland; granulations or nodules in the head or tail of the epididymis. The vas deferens is often involved, but although it becomes indurated, as in adults, it is attacked only in the lower segment which is still enclosed in the scrotum. The tunica vaginalis is often the seat of a more or less profuse exudation, in other cases, the two layers have become adherent through a plastic process, forming a shell, as it were, around the genital gland.

Secondary testicular tuberculosis is usually more extensive and no longer the manifestation of an infection through the blood. In certain patients the infection is propagated through the lymphatic group or by the vaginoperitoneal canal. An ascending infection through the vas deferens is rather doubtful; the lesions are sometimes bilateral in these cases and the seminal vesicles or the prostate are apt to be the seat of indurated nodules or even suppurative foci. Clinically, these changes begin with acute symptoms, or they may be chronic from the start. The chronic types are essentially indolent, and their existence is only revealed accidentally or by the appearance of abscess and fistula. According to all writers, the primary forms are relatively benign in character, whereas the remote results of the secondary group are extremely unfavorable and the invasion of the testicle is here interpreted as a sign of profound intoxication of the organism, indicative of a fatal outcome. The observations of Vignard and Thévenet do not confirm this general opinion, for their primary tuberculous cases ended in death, and the difference between the primary and the secondary forms of the disease does not seem to them as considerable as is generally assumed to be the case.

Case I.—Boy 12½ years old; lesion of left testicle of about six weeks' standing. Mother died of tuberculosis. A sister died in infancy of tuberculous meningitis. Patient himself was operated upon for right inguinal hernia at the age of 3 years. Coughed since early childhood. The testicle, at the time of his admission to the hospital was of nearly normal size; the epididymis was very large, hard, and somewhat irregular; the vas deferens was likewise indurated. General condition, satisfactory. Treatment consisted in epididymectomy and resection of the vas deferens to an extent of 10 cm. The patient was discharged about 7 weeks later with a small fistula.

Case II.—Boy 14 months of age was admitted for tuberculosis of the left testicle. Family history good. Trouble began one month ago with redness and swelling of left half of scrotum. Eight days ago a fistula opened from which escaped a serous yellowish pus. Local examination showed the existence of two swellings,—the upper, the size of an almond, corresponding to the testicle, which did not seem much changed, the lower one was more voluminous, and was formed by the epididymis surrounding the testicle. At its lower pole was the above mentioned fistulous tract. In its lower portion was found a tubular vas deferens which could be felt all along the inguinal tract. No other tuberculous lesion, visceral or elsewhere. The treatment consisted in partial castration, extirpation of the fistulous tract of the epididymis, and of the portion of the testicle adherent to the epididymis. The child was discharged from the hospital with a persistent painful induration at the level of the affected region. He died about six months after the onset of the disease.

Case III.—Boy 11 months of age was admitted, with symptoms of tuberculous epididymitis. Two months previously a swelling was noted in the left half of the scrotum. This improved at first under hot applications, but then remained stationary. At the time of admission, the right scrotum was nearly the size of a fist, and was covered with a red, inflamed looking skin. Palpation showed a hard mass in the upper portion which seemed to belong to the testicle. The epididymis could not be isolated. In the lower portion, a fluctuating mass was felt with incipient formation of a fistula. The vas deferens was easily recognized and was found to be changed especially in its lower portion. No signs of pulmonary tuberculosis; no temperature; general condition satisfactory. The patient was castrated, and the incision of the infected region showed that the epididymis had been destroyed by suppuration. Only a small portion of the testicle was left. On account of the existence of a suppurative focus, the wound was drained. The patient was taken from the hospital by his parents on account of grave meningeal symptoms. Locally there was a small persistent suppurating caseous focus. Death eight days after the operation, two months after the mother had noticed the testicular swelling.

Case IV.—Cholmeley[2] reports a case of tuberculous testicle in a child aged 6 months. A section of the testicle, after removal of the organ, showed numerous small caseating foci in the epididymis; the body of the testicle appeared to be perfect. In the course of

the month following operation, the child developed measles and broncho-pneumonia, and died. Post-mortem examination showed the presence of tubercle in some bronchial glands in the left pleura, in both lungs, especially in the left; in the mesenteric glands; and in the left kidney.

Broca[3] contributes three observations on tuberculosis of the testicle in children. In two of his patients the diagnosis was practically positive, and in the third case it was not only possible but probable. The first patient was a boy of 13 months, in whose case the affected organ could not be properly palpated on account of retention in the inguinal canal. The next patient was a boy of 10 years whose local condition was that of epididymis, with a large nodule, especially in the head of the organ. The last case concerned a boy of 15 years whose left testicle became painful and swollen after a bicycle ride. At the time of admission to the hospital, a fortnight later, the scrotum was reddened and edematous, deeply adherent, with a purulent collection at the upper and lower pole of the epididymis. After formation of a fistula, and cicatrization, the patient retained an indolent induration of the epididymis, with nodules, especially at the head and tail, having the characteristic features of chronic tuberculosis.

Hutinel[4] emphasizes the fact that tuberculosis of the testicle is found especially in very little children about 2 years of age. Among twenty observations of Julien, twelve were less than 2 years of age and six were under 1 year.

Giralvis and other writers have even noted a congenital tuberculosis of the testicle in newborn infants. The disease may strike any age, but it is not common in older children. Poissonnier[5] says that tuberculosis in children is a rare disease.

Among ninety-one cases of different authors, about one-half concern the first two years of life. Heredity plays the principal part in the etiology.

R. J. Howard[6] believes that if general hygiene and opsonic treatment do not rapidly improve a tuberculous testicle in a child, the organ should be removed. If both testes are attacked, or if one has already been removed, orchidectomy should only be done as a last resort. Howard studied nine cases of tuberculous epididymitis in children under 12 years of age, admitted to the London Hospital between the years 1896 and 1905. In contradistinction to tuberculosis in the adult epididymis, where the disease is usually secondary to diseases of the prostate and seminal vesicles—the inflammation spreading along from the vas to the testis—in children, the epididymitis is usually primary, the bacillus being brought by the blood stream of the lymphatics. In the nine cases only one is stated to have been associated with the disease of the vesicula, and this receptacle was found to be caseous at the autopsy. In these nine cases, the diseases were on the left side in four; on the right side in two; and in the other three, both testicles were diseased, with the left side always more affected than the right. The more frequent occurrence on the left side was attributed by Howard to some difference in the blood supply and venous return. In only two of the cases was there any marked history of tuberculosis in the family. The average age of the nine cases was three years and two months—the oldest being ten years and the youngest six and a half weeks.

Hochsinger[7] reports a case of tuberculosis of the testicle in a child 1 year of age upon whom castration was performed. The lower third of the affected organ was found to be transformed into a tuberculous cavity; the swelling of the testicle was first noticed when the patient was 4 months of age.

Swoboda[8] observed two cases of tuberculosis of the testicle in infants. The first patient was less than three weeks of age; the second case is noteworthy in so far that the parents refused operation, and a suppuration of the caseous testicle followed, with apparent recovery.

Venot[9] presented before the Bordeaux Pediatric Society a case of tuberculosis of both testicles of long standing, and which had apparently been cured.

L. Rocher[10] contributes a number of observations on cases of primary tuberculosis of the epididymis in boys between 1 and 9 years of age. In a general way he states that the primary disease is very rare in children, because the organs are undeveloped and functionally latent, with a low vascularization and a slight tendency toward congestion, so that they are not well adapted to infection by way of the blood current.

Moizard and Bacaloglu[11] contribute a review of genital tuberculosis in the infant, and agree in the main points with the authors already quoted.

In closing it is interesting to note the relationship between the fetal tuberculosis and that of the infant and adult type. Ballantyne[12] states that fetal tuberculosis differs from infantile and adult tubercle in its characters, but the differences are such as can be explained by the general laws of antenatal as distinguished from postnatal pathology. In other words, fetal tuberculosis has peculiarities, not because it is tuberculosis, but because it is fetal. In the first place, fetal tubercle is not pulmonary tubercle. In the cases in which definite tuberculous lesions are present, they are rarely found in the lungs, and even when they are met with in these organs they are quite discrete. Evidently this is just what was to be expected, for the lungs are not in the direct line of bacillary invasion of the fetal body, neither is the circulation in the lungs at all active. On the other hand, the liver is in direct communication with the umbilical avenue of approach, and therefore it is to be expected that in it and the neighboring glands there will be tuberculous lesions. As a matter of fact, the liver is frequently affected, but it has to be noted that there are not a few exceptions. Possibly this is to be explained by the fact that the invading germs may pass directly to the heart by the ductus venosus without traversing the liver. From a study of the reported cases it would appear that tubercle germs may reach the fetus in large numbers. When they do so the lesions are generally widespread; they may, on the other hand, be few in number, and then the lesions are commonly localized. In the second place, the fetal tissues, far from being unsuitable soil for the growth of tubercle bacilli, are peculiarly fitted for their reception and development. In the third place, it may turn out that in the fetal tuberculous lesions giant cells are wanting, but in the absence of a large number of observations it is not safe to make this generalization. In the fourth place, tubercle bacilli may be present in the fetal organs in large numbers without the development of the characteristic lesions of postnatal tubercle; this is the so-called "bacillosis" without lesions, and it may be due to the termination of antenatal life before the lesions had time to form. In the fifth place, fetal tubercle may take on characteristics not at first recognizable as in any way tuberculous.

In discussing Baumgarten's theory, Ballantyne[12] further states that Baumgarten was struck by the fact which "has engaged many other workers in this field of study, that, while tuberculosis is evident and very frequently transmitted from parents to children, it is commonly not until in late childhood or early adult life that distinct signs and symptoms begin to appear. In order to retain the idea that the tubercle of the ascendants was transmitted to their descendants, and to bring it into harmony with the long period of apparent immunity which intervenes between birth and the appearance of the disease, Baumgarten was led to formulate the theory of the latency of the germ. He believed that the germs are carried to the unborn infant either through the placenta or by the ovum or spermatozoon (at the time of conception); that these sometimes, possibly when very numerous, set up distinct tuberculous lesions in the fetus or lead to the development of the rare infantile form of tuberculosis; that most of these are few in number and remain in the fetal tissues and organs in a larval state till succeeded by one of semi-activity in which tubercular foci are formed; and that these foci may long remain latent, existing simply in the anatomical and not in the clinical sense, but may at some time or another give rise to active tuberculous manifestations. It was thought that the tuberculous foci were most often to be found if looked for in the bones and glandular system.

"Now modern research has revealed some facts which lend support and some which go to discredit this theory of latency of the germ as stated by Baumgarten. For instance, it is known that the tubercle may, in small numbers at any rate, gain access to the fetus through the placenta, and that at the time of birth they may have produced no recognizable tuberculous lesions. On the other hand, there is little or no evidence to support the conclusion to which Baumgarten was driven, that the tissues of a fetus, on account of their great vitality, restrain or altogether prevent the growth of the germ of tubercle. There are other difficulties in the way of an acceptance of Baumgarten's theory, and it must be fully conceded that the great number of cases of tuberculosis both in children and adults, are caused by the invasion of the organism by germs in postnatal and not in antenatal life. The cases of true congenital tubercle, with or without lesions, are rare; and there is no good reason to believe that germs enter the fetus and after a period of latency lead to autoinfection in adult life."

In conclusion, I would state that it is evident that because of the peculiarities of the fetal circulation it is possible for the fetus to be infected directly from the maternal blood. A. S. Warthin[13] of Ann Arbor describes a case of miliary tuberculosis of the placenta in a woman suffering from incipent tuberculosis. Although no mention is made of the physical condition of the infant, the possibilities of infection are patent. To decide whether tuberculosis occurring in early infancy is the result of antenatal or postnatal transmission is a question always open to academic discussion. In the case just reported, we have no definite data at hand. The family history being negative, the physical examination of the child showing no evidences of tuberculosis, the Von Pirquet test giving a negative result, the report of the pathological findings, the primary isolation of infection to the testicle, all this being taken into consideration, I believe that one is justified in considering this a case of antenatal transmission.

I wish to express my thanks and appreciation to Dr. Frederic Kammerer, from whose service this case was submitted for publication.

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## THE SIGNIFICANCE OF IRREGULAR UTERINE BLEEDING.*

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A PATIENT with any abnormality of her monthly uterine flow will in almost every instance consult her family physician for an explanation and for its relief. It is for him to be thoroughly alive to the varied causes of this common occurrence and to be able to direct the questioner with certainty in its treatment. You are already familiar with each condition, and there is nothing new in what I am bringing before you to-night either as to condition or treatment. I have thought, however, that it might be of some interest and of some possible value to review the subject as a whole in its varied correlations.

Periodical monthly bleeding in normal amount from the uterine mucosa and the postpartum flow from the placental site are natural. All other loss of blood is abnormal and must be looked on as having for its cause a pathological condition. It will suit our purposes for this discussion to divide these into classes, benign and malignant. Among the former we will find mucous polyps arising from the lining membrane of the body of the uterus or of its cervical canal. They consist of circumscribed hypertrophies of the endometrium and may be single or multiple. Their origin is not well understood yet they are known to most frequently exist in connection with other pathological conditions of the pelvic organs. Such a condition, however, occurs when no other apparent pathological condition exists. The surfaces of such polyps are very vascular and give rise to intermenstrual bleeding especially when protruding from the cervix and subjected to abrasion by the vaginal wall, douche pipe, or otherwise. At times the endometrium of the body of the uterus takes on a polypoid thickening giving rise to multiple polypi, chiefly of a sessile character. This

*Read before the West End Medical Society, October 25, 1913.

condition is especially found at the beginning of puberty and at times at the climacteric. Such a condition is characterized frequently by profuse hemorrhages. The treatment consists in the removal of the polyps by the clamp or otherwise when visible and by the curette from the body of the uterus. All curettings should be preserved and submitted to a thorough pathological examination to avoid the possibility of overlooking (especially in middle life and beyond) what might be carcinoma of the body of the uterus.

Erosion of the cervix is another though not a very common cause for intermenstrual bleeding. This may exist in nulliparous as well as multiparous women and has behind the condition a pathological state of the cervical glands, giving rise to irritating discharges by which the epithelium covering the cervix is destroyed. In multiparous women this is usually added to by the eversion of the mucous membrane of the cervical canal as a result of an ununited cervical tear. The bleeding in such instances usually follows contact. While this condition is within itself not serious, yet in some instances it so closely resembles and in others is the commencement of carcinoma of the cervix, that I am convinced that we should not attempt local treatment in the way of silver nitrate, astringent applications, and such like. This treatment is at best in the mildest cases of little avail, since we do not reach the cervical glands, the discharges from which are the origin of the trouble. The only satisfactory method in my hands is to divulse and curette thoroughly the cervical canal, following this by an application of nitrate of silver solution or iodine to the curetted canal. After this has been done the eroded area is excised and the healthy mucous membrane coapted by sutures, leaving no raw surfaces exposed. This line of treatment accomplishes two purposes: first, it cures the patient; secondly, the excised portion enables the pathologist to recognize the earliest presence of cancer of the cervix if such should exist.

Gonorrheal endocervicitis (acute) is another cause. Here the discharges are mucopurulent and at times are tinged with blood. The microscopical examination of the smear from the cervical discharges will demonstrate the nature of the condition and the treatment with argyrol and ichthyol on thin strips of gauze inserted daily into the cervical canal will relieve the condition.

Threatened miscarriage is a familiar cause of such bleeding. With the history of the absence of one or more menstruations together with a bimanual examination the presence of pregnancy is usually positive and the treatment clear. In instances of a retroverted uterus (a frequent cause for miscarriage) little can be learned from the bimanual examination in the first month of pregnancy. In the absence of the history we must depend on the pelvic examination. The source of blood in these instances is from the surface exposed by the partial separation of the placenta from its uterine attachment. The treatment is absolute rest in bed together with allaying the irritation of the uterus by medication in order to prevent a further separation of the placenta. In some cases this is successful, in others it is not. The retention within the uterus of placental tissue after a miscarriage also gives rise to the well-known irregular and frequently recurring bleeding. The blood may come in this instance from partial separation of the pieces of placenta from their uterine attachments, or from the placental tissue itself or from the vascular decidual tissue lining the uterus. A curettage is all that is needed.

It will be well to bear in mind also the possibility of the pressure of a hydatidiform mole, though such a condition is rare, occurring only in one out of 2,400 cases according to Williamson as quoted by Williams. Such condition should be suspected if frequent bleeding occurs in pregnancy, and if the uterus is much larger than it should be for the duration of the pregnancy.

Uterine bleeding as the result of extrauterine pregnancy must be differentiated from the bleeding from a uterus with the remnants of a miscarriage. This is not always so simple as it would appear to be, and especially so when the patient comes under observation for the first time with the history of having passed what she describes as membranes. In extrauterine pregnancy the uterus is slightly enlarged and its endometrium becomes thickened and engorged, constituting a decidual membrane. With the attendant bleeding, parts of this membrane may be thrown off and at times the entire membrane is discharged.

With such an occurrence the statement of the patient that she has had a miscarriage is certain to be made, and the error may be confirmed by the physician in the absence of the membrane and its examination unless he bears the possibility of such an occurrence in mind. Many patients have been curetted for just such conditions. The history backed up by a careful bimanual examination will usually make the diagnosis clear.

If the first examination does not give the satisfactory evidence, rest in bed with careful observation and examinations at intervals will clear up the point in question, so far as the differentiation between these two conditions is concerned. There are times, however, when the differentiation between extrauterine pregnancy and pathological inflammatory conditions of the uterine adnexa is difficult or even impossible. In both we may have the irregularity in the menstruation and the subsequent slight loss of blood continued over quite a period. In both we may have the intrapelvic mass mapped out by bimanual examination. In such conditions errors of diagnosis may be made, but not to the detriment of the patient since the condition calls for an operation in each instance.

Uterine bleeding prolonged and profuse at the menstrual time and often intermenstrual in character frequently has for its cause fibroid tumors of the uterus. When these tumors are subserous they do not give rise to disturbed menstrual functions. When, however, they are interstitial their presence act as a foreign body in the uterus, compressing the thin walled veins and venous sinuses, causing an obstruction to the return flow and a resultant congested condition of the endometrium. They thus give rise to a profuse menstrual flow, which at times by the squeezing out of blood from the engorged endometrium by the contraction of the uterus may be intermenstrual.

If, however, the intermenstrual feature is decided, the possibility of an associated carcinoma of the endometrium should be borne in mind, since this is known to occur in a little over 1.5 per cent. and should be an occasion for hastening the complete removal of the tumor and uterus.

I have attempted in this hurried review to call attention to the common causes of irregular bleeding in benign pathological conditions of the uterus, with which we are all familiar. There remains to

be considered the malignant changes in the cervix and the body of the uterus as the cause of bleeding. The importance of this symptom cannot be overestimated in these conditions for it is on account of this that the patient will consult the physician, and the responsibility is his to give careful heed to what she may regard as trivial and of which she may have only spoken in an incidental manner for the purpose of obtaining a douche.

Cancer of the cervix takes on two morphological characteristics: the one in which a cauliflower or spongy mass springs from one or both lips of the cervix and consists of an outgrowth of cancer cells surrounding a vascular center with poorly developed blood-vessels. From such a mass bleeding readily takes place, and necrotic masses will separate on account of ready disturbance in the circulation. This form is known as the everting or papillary kind. In the inverting or nodular character the disease is more of an ingrowth from the outset. Sooner or later the circulation of the periphery of the diseased area is disturbed by the extension of the underlying process and necrosis and bleeding result. Fortunately this usually takes place early; at times, however, the bleeding, the first sign attracting the notice of the patient, does not occur until the disease has extended beyond any hope of cure. This nodular type is prone to recur after removal.

The occurrence that should attract the attention of the patient and cause her to consult her physician is the appearance of a persistent leucorrheal discharge which has not previously existed. This discharge is later tinged at times with blood, especially on exertion. At other times the leucorrhea may not be so prominent, but the first evidence may be a slight recurring show of blood or a bloody discharge between periods, which is accentuated by the touch of a douche pipe or otherwise. The flow may amount to a sudden profuse hemorrhage, but more often the character is scanty, ceasing after a short time to recur at intervals on exercise or bending over. When such conditions occur at or near the age of the change of life it is too often mistaken for some of the attendant vagaries of this period, a distorted knowledge having been gathered by the younger generation of women from those who have gone before. Having absorbed such erroneous ideas she fails to seek advice until the disease has advanced beyond the earlier stages.

During the earlier stages the danger flag of pain is as a rule absent. This is only present in the more advanced stages, when the extensive exudate is pressing on the nerve ends. The erroneous conception is frequently held by women that nothing can be radically wrong in the pelvis if they do not have a feeling of discomfort and pain in this region. With the absence of pain and discomfort they attach no importance to an irregular show of blood, especially if this should occur at or about the period of their lives when all women expect irregularities.

Cancer of the body of the uterus from the standpoint of the patient has all the early symptoms of cancer of the cervix. They are irregular bleeding, a watery discharge which is at times dark colored and the same absence of pain as in the former instance. The above symptoms having been given us by the patient on her first consultation, it is our imperative duty to the patient to insist on a thorough local examination. The results of such an examination will give a full view of the cervix, and will enable the physician to state whether cancer is present or whether it is absent.

There are times when the involved area is doubtful. This is especially true in the earliest commencement of cervical cancer. Under such circumstances there is only one course to follow, that of speaking frankly to the patient or her relatives and urging that the diseased part shall be removed and submitted to a competent microscopist for examination. In general I think it best that when such an examination is needed the part in question should be removed under general anesthesia, preferably gas and oxygen, and at once a frozen section should be made and examined by a competent pathologist. This method of procedure has many advantages over removing for examination such a section under cocaine in the office. Chief among these are that such an office procedure opens up lymph channels of absorption carrying further up into the uterus the cancerous juices if cancer should be present. And again it is not always easy to get a proper section of a questionable cervical area under local anesthesia in the office. If the examination proves that cancer is not present, the patient being still under anesthesia can be given the benefit of having a repair of the cervix made, of which she was evidently in need.

If the office examination shows that no disease of the neck of the uterus exists, the examination must be extended to the inside of the body of the uterus to prove or disprove the presence of cancer of this part. This examination should not be done in the office. It should be done under an anesthetic with all surgical care. Under the anesthetic the uterus may be found to be a little larger than normal. The scrapings from the inside of the uterus are saved and submitted to the pathologist for diagnosis. Many times the diagnosis of cancer is at once evident from the abundant brain-like material drawn away; at other times the decision of the pathologist must be awaited.

The importance of a thorough determination of the cause of all irregular uterine bleeding cannot but be impressed upon us when we know that between the ages of 45 and 64 one out of every eleven deaths among women is due to cancer of the uterus and the breast, of which deaths two-thirds are from cancer of the uterus. Knowing that all cancer in its earlier stages is a local disease, and as such can be cured, makes the responsibility doubly imperative that we recognize whenever possible the condition at a time when something of value can be done.

In a collection of all the cases of cancer of the uterus who have entered the Woman's Hospital during the last six years, comprising patients who have been sent there in the hope that something could be done, there were 86 patients with cancer of the cervix; 21, or less than one-fourth, were discharged as possibly cured, such an operation having been done as to insure every possibility of there being no return of the disease. The remainder could only be given palliative treatment. Of the 125 cases of cancer of the body of the uterus, 41, or about one-third, were discharged as cured. Among the remainder the disease had existed for such a length of time as to have extended beyond the uterus and to have involved other organs. This is a discouraging report, and especially so when we recognize that in cancer of the body of the uterus the disease is of such slow progress that even though it may have existed for some time it is still confined to the uterus and we expect to cure almost every patient.

The experience in all clinics in America is that

it is rare that more than one out of every four who apply with cancer of the uterus can be given any treatment other than something to ease their pain and make their short period of life more bearable. This same discouraging lack of self-care existed in Germany and elsewhere abroad prior to ten years ago. Winter keenly appreciated this fact and undertook a personal campaign of education on the subject of cancer in 1902 after moving to Konigsburg, Prussia. These educational efforts of Winter with the hearty support of other medical centers have brought about on the continent a marked change since 1890. The percentage of patients applying for relief in the early stages has been doubled. A similar percentage increase is seen in the patients sent to hospitals by midwives.

Such a system of education can only be productive of the greatest good and has been felt throughout all of the continental hospitals, where in nine of the largest 60 per cent. of the patients applying for relief have come sufficiently early to be given the opportunity of a permanent cure. This may be in part due to the extension of the field of operation. I believe, however, that the education of the people has had most to do with this change.

There has been lately formed an association known as the American Society for the Control of Cancer. This society has the endorsement of the national associations making up the American Congress of Physicians and Surgeons, and of the American Medical Association. It has upon its board of trustees prominent lay people, both men and women, together with physicians and surgeons throughout America. Its membership is open to all who may wish to help in educating men and women for their own protection. The objects of this society are many. Lay people will be informed through the daily press and through periodicals and by lectures of the necessity and of the importance of consulting their physicians on all matters in which there are departures from what is normal. The physician and busy general practitioner will have it frequently impressed upon him that all cancers have a small beginning, and as such their significance may be overlooked unless studied, and definitely proven not to be of such a nature. The scientific side of the problem will also be undertaken in collecting reliable data and determining as far as it is possible the comparative value of the old and the recurring new methods of treatment.

The Associated Gynecological Clinics of New York City at a recent meeting adopted the following short synopsis for the purpose of educating the poor upon the subject of cancer of the uterus. They recommended to the Board of Associated Out-Patient Clinics of New York City that this synopsis be printed on a card and be given to every woman patient of all the clinics of this city.

*"Cancer of the Womb.*—Cancer of the womb can be cured in the early stages. Prolonged or irregular monthly flow is frequently the first sign of this disease. Slight bleeding after a douche, or sexual intercourse, is one of the earliest signs. After the age of 30 any of the above occurrences should demand an immediate local examination of the internal organs by a competent physician. There is no pain with cancer in its beginning. Profuse bleeding and frequent spotting is not the sign of change of life. It may mean cancer."

I believe that such a course of systematic education will be the means of saving many lives.

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## VENOUS CIRCULATION.

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What are the physical forces involved in venous circulation, according to the accepted theory, and are they adequate to perform the work with which they are credited? At a glance it is evident that venous circulation is dependent for its maintenance upon forces very different from those that control arterial circulation. We find, as the initial force of arterial circulation, an engine of great power, perfectly adapted to its work, performing that work continuously with great mechanical precision. Its propelling power is transmitted throughout the whole arterial system, but gradually diminishes as the distance from the engine increases so that we have the highest blood pressure in the largest arteries nearest the heart and the lowest in the capillaries at the periphery. But when we come to the termination of the arterial system and the beginning of the venous system, and contemplate the factors which make for the return of the blood from the extremities to the heart, we find a very different state of affairs.

The blood which in the arteries is propelled for the most part in harmony with the laws of gravitation, in the veins travels for the most part in opposition to those laws. Instead of a propelling heart engine to drive the blood in pulsing waves through the vessels, we find but an indirect effect of heart action questionable as to its constancy and force. We find a lessening number of vessels of increasing caliber but decreasing capacity (although that capacity remains twice or thrice that of the arteries) instead of an increasing number of decreasing caliber and increasing capacity, as in the arterial system. The vessels also differ greatly in their construction although histologically similar. The walls of the veins instead of being elastic and resilient are comparatively weak and yielding, and the majority of them are furnished with delicate valves, which, opening toward the heart, permit the blood to flow in that direction only.

According to the generally accepted theory three principal factors maintain the return flow of blood. These are: First, a sort of residue of pressure transmitted from the arterioles through the arterial capillaries to the venous capillaries, which drives the blood upward toward the heart and the lower pressure of the larger veins. This is the factor above referred to as being of questionable constancy and force, and is known as the "vis a tergo," or force behind. Secondly, a pressure exerted by the muscles in action. The bellying of the muscle as it contracts must necessarily exert considerable pressure upon the veins in its immediate neighborhood, and this pressure, with the cooperation of the valves, tends to empty the veins heartward with each muscular contraction. Thirdly, the "vis a fronte," an effect of thoracic action, or, to quote Kirke, "the suction action of the heart and the aspiratory action of the thorax."

It is the purpose of this brief consideration of the subject to question the efficiency of these three factors, to call attention to their relative importance and to point out another factor which, mechanically, may be better adapted to the work; and inasmuch as many, if not most, circulatory disturbances are venous, to suggest the possibility of utilizing this factor for their relief.

Vis a tergo, as a factor in venous circulation is,

as already described, a transmission of the residue of arterial pressure to the blood in the venous capillaries. Is it indispensable to venous circulation? If so, its relative importance is high; but, as indicating that it is not indispensable, the following is to be cited: It is a well-known fact that the condition of circulation which prevails in gangrene is one of stasis—a stoppage of the movement of the blood in the capillaries of the part; and this may be due to either venous or arterial obstruction. When the obstruction is arterial the form of gangrene developed is known as "dry gangrene." The venous blood is carried away from the part while the arterial blood is prevented from reaching it and the tissues shrink and shrivel up. Here is a condition where vis a tergo has been entirely eliminated as a factor in venous circulation. The arterial obstruction has prevented the transmission of the heart's force to the venous capillaries and yet the venous blood leaves the part, to large extent, at least, and continues its journey to the heart. In the lesion known as moist gangrene the obstruction is venous and we have just the opposite condition. If, for the sake of the argument, we ignore for the time being the force behind, which we have just seen may be inoperative without a corresponding suspension of venous circulation, we have left two of the main factors in the maintenance of the venous flow, namely, muscular pressure and thoracic suction.

As already stated, the effect of muscular pressure to move the blood back to the heart depends upon the activity of the muscles. Then it follows that if the muscles are inactive they cease to be of importance. Nearly one-third of the life of man is spent in muscular inactivity, and yet, so far from this causing a condition of imperfect venous circulation during sleep it is, if anything, in the normal body, actually improved. It might be well to note in passing that the lymphatic circulation, which corresponds very closely to the venous, its vessels being supplied with many valves and its stream moving toward the heart under somewhat similar conditions, is largely dependent upon muscular activity for its maintenance and this does show imperfect function during the sleeping hours, the extremities being usually somewhat larger, that is to say, somewhat more swollen, after hours of sleep; and this has been found to be accompanied by engorgement of the lymph channels. The inference is fair that, were the venous circulation equally influenced by muscular action, there would be a similar condition of engorgement of the veins after a night's rest. If now, we may for the time being, consider muscular activity as a factor of venous circulation, to be in the same category with the "force behind," that is, relegated to the domain of the questionable, we have left to our consideration but one factor, the vis a fronte—"the suction action of the heart and the aspiratory action of the thorax." But does the aspiratory action of the thorax exert any notable effect upon the venous circulation? This question would seem to be partially answered by the statement that a cessation of thoracic movement, as in holding the breath, does not seem to produce any marked effect on the normal heart. If the venous blood were thereby retarded in its flow heartward, a very noticeable change in the heart action should result —the heart cannot pay out more than it receives— and if such suspension of breathing were only briefly maintained there should be a noticeable engorgement of the superficial veins. But this does not seem to occur in the normal body; at least the suspension cannot, apparently, be sufficiently long maintained to produce that effect, or, indeed, any other analagous thereto. Part of the vis a fronte, according to Kirke, is the sucking action of the heart itself. We can imagine a man lying perfectly motionless upon a bed, holding his breath for one minute. Two of the factors of venous circulation have, for the time being, suspended their action. Muscular pressure is nil, so is the aspiratory action of the thorax. Then the vis a tergo and the sucking action of the heart are the only forces left in operation. How much of the blood is pulled back to the heart by its own sucking action? The force exerted by the auricular walls upon the venous blood column, we are told by Kirke, is "assisted by the elastic contraction of the lungs. The lungs being in a closed cavity, the thorax, and being distended with air are in virtue of their elasticity always tending to recoil and squeeze the air out of their interior. In so doing they drag upon any other organ with which their surface is in contact; this elastic contraction will be greatest when the lungs are most distended, that is, during inspiration, and will be more felt by the thin-walled auricles than by the thick-walled ventricles of the heart." This makes part, at least, of the heart suction to depend on lung action. But we have already seen that a cessation of lung action is possible without noticeable effect upon the venous circulation; therefore the assistance rendered the auricles by the elastic lung tissue may momentarily be reduced to nothing, and whatever effect heart suction has depends, under the conditions we have imagined, upon the pulling power of the thin-walled auricles alone. This effect is limited to auricular diastole for, to quote Kirke again, "the reason why the blood does not pass backward into the veins with auricular systole but onward into the ventricles is again a question of pressure; the pressure in the relaxed ventricles * * * is less than in the veins. * * * Though there is no regurgitation of the blood backward into the veins, there is stagnation of the flow onward to the auricles." This being all that is left of the sucking action of the heart (still referring to the hypothetical condition) it would seem impossible that so weak a force as the suction of thin-walled auricles in diastole would be adequate to exert much effect upon the blood stream to draw it through its myriad tortuous channels back to its "pitcher at the fountain."

Briefly to epitomize our conclusions: (1) Vis a tergo is not indispensable to venous circulation because it may be nullified by arterial obstruction, as in dry gangrene where the blood is carried by the veins away from the part affected. (2) Muscular action is not indispensable because it may and does cease each day for a greater or less length of time without any bad effect upon the circulation. (3) Vis a fronte, consisting of lung suction and heart suction, while it may not be entirely eliminated, may be so reduced in its effect by cessation of respiration as that it dwindles to the mere pumping power of thin-walled auricles during diastole upon the venous blood column, the adequacy of which power being, at least, questionable. (4) A subject in the horizontal position, holding his breath for one minute, has eliminated all factors of venous circulation save two, vis a tergo and the suction of the auricular walls during diastole, and yet no appreciable disturbance of venous circulation is apparent at the end of that minute.

We will now proceed to the consideration of a factor possibly more potent than any of those thus far discussed. Most of the large arteries of the body are accompanied in their course by one or more veins lying close beside the artery and in contact with it by an intervening structure of connective tissue and encompassed by a common sheath. This sheath is a non-elastic fascial structure. It binds the artery and vein together, not tightly—at least not in the cadaver—but sufficiently closely to produce the mechanical effect now to be considered. When the pulse-wave originating in the heart-systole thrills through the blood vessels and the arteries dilate under its pressure the vessel sheath does not yield. Both artery and vein are full of blood. The dilatation of the artery, pressing laterally toward the vein, displaces the intervening connective tissue and presses in the side wall of the vein. The liquid contents of the vein, under this force, have but one thing to do. They must get out of the way. To do this they must move heartward for the simple reason that they cannot move in the opposite direction, being prevented from so doing by the venous valves. Each heart throb, then, not only propels the arterial blood directly toward the extremities, but, by a force, indirect, it is true, but almost as vigorous, it drives the venous blood through the attendant veins back toward itself.

It matters not that some of the veins have no valves; the frequent anastomoses of these vessels draws from the veins not supplied with valves into those which are. Neither does it matter that certain large superficial veins do not accompany arteries, as the long saphenous, cephalic, etc. (Here we must concede greater importance to muscular activity and external contact pressure, even though we may still question the cardinal value of vis a tergo and thoracic suction.) The dilatation of an artery under the force of the pulse wave exerts a pressive effect upon its accompanying vein, but its action is not limited to this effect. The space between the artery and vein in the sheath is filled with connective tissue binding them together side by side, while the sheath binds them together externally. When the artery recoils after its expansion, the walls of the vein must go with it, and the vein is thus dilated again by a force which is not that of its own weak walls, but of the stronger walls of the artery. Thus the artery performs a positive pumping action, not only pressing the blood out of that portion of the vein against which it expands, but drawing it in from below and filling the vein again with each recoil. This action by anastomosis affects the contents of all the contiguous veins and the superficial veins may thus be emptied of their blood by the suction pump action of the arterial walls. Furthermore, contact of vein and artery in a common sheath does not need to be for the entire length of the vessels. A few inches anywhere along their course would suffice to keep the blood moving, for any extent of the two ensheathed vessels between valves would act as a suction force pump in the course of the blood flow. In respect of the capillaries and the veins less than one line in diameter, which have no valves, the reduction of blood pressure on the venous side of the capillaries caused by the arterial suction emptying the veins heartward, is quite sufficient to cause a steady flow through these lesser channels, as manifest in the condition of dry gangrene above cited. It is only necessary, then, that a certain proportion of the medium sized veins should be supplied with valves and accompanied by expanding arteries in a non-elastic sheath, to provide for the venous circulation a positive and constant factor making for uninterruped movement, independent, in greater or less degree, of all other factors and conditions save the heart action itself.

Now let us glance at a few facts tending to substantiate this theory. We will first consider those which seem to invalidate the vis a tergo—muscular action—thoracic suction theory.

I. Arterial obstruction produces dry gangrene and destroys the force behind, but it has no effect upon the lateral action of the arteries upon the veins above the line of demarcation, therefore the venous blood leaves the part, although the arterial blood may not reach it.

II. Muscular quiescence, so far from diminishing the venous flow, as it should do, according to the theory which in part depends upon it, increases it by allowing more room for the expansion of those arteries ensheathed with veins, and this would account for the fact that the circulation is usually better during absolute rest. This argument does not lose sight of the fact that exercise quickens circulation; but this effect is not produced by the more rapid return of the blood to the heart by reason of greater or more frequent muscular contraction, but rather the increased heart action induced by accelerated catabolic metabolism resulting from the exercise.

III. Thoracic suction, as already shown, is not without some effect upon venous circulation, but that effect is limited to the recoil of the thin-walled auricles during diastole. This might, in fact, be sufficient to lift the blood for the last few inches of its journey through the inferior vena cava.

IV. The placental circulation furnishes some characteristic peculiarities which seem to bear upon the matter. Here we have a condition of circulation differing from all others. From the placenta the blood moves by way of the umbilical vein into the fetal body. For its movement what are the forces engaged? Surely "thoracic suction" on the part of the fetus must be almost nil, for the blood reaching the fetal body is, for the most part, emptied into the liver and distributed throughout its interlobular capillaries where the sucking action of the thin-walled right auricle in diastole would seem to be very slight. Vis a tergo in the placenta, while probably as potent a factor as it is in the systemic circulation, is at least no more so, inasmuch as the blood in these vessels is found to be under about the same pressure as the maternal blood in the intervillous spaces. Of course we have little or no muscular action to consider in this instance except the rhythmic contractions of the uterus which may affect the pressure in the placenta, but these are too infrequent throughout the greater part of the period of gestation to be considered an important influence. But we do have the umbilical vein tightly wrapped around again and again by two vigorously pulsating arteries and no outlet for the blood thus subjected to pressure but the direction of the fetal body. It is true that the umbilical vein itself is valveless, but retrogression of the flow would be against the pressure of the arteries transmitted through the placental capillaries (the vis a tergo), and this must be greater than the pressure in the portal system of the fetus inasmuch as it equals the capillary pressure of the maternal blood in the intervillous spaces, as above pointed out; and this

is as fifteen or twenty in the capillaries to ten in the portal vein.

V. It is accepted as a truism that a man is as old as his arteries. But why should this be true if the circulatory processes are dependent upon capillary pressure (vis a tergo) muscular activity and thoracic suction? Only one of these three factors need be materially affected by the passing years. Surely thoracic suction and muscular activity would not necessarily be much different at forty from what they were at twenty. The answer to the question lies in the fact that the pathological condition found in the arteries is that of hardening, which means loss of expansibility. The sclerosed arteries do not dilate and contract to the pressure wave in the man of fifty to the same extent as in the younger man, consequently the veins receive less lateral pressure with each heart beat. The heart action, as to its frequency and power, may be the same as in the younger years, or even greater, as witness the high blood pressure usually accompanying arteriosclerosis, but the force transmitted to the attendant vein is so reduced by the lessened excursion of the arterial walls that venous sluggishness, functional disturbances and trophic changes are inevitable.

VI. Another notable fact is worthy of consideration in this connection, viz., increase in the power of the heart's systole, a physiological effect of digitalis, is followed by decrease in venous pressure. It should increase it if the "force behind" is an important factor. Its real effect, however, is to augment the expansion of the arterial walls and thus accelerate the movement of the blood heartward and relieve the venous engorgement.

A few suggestions may be offered as to the possibility of utilizing the facts cited in support of this theory, if they be facts.

I. In cases of sluggish venous circulation in the extremities, evidenced by edema of the ankles (in the early stages of cardiac dropsy) might it not be possible to relieve this sluggishness of movement by exposing the femoral artery and its vein for the entire length of Scarpa's triangle and Hunter's canal and taking a reef in the enveloping sheath, thus bringing them into closer contact and securing a greater effect upon the vein from the pulse-wave expansion of the artery? The acceleration of venous movement thus achieved, although very slight, might be sufficient to relieve the engorgement lower down and postpone for some time the seriousness of that symptom.

II. The same operation might greatly relieve varicose veins in the lower extremities by reducing somewhat the pressure on the walls of the long saphenous, as a result of moving more blood through the femoral vein. It is usually the case that varicose veins make their appearance, where not due to mechanical obstruction, in those years when sclerosis of the arteries has become an important factor in circulatory disturbances.

III. Again, where general sluggishness of the venous circulation, with coldness and edema of the extremities and degenerative changes prevail as a result of arteriosclerosis, such a reefing of the femoral sheath might be duplicated in respect of the brachial and popliteal vessels with the result that the blood would flow back to the heart and lungs with greater freedom, oxygenation and metabolism be accelerated, dyspnea relieved, and bodily vigor thus conserved.

IV. The terminal condition in those heart lesions in which venous stagnation, due to broken compensation, is most marked, is one of highly augmented venous pressure, to the point where, as in the case of the umbilical vein under the effect of post-partum uterine contraction, arterial pressure is no greater, or is even less than, that in the veins and circulation ceases. Might not such an operation as that above suggested upon the vessel sheaths, where accessible, by accelerating the venous movement, relieve the stagnation and defer the termination? It is possible that in such a condition heart stoppage is not due to heart weakness, that organ being sometimes enormously hypertrophied, but to failure of the blood supply to its chambers.

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## CLINICAL STUDY OF A CASE OF CHRONIC INTESTINAL TOXEMIA OF SEVERE TYPE.

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W. H. B. is a man 50 years old, of American birth and parentage. His father is still living and in good health at the age of 73. His mother died at the age of 51 from strangulated hernia, but for a number of years before her death she suffered from arthritis deformans with enlargement and crippling of the smaller joints of the extremities. His maternal grandmother, who died at 65, also suffered from arthritis deformans to such an extent that she was unable to walk for eight years before her death. Since the age of nineteen he has lived a largely sedentary life, as keeper of a retail store. He has never taken alcohol or tobacco, and has been moderate in his use of tea and coffee. His diet has been the conventional one. He had lobar pneumonia at the age of fifteen, but no other acute disease of consequence or any bearing on his present condition. As far back as he can remember he has been constipated. During the past twenty-five years or more he has suffered from what he calls "bilious headaches." These headaches occurred at intervals of a few weeks, usually about five or six, until the early part of the year 1910, when they became more frequent. They increased in frequency until, in October, 1910, they became continuous. And along with this severe headache he developed the following symptoms: weakness, dizziness, palpitation, bad taste in the mouth, pain in the back of the neck, and a constant and distressing dry cough. His weight, which was normally 155 pounds, fell to 135 pounds.

He first consulted me on October 10, 1910. Physical examination then showed him to be poorly nourished, with a sallow, muddy complexion, slightly jaundiced conjunctivæ, and a coated tongue. Examination of his lungs, heart, and abdomen was negative. Examination of his urine was negative. His systolic blood pressure was 120 mm. Hg. He was put on a non-putrefactive and laxative diet, arranged to supply daily about 70 grams of protein and fuel of the value of 2,300 calories; and he was also ordered a laxative tablet to be taken nightly until he no longer needed it. Details of this diet are given farther on. Two days after he began this diet the headache, dizziness, palpitation, pain in the neck and cough disappeared, and recovery of strength followed. The constipation greatly improved, being controlled, after two months, by a diet

alone and an occasional laxative. He gradually regained most of his lost weight, and at the end of one year weighed 146 pounds. His appearance improved and his muscular endurance became greater than it was formerly when he was eating the conventional diet, though he had less energy.

Although his continuous toxemic symptoms disappeared and he was in good general condition, he still suffered from periodical attacks which suggested a cyclic toxemia. Regarding these cyclic disturbances he made the following observations: (1) *The length of the cyclic periods.*—During the first two years, or until about January, 1913, the toxemic disturbances occurred every fifth or sixth day; but after January, 1913, the intervals between them lengthened, so that now they occur about every two weeks. (2) *Symptoms connected with the stools.*—Although the bowel movements during practically the entire period since first coming under treatment were normal in frequency, though less in quantity than when he was on the conventional diet, the cyclic disturbances during the first two years were preceded by a change in the color of the stools: the stools became lighter as the time for the disturbance approached and were a light yellow when the subjective symptoms developed. During the last six months these changes in color have not been noticed. The odor of the stools was not offensive between the cyclic paroxysms, nor at the time of their occurrence; but after taking a saline laxative, which is his regular treatment for the paroxysm, the resulting movement was extremely offensive. When the saline laxative failed promptly and completely to abate the toxemic symptoms, and these symptoms lingered over into the following day, disappearing then gradually, which happened about every fifth or sixth time, the natural movement on the second day following the saline was more foul smelling than the saline movement. Once in about every three months the regular periodical treatment with the saline failed to ablate the toxemic symptoms and then relief was secured by a large dose of a vegetable cathartic. Usually, however, vegetable cathartics proved much less effective than the saline for the purpose, and a large dose of the saline taken in the morning was less effective than a small dose taken at night. The saline which he employed regularly was one teaspoonful of magnesium sulphate in one-third of a glass of hot water on retiring. (3) *Subjective symptoms at the time of the cyclic paroxysms.*—The first symptoms noted were regularly dizziness and palpitation, to be soon followed by pain in the back of the neck, headache, dry cough, and a feeling of slight air hunger. During the past year he has noticed as a very early symptom of the impending paroxysm, a desire to drink water often in small quantities, followed in about twenty minutes by a desire to urinate. These subjective symptoms grew steadily worse until he cleared his bowels, which he never long neglected to do after the first intimation of the oncoming of the paroxysm; in fact, he has never put off doing so more than one day. He has found that he can excite similar symptoms by unusual physical exertion, especially by nodding his head or looking around quickly, as well as by getting excited or agitated, and once similar symptoms were brought on by exposure for about an hour to the fumes of many automobiles in a crowded course. Three times during the first year of treatment he precipitated a paroxysm by eating a piece of meat. During the last three months he had three attacks in the day time, characterized by a sudden peculiar sensation starting in the right side of his head, about one and a half inches above his right temple, which flashed backward about four inches in a zigzag manner. This sensation he describes as a "feeling as if a lump were forced through a tube in his brain." It lasted only an instant, and was followed by a feeling as if the whole right side of his head was burning, which soon passed away. On each of the occasions when these attacks occurred he had delayed to take his customary dose of salts for one day after the first intimation of the onset of a cyclic paroxysm. Twice he fainted during a paroxysm. An examination of his urine was made at the time of a cyclic paroxysm, in the middle of the first year of treatment, with a negative result.

For three years this patient has taken a nonputrefactive and laxative diet, which supplied him a daily average of about 67 grams of protein and 2,240 calories; and he now finds himself (October 10, 1913) in very fair general condition. He has no unpleasant symptoms outside of the paroxysmal attacks; he feels better than he has felt at any time during the past three years; he has a good appetite, and his sense of taste is much keener than it was formerly, and he can do his work as well as ever, though he cannot hurry.

A physical examination made on July 18, 1913, when he showed no symptom of the cyclic disturbance, resulted as follows: moderately well nourished; color fairly good; clear conjunctivæ; tongue slightly coated; heart and lungs negative; liver dullness, one-half inch below normal; pulse rate, 80; systolic blood pressure, 110 mm. Hg., and diastolic, 70 mm. Hg. An examination of his urine on the same date resulted as follows: 2,400 c.c.; acid, sp. gr., 1,020; no albumin or sugar found; indican test negative; total urea, 23 grams; microscopical sediment contains many amorphous urates, many phosphate crystals, many epithelial cells, and many bacteria. An examination of his urine on September 11, 1913, when he was in the midst of a cyclic attack, resulted as follows: 1,700 c.c.; slightly acid; no albumin or sugar found; indican test negative; total urea, 20 grams. An examination of his blood on July 18, 1913, when he showed no signs of the cyclic disturbance, resulted as follows: Hemoglobin, 98 per cent. erythrocytes, 5,200,000; leucocytes, 6,000; many blood platelets. Differential count: polymorphonuclears, 55 per cent.; lymphocytes, 40 per cent.; large mononuclears, 2 per cent.; eosinophiles, 1 per cent.; mast cells, 1 per cent.; transitionals, 1 per cent. An examination of his blood on September 11, 1913, when he was in the midst of a cyclic attack, resulted as follows: Leucocytes, 12,000; polymorphonuclears, 75.3 per cent.; lymphocytes, 20.8 per cent.; large mononuclears, 6 per cent.; eosinophiles, 1.3 per cent.; mast cells, 1.3 per cent.; transitionals, 7 per cent.

On September 11, 1913, when in the midst of a cyclic attack, his blood pressure was found to be: systolic, 170 mm. Hg.; diastolic, 110 mm. Hg. His pulse rate was then 60. The nitroglycerin test was tried on him by giving one one-hundredth of a grain of nitroglycerin under the tongue with the following result. His subjective symptoms (previously described) became very much worse, he became faint and nearly lost consciousness; his skin became cold and clammy; his pulse rate fell to 36, and his pulse itself became so soft as to be almost imperceptible to the finger. This exagger-

ated response to the nitroglycerin test passed away in less than half an hour after prompt administration of strychnine and aromatic spirits of ammonia.

The dietetic prescription which was given to him on October 10, 1910, to be taken until further orders, was as follows: *Breakfast:* Any fresh fruit that agrees except berries; also prunes; 2 ounces of dry cereal or 8 ounces of cooked cereal, with milk, cream or butter; 2 ounces of bread with butter; a cup of weak tea or coffee if desired; 8 ounces of milk. *Dinner:* Four ounces of bread with butter; 6 ounces of potato; green vegetables freely from the following list: spinach, lettuce, green peas, green corn, string beans, squash, carrot, and (sparingly) tomato; raw cabbage; 1 to 3 ounces of cream or pot cheese; 1 ounce of rice or macaroni, boiled, with milk or butter; ½ ounce of American cheese if desired; 1 ounce of bacon if desired; small portion of a simple pudding or of ice cream occasionally if desired. *Supper:* Three ounces of bread with butter; 1 to 2 ounces of cream or pot cheese if desired; raw cabbage. *Additions and Substitutions:* Extra milk may be taken in addition, or it may be substituted for part of the bread ration. *Prohibitions:* Everything not on the above list, or included in it by implication, is absolutely prohibited; cane sugar, vinegar, spices, animal flesh, except that which is present in the small portion of bacon allowed, broths made from animal flesh, vegetables difficult of digestion, and fruits difficult of digestion or containing oxalic acid, are specifically as well as generally prohibited.

He has taken this dietetic prescription, with slight modifications, for nearly three years. During one continuous year, from August 6, 1911, to August 5, 1912, he kept an accurate record of all the food which he actually ate. This record shows that he varied his rations from day to day and from month to month, the latter with the seasons, the general average, however, being close to the quantities originally prescribed. Below is given his daily averages for each month of the year of observation ending August 5, 1912:

| | Protein (grams | Calories |
|---|---|---|
| 1911 | | |
| August (6th to 31st) | 66.46 | 2079 |
| September | 66.32 | 2010 |
| October | 68.28 | 2140 |
| November | 69.92 | 2190 |
| December | 74.11 | 2319 |
| 1912 | | |
| January | 75.32 | 2404 |
| February | 71.48 | 2300 |
| March | 64.45 | 2152 |
| April | 67.36 | 2196 |
| May | 61.28 | 2096 |
| June | 57.01 | 2111 |
| July | 61.99 | 2190 |
| August (1st to 5th) | 66.24 | 2255 |

His daily protein ration for the entire year ending August 5, 1912, averaged 67 grams, and his average daily fuel ration had a value of 2,240 calories.

This case presents a number of interesting and suggestive points, among which are the following: (1) The patient gave a marked family history of arthritis deformans. (2) He gave a personal history of a sedentary occupation, of constipation, and of periodical headaches for many years previous to the onset of continuous symptoms. (3) He obtained relief from his continuous and characteristic symptoms by a diet in which the protein derived from animal tissues was scarcely 5 per cent. of the total protein, and in which nearly all of the protein was derived from bread, cereals, milk, and cheese; in which the protein ration was kept at a daily average of about 67 grams, and the fuel ration at a daily average of 2,240 calories; from which cane sugar was particularly excluded, and in which was included a considerable amount of the cellulose of green vegetables. (4) He increased both his protein and fuel rations in the months of December, January and February, and diminished them in the other months. (5) He maintained good general health on this diet and gained in weight and had more endurance than when eating his former conventional diet, but was less energetic and slower in his movements than formerly. Query: Can it be that the protein and fuel rations above mentioned (allowing for percentages not absorbed) are near the minimum health rations for a man of medium size doing very light work? (6) Since taking this diet the keenness of his sense of taste has increased. (7) Although his continuous symptoms disappeared after taking this diet, and his general condition greatly improved, he continued to have periodical attacks with symptoms suggesting cyclic accumulations of intestinal toxins in the blood or cyclic disturbances of the liver. (8) Symptoms resembling those of these cyclic disturbances could be brought on by eating animal flesh, by unusual physical exertion and by excitement. (9) His stools became light yellow in color at the time of the cyclic disturbances during the first two years of the period of observation, but were nearly normal in color after that period. (10) His stools were noticeably offensive in odor only at the time of the cyclic disturbances, after a laxative. (11) His stools were smaller in total quantity while taking the non-putrefactive, anti-constipation diet than formerly when taking the conventional diet. (12) Indicanuria was not a noticeable symptom either at the time of his cyclic disturbances or in the intervals between them. (13) A small dose of a saline laxative taken at night was usually effective in promptly removing the symptoms of his cyclic disturbances. A larger dose of the same saline when taken in the morning was less effective. Vegetable cathartics were generally less effective than salines, though occasionally when the salines failed absolutely to abate the toxemic symptoms, which happened periodically, a large dose of a vegetable cathartic proved effective for that purpose. (14) Raw cabbage, eaten daily, was of great assistance in overcoming his habitual constipation. (15) His blood pressure was raised by the cyclic disturbances. (16) After two years of a non-putrefactive anticonstipation diet the periods between his cyclic disturbances lengthened.

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## TYPHOID SPINE.

### WITH REPORT OF A CASE COMPLICATED BY THROMBOPHLEBITIS OF THE LEFT FEMORAL VEIN.

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THE ravages of the typhoid infection unfortunately do not cease with causing complications of the gravest moment, but sequelæ often occur, which the patient is only too ill prepared to withstand. The spine appears to be relatively more fortunate in escaping than other structures. It will suffice to quote Halpenny's statistics read before the Inter-

national Medical Congress held at Budapest, to show the rarity of spine involvement. After a diligent search of the literature he was able to find only seventy-two cases. A. Frick, writing in 1910, increased the number to eighty. Analysis of the cases collected by Halpenny, Frick, Lord, Silver, and others yields the following data:

Males appear to be more frequently attacked, about 75 per cent. of the cases reported being of that sex. Trauma often acts in a predisposing role. The Eberth bacillus is the exciting agent.

The Germans speak of the condition as a spondylitis, while on the other hand Gibney uses the word perispondylitis to make plain his views concerning the pathology. T. C. McCrae, through radiographs, has demonstrated lesions of the vertebræ. This would seem to be confirmatory of the German idea. Osler departs from both of the above conclusions, claiming that the sequela is a neurosis and that there occurs a purely functional disturbance with no organic lesions.

Pain is a symptom constantly noted and it may be described as being atrocious in character. The lumbar region is usually the seat of the greatest pain, which at times may radiate down the limbs. Pronounced rigidity of the muscles along the lower spine often accompanies. Concomitant nervous manifestations at times noted are muscular twitchings, hyperemotional excitability, and dermatographia. Two cases have been reported, which had a persistent Kernig's sign. In a few instances muscular atrophy has resulted from the neuropathy. Deformities, such as lordosis and kyphosis have followed. It is worthy of note that painful tumefaction with actual pus formation is rare.

Recovery is the rule. Of twenty-one cases analyzed by Cutler, fifteen days was the shortest duration and thirteen months the longest.

The treatment advised by the various authors is, medicinally, nervous sedatives, as the bromides and valerianates; mechanically, immobilization. This has been accomplished by adhesive plaster, plaster bandages, and leather or metal supports. Counter-irritation by blistering with the thermocautery, as originally recommended by Gibney, has often seemed to give relief.

My case, which is rather unique in that it was accompanied by a thrombophlebitis, follows:

G. A.; male; white; age, twenty-five; single, occupation, clerk.

Family history, unimportant.

Previous History.—Health usually good; denies excesses of all kinds; no venereal history; made a trip to Boston by sea during the summer and upon return suffered from fever and general malaise; was seen soon afterwards by Dr. N. P. Barnes, who diagnosed the condition typhoid fever. At Dr. Barnes's request the writer saw the patient on October 8, soon after an intestinal hemorrhage. The case was one of typical typhoid fever with mental hebetude. The nervous system, however, showed no marked signs of involvement.

Present Illness.—On December 18 was able to leave the house, at which time, however, suffered some pain and stiffness in the lumbar region; was unable to stoop without a good deal of effort. The pains gradually became more severe, radiating down the thighs, and became much aggravated on standing or walking; comfort much greater while in a reclining posture. Bowels regular; sleeps poorly.

February 3.—I saw the patient on this day for the first time since his recovery from the fever. He stands with hands on hips, apparently attempting to support the trunk. Nutrition fair; temperature normal; complains of pain and stiffness in lumbar region; spine appears straight; perceptible rigidity of muscles along the lumbar vertebræ.

February 12.—Patient found attempting to get around on crutches. Pain seems relieved while resting on them. Still complains of inability to sleep.

February 14.—In bed; unable to allow the approach of any one without painful twitchings of thigh muscles; is physically unable to leave the bed; emotionally depressed, with tendency to lacrymation. Rigidity of muscles along lumbar spine easily elicited.

March 8.—General condition has not improved; twitching of muscles still continues. Said he had a chill during the night followed by a feeling of warmth; temperature 101°; there had been no fever until this date. Tenderness and rigidity developed over the left inguinal region; unable to turn in bed without assistance; a surgical consultant considered the possibility of pus formation.

March 11.—Removed to the University Hospital; temperature 101°. Blood count, 4,420,000 red cells; hemoglobin, 70 per cent.; white cells, 8,800. Left thigh perceptibly swollen; tenderness extends downward from Poupart's ligament; when necessary to turn patient in bed cries out with pain; spine absolutely rigid.

March 19.—Left thigh still swollen and painful; unable to move in bed without assistance; cries out in apprehension when approached; temperature, 100°; tendency to insomnia still prevails.

April 28.—Improvement has been gradual to this date, when he was able to leave hospital; pain and rigidity along spinal muscles considerably abated; left thigh and leg perceptibly swollen; sleeps well; appetite good.

May 4.—Thigh somewhat swollen; spinal stiffness but slight.

July 1.—Able to return to work on this date. Has gained considerably in weight.

Treatment.—The nervous manifestations were treated symptomatically. Bromides, valerianates, and somnifacients as trional were given as indicated. The thermocautery was used frequently along the spinal muscles and seemed to ameliorate the pain considerably. Immobilization and support were afforded by means of adhesive plaster strapping, which for his comfort was continued during convalescence. The left thigh was kept elevated as much as possible and treated at first by hot fomentations, later an elastic stocking was advised. Tonics, as iron, quinine, and strychnine, were given after the abatement of the acute symptoms.

*Conclusions.*—(1) The chill, fever, tenderness over the inguinal region, followed by swelling of the thigh undoubtedly represented a thrombophlebitis of the femoral vein.

(2) The absence of elevation of temperature until the thrombus formation is worthy of note, for in the majority of case reports, fever is an early symptom.

(3) Undoubtedly in certain cases of typhoid spine there exists an actual involvement of the nervous system. The cases reported with a persistent Kernig's symptom are rather significant and certainly it would be hard to attribute the marked signs of nervous involvement in my case solely to the psychic effect of the intense pain.

(4) The standing with hands on hips to support trunk, together with the relief obtained while resting on crutches, assisted materially in the diagnosis of spinal involvement.

(5) The term perispondylitis, as suggested by Gibney, perhaps expresses the pathological condition accurately in a majority of cases. Actual involvement of the bone, although occurring, must indeed be rare, owing to the infrequency of case reports of pus formation, but the very fact of the presence of such reports would cause the term to be rejected. Typhoid spine is the best general term we have at our disposal for the condition.

I wish to express my thanks for the courtesy extended to me in this case by Dr. N. P. Barnes of this city and my indebtedness for numerous other opportunities he has afforded me for case study.

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## BACILLUS LACTIS BULGARICUS IN INFANTILE GASTROENTERITIS.

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The remarkable results obtained by Clock* in the vomiting and diarrheas of babies by the administration of the *Bacillus lactis bulgaricus* in tablet form led me to try the treatment in a series of cases that came under my care during the months of July and August of the present year. There were fifty-five cases in all. The home conditions of these infants were for the most part wretched, as over ninety per cent. of the parents were very poor, ignorant and superstitious. The cases varied in severity from moderate degrees of infection—six stools a day, to the most grave—twenty and more passages in twenty-four hours. In a few of the babies the stools were blood-stained at the time treatment was begun. The diarrheas had been present anywhere from one day up to a month or more. From three to ten lactic bacillary tablets a day were given to each baby, depending on the gravity of the illness.

Of the fifty-five cases treated, sixteen were breast babies, thirty-two bottle, and seven breast and bottle. The babies ranged in age from a few weeks up to two years; twenty-two were under six months; twenty-five, between six and twelve; and eight between twelve and twenty-four months. Forty-seven were in the first year of life. In thirty-three children there was diarrhea but no vomiting; in twenty there were both vomiting and diarrhea; and vomiting was present alone in two cases. The stools were generally green, watery or curdy, foul, slimy and in a few blood-stained. A temperature over 99° F. was present in twenty cases. Some had a fever as high as 105° F. Some of the patients received no treatment other than the tablets; no starvation, no purgation and no other medication. Seventeen cases received an initial purge of calomel and castor oil and were kept on barley water alone for twenty-four hours or less. As a matter of fact, very few of the mothers of these infants actually kept the babies off milk even for this short period of time. Saline irrigations were used in twenty-seven of the fifty-five cases and bismuth in small doses was administered along with the tablets in thirteen cases. The reason for this will be given further on.

The results obtained were as follows: Forty-three of the children gained in weight outright; two lost; three gained and then later lost, and in seven there was no change of weight recorded. Of the forty-three whose weight increased, twenty-three started with a loss. The babies were weighed once each week, whenever possible. There were no deaths. In all cases, the temperature came down to the normal within one to three days, except in a few, where there was an associated condition such as a bronchopneumonia. Within two or three days after the tablets were used, the stools became yellowish or brown, well-formed, free from curds, mucus, and blood. The number of stools sometimes decreased and sometimes remained unchanged. To the latter children, bismuth subnitrate in tablet form was given in addition to the lactic bacillary tablets with very marked decrease in the frequency of the passages. The tablets seemed to have but slight influence on the vomiting.

While it is not advisable to draw broad general conclusions from so small a number of cases, treated as these were under very trying and unsatisfactory conditions, nevertheless it seems that the administration of the *Bacillus lactic bulgaricus* is a distinct advance in the therapeutics of gastro-enteritis of infants.

356 East Seventy-ninth Street

*Journal of American Medical Association*, Vol. 61, page 164.

## Medicolegal Notes.

**Care and Skill Required.**—In an action for malpractice in resetting the plaintiff's shoulder it was held that if, in performing an operation, a surgeon fails to exercise "a reasonable degree of care and skill" as required by the Georgia Code, he will be liable for any damage which may ensue, without reference to whether he did not possess the requisite amount of skill, or whether he negligently failed to exercise skill which he did possess. The evidence in the case was conflicting, but the evidence for the plaintiff supported her contention that she sustained damage by reason of the unskillful manner in which her dislocated shoulder was reset by the defendant, although a finding would have been authorized that the shoulder was properly set, and the plaintiff's injury was the result of a redislocation brought about by causes over which the defendant had no control. Judgment for the plaintiff was affirmed.—Hinkle v. Smith, Georgia Court of Appeals, 77 S. E. 650.

**Recovery for Services—Evidence of Qualification.**—In an action in the State of New Jersey to recover for the services of a physician rendered in the State of New York, it was held that the facts that (1) the plaintiff had not introduced in evidence his license as a physician and surgeon in the city of New York; and (2) that he had not deposited with the county clerk a copy of any diploma of a legally chartered medical college or university in good standing, or some medical society having power by law to grant diplomas, were not ground for non-suiting the plaintiff.—Corcia v. Guiliano, New Jersey Court of Errors and Appeals, 87 Atl. 94.

**Duty to Reduce Damages by Submitting to Operation.**—When one who has been injured, but is advised by competent physicians that the injury can be remedied by an operation that is ordinarily not dangerous, but refuses to submit to the operation, he is not minimizing his damages, and cannot recover for the sufferings which would be avoided by the needed operation. It is incumbent upon the injured person to submit to reasonable treatment, and to follow the advice of competent physicians.—Donovan v. New Orleans Ry. & Light Co., Louisiana Supreme Court, 61 So. 216.

MEDICAL RECORD.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR

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## THE EPIDEMIOLOGY OF ACUTE ANTERIOR POLIOMYELITIS.

THE noteworthy prevalence of acute anterior poliomyelitis in recent years has afforded opportunities for investigation, of which ample advantage has been taken, and with results that surely are bringing us constantly closer to the solution of an important problem. While the ultimate excitant of the disease has not been definitely isolated to the point of ocular demonstration, it has been shown to consist in a filterable virus susceptible of pathogenic transmission from man to animals and from one animal to another. Also, much has been learned with respect to the modes of conveyance of the causative agent, and something has been accomplished in the direction of prophylaxis and treatment, while we may with confidence look to the near future to unfold a specific therapeusis.

Elaborate studies of all phases of the subject have been made in different parts of the world—and in these our own country has taken no small part—and we may expect before long a clearing up of a number of points still involved in doubt. An admirable piece of work in this connection has been done by Dr. Wade H. Frost, the results of which are contained in Bulletin No. 90 of the Hygienic Laboratory of the United States Public Health Service, recently published. Dr. Frost's observations cover a period of three consecutive years, 1910-1912, and they deal with 799 cases, of which 496 were studied personally.

On the basis of this investigation Dr. Frost expresses the opinion that poliomyelitis is due to a specific infective agent, of which the only demonstrated natural sources are infected human beings, including the obviously sick, convalescents, unrecognized cases, and passive carriers apparently in good health. The infective agent, it has been shown, is contained in the discharges from the respiratory and digestive tracts, is fairly resistant to the destructive agencies encountered in nature outside of the human body, and is capable of gaining access to the tissues of monkeys, and causing infection, through the apparently uninjured nasal mucous membrane; also, though less constantly, through the digestive tract and through the agency of certain biting insects of wide distribution in nature.

The disease is of widespread though infrequent sporadic or endemic occurrence. Within recent years epidemics have occurred throughout a large part of the world, the outbreaks in some instances being circumscribed, while in others they have spread rapidly though irregularly over wide areas. Such epidemics characteristically run a rather rapid course in a given community, declining after a few months or less, after having attacked, so far as is evident, only a small proportion of the total population, usually not more than one in a thousand; and they do not recur in the same locality for a period of not less than two years. In epidemic foci children under the age of five years are attacked much more commonly than are older persons, the entire adult population virtually escaping in some epidemics. These facts can be explained only on the hypothesis that during epidemics the infective agent is widespread, reaching a large proportion of the population, but only occasionally finding a susceptible individual, usually a young person, in whom it gives rise to characteristic morbid effects.

The conclusion that susceptibility to poliomyelitis is comparatively rare and that the incidence of the disease is limited chiefly by a general immunity rather than by the dissemination of the virus explains better than any other hypothesis the epidemiologic peculiarities of the disease, and it is strengthened by the demonstration of the virus in the secretions of well persons. If, in addition, passive carriers are shown to be actually more numerous than clinically recognizable cases of poliomyelitis, then it will be obvious that immunity to the disease is more general than susceptibility.

The only definite conclusion to be drawn from epidemiologic studies is that the infective agent is, during epidemics at least, quite widespread throughout the population affected, the incidence of the clinically recognizable disease being limited by the relatively rare susceptibility to the infection, whatever the route and sources of infection. With respect to susceptibility, age is obviously a factor of importance, susceptibility being generally greatest in the first five years of life, and thereafter progressively diminishing, until in adult life there is a general immunity to natural infection. While this circumstance may be due to a non-specific resistance, developing naturally with maturity, apart from previous exposure to, or infection with, the specific virus of poliomyelitis, a number of facts suggest that the general immunity of adults is specific and developed as the result of previous unrecognized infection. For example, many cases of poliomyelitis occur without the development of paralysis and thus may escape recognition. In the next place, the perennial occurrence of sporadic cases is evidence of the endemicity of the infection. Further, the spontaneous decline of epidemics has been observed in certain localities where only a small percentage of the population has been attacked, with subsequent immunity in such localities, while the epidemic spreads in contiguous localities. The immunity of adults appears relatively greater in large, thickly populated cities than in smaller towns, and especially greater than in rather remote and sparsely populated rural sections. Also, in rural districts the total incidence of epidemic poliomyelitis is higher than in large cities.

## DYSPNEA AND CYANOSIS.

THERE are many sufferers from cardiac and renal disease who at one time or another are troubled with dyspnea. On observation these patients separate themselves readily into two classes, those in whom the dyspnea is accompanied by cyanosis and those who, although suffering extreme distress even while quietly at rest in bed, exhibit no cyanosis. This observation has been made before but until recently there has been no attempt to determine its significance. Thomas Lewis has recently published (*Brit. Med. Jour.*, Nov. 29, 1913; *Heart*, 1913, V, 45) the results of some investigations which he has made with the help of several collaborators. Dyspnea may result from stimulation of the respiratory center by an increase in the $CO_2$ content of the blood. Such dyspnea is practically always accompanied by more or less cyanosis. Dyspnea following exertion is due at first to $CO_2$ concentration but is maintained for long after the blood is properly oxygenated, by the presence in the blood of an excessive amount of lactic acid. Working along this line in cases of so-called cardiac or renal asthma, where cyanosis was absent, they were able uniformly to find "a diminished alkalinity of the blood." It is claimed that "any increase in the acidity of the blood increases the depth and rate of respiration and the connection between these observations is obviously very close." Of course the keystone of the whole work is the method used for the determination of the reaction of the blood. This is based upon the contention that any increase in its acidity means a decrease in the affinity of the corpuscles for oxygen while an increase in the alkalinity means an increased affinity for oxygen. Specimens of blood were exposed to oxygen for a definite length of time and under fixed conditions and their oxygen content determined. These figures were then corrected for the varying hemoglobin content of the specimens examined. Lewis is inclined to believe that dyspnea without cyanosis is due to a condition of acid intoxication and not to the presence of carbon dioxide or alpha oxyacid radicals. It occurs usually in elderly subjects who have lesions in the heart, arteries, and kidneys in varying degrees. He claims that there is no essential difference between cardiac and renal asthma, so-called; and that the dyspnea of the cardiac cases is in reality due ultimately to renal defects.

If it can be properly substantiated this work is really of great importance. It supports Martin Fisher's contention that renal defects are constantly accompanied by an increase in the acidity of the kidney and makes more rational the alkaline treatment which Fisher proposed. If an acid intoxication is the cause of the dyspnea of cardiorenal disease, why may it not be an important factor in the production of uremia as it certainly is in the terminal stages of diabetes? The "vivi-diffusion" experiments of Abel and his co-workers might possibly be used in such an investigation though no attempt has yet been reported to adapt them to the study of disease in man. It is certainly desirable that the investigation be pushed vigorously for chronic nephritis is very largely an unknown territory.

## MODERN ASPECTS OF MENINGOCOCCUS MENINGITIS.

THERE is probably no other disease that more strikingly illustrates the happy results following the cooperation of clinical observation and laboratory research than does epidemic cerebrospinal meningitis. According to Levy, "in no disease are we presented with such favorable conditions for the study of the action of a therapeutic agent on the causative organism and the local inflammatory changes produced by it as in meningococcus meningitis. The treatment takes place under ideal experimental conditions." This quotation is cited in a monograph which has been written by Heiman and Feldstein* of New York. The recent epidemics that prevailed in this city, and the hopes aroused by the introduction of a specific serum in its treatment, have stimulated the study of the many phases of meningococcus meningitis and developed a precision in its management and a special technique in the administration of the curative serum. The chronological arrangement of the bibliographical references indicates clearly the historical advances that have been made in the study of every phase of meningococcus meningitis.

As regards the epidemiology of this disease, the authors point out the irregularity of its progression and diffusion in any given community and the absence of any definite cycle in its recurrence. The relation of healthy carriers to the mode of dissemination of the disease has been carefully studied. Flügge estimated that the number of carriers is ten to twenty times as great as the number of meningitis cases developing during the same period, but recent observations have shown that there are no carriers when no epidemic prevails, or among those who are not exposed to infection. As regards the mode of transmission of the disease there is considerable evidence in support of the view that the infection is carried by droplets from the respiratory tract of infected individuals. Though it has been suggested that the nasopharynx is the portal of entry of this infection, there is no experimental evidence to support this view. Heiman and Feldstein review the data which, although not conclusive, indicate that in meningococcus meningitis there is a primary invasion of the blood and a secondary invasion of the meninges.

The occurrence of meningococcus meningitis in young infants is not as rare as was at one time supposed. Hyperesthesia, rigidity of the neck, and bulging anterior fontanelle are the three most important symptoms of the fully developed disease at this period of life. The Macewen sign is of value only after the anterior fontanelle is closed, while the Kernig and Babinsky signs are of scant diagnostic value in infants under two years of age. The posterior basic meningitis of infants is now established as a definite type of meningococcus meningitis. Pronounced retraction of the head and progressive emaciation are two of the most prominent symptoms.

*"Meningococcus Meningitis," by Henry Heiman, M.D., and Samuel Feldstein, M.D. With introduction by Henry Koplik, M.D. Philadelphia and London: J. B. Lippincott Company, 1913.

Within recent years considerable attention has been paid to the disturbances of respiratory rhythm in meningitis. The irregularities which Conner and Stillman have noted in 95 per cent. of the cases are not as marked in the meningococcus as in the tuberculous variety. There are three kinds of disturbed respiratory rhythm in meningitis, namely, the Cheyne-Stokes, the Biot, and the undulatory types. The frequent deep sighing respirations are regarded as the most striking feature of the Biot type which is observed more frequently in the adult than in the child.

Little difficulty need arise in the diagnosis. The most important symptoms are hyperesthesia, bulging fontanelle in infancy or the Macewen sign in older children and adults, mydriasis on attempted flexion of the head or irritation of the skin, rigidity of the neck, retraction of the head, and the Kernig and Brudzinski signs. Tuberculous meningitis is differentiated chiefly by its slow and insidious onset, by the frequency of photophobia, by the slower and more irregular pulse, by the transitory palsies of the cranial nerves, by the rarity of herpes, and by the less pronounced degree of rigidity of the neck. The other types of meningitis cannot be differentiated in their early stages without the aid of lumbar puncture.

## THE THERMIC TREATMENT OF CANCER.

THERE appears to be a consensus of opinion that cancer is increasing in civilized countries. The statistics quoted by Mr. Frederick L. Hoffmann in his paper read before the recent meeting of the Clinical Congress of Surgeons of North America afford sufficiently conclusive evidence that cancer has increased and is increasing in this country. Indeed, evidence gathered from most countries goes to show that cancer is really increasing. According to the report of the Minister of the Interior of France just issued the cancer death rate in that country shows an increase of 12½ per cent. in five years. This being the situation it is not surprising that the general public as well as the medical profession take an intense interest in any measures suggested as likely to be of a curative and remedial nature. De Keating-Hart of Paris has a paper in the November number of the *Practitioner* on the rational treatment of cancer. Referring to the treatment of what he terms curable cancer he says: "Within the past few years *x*-rays and radium have revolutionized the treatment of cancer condemned as inoperable, and the application of fulguration after an extensive operation has given most gratifying results. Curable cancer may be divided into operable and inoperable. When practicable, an operable cancer should be removed. To submit a growth to the action of the *x*-rays, necessitating a protracted period of therapeutic treatment, involves a great risk of autoinfection; whereas, by excision of the growth and the competent application of fulguration, the patient is given an increased chance of recovery which should not be ignored."

Commenting upon the treatment of inoperable cancer, De Keating-Hart points out that it is not necessarily incurable, as the many successes due to *x*-rays and radium indicate. However, the action of radium is limited, the effective area of Röntgen rays is more extensive, but to secure complete destruction of the tumor, the rays must traverse healthy tissue in such massive doses as seriously to injure its vitality. To counteract this defect of radiation, thermoradiotherapy must be brought into use. The author draws attention to the fact that the radiosensibility of living tissues is governed by a law which is, other things being equal, that the radiosensibility of living cells depends upon their temperature; in other words living cells are more sensitive to destructive agents in general and to *x*-rays in particular, when influenced by heat than when their temperature is low. Thus by heating the tumor itself and by cooling the skin, better results can be obtained than by the ordinary method of Röntgen therapy. De Keating-Hart's conclusions are as follows: (1) In the absence of a general specific treatment for cancer, surgery may cure before the period of general infection. (2) Failure in operation will be very rare if associated with sparking, even after a limited excision. (3) Thermoradiotherapy, association of heat with radiations, will intensify the deep therapeutic value of *x*-rays and of radium in the treatment of many inoperable tumors.

## THE PSYCHOLOGICAL ASPECT OF ATMOSPHERIC SMOKE POLLUTION

THE Mellon Institute of Industrial Research in Pittsburgh has recently instituted investigations into the matter of smoke pollution. There has been established at this institute a smoke investigation staff. One of the staff, Dr. I. E. Wallace Wallin, Director of the Psychological Clinic at the University of Pittsburgh, has published recently a small book dealing with the problem of atmospheric smoke pollution in which he discusses the question mainly from the psychological standpoint. Referring to the mental effects of smoke and smoke-produced weather states Wallin notes that these effects are both direct and indirect. The indirect effects issue from bodily changes produced by smoke or smoke-produced weather states, while the direct effects are due to the influences of the mind's own states upon its subsequent thoughts, disposition, and conduct. He points out that dark clouds have a depressing, devitalizing effect. They may cause fear in children, reduce working efficiency and labor returns, produce eye strain, give rise to disquietude, restlessness, and forboding in the insane, and increase drunkenness. The author concludes by recommending that our knowledge of the mental influence of atmospheric smoke pollution should be rendered more complete by systematic psychological research and indicates the lines upon which such research should be conducted. He brings forward strong arguments in support of the introduction of concerted efforts to control or at least to allay the smoke nuisance. A great deal can be accomplished by arousing public sentiment against the continuance of an evil which after all should not be difficult to abolish or remedy. On esthetic grounds alone there exists sufficient cause for a strong demonstration against the presence of smoke in considerable quantities in the atmosphere and this is one of the least of the objections to smoke.

### Noma.

Noma was a favorite subject for theses in the eighteenth and early nineteenth centuries. Some of it was attributed to abuse of mercurials by yearly reporters. This element, however, could be excluded as a general cause, although the gangrene begins as a stomatitis in certain cases. In modern times the occasional occurrence of a typical noma has led investigators to study the bacteriology of the disease, and the chief conclusion thus far reached is that the affection is due to the parasitism of a spirochete, associated perhaps with other germs, the Vincent couple—spirochete and streptothrix. At a recent session of a Frankfort medical society, Seltz described a case of typical noma. The patient at first developed an ulcerous stomatitis which lasted for six weeks. An ulcer then appeared at the internal angle of the mouth upon the buccal mucosa, and spread rapidly over the right cheek as far as the eyelid. The whole process represented diffuse gangrene, and excision of necrotic tissues could not arrest it. The gangrene progressed, and, together with a putrid bronchitis, carried off the patient. The author believes that the condition originated in the parasitism of Vincent's bacillus along with that of other germs concerning which we know but little.

## News of the Week.

**City Death Rate.**—For the week ending January 10, the death rate in New York City was 14.50 per thousand, the total number of deaths being 1,557. For the same period of last year the rate was 14.68, and the total number of deaths 1,512.

**Harvey Lecture.**—As announced last week, Prof. Sven G. Hedin of the University of Upsala, Sweden, will lecture before the Harvey Society on the evening of January 24, at the New York Academy of Medicine, on "Colloidal Reactions and their Relations to Biology."

**New Hospital Pavilion.**—The new Private Patients' Pavilion of the Flower Hospital at 450 East 54th Street, New York, was opened for inspection on January 17. The building, which is connected with the main hospital by corridors, is six stories high, 140 feet long, and 40 feet wide. The basement contains the main and diet kitchens, dining rooms for the staff, store rooms, etc. On the second floor are the offices and administration rooms; on the second floor semi-private wards containing four to six beds each; on the third floor the maternity ward and private rooms; on the fourth and fifth floors private rooms only; and on the sixth floor the operating rooms. The building is supposed to be fireproof and there is no wood trim in it.

**Alumni Meeting.**—The annual meeting of the Association of the Alumni of the College of Physicians and Surgeons, New York, will be held at the College on the evening of Monday, January 26. The executive session will be called to order at eight-fifteen, and will be followed by the scientific session, which will be under the auspices of the Department of Anatomy of the College.

**Surgeon-General Gorgas.**—On January 17, President Wilson nominated Col. William C. Gorgas to succeed the late General Torney as Surgeon-General of the United States Army. Colonel Gorgas has been an officer in the Army Medical Corps since 1885, and reached the grade of colonel last March. The present appointment is intended as a recognition of the wonderful work which he did in the sanitation of the Panama Canal Zone. At present he is in South Africa acting as a consultant for the British Government in arranging a system for the improvement of sanitary conditions in the diamond mine regions.

**Dr. Biggs for State Commissioner.**—Governor Glynn of New York announced on January 15 his intention to send to the Senate his nomination of Dr. Hermann M. Biggs to be State Commissioner of Health, for a term of five years. Dr. Biggs, who recently resigned as General Medical Officer of the New York City Department of Health, has had a long and wide experience in public health matters, and the State is to be congratulated on his willingness to take up the arduous duties of the State Department. In naming him, Governor Glynn said: "Not a single political recommendation was made in the case of Dr. Biggs. Every request made for his appointment came from some big uplift organization or some prominent man who saw in his selection the establishment of great things in public health work. I believe I have obtained the services of the best man in the country for the administration of the new health laws."

**Health Commissioner Goldwater.**—Mayor Mitchel has appointed Dr. S. S. Goldwater, Superintendent of Mt. Sinai Hospital, Health Commissioner of New York City. Dr. Goldwater was graduated from the University and Bellevue Hospital Medical School in 1901. In 1908 he was appointed an adviser in matters of hospital construction to Bellevue, Harlem, Fordham, and Gouverneur hospitals, and has served also as an adviser to private hospitals, including the Presbyterian and New York hospitals, the Montefiore Home and many institutions in other parts of the country. He is vice-president of the New York Academy of Medicine and is secretary of the Associated Out-Patient Clinics of the City of New York. In 1908 he was president of the American Hospital Association.

**School to Name Hospital Men.**—By an arrangement between the University of Louisville and the City Hospital, the Board of Trustees of the University will hereafter have the sole power of appointment of the medical and surgical staffs of the hospital.

**Centenarian Dead.**—At the reputed age of 110 years Mrs. Nora Sullivan of Potsdam, N. Y., died on January 16. She came to this country from Ireland seventy-five years ago, and for eighty years had been an habitual user of tobacco.

**Preventive Vaccination in Philadelphia.**—A pupil in the Drexel Institute, Philadelphia, returning from a visit to his mother who subsequently developed smallpox, was removed from the school to the Municipal Hospital for Contagious Diseases for observation, and the house in which he roomed and that in which he took his meals were temporarily quarantined. All the lodgers and boarders in the two houses were vaccinated as well as fifty pupils in the Institute and the president and members of the Faculty.

**City Workers' Welfare.**—Commissioner Lederle of the New York City Department of Health has recently formed an organization for welfare work among the employees of the department. It is planned to include the following activities: Investigation of all absences over forty-eight hours;

the keeping of records of the physical condition of the employees; the provision and supervision of a suitable retiring room for women and of a suitable lunch room; the establishment of an open air roof garden for the use of employees during the lunch hour; the organization of a vacation camp for women; and the delivery of lectures on personal hygiene. The Commissioner believes that the efficiency of the department and its employees can be greatly increased by the adoption of such a system.

**Saturday and Sunday Association.**—After an investigation of several months, the Hospital Saturday and Sunday Association of New York at a recent meeting decided to reform its methods of aiding certain hospitals. Heretofore cash has been distributed among those hospitals which announced that they would receive charity cases, but there has been no exact determination of the value of each hospital's services to charity. Hereafter account will be taken of the cost of all free treatments and an allowance of three dollars a day for surgical cases but only seventy-five cents a day for convalescents and incurables will be made. The association will also strike from its roll of beneficiaries all hospitals marked "Grade C" by the State Board of Charity; such institutions will receive this year only 50 per cent. of their former allowance, and next year will be dropped entirely. It was also decided that hereafter no hospital shall be admitted to membership unless it has a minimum of thirty-five beds and has given at least 5,000 days of free treatment a year for three years preceding the date of its admission.

**Bad Hospital Conditions.**—The building of a new hospital for children on Blackwell's Island, the abandonment of the present Infant's Hospital on Randall's Island, and sweeping reforms in the treatment of children throughout the city's whole municipal hospital system, were urged in a report submitted recently to the Board of Estimate by the Hospital Investigating Committee. The report charges that children in the city hospitals are often infected with diseases which they did not have when they were admitted, that surgical cases are not properly cared for and poisoning often develops, and that the cases are not properly classified. The report recommends the employment of resident children's specialists in the city hospitals and the organization of a children's nursing staff under the direction of a specially trained nurse. For the new hospital a site on Blackwell's Island just south of the City Home is selected as desirable, and it is recommended that the new hospital be planned to accommodate ultimately 1,000 children. In the same report a charge of careless treatment of the patients in the Out-Patient Department of Gouverneur Hospital is made, the bad conditions being blamed partly to the present cramped quarters.

**Medical Society Elections.**—AMERICAN COLLEGE OF SURGEONS.—At a meeting of the Board of Regents of the American College of Surgeon, held in New York on January 9, the following officers were elected: *President*, Dr. J. M. T. Finney, Maryland; *First Vice-President*, Dr. W. W. Chipman, Quebec; *Second Vice-President*, Dr. Rudolph Matas, Louisiana; *Treasurer*, Dr. Albert J. Ochsner, Illinois; *General Secretary*, Dr. Franklin H. Martin; *Members of the Board of Regents*, J. M. T. Finney, Maryland; Albert J. Ochsner, Illinois; Franklin H. Martin, Illinois; George E. Brewer, New York; George E. Armstrong, Quebec; John B. Murphy, Illinois; Edward Martin, Pennsylvania; Frederic J. Cotton, Massachusetts; Herbert A. Bruce, Ontario; Charles F. Stokes, Washington, D. C.; William D. Haggard, Tennessee; George W. Crile, Ohio; Robert E. McKechnie, British Columbia; Charles H. Mayo, Minnesota, and Harry M. Sherman, California.

EMMET COUNTY (MICH.) MEDICAL SOCIETY: Annual meeting at Petoskey on December 11. Officers elected: *President*, Dr. L. W. Gardner; *Vice-President*, Dr. L. S. Crotser; *Secretary-Treasurer*, Dr. G. W. Nihart.

NEWTON-NESHOBA-WINSTON TRI-COUNTY (MISS.) MEDICAL SOCIETY: Annual meeting at Newton on December 9. Officers elected: *President*, Dr. J. J. Rush, Philadelphia; *Vice-Presidents*, Dr. G. H. McNeill, Newton, and Dr. T. M. Crosby, Neshoba; *Secretary-Treasurer*, Dr. S. A. Majure, Dixon.

RANKIN-HINDS COUNTY (MISS.) MEDICAL SOCIETY: Annual meeting at Jackson on December 9. Officers elected: *President*, Dr. R. S. Currie, Jackson; *Vice-Presidents*, Dr. R. B. Price, Bolton, and Dr. C. C. Shotts, Pelahatchee; *Secretary-Treasurer*, Dr. J. H. Fox, Jackson.

KAY COUNTY (OKLA.) MEDICAL SOCIETY: Annual meeting at Blackwell on December 10. Officers elected: *President*, Dr. H. M. Strickland, Tonkawa; *Vice-President*, Dr. W. W. Lemmon, Nardin; *Secretary-Treasurer*, Dr. E. J. Orvis, Blackwell.

CLARK COUNTY (OHIO) MEDICAL SOCIETY: Annual meeting at Springfield on December 8. Officers elected: *President*, Dr. James E. Studebaker; *Vice-President*, Dr. Carl Ultes; *Secretary*, Dr. D Pote; *Treasurer*, Dr. W. C. Taylor.

FALL RIVER (MASS.) MEDICAL SOCIETY: Annual meeting on December 10. Officers elected: *President*, Dr. Milne B. Swift; *Vice-President*, Dr. C. A. Howland; *Secretary*, Dr. R. W. French; *Treasurer*, Dr. D. J. Fennelly.

UNION COUNTY (KY.) MEDICAL SOCIETY: Annual meeting at Morgantown on December 3. Officers elected: *President*, Dr. C. P. Cottingham, Uniontown; *Secretary*, Dr. Henry B. Allen, Morganfield.

FAYETTE COUNTY (KY.) MEDICAL SOCIETY: Annual meeting at Lexington on December 9. Officers elected: *President*, Dr. C. L. Wheeler; *Vice-President*, Dr. L. H. Mulligan; *Secretary-Treasurer*, Dr. L. C. Redmon.

COLBERT COUNTY (ALA.) MEDICAL SOCIETY: Annual meeting at Tuscumbia on December 10. Officers elected: *President*, Dr. W. H. Green; *Vice-President*, Dr. W. A. Finley; *Secretary-Treasurer*, Dr. J. T. Haney.

CHILTON COUNTY (ALA.) MEDICAL SOCIETY: Annual meeting at Mountain Creek on December 3. Officers elected: *President*, Dr. J. P. Hayes; *Secretary*, Dr. T. J. Marcus.

MARICOPA COUNTY (ARIZ.) MEDICAL SOCIETY: Annual meeting at Phoenix on December 6. Officers elected: *President*, Dr. Roy Thomas; *Secretary*, Dr. W. Warner Watkins; *Treasurer*, Dr. E. S. Godfrey, Jr.

FRANKLIN COUNTY (ARK.) MEDICAL SOCIETY: Annual meeting at Ozark on December 7. Officers elected: *President*, Dr. T. B. Blakely, Coal Hill; *Vice-President*, Dr. E. D. Warren, Ozark; *Secretary-Treasurer*, Dr. Thomas Douglass, Ozark.

DES MOINES COUNTY (IA.) MEDICAL SOCIETY: Annual meeting at Burlington on December 10. Officers elected: *President*, Dr. A. C. Moerke; *Vice-*

*President*, Dr. R. F. Karney; *Secretary*, Dr. E. A. Hunt.

Iowa City (Ia.) Medical Society: Annual meeting on December 4. Officers elected: *President*, Dr. C. S. Chase; *Vice-President*, Dr. Mildred Sheetz; *Secretary*, Dr. Z. W. Stewart.

Walker County (Ala.) Medical Society: Annual meeting at Jasper on December 16. Officers elected: *President*, Dr. A. M. Waldrop, Cordova; *Vice-President*, Dr. Orizaba Manasco, Townly; *Secretary-Treasurer*, Dr. James L. Sowell, Jasper.

Peoria (Ill.) City Medical Society: Annual meeting on December 16. Officers elected: *President*, Dr. Sumner M. Miller; *Vice-President*, Dr. Charles D. Thomas and Dr. Jabas F. Cooper; *Secretary*, Dr. Elbert W. Oliver.

Lauderdale County (Miss.) Medical Society: Annual meeting at Meridian on December 13. Officers elected: *President*, Dr. T. D. Bourdeaux; *Vice-President*, Dr. K. T. Klein; *Secretary-Treasurer*, Dr. G. F. Douglass.

Pettis County (Mo.) Medical Society: Annual meeting at Sedalia on December 15. Officers elected: *President*, Dr. W. A. Beckemeyer; *Vice-President*, Dr. Guy Titsworth; *Secretary*, Dr. F. B. Long; *Treasurer*, Dr. W. J. Wills.

Polk County (Mo.) Medical Society: Annual meeting at Morrisville on December 13. Officers elected: *President*, Dr. R. Lee Russell, Bolivar; *Secretary*, Dr. J. F. Roberts, Bolivar.

Yankton District (S. D.) Medical Society: Annual meeting at Yankton on December 15. Officers elected: *President*, Dr. Charles M. Keeling, Springfield; *Vice-President*, Dr. M. Herzberg, Vermilion; *Secretary-Treasurer*, Dr. James Roane, Yankton.

Elmore County (Ala.) Medical Society: Annual meeting at Wetumpka. Officers elected: *President*, Dr. Jesse Gulledge; *Vice-President*, Dr. E. P. Moon, Wetumpka.

Mobile County (Ala.) Medical Society: Annual meeting at Mobile on December 13. Officers elected: *President*, Dr. R. A. Wright, Mobile; *Vice-President*, Dr. J. T. Inge; *Secretary*, Dr. W. W. Scales; *Treasurer*, Dr. Angelo Festorazzi.

Iowa County (Ia.) Medical Society: Annual meeting at Davenport on December 11. Officers elected: *President*, Dr. Charles F. Noe, Amana; *Vice-President*, Dr. L. B. Amick, Millersburg; *Secretary*, Dr. George F. Schug, Williamsburg.

Muscatine County (Ia.) Medical Society: Annual meeting at Muscatine on December 30. Officers elected: *President*, Dr. E. K. Tyler; *Vice-President*, Dr. A. R. Leith, Wilton; *Secretary-Treasurer*, Dr. W. H. Johnson, Muscatine.

Rock County (Wis.) Medical Society: Annual meeting at Janesville on December 29. Officers elected: *President*, Dr. J. W. Kiethley, Beloit; *Vice-President*, Dr. Guy C. Waufle, Janesville; *Secretary*, Dr. Fred E. Sutherland, Janesville.

Missoula County (Mont.) Medical Society: Annual meeting at Missoula on December 27. Officers elected: *President*, Dr. S. H. McCall; *Vice-President*, Dr. George F. Turman; *Secretary-Treasurer*, Dr. Allen G. Fuller.

Blue Earth County (Minn.) Medical Society: Annual meeting at Mankato on December 29. Officers elected: *President*, Dr. G. A. Dahl, Mankato; *Vice-President*, Dr. T. G. Clement, Vernon Center; *Secretary*, Dr. R. N. Andrews, Mankato; *Treasurer*, Dr. Lida Osborn, Mankato.

Jackson County (Ill.) Medical Association: Annual meeting at Duquoin on December 26. Officers elected: *President*, Dr. J. W. Barrow, Carbondale; *Vice-President*, Dr. C. E. Riseling, Murphysboro; *Secretary-Treasurer*, Dr. R. B. Essick, Murphysboro.

Orleans Parish (La.) Medical Society: Annual meeting at New Orleans on December 13. Officers elected: *President*, Dr. C. N. Chaviguy; *Vice-Presidents*, Dr. L. R. De Buys, Dr. M. Thomas Lanaux, and Dr. William H. Block; *Secretary*, Dr. E. L. King; *Treasurer*, Dr. George H. Upton.

Greene County (Mo.) Medical Society: Annual meeting at Springfield on December 12. Officers elected: *President*, Dr. G. B. Lemmon; *Vice-President*, Dr. O. C. Horst; *Secretary*, Dr. T. O. Klingner; *Treasurer*, Dr. D. B. Farnsworth.

Monmouth County (N. J.) Medical Society: Annual meeting at Asbury Park on December 16. Officers elected: *President*, Dr. R. S. Bennett, Mayor of Asbury Park; *Vice-President*, Dr. E. M. Beach, West Long Branch; *Secretary*, Dr. L. D. Wise, Long Branch; *Treasurer*, Dr. W. A. Robinson, Ocean Grove.

Columbia (S. C.) Medical Society: Annual meeting at Columbia on December 16. Officers elected: *President*, Dr. F. Asbury Coward; *Vice-President*, Dr. P. V. Mickell; *Secretary-Treasurer*, Dr. Edith Welborn.

McNairy County (Tenn.) Medical Society: Annual meeting at Selmer on December 18. Officers elected: *President*, Dr. E. M. Smith, Bethel Springs; *Vice-President*, Dr. H. C. Sanders, Lawton; *Secretary-Treasurer*, Dr. T. G. Jackson.

Tarrant County (Tex.) Medical Society: Annual meeting at Fort Worth on December 22. Officers elected: *President*, Dr. S. A. Woodward; *Vice-President*, Dr. J. A. Gracey; *Secretary*, Dr. Frank Sanders.

Sheboygan County (Wis.) Medical Society: Annual meeting at Sheboygan on December 19. Officers elected: *President*, Dr. J. A. Junck; *Vice-President*, Dr. J. C. Tasche; *Secretary-Treasurer*, Dr. G. Edmund Knauf.

College of Physicians of Philadelphia.—At a stated meeting on January 7 Dr. Frederick P. Henry read a memorial to the late Dr. Richard Clenmann. The following officers were re-elected for the ensuing year: *President*, Dr. James C. Wilson; *Vice-President*, Dr. Richard H. Harte; *Secretary*, Dr. Thomas R. Neilson; *Treasurer*, Dr. John B. Roberts; *Honorary Librarian*, Dr. Frederick P. Henry.

Nashville (Tenn.) Academy of Medicine: Annual meeting at Nashville on January 6. Officers elected: *President*, Dr. Duncan Eve, Jr.; *Vice-President*, Dr. W. E. Hibbett; *Secretary*, Dr. John F. Gallagher.

San Antonio (Tex.) Academy of Medicine: This institution, the first of its kind in the State, was chartered last December, for the advancement of medical science, research, and investigation.

York County (Me.) Medical Society: Annual meeting at Biddeford on January 7. Officers elected: *President*, Dr. J. W. Gordon, Ogunquit; *Vice-President*, Dr. Joseph M. O'Connor, Biddeford; *Secretary*, Dr. A. L. Jones, Old Orchard; *Treasurer*, Dr. Charles F. Traynor, Biddeford.

**Obituary Notes.**—Dr. Mary J. McCleery of New York, a graduate of the Woman's Medical College of the New York Infirmary for Women and Children in 1877, died suddenly at her home on January 12, aged 70 years.

Dr. Thomas Judson Wright of Norfolk, Va., a graduate of the George Washington University, Department of Medicine, Washington, in 1870, and of the Bellevue Hospital Medical College, New York, in 1871, died at St. Christopher's Hospital, as the result of injuries caused by a fall from his horse two weeks before, on December 15, aged 68 years.

Dr. John G. Cecil of Louisville, Ky., a graduate of the Hospital College of Medicine, Louisville, in 1879, until recently professor of the principles of medicine and of clinical medicine in the University of Louisville, Medical Department, a member of the American Medical Association, the Kentucky State Medical Association, of which he was at one time president, and the Jefferson County Medical Society, died at his home, after a lingering illness, on December 13, aged 58 years.

Dr. Alexander O. Erskine of Memphis, Tenn., a graduate of the New York University Medical College in 1858, a veteran of the Civil War, having served as a surgeon with the Confederate Army, professor of obstetrics and pediatrics in the Memphis Hospital Medical College from 1885 to 1906, and since that time emeritus professor, at one time dean of the college, and from 1902 to 1910 a member of the attending staff of the Memphis City Hospital, and a member of the Tennessee State Medical Association, the Tri-State Medical Society, and the Shelby County Medical Society, died at his home on December 13, aged 81 years.

Dr. Alvaro E. Mossman of Westminster, Mass., a graduate of the Bellevue Hospital Medical College, New York, in 1884, a member of the Massachusetts State and Worcester North District Medical Societies, and pathologist and attending physician to the Henry Heywood Hospital, Gardner, died suddenly at his home, from angina pectoris, on December 19, aged 56 years.

Dr. Jesse Franklin Frisbie of Newton, Mass., a graduate of the Harvard Medical School, Boston, in 1861, assistant surgeon in the United States Navy in 1862 and 1863, and from 1864 to 1865 in charge of the Wisewell Barracks Hospital in Washington, D. C.; a practicing physician in Newton since 1872, formerly a member of the staff of the Newton Hospital and of the Newton Board of Health, and a member of the Massachusetts State and Middlesex South District Medical Societies, died at his home, after a short illness, on December 17, aged 75 years.

Dr. Howard Beck Reed of Sea Bright, N. J., a graduate of the College of Physicians and Surgeons, New York, in 1910, died at the Neurological Institute, New York, on December 27, aged 29 years.

Dr. Juan Domingo Fernandez of Jacksonville, Fla., a graduate of the Medical College of Virginia, Richmond, in 1870, a member of the American Medical Association, the Florida Medical Association, of which he was the secretary-treasurer, and the Duval County Medical Society, and secretary of the Regular Board of Medical Examiners of the State died at his home on December 15, aged 65 years.

Dr. W. S. Woolford of Kingsland, Ark., a graduate of the University of Arkansas, Medical Department, Little Rock, in 1884, a member of the American Medical Association and the Arkansas and Cleveland County Medical Societies, died at his home, after a lingering illness, on December 16.

Dr. Noel M. Darden, formerly of Norwood, Ga., a graduate of the Medical College of Georgia, Augusta, in 1879, died at his home in Atlanta, after a long illness, on December 4, aged 58 years.

Dr. Robert A. Smith of New Castle, Ind., a graduate of the Physio-Medical Institute, Cincinnati, O., in 1870, and a member of the Indiana State and Henry County Medical Societies, died after a short illness, on December 15, aged 67 years.

Dr. Thomas Elwood Parker died at Woodbury, N. J., on December 29, as the result of an attack of apoplexy, at the age of 59 years. He was graduated from Hahnemann Medical College and Hospital in the class of 1889. He was secretary of the local Board of Education and of the Gloucester County Historical Society and Medical Inspector of Schools.

Dr. Michael A. Jordan of Logansport, Ind., a graduate of the Medical College of Ohio, Cincinnati, in 1876, died at the Johns Hopkins Hospital, Baltimore, from cancer of the stomach, on December 13, aged 58 years.

Dr. Felipe Martinez of San Francisco, Cal., a graduate of the National College of Medicine of Mexico in 1870, died at his home, after a brief illness, on December 10, aged 72 years.

Dr. Marshall R. Borst of Glen Elder, Kan., a graduate of the College of Physicians and Surgeons, Keokuk, Ia., in 1888, and a member of the Kansas and Mitchell County Medical Societies, died at his home from paralysis, on December 23, aged 58 years.

Dr. David Steiner of Lima, O., a graduate of the University of Michigan, Department of Medicine and Surgery, Ann Arbor, in 1883, a member of the American Medical Association, the Ohio State Medical Association, and the Allen County Medical Society, having served as vice-president and president, respectively, of the latter, consulting surgeon of the Lima Hospital, and a trustee of the Lima District Tuberculosis Hospital, died at his home from typhoid fever on December 27, aged 57 years.

Dr. Henry Banga of Chicago, Ill., a graduate of the University of Basel, Switzerland, in 1875, professor of gynecology in the Chicago Polyclinic, and a member of the American Medical Association, the Illinois State and Chicago Medical Societies, and the Chicago Gynecological Society, died suddenly, while performing an operation at the home of the patient, on December 24, aged 65 years.

Dr. James A. J. McDonald of Santa Rosa, Cal., a graduate of the College of Physicians and Surgeons, San Francisco, in 1898, died recently in San Fransisco, aged 62 years.

Dr. Adolph E. Linder of East St. Louis, Ill., a graduate of the American Medical College, St. Louis in 1896, died at his home on December 27, aged 43 years.

Dr. Max Dantes of New York, a graduate of the Bellevue Hospital Medical College, New York, in 1893, died at his home, after a long illness on January 8, aged 41 years.

Dr. Niles M. Miller, formerly of Philadelphia, a graduate of the University of Pennsylvania, Department of Medicine, in 1881, died at his home at Avon-by-the-Sea, N. J., on January 6, aged 69 years.

Dr. William J. E. Rush of Allentown, Pa., a graduate of the Medico-Chirurgical College of Philadelphia in 1896, died at his home on January 6, aged 40 years.

Dr. William L. Broaddus of Bowling Green, Va., a graduate of the New York University Medical College in 1868, a member of the Medical Society of Virginia, and a veteran of the Civil War, having served throughout in the Confederate Army, died at his home on January 4, aged 67 years.

# Correspondence.

## PUBLICITY.

*To the Editor of the* MEDICAL RECORD:

SIR:—The following letter was written a year ago to a newspaper which shall be nameless. It was not published:

"During a recent meeting of the American Association for the Advancement of Science, there appeared on an inner page of a Cleveland newspaper in large capitals the heading, 'Would Sterilize Defectives.' Due perhaps to hurried publication or perhaps to labor union affiliation, the 'f' in defectives was mentally changed to 't' by the person who arranged the table of contents on the first page of the newspaper, so that the heading in this later position read, 'Would sterilize sleuths.' There is much 'newspaper medicine' of this variety. The better sense of the medical profession deprecates newspaper publicity, especially in connection with the announcement of new results, since such publicity tends to raise hopes which are not justified in one case out of a thousand. For example, within a year a newspaper announcement of a foreign 'cure for cancer' led a physician to remark that within twenty-four hours some fake would be reported on this side of the water, and, sure enough, a Brooklyn physician announced the following day that he had been using the same 'cure' for two years with great success. It can be positively stated that, at the present time, no cure for cancer is known. The newspaper announcement of alleged 'cures' may simply cause the reaping of a harvest by the charlatan. Newspaper publicity also often leads to the exploitation of an individual who, however great his work, is certainly hurt in the eyes of the rank and file of laboratory workers who may be acquainted with the fact that greater credit attaches to the work of some man unknown and unknowable to the newspaper office." GRAHAM LUSK.

NEW YORK.

## OUR LONDON LETTER.

(From Our Regular Correspondent.)

CONGRESSES TO COME—HONORS AT THE NEW YEAR—INSURANCE AND CONTRACT PRACTICE—PANEL AND NON-PANEL—NATIONAL MEDICAL UNION—BRITISH MEDICAL ASSOCIATION'S CONSTITUTION, FINANCES, AND JOURNAL—OBITUARY.

LONDON, January 2, 1914.

THE number of medical congresses for the year 1914 seems larger than ever: including exhibitions and conferences and those on nursing and hygiene I have a list before me of twenty-five of which the dates are announced, twelve of them calling themselves International. Besides these there are about a dozen international ones which will become due in the two following years according to their usual periods of meeting.

The list of honors conferred by the King on the opening of the New Year contains the names of thirteen members of the profession. Sir A. Geikie is given O.M. (Order of Merit); Surgeon-General May is made Hon. Physician to the King; Surgeon-General Sloggett receives knighthood, so do Prof. H. B. Cullen (Melbourne), Dr. T. B. Nariman (Bombay), and Professor Rutherford, Sir Rickman Godlee, and Sir Job Collins are given the K.C.O.V.; William Stafford of the Irish L. G. B. gets a baronetcy, and Sir C. Nixon a P.C. for Ireland; Surgeon-General Hathaway the C.B.; Major Robertson the C.I.E.; Dr. Stokes the Kaisur-Hind medal, as do Dr. Carleton and Rev. J. Shepherd.

We have now had nearly a year's experience of the medical revolution brought about by the Insurance Act and the question whether it has proved a benefit or otherwise is again being discussed by the public. Advocates of committing to the state every kind of service that can be contracted for are numerous and active. They speak of free choice of doctor as a mere fancy and tell you that fourteen millions of people are already on the panel and are as well satisfied and as carefully attended as under the superseded Poor Law Service. There is some truth in this but they forget to add that the older system never gave real satisfaction—a fact which led to the Poor Law Commission on which the advocates of this Fabian policy although in a minority managed to force their views. The great public is as indifferent as usual. It seems always much easier to excite a desire for change than to induce those who are contented to oppose interference. The advocates of complete State Service declare that under it the choice of the doctor is no more restricted than under the Poor Law and the Club system. There is sufficient truth in this statement to make it plausible to those it does not affect and who do not think it out. But those who have witnessed the working of those plans know how misleading it is. The club elected the doctor for the year and every member could vote. The parish doctor was appointed by the guardians and the poor patients had no voice in the matter; they were receiving parish relief, including medical attendance, and of course there was no desire to increase their numbers.

The Insurance Act came as a political scheme to organize the profession on a contract basis and work it on the pattern of the civil service. But such a plan had never succeeded where attempted and the English public would never have consented to give up the free choice of their doctors. The panel system was therefore adopted as a step in the direction and forced on the profession by a socialistic and determined government. Resistance was aroused and proved so powerful that the acute Chancellor of the Exchequer had to raise his price whereupon a stampede to the panel took place and that a not very creditable one, for it included many who had loudly declared they never would consent, seeing which the weaker men followed. The élite of the profession of course held aloof and after a time the non-panel men found it convenient to combine and many local societies were formed. These soon found it necessary to federate, and in November, as I reported to you, a meeting was held at which a committee or council was appointed to organize a plan under the title of the "National Medical Union." Yesterday this body met and issued a statement of the policy they have formulated, viz.: (1) To maintain the freedom of the relations between the profession and the public. (This obviously includes the chief point at issue—free choice of doctor.) (2) To support the public in this and to safeguard national health. (3) To oppose the present arrangements under the acts and decline service under them. The union is to be independent of politics and will not interfere with the British Medical Association. It is in fact to be composed only of non-panel men and devoted entirely to non-panel interests. Every non-panel man is eligibile and is earnestly desired to join.

The managing group of the British Medical Association seem to have little difficulty in effecting their purpose of changing its constitution. The alterations they desired in the memorandum of association which were approved, as I informed you, at the extraordinary meeting early in December were required to be confirmed at a general meeting. An extraordinary general meeting for this purpose was summoned for December 23, on

which date there was not a quorum and the meeting stood adjourned until the 30th. On this date the indifference of members had been sufficiently overcome to bring thirteen together, and of these twelve voted the confirmation of the changes. It may surprise many that their apathy has handed them over to the small ruling clique and already it is being said that the constitution permitting a dozen to determine the interests of thousands is a *reducto ad absurdum*. It will surprise them more to learn that at a meeting under the circumstances of this last no quorum is required and that the presence of one member would have sufficed. It would however be a nice legal point to determine whether the word *meeting* would not demand two persons at least.

It looks as if the constitution had been designed on purpose to enable a few to engineer its proceedings and that has almost always been done. It is true that if the members were determined to take any trouble they might carry some point, but not by a mere resolution at a general meeting, for such a decision has been at times actually disregarded. The effect of the changes now decided on is to extend the powers of the association generally, but a proviso is that it shall not support with funds or endeavor to promote any regulation or condition which would tend to make the association a Trade Union. Another effect enables the council to carry out their project of raising the price of the *Journal* to 2 guineas. They have promptly proceeded to do so and must have prepared in advance the circular demanding remittance of that sum for the decision passed on the 30th ult. and yesterday by the first post of the new year it was delivered to members. It is obvious that any member disapproving the changes to the extent of resigning—and many threats of doing so had been in circulation—had only a single day to do it before becoming liable for the new subscription. The suggestion that such sharp practice is the custom of the council seems harsh though it is likely enough that they reckoned on the usual apathy of members. But I do not suppose they would try to enforce payment on any one who objected under such circumstances. Time will show whether many will actually resign and the promise to devote the increased income to the defence of the profession may avail somewhat. No doubt there will be some resignations for one hears many have taken the step and many more say they will.

The greatest offence seems to be adding to the price of the journal which is declared not worth the price, but above all it is declared to be conducted in the most extravagant manner. It is certainly amazing that with a circulation of so many thousands and an advertising connection of as many thousands a year that a loss should result. Any publisher or printer would be glad to contract for its production and pay handsomely for the privilege of making a good profit for himself.

Dr. Hills Harris who qualified in 1844 at the two Royal Colleges and practised for many years but had long since retired, has died in the ninety-first year of his age.

Dr. Bertram Thornton, M.O.H., and consulting surgeon to the Hospital, Margate, has died there in his fifty-seventh year. He held a number of other offices in the town, among them surgeon to the police, medical officer for the borough schools, and for the post office.

Mr. W. Booth Pearsall, F.R.C.S.I., was for many years leading dental surgeon in Dublin and the founder of the Dental Hospital of Ireland. He qualified at the Dublin Royal College of Surgeons in 1866 and devoted himself to dental surgery. He was elected a Fellow of the College in 1875 and appointed to a lectureship there. He was the organizer and honorary secretary of the first meeting of the British Dental Association in Ireland in 1888.

## OUR PARIS LETTER.

(From Our Regular Correspondent.)

CONGRESS OF FRENCH PEDIATRISTS—OBESITY IN CHILDHOOD — FRÖHLICH'S SYNDROME — FRENCH SURGICAL ASSOCIATION—THE OPEN TREATMENT OF ANKYLOSES—OBITUARIES: PONCET, TENNESON.

PARIS, December 1, 1913.

THE Congress of French Pediatrists was held in Paris from the third to the seventh of October under the presidency of M. Nette. Obesity in childhood was the first subject under discussion. Le Gendre in his paper assigned an important place in this condition to heredity. Most of the children belong to families that have been addicted for generations to overfeeding. The important exciting factors are insufficiency of the vascular glands, endogenous intoxications, and certain exogenous poisons as alcohol and lead. Among the symptoms may be noted the absence of cardiac troubles which are rather common in adults. The prognosis is not grave. The chances are that many of these children will reach adult life and will become more obese. Some of them will lose their fat with the development of the genital organs at puberty. The treatment is the same as in the adult. In pronounced cases passive muscular exercises, produced by the electrical method devised by Bergonié, are of great value. In almost all cases the treatment is rendered difficult by the fact that the children eat an excessive amount of food.

G. Mouriquand of Lyons devoted his attention to the study of the syndrome adiposo-genitalis. In 1901 Fröhlich described the following triad of symptoms as constituting this syndrome: a lesion of the hypophysis, almost always neoplastic; marked obesity; and atrophy or retarded development of the genital organs. Sometimes the hypophysis is involved only indirectly. This occurs in certain cases of hydrocephalus. Experimentally ablation of the hypophysis has resulted in the production of this syndrome. There is in these cases an increased tolerance for carbohydrates. From the viewpoint of therapeutics surgery has given some relief in cases of tumor of the hypophysis. The *x*-rays have been of some value, and the administration of hypophysis extract alone has been of less value than when this is combined with testicular and thyroid extracts.

In the discussion M. Geimon alluded to the frequent association of obesity and tuberculosis. M. Hallé also noted this coexistence, and pointed out the danger of the thyroid treatment in obese children affected with tuberculosis. Léopold Lévy has not observed any good results following the use of thyroid extract in these cases, except in the case of girls from 16 to 20 years of age.

The seventy-sixth annual congress of the French Surgical Association convened at Paris, October 6. under the presidency of Professor Kumisson. A. Baumgartner discussed the subject of the open treatment of ankyloses. He noted that the surgical measures consisted in resections, the interposition

of foreign bodies, the interposition of soft parts attached to a pedicle, the simple transplantation of tissues, and articular grafts. Simple resection has given good results at the knee, at the elbow, and at the wrist, and, best of all, at the shoulder and hip. The use of foreign bodies has generally been abandoned. Living flaps, particularly if consisting of adipose tissue, aponeurotic membrane, peritoneum, hernial sac, etc., is of value particularly in adults. Articular grafts may be total or partial. The grafting of entire joints was demonstrated as feasible in experiments performed on animals by Judet and was practised on human beings by Lexer, Kuttner, and others. The authors gave preference to the procedure of interposing muscle tissue between the joint surfaces. The mental attitude of the patient must be considered. The patient must cooperate in every way with the surgeon. It is important to extirpate every vestige of the morbid tissue that has produced the ankylosis. Denucé of Bordeaux described the surgical procedures applicable in the treatment of particular ankyloses.

Professor Poncet who died recently at the age of 57 years was one of the distinguished figures of the Lyons school. He finished at Paris the studies that he began at Lyons in the service of Ollier. Agregé in Paris in 1879, he returned to Lyons where he was appointed professor of operative surgery in 1882. In 1890 he became professor of clinical surgery. At first his attention was devoted exclusively to surgery; later his interests became more and more scientific. He formulated new theories of asepsis and antisepsis. His operative skill and his gift of teaching made him one of the leaders in the Lyons school. He collaborated in the "Treatise on Surgery" with Duplay and Reclus, writing the articles on the injuries of the bones and articulation. His work on actinomycosis, written in collaboration with Bérand, is classic. The later years of Poncet's life were devoted to the study of tuberculous inflammation. He delineated a type which he characterized as tuberculous rheumatism.

Tenneson, one of the most noted of French dermatologists, recently passed away. He was among those who were originally opposed to the use of Koch's tuberculin. His work on uremic paralysis, on the aberrant forms of zoster, and the relation between erythema nodosum and syphilis and tuberculosis, and his excellent treatise on dermatology have all added to his renown.

## Progress of Medical Science.

### Boston Medical and Surgical Journal.

*January 5, 1914.*

1. The Effect of Digitalis on the Blood-Pressure and Pulse Pressure in the Presence of Cardiac Decompensation. C. H. Lawrence.
2. Rectal Alimentation. H. W. Goodall.
3. A Study of Leukemia. A. M. Burgess.
4. The Office of Coroner and the Medical School at Syracuse. H. G. Weiskotten.
5. A Simple and Effective Method for Disinfection of Typhoid Stools. H. Linenthal and H. N. Jones.
6. Cancer of the Lower Lip. J. C. Bloodgood.

**1. Effect of Digitalis on Blood-Pressure and Pulse Pressure.**—C. H. Lawrence points out that in the majority of writings upon digitalis, it is stated that one effect of the drug is to raise the systemic blood pressure, and that for this reason its use is contraindicated in those conditions in which an increase of circulatory tension might give rise to unfortunate results. On the basis of work already done on animals and normal individuals the conclusion has been reached that digitalis causes a rise in blood pressure when administered to individuals suffering from cardiac decompensation. As the result of observations reported on twenty-five cases taken at random from the records of the Massachusetts General Hospital the following conclusions were come to: (1) The effects of various drugs on the blood pressure as determined by experiments on animals do not furnish reliable criteria for the administration of such drugs to man since the effect may be quite different in the latter. (2) The pressure-raising effect of digitalis noted in animals and in healthy individuals does not occur, as a rule, when the drug is administered to individuals suffering from cardiac decompensation. (3) The cause of the cardiac decompensation does not appear to affect the action of the drug. (4) Digitalis preparations may be safely administered to patients suffering from arteriosclerosis, angina pectoris, or nephritic hyperdistension, if cardiac decompensation is present; under such conditions it rarely causes a rise in blood pressure.

**5. Disinfection of Typhoid Stools.**—H. Linenthal and H. N. Jones give an account of testing a method for disinfecting typhoid stools in a practical and effective manner which requires only such utensils as are available in every household and so simple as to require little intelligent effort on the part of the attendant. Such a method was described by Dr. Prausnitz of Austria at the fifteenth International Congress on Hygiene and Demography, held in Washington in September, 1912. The method was devised by Dr. A. M. Kaiser in the Hygiene Institute of Gratz University. It consists of adding enough hot water to cover the stool in the receptacle and then adding about one-fourth of the entire bulk of quicklime (calcium oxide), covering the receptacle and allowing it to stand for two hours. The hydration of the lime generates enough heat to destroy the typhoid organism. Linenthal and Jones believe that this is a simple, efficacious method and should take the place of the various methods now recommended by local boards of health.

### New York Medical Journal.

*January 10, 1914.*

1. Anoci Association. G. W. Crile.
2. Important Factors which Influence the Immediate and the End Results of Surgical Operations. W. E. Lower.
3. Antiseptics versus Germicides. R. T. Norris.
4. Hunger Pain and Its Significance. J. J. Gilbride.
5. Intestinal Kinks: Their Diagnosis and Treatment. J. S. Haynes.
6. The Effect of Intraperitoneal Injections of Ozone in Animals Following Infections with Virulent Bacteria. S. E. Finch.
7. Wesley's System of Medicine. W. E. Riddle.
8. A Case of Acute Lymphocyte Leucemia. J. Balligi.

**1. Anoci Association.**—G. W. Crile formulates the objections to ether anesthesia and states that these objections led him and his co-workers to turn to nitrous oxide, an anesthetic pleasant to take, devoid of baneful after results, and serving as a measurable protection against shock, and goes on to point out that to carry out the principle of anoci association requires a careful and expensive technique. The preoperative strain must be reduced by the hypodermic administration of morphine and scopolamine; an inhalation anesthetic must be used to exclude the psychic stimulation of the brain cells in the course of the operation, and the anesthetic of choice should be nitrous oxide, which is unsafe in the hands of any but a skilled anesthetist; a local anesthetic must be used progressively in the course of the operation to protect the brain from local operative injury; and finally the postoperative effects must be eliminated by a local anesthetic of lasting effect. A detailed description is given of the technique in abdominal and goiter operations and full explanations as to why the numerous unpleasant sequences of operations under ordinary anesthesia and

ordinary circumstances are absent after operation under anoci association. Crile states that comparing the last 1,000 operations performed by his associates, Dr. Lower and Dr. Sloan, by his resident staff at Lakeside Hospital and by himself before they adopted the fully developed anoci technique with the last 1,000 operations, they find that in the former the mortality rate was 4.6 per cent., while in the last 1,000 anoci operations the mortality rate was 0.8 per cent.

4. **Hunger Pain and Its Significance.**—J. J. Gilbride says the term hunger pain was first suggested by Moynihan and applied to the pain that occurs when the patient is beginning to feel hungry. Although pain which stimulates it or some of its variations may occur in other diseases, it is nevertheless the most valuable symptom in aiding one to diagnose duodenal ulcer. The pain in duodenal ulcer may be at first confined to the right side of the epigastrium. Later it may be referred to the back or around the right costal margin. When the disease has existed for a long time, when complications have arisen, when adhesions have formed, the pain may be practically constant.

6. **The Effect of Intraperitoneal Injections.**—S. E. Finch reports that ozone, 0.001 per cent. in oxygen dilution, can be introduced with impunity as a continuous current into the abdomen of a normal rabbit until from 20 to 22 milligrams have been passed through the peritoneal cavity. With very high concentrations of ozone, as the use of 0.015 per cent. oxygen dilution, the introduction of but 190 to 200 milligrams without ballooning the abdomen, causes death of a normal animal within 6 to 8 hours of its use. The use of ozone gas within the peritoneal cavity of animals following general peritoneal infection may be without harm to the animal if the concentration is very weak, not greater than 0.001 per cent. by weight and in oxygen dilution. Under the following conditions the animals survive the use of a continuous current of 0.001 per cent. ozone: Use within 3 hours of a general peritoneal infection, limitation of the infection to the peritoneum, a low grade of toxemia; use of a continuous current of the gas, and according to the judgment of the operator, the use of a greater number of milligrams of ozone than would actually be required to kill the bacteria if brought into intimate contact with them; finally the use of but very moderate or no distension upon closing the abdomen. The use of the following concentrations, 0.005 to 0.012 per cent. by weight when introduced into the peritoneal cavity of normal animals, produces symptoms other than those due to the physiological action of oxygen, and in connection with general peritoneal infection, unless the amount of ozone used and the bacteria are nicely balanced and the conditions above mentioned, its use insures a rapid and fatal termination.

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### The Journal of the American Medical Association.

*January* 10, 1914.

1. Infant Mortality. H. Koplik.
2. Smallpox Epidemic. L. Mills.
3. Circumcision. A. L. Wolbarst.
4. Hysteric Blindness. L. Newmark.
5. Esophagoplasty. Willy Meyer.
6. Rhinophyma. A. P. Heineck.
7. Hairball in the Intestine and Stomach. L. Heizlit.
8. Chorea. J. H. Richards.
9. Exophthalmic Goitre. L. B. Wilson.
10. Iodin Content of Thyroid. E. V. Smith and A. C. Broders.
11. Goitre Serums and Blood Pressure. A. H. Sanford and J. M. Blackford.
12. Field Work in Tuberculosis. M. E. Lapham.
13. Loan Collections in Pathologic Instruction. H. S. Steensland and H. G. Weiskotten.
14. Fractures of Tibia. H. W. McNeally.
15. Hyperthyroidism. L. F. Watson.

**3. Circumcision.**—A. L. Wolbarst defends the rite of circumcision from the attacks of Dr. L. Emmett Holt and the late Professor Mass on the ground that it is an unsanitary procedure. He states that on the contrary, (1) It is a great aid to cleanliness of the genitals. (2) It is a decided prophylactic against infection with syphilis and chancroid. (3) It prevents in great measure the development of venereal warts, herpes, epithelioma, and other growths. (4) It offers a diminished tendency to masturbation, convulsions, and other nervous results of local irritation. (5) It diminishes local complications in the presence of venereal diseases. (6) It makes the "fourth venereal disease" impossible. (7) It prevents the development of phimosis and paraphimosis, with their attendant complications.

4. **Hysteric Blindness.**—L. Newmark reports two cases of hysteric blindness of both eyes in men past middle age. Hysteria is supposed usually to occur in young persons and females, but his experience does not seem to bear out this view. Krön in 1892 found a great preponderance in females, but he overlooked two cases reported by Barkhan of San Francisco in males, which would have made his figures of bilateral hysterical blindness 6 instead of 4 males to 22 females. The figures could then be used to show that one-third of the men so afflicted were to be found in San Francisco. The two cases now referred to, also in California, are still more anomalous, for one of the patients had reached an age equal to the greatest he had found elsewhere reported and the other was yet 6 years older. The occupation of the oldest patient, that of a sea captain, and his age of 60 years, do not comport with the current notions regarding hysteria and the severe headaches from which he suffered were calculated to cause apprehension of organic disease, but writers have pointed out that hysterical blindness has in other cases been especially associated with like brain symptoms. Newmark discusses his cases in detail to uphold his diagnosis of the hysterical nature of the affection.

5. **Esophagoplasty.**—Willy Meyer describes the Jianu operation which he thinks has, to a certain extent, revolutionized the surgery of the lower esophagus. After reviewing briefly former methods of operation he gives an account of Jianu's technique which utilizes the major curvature of the stomach for the creation of a somewhat long tube, one end of which remains in connection with the gastric fundus while the other free end can be drawn up. A new tube of ample size with adequate blood supply and surrounded completely by peritoneum is formed, through which the patient will be able to pass food. If transposed outside under the skin of the thorax the first stage of extra thoracic esophagoplasty has been accomplished. If pulled up into the pleural cavity through a hole in the diaphragm, as proposed by Meyer, it can be used to replace the lower portion of the esophagus after resection for carcinoma. He concludes that intrathoracic esophagoplasty, when properly carried out would seem to be an ideal operation.

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### The Lancet.

*January* 3, 1914.

1. Observations on Prophylactic Inoculation against Pneumococcus Infections and on the Results which have been Achieved by it. A. E. Wright, W. P. Morgan, L. Colebrooke and R. W. Dodgson.
2. Some Late Manifestations of Inherited Syphills. J. H. Seyueira.
3. Glycosuria in the Course of Affections of the Liver. M. Labbé.
4. A Case of Diabetes Insipidus. W. P. Herringham.
5. An Operation for the Fixation of a Movable Kidney. P. Paterson.
6. An Unusual Sequel to Cholecystectomy. A. P. Gould.
7. Tuberculous Rheumatism. U. Raw.

8. Bullet Wound of the Spine. W. H. Battle.
9. Nasopharyngeal and Cervical Glandular Tuberculosis in Children. A. D. Fordyce and E. W. S. Carmichael.
10. Modern Treatment of Lacrymal Obstruction. D. L. Davies.

**3. Glycosuria in the Course of Affections of the Liver.**—M. Labbé raises the question of the presence of glycosuria in the course of affections of the liver and tries to determine the relationship between hepatic disorders and diabetes. The question is considered under five headings: (1) The glycosuria that occur during the course of hepatic lesions. (2) The hepatic congestions in overfed people. (3) The postinfections or toxic hepatic symptoms. (4) The "diabète sans denutrition" with enlarged liver of the overfed. (5) The hepatopancreatic cirrhosis with severe diabetes. In cirrhosis and other lesions of the liver, cancer cardiac liver, the glycoregulator function is generally disturbed but not sufficiently to cause what may be called diabetes. People indulging in overfeeding, especially with meat, sometimes develop a glycosuria accompanied by hepatic congestion and disturbances in the functions of the liver. After acute infectious diseases a complexus of hepatic disorders accompanied by glycosuria that reminds one of diabetes is sometimes seen. "Diabète sans denutrition" supervenes in those who are in the habit of overfeeding themselves and is often accompanied by an enlarged liver and disturbances in the functions of that organ. Lastly, there is a group of diabetes connected with hepatopancreatic cirrhosis. The diabète bronzé is of this class. Here the glycosuria is severe and accompanied by nitrogenous waste and often by acidosis; the hepatic cirrhosis is well marked; the cirrhosis of the pancreas is revealed by more or less marked signs of pancreatic insufficiency. Hence in these cases there is a simultaneous evolution of a severe glycosuria and of a lesion of the liver and pancreas, but it is impossible to decide whether the liver or the pancreas plays the first rôle in the pathology of the diabetes. Finally Labbé is of the opinion that the name of hepatic diabetes should be reserved for a certain class of cases in which the alteration of the liver is manifest.

**7. Tuberculous Rheumatism.**—U. Raw reports a case of apparently tuberculous rheumatism occurring in a young lady aged 19, of healthy parents. Examination of the fluid from the joints revealed an excess of lymphocytes which is, of course, in favor of tuberculosis as opposed to polymorphonuclear leucocytosis, which occurs in true rheumatism. .Raw has only seen three cases of this rare condition. The first was in Washington, D. C., in 1908, and occurred in a boy aged 14, who was suffering from tuberculous neck glands with secondary pseudorheumatism in both hands and wrists. The second case he saw in Berlin in 1913 at the Rudolph Virchow Hospital and occurred in a girl, aged 17, suffering from tuberculosis of neck glands and lupus. It is of interest to note that these three cases were all secondary to a primary tuberculous focus in the neck glands which is, in Raw's opinion, almost always caused by the bovine bacillus and he can find no record of tuberculous rheumatism occurring in the course of pulmonary tuberculosis which is most frequently the result of infection by the human bacillus. It would seem, therefore, that the bovine bacillus is much more likely to find its way into joints and also into the blood stream, than the human bacillus, which is generally limited in its action to the lungs, larynx, and intestines.

## Muenchener medizinische Wochenschrift.

*December 9 and 16, 1913.*

**Study of Benign Albuminuria.**—Veil reports a case of this sort at length. This was complicated from the very start, and in watching it further elements were recognized. The patient may be summed up as a mass of internal secretory disturbances and psychical peculiarities. Aged 25, he was proved to be a victim of dementia præcox, a subject of vagotomy, orthotic behavior of secretions, albuminuria, status thymicolymphaticus. There was psychosis and Grave's disease in the ascendants. Of interest it is that patient has consulted many physicians, all of whom pronounced him a nephritic, without the least psychical disturbance. A diagnosis which covers the facts is psychoneurosis with chronic albuminuria.

**Nervous Fever in Tabes Dorsalis.**—Siegrist regards this find as extremely uncommon, and as a form of tabic crises characterized by rise in temperature. The number of cases to be found in literature, if we consider only pure crises of temperature is very small. In six cases, including the author's there was absolutely nothing present to suggest infection. In a small number of cases the temperature rise was clearly due to complications. In the author's case the temperature crisis pursued a course parallel with that of pain crises. The only cause attributable was the disease itself, either through irritation of the centers for warmth, absorption of toxic matter, etc. The fever crises show very markedly on a temperature chart, and the highest temperature reached was 39.0° C.

**Cornelius Nerve Point Doctrine and Swedish Massage.**—Port states that Cornelius published his doctrine on nerve points in 1905. The method has never come into general use, and the author only stumbled upon it by chance. These are simply sensitive pressure points, responsible to a large degree for many phenomena of neurasthenia and hysteria. According to Cornelius the condition has a purely mechanical origin from a chronic obstacle to the passage of nerve impulses in the shape of new formed connective tissue. This theory promises well if we limit ourselves to the results of treatment. Massage and excision of certain tissues, scars, calluses may be cited. Thus a painful "viewpoint" represents a mechanical obstacle to the passage of nerve impulses. A study of Swedish massage, when compared with the preceding shows many points in common. The teachings of Swedish massage have never penetrated into Germany, and Cornelius doubtless has never encountered them.

**Malapplication of Albumin Water as a Nursling Food.**—Lust concludes an article on this subject, in which he claims that when the digestive tract of the healthy baby is irritated by the exhibition of egg albumin in water, how much more marked must this be when the nursling stomach is already acutely disordered. It is not, however, the direct effect of the albumin which is to be feared; it is the remote effect in causing vasomotor disturbance. Causes have been seen in which egg albumin merely left on the baby's lips has caused both local and general symptoms severe in character.

**Operative Nearthrosis.**—Helferich refers to the formation of new articular surfaces in diseased joints to the extent that mobility results. Attempts in this direction began with the authors, Rochet and Lentz, independently, in 1893-4. The authors' case, in the temporo maxillary articulation, ended in marked improvement. The material interposed was taken from the temporal muscle. Others followed their wide resections of joints with some form of interposing material. Finally König announced that the latter was unnecessary. He was soon proved wrong and such interposition became permanently incorporated in joint surgery. In 1905 the author obtained a successful result in the hip joint, preventing ankylosis by the interposition of a flap of gluteal muscle. This crude procedure was

very far from establishing a complete new joint. For this purpose one would naturally have in mind arthrolysis, osteotomy, or transplantation of actual articulating surfaces (Lexer). It is doubtful, however, if the latter could become a routine procedure, and that interposition of tissues must replace it in that capacity. The author finds in literature about 300 cases treated in this manner, not including twenty operations on the jaw. This great material has chiefly accumulated in the last three or four years. The author analyzes this material in part. Among Americans he mentions only Murphy and Baer. He differs with Murphy as to the difficulty of the operation which makes it a task for the master surgeons, and thinks enterprising young operators should be able to master the technique. Fascia, fat, muscle tissue, condyles, each has its sponsors among surgeons.

**New Viewpoints for the Clinical Use of Camphor.**—Hötzel writes briefly on this subject which has recently been considered by Leo (No. 43 of this year's *Wochenschrift*). He writes with especial reference to croupous pneumonia. The author saw a severe case of migratory pneumonia which promptly healed after injections of camphorated oil. The effect was as startling as that produced by serotherapy in diphtheria. For the past three years he has employed this treatment at the outset of every case of pneumonia. Ten c.c. of the oil is injected over the skin and repeated at certain intervals. On the third or fourth day a lysis occurs and in two days more the disease is not noticeable. Thus far in three years the author has treated thirty cases of croupous pneumonia with one death. The latter subject already had myocardial degeneration. Never save in his first case did he appear to conquer the disease at a stroke. In all the other recoveries the disease ran its course. He therefore looks further for a substance to sterilize a patient at once. He never pushed camphor to great doses in order to accomplish such a result, for camphor has somehow acquired a reputation of causing hemorrhage of the lungs (in his one fatal case the patient's lungs bled freely), due perhaps to extreme dilatation of the blood-vessels of the lungs. But to this property we may owe the beneficial action of the drug, which thereby promotes a local leucocytis, the enzymes set free at the time dissolving at once the exudate. Whoever wishes to use the remedy in pneumonia should inject 10 c.c. strong camphor oil twice daily.

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### Deutsche medizinische Wochenschrift.

*December* 18, 1913.

**Cure of a Case of Pneumococcus Meningitis by Ethylhydrocuprein.**—Wolff and Lehmann have succeeded with the aid of this synthetic prepared originally with the intention of antagonizing the pneumococcus wherever found in curing a case of meningitis due to the latter germ. The patient was a nursling and the drug was injected directly into the spinal canal and cerebral ventricles. Before the newer remedy was tested, pneumococcus serum in the cord and urotropin in massive doses had been administered. The meningogenic vomiting was indirectly responsible for the heroic treatment as drugs would have been vomited. The veins were also too small for intravenous methods. The almost hopeless outlook for recovery by ordinary measures thus led to the ventricular puncture in addition to the spinal injections. The authors will report the case in greater detail.

**The Heine-Medin Disease.**—Cassel gives some data and impressions based on a recent small epidemic of acute poliomyelitis and polioencephalitis. The disease is now notifiable in Prussia, but a certain fraction of the profession still refuse to admit the validity of the recent claims put forward. Old practitioners have failed to see any evidence of contagion, have never seen any plurality of incidence in large families, or close settlements, refuse to believe the new teachings. Younger men, on the contrary, see in the disease a veritable plague able to attack hundreds within the same territory. This view shared by the author makes prophylaxis the chief duty. Actual cases should be isolated for from four to eight weeks and otherwise the scheme pursued for scarlatina, etc., should be carried out as far as mere disinfection goes. We know nothing of the carrier problem here.

**Need of Care in Handling Mesothorium.**—Allmann records the following case: in a laparotomy for ovarian cancer, 160 mg. mesothorium were inserted intratumorally, an ordinary hole having been bored for its reception. The remedy was first enclosed in glass tubes, these in turn within silver tubes. These tubes are normally covered with a protective of nickeled brass, but to secure the stronger action, the author stripped this off and substituted gauze, thin rubber, and again gauze, making a triple covering. After renewing the external gauze, the filter was placed in a recurrent nodule in the vagina which was then bleeding. As the silver-coated tubes were being inserted one tubule of mesothorium was melted, but in the middle of the tube, the glass remaining intact. This tube was in use for four months, the probability being that the rays had attacked the silver and denatured it. However, the tube did not break when placed within an orifice, which showed that the glass and silver remained intact. While nothing detrimental occurred in this case a friable silver tube in breaking suddenly might fill the space with broken glass.

**Diagnosis of Duodenal Ulcer.**—This article by Bier is to be noted chiefly because it is part of a mild international warfare between the Germans on one hand and the English and American surgeons on the other. The warfare has not yet reached personalities and it is to be hoped that nothing of this sort will occur. Moynihan is made the chief protagonist on his side, because his book has been translated into German and widely read. Bier, Kehr, and other heavy German operators criticise to a greater or less extent the teachings of Moynihan, Mayo-Robson, and Mayo. The whole debate seems to be due to the larger number of cases reported in America and England than in continental Europe. This would seem to argue a greater frequency or a superiority in diagnosis, or a great preponderance in resort to the knife. Bier admits that the foreigners stole a march in operating years before the Germans. Moynihan's cases compared with a German series show no difference whatever. Bier, however, has seen many such case histories and has even made exploratory incisions in some of them without finding an ulcer, but some condition quite different. A list of these he gives in detail. In two cases only did he mistake in a diagnosis of duodenal ulcer. Again, when ulcus duodeni was found at autopsy, there was very often no history pointing to it. In the closing paragraph he gives Moynihan full credit for a great practical introduction to surgical diagnosis and operative surgery.

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**The Cerebrospinal Fluid in Infantile Tremor.**—Mariano Lo Re notes that Durante characterized this tremor as an atypical form of tetany. Rotch and Holt attribute it to a nutritional defect. In three cases studied by the author the cerebrospinal fluid showed a slight increase in the amount of albumin and a moderate lymphocytosis. These changes he regards as evidence of a mild meningeal reaction resulting from intestinal toxemia—*La Riforma Medica.*

## Insurance Medicine.

**Special Features of a Medical Director's Work.**—Dr. M. O. DeVaney, Associate Medical Director Indianapolis Life Insurance Company, frankly discusses this subject from two viewpoints, namely, what may be expected of the Medical Director himself, and his attitude toward his workers. He thinks that the medical director who is not in himself a stimulant to the business of his own company is more or less a failure; that he should be a living, vital, active force in the official staff of the company. His position, being one of trust, requires of him not only medical knowledge but honesty, sound judgment and unlimited diplomacy. It is the natural tendency of men in this position to become autocratic and to lose respect for the agency force—often with ample cause; but the worth-while agent has great respect for the company that deals honestly and squarely, and it is the medical director who can impress him with the fact that his company not only gives square deals, but expects the same from him. The medical director should mingle as freely as possible with his agents. With the relatively small company, it is not impossible for him to establish a human touch with them, and to show appreciation of their work. The successful field man is a high-tension individual, and, like all high-tension machinery, must be handled with care. The man who has the ability to keep his company's banner in the field is no mean fellow. Dr. DeVaney enjoins upon the medical director that his field men are entitled to prompt service and quick decisions.

It is only through the eyes of the agent, local examiner, and inspector that the medical director views the majority of the applicants. On the facts from these sources he is dependent for his decisions, so it is wise for him to visit the field often with eyes open and ear to the ground. The handling of medical examiners is another special feature for the medical director's consideration. There is naturally a somewhat close sympathy between the agent and the local examiner, and it is to be desired that friendly relations exist between them; but the examiner's friendly feeling must not interfere with his duty to the company, which always calls for an unbiased statement of the material facts. The diplomatic, ingenious medical director may offset any undue personal influence from the field by keeping himself in close personal touch with the examiner.

He should never lose an opportunity to meet as many of the examiners as possible socially. It is at social meetings that men become best acquainted. When the medical director looks over the reports his personal acquaintance with the examiner will better enable him to interpret the answers given, and the acquaintance will be remembered by the examiner when he picks up the examination blank to be filled out for the special company the medical director may represent.—Medical Section, American Life Convention, August, 1913.

**Economic Influence on the Medical Profession of the Periodic Examination of Insured Lives.**—Eugene Lyman Fisk, Medical Director, Postal Life Insurance Company, shows that while the practical commercial spirit of the age has infected individual members of the medical profession, it may be truly stated that the profession as a whole is laboring with might and main to reduce the morbidity from which its revenues are drawn. Even the surgeon is urging the earlier, simpler and less expensive operations to the end that patients may be saved from heroic operations and big fees. In these efforts there is no selfish altruism, but the real simon-pure article.

Indeed if scientific progress continues unchecked, the physician, as we now know him, may disappear as completely as the overland stage-coach driver, the peculiar social service that he renders becoming no longer required. It is evident that already a change is impending in the relations between physician and public. The physician is taking the public more and more into his confidence, and the public is looking to the physician for guidance as to how to keep away from his office. After all, the labor of preventing disease resembles very much the task of Sisyphus. As one class of diseases is conquered another takes its place. It is to be remembered that the diseases conquered are of the self-limiting type, those wherein the human organism, if possessed of reasonable resisting power, summons to its aid from its own tissues and organs the antidote and cure. But the diseases that are on the increase—those of the degenerative class—are not so characterized. They tend to progress to a fatal ending, unless there is some change in the habits or environment of the patient, and complete restoration of condition is often difficult, if not impossible. So the value of a periodic inspection of the apparatus to be guarded and conserved becomes logically evident. Thus it follows that the physician must spend less time in mastering an obsolete pharmacopeia and more time in accumulating knowledge of the influence of living habits, in order that he may keep his patients out of trouble, instead of trying to perform impossible tasks on worn-out and broken-down tissues. In this matter of the newer medical practice, directed toward prevention rather than cure, the periodic examination of insured lives will prove a powerful accelerating influence. In the interval of adjusting the profession to the newer standards it will prove an economic factor of no mean importance, not only as regards the fees that will be distributed, which would amount to some millions of dollars, but in the matter of linking the public to scientific medicine and offsetting the evil influence of the mystics and layers-on-of-hands who flourish so surprisingly in this alleged materialistic age.

If all old-line policyholders should seek these periodic examinations either through the companies' facilities or by their family physician, ten millions of dollars would be distributed annually to examining physicians. When we consider the possible future development of these activities in the life insurance field and their reflex influence on the general public, we may look forward to a time when the principle of periodic inspection of the human body will be applied to the entire population, whether by government, corporations, private institutions, or family physician equipped for this purpose. This work must naturally come to the physicians. With the public brought regularly and automatically into contact with scientific medicine, there is reason to believe the gain would be mutual. Less money would be paid on account of illness, but more money would be paid for keeping well.—*Lancet-Clinic*, August 9, 1913.

# Book Reviews.

CANCER OF THE BREAST. An Experience of a Series of Operations and Their Results. By CHARLES BARRETT LOCKWOOD, F.R.C.S. (Eng.), Consulting Surgeon to St. Bartholomew's Hospital, etc. Price, $3. London: Oxford University Press, 1913.

FEW books are more valuable in estimating the end results of modern surgery than those which contain a plain and unvarnished account of the operative methods and results of an individual surgeon trained in scientific methods and frank in the presentation of both the pleasant and the unpleasant aspects of his surgical practice. This volume contains a good deal of extremely interesting material gathered from a large series of operations on the breast and discussed with sanity and judgment. The author is one who has long insisted upon the value of the thorough microscopical study of tumors, not only after, but, by means of frozen sections, during the course of an operation. Only by this procedure can extensive removal of benign tumors be avoided and the early and successful treatment of small carcinomata be secured. Most of us would be glad to pass over the after history of fifty per cent. of operations on the breast, but unless we face the facts the percentage of operative successes cannot possibly be increased. There is considerable discussion along this line in the sections on the removal of recurrences in the neck, injury to the thoracic ducts, mortality, persistence of edema after operation, and neuritis, with finally a discussion of the ultimate results and the relations between the picture and the clinical course of the tumor. No surgeon can fail to obtain information of value from a perusal of this book.

PROTEIN SPLIT PRODUCTS IN RELATION TO IMMUNITY AND DISEASE. By VICTOR C. VAUGHAN, M.D., LL.D., Dean of the Department of Medicine and Surgery of the University of Michigan; VICTOR C. VAUGHAN, JR., M.D., A.B., Junior Attending Physician to Harper Hospital, Detroit, in Charge of the Tuberculosis Work of the Detroit Board of Health, and J. WALTER VAUGHAN, M.D., A.B., Junior Attending Surgeon to Harper Hospital, Detroit. Price, $3 net. Philadelphia and New York: Lea & Febiger, 1913.

VAUGHAN, SR., began his work on the chemistry of the bacterial cellular substance many years ago, and papers from his pen dealing with this subject have appeared from time to time. The work has now reached such a stage as to demand a more adequate presentation, and this volume summarizes the results of his investigations and the theories which have developed from them. The matter is largely new and is perhaps best condensed in the form of twenty-four important points which the authors collect in the introduction. These points are: (1) Bacteria are essentially particulate, specific proteins. (2) All true proteins contain a poisonous group. (3) The chemical nucleus does not become a poison until stripped, in part at least, of its secondary groups, and the intensity of its poisonous action is determined by the thoroughness with which the secondary groups have been removed. (4) When proteins are submitted to the action of disrupting agents there is the possibility of the chemical nucleus being set free more or less completely, and to the extent that it is detached it becomes a poison. (5) The pathogenicity of a bacterium is not determined by its capability of forming a poison. (6) The pathogenicity of a bacterium is dependent upon its ability to grow and multiply in the animal body. (7) Any foreign protein which can grow and multiply in the body of a given animal may prove pathogenic to that animal. (8) The infectious diseases result from parenteral protein digestion. (9) Natural immunity to any infection is due to inability of the infecting agent to grow in the animal body. (10) The immunity which is due to recovery from an infection is the result of the development in the body during the course of the infection of a specific ferment, which immediately destroys the infection on renewed exposure. (11) Immunity established by vaccination is similar to that induced by an attack of the disease. (12) Protein sensitization and bacterial immunity, apparently antipodal, are in reality identical. (13) Protein sensitization consists in developing in the animal body a specific proteolytic ferment, which digests the same protein on reinjection. (14) When a foreign protein is introduced into the blood of an animal it soon leaves the circulating fluid and is distributed throughout the tissues. (15) Vaccines are protein sensitizers. (16) Toxin immunity and bacterial immunity are radically different. (17) The protein poison is not a toxin. (18) The protein poison is not specific. (19) The tolerance which may be secured by the protein poison is not specific. (20) The sensitization developed by a protein is specific, but is not due to the poisonous group in the protein. (21) Different proteins find in the body certain predilection places in which they are most prone to accumulate. (22) The symptoms of a given disease are largely determined by the location of the foreign protein. (23) The poison elaborated in all the infectious diseases is the same. (24) When a cell in the animal body is permeated by a foreign protein, the former strives to elaborate a ferment by which the latter is destroyed.

The majority of these points are quite satisfactorily established by the authors' experiments. To only one would we care to take any serious exception. Point 13 presents the claim upon which they base their theory as to the causation of anaphylaxis. Throughout the discussion of their experiments and their deductions therefrom the authors make no reference to the factor of time, except on page 341, where they say that it holds equally well against Nolf's theory. Under certain conditions guinea pigs succumb to anaphylaxis with a rapidity which would seem to preclude the possibility of its being the result of ferment action. Moreover on page 365 they state that examination of the blood fails to reveal any diffusible biuret body within fifteen minutes of the reinjection. This is but one objection, it is true, but it would seem to be an important one. The whole work fits very well with Abderhalden's investigation into parenteral digestion and is a distinct and valuable contribution to the study of immunity. It is naturally to be expected that in the course of time some of their claims will suffer some modification, but many are already firmly established and are likely to remain so. To any who are interested in immunity the book should prove of great interest and profit.

THE ADMINISTRATIVE CONTROL OF SMALLPOX. How to Prevent or Stop an Outbreak. By W. McC. WANKLYN, B.A. Cantab., M.R.C.S., L.R.C.P., D.P.H., Fellow of the Royal Society of Medicine, Fellow of The Society of Medical Officers of Health, Referee in the Diagnosis of Smallpox, and Medical Superintendent of the River Ambulance Service (Smallpox) of the Metropolitan Asylum Board. Price $1.10 net. London and New York: Longmans, Green & Co., 1913.

THIS is a companion, volume to Dr. Wanklyn's "How to Diagnose Smallpox." It comprises the principal administrative details which must be put into practice in order to cut short an outbreak of smallpox. Dr. Wanklyn gives the latest methods of diagnosis, of the removal of cases to the hospital, of disinfection and of close observation of contacts, the importance of these methods increasing in proportion to the decline of vaccination. A number of cases are reported in which smallpox eluded the vigilance of the English port sanitary officers. These make the reader agree with the distinguished writer that the successful prevention of epidemics depends on a tireless attention to the details of action and on a well prepared plan.

ANATOMY, DESCRIPTIVE AND APPLIED. By HENRY GRAY, F.R.S., Fellow of the Royal College of Surgeons, Lecturer on Anatomy at St. George's Hospital Medical School, London. New American Edition, thoroughly revised and re-edited, with the ordinary terminology followed by the Basle anatomical nomenclature, by EDWARD ANTHONY SPITZKA, M.D., Director of the Daniel Baugh Institute of Anatomy and Professor of General Anatomy in the Jefferson Medical College of Philadelphia. Illustrated with 1,225 engravings. Price, $6 net. Philadelphia and New York: Lea & Febiger, 1913.

THE special feature of the edition is the introduction of the terms of the Basle anatomical nomenclature following the ordinary anatomical terms. This is a valuable addition and should serve to increase the usefulness of this widely known text-book. The paragraphs dealing with applied anatomy are particularly helpful. In every respect the work shows the imprint of careful revision. The illustrations, including many in colors, are characterized by their clearness, a quality enhanced by the engraving of the names of the parts directly upon the illustrations. The index contains both terminologies.

# Society Reports.

## NEW YORK ACADEMY OF MEDICINE.

*Stated Meeting, Held December* 4, 1913.

THE PRESIDENT, DR. WILLIAM M. POLK, IN THE CHAIR.

**The Education of Crippled Children.**—Dr. G. G. Davis of Philadelphia presented this paper. He stated that although he did not feel altogether competent to speak on this subject it was one that appealed to him so strongly that he had decided to do what he could to further the progress of the study of this problem, which was at present in an unsettled, early, and primitive stage. Educators had not succeeded in establishing any standard for the education of the normal child, but, in addition, they had the solution of the problems arising from the crippled children. It was evident that the methods employed in the two classes must be different. The crippled children formed an intermediate class between the totally well children who could be driven and actually flourished under it, and the sick children who needed rest, and soothing and supporting measures. The crippled child should have a distinct, separate, special method of treatment adapted to his peculiar needs. The education of the crippled child was intimately associated with his bodily care; the two should be considered together. They were, therefore, confronted with the following problems: 1. Maintenance. 2. The care and treatment of the disabilities of the crippled child. 3. His general education. 4. Character formation or moral education. 5. Vocational training. 6. Later supervision. The number of cripples was so great and their education and maintenance so expensive that in the present state of society it had been found necessary to establish institutions for them, even though the substitution of institutional life was not desirable from many points of view. It was the duty of the institution to resemble home life as far as possible. The question of maintenance should be more carefully looked into than had been the case in the past. The child should be provided with such nourishment as would tend to improve and conserve his health. There was a great field for usefulness in their modern Social Service in the endeavor to meet this need. As to disabilities, if the child could walk to school the problem of its education was simplified. Orthopedic treatment was of the first importance. The more successful it was the more it broadened the child's capabilities. For this reason it was essential that institutions for crippled children should be equipped so as to provide the constant orthopedic treatment that these cases required. Even in the day schools there should be some one capable of doing the more simple dressings and adjustment of apparatus that might be needed. The orthodox orthopedic hospitals might relieve the educational institutions of a certain portion of this work, but not all of it. As to general education, the crippled child had greater need of a good general education than the normal child, as the latter had greater opportunities of acquiring knowledge. For education to be successful it should be sufficiently thorough for the child to eventually become self-supporting. The wider the education the greater would be the choice of occupations in later years. If the State paid for the common school education of the normal child it should also contribute to that of the cripple. Parents were apt to be neglectful and to allow a crippled child to grow up ignorant; they should be taught that this was an error. Family teaching was one of the greatest value and when children were in the hospitals, teachers were now provided for them during their stay. To care for the outpatients they had social workers and the day schools to which the children were brought and again taken to their homes. It was not possible to teach cripples in the same manner as well children. Their disabilities were so varied that it was necessary to devote a large amount of individual attention to each child. Therefore, a larger number of teachers was necessary for a given number of children than in the ordinary public school classes. The classes of crippled children should not be so large. They should decide in each individual case when it was safe for the general health of the child to sacrifice a certain portion of its outdoor life for indoor instruction. Although both the Montessori and Froebelian systems had their good points, one should use judgment in imposing them on the individual cripple. As to character formation or moral education, it should be emphasized that while intellectual development was of importance it was insignificant as compared with good character. The problem was how to rear the cripple so that he should develop into an industrious, unselfish, honest, and reliable citizen. How could they ever be made self-supporting if they were lazy and unwilling to work? How could ambition be infused into them so that they would endeavor to help themselves instead of being content to be parasites all their lives? Many things influenced the formation of character, but precept and example were the most powerful. If the cripple could be surrounded by good associations that would be the best guarantee that he would develop correctly. The greatest influence was exerted by good home life. To take the crippled child away from good and loving parents and to place him in an institution was a great mistake. If charity must be doled out it was better to dispense it in the home. No child should be placed in an institution that could possibly be kept out. If an institution was to stand *in loco parentis* the greatest care should be exercised to see that all the officials and teachers and employees—everybody who came in contact with the children—should be of the best possible character so that the child should insensibly acquire the views and habits of thought which would be best for him in the future. The children should not be handled in masses, but should be brought into personal contact with their caretakers and teachers. Persons suitable to fill such places were not easy to find. As to vocational training, manual training was not necessarily vocational training. Its primary object was development. It was to teach children to do things for themselves, to think, and reason, and accomplish something by their own unaided efforts. It was a mistake to restrict vocational training to a few stereotyped forms and thus to confine all to a narrow choice. The first step was to find out what was most desired by the child and what he was best fitted for, and then an effort should be made to fit him into that line. In regard to subsequent supervision, the speaker said that many cripples as they approached maturity lost their home ties and were left to fight their own way alone, when they were apt to retrograde or fail entirely. They should be made to feel that there was someone who was interested in them and who was watching their progress. They should be encouraged to keep in touch with their *alma mater* until they had definitely established themselves and formed a circle of friends elsewhere. The adult cripple had been too generally treated as a pauper, but if through State aid or private beneficence a crippled child had been reared and fitted for the duties of life it was certainly their duty to give him that moral support that every beginner in the struggle for existence needed to enable him to safely pass over the bridge which connected the productive and the non-productive periods of life.

**Industrial Training for Cripples.**—Dr. AUGUSTUS THORNDIKE of Boston said that industrial training in a special school probably began in America when the Industrial School for Crippled and Deformed Children opened October 4, 1893. The growth and progress of the school had been uniform. Instruction was given in the following industrial branches: sewing and dressmaking, basket-making, cane-seating, cobbling, cooking, typesetting and printing. One or two hours of the time allotted to school work was spent each day in the open-air schoolroom. The Massachusetts State Hospital School for the Care and Education of Crippled and Deformed Children of the Commonwealth, authorized by the Legislature in March, 1904, was formally opened by the Governor's proclamation December 1, 1908, the first pupils being received January 14. The school accommodated at present two hundred and sixty crippled children between the ages of five and fifteen, although a few of them were older. Instruction in the first eight grades of the public school system was given, mostly in out-of-door schoolrooms, to small groups for short periods, the younger children receiving instruction for an hour and a half a day, and the older for two hours. Sewing was taught in graded classes, also drawing, stenciling, painting in water colors, and sloyd carpentry. In addition to this, small groups were instructed in printing, cobbling, making moccasins, carpentering, house painting, steam-fitting, electric wiring, the care of steam boilers and engines, and a number of the older boys were taught farming, both the care of livestock and gardening; while the older girls learned domestic science in a small cottage, where they did all the housekeeping and housework. The first class grad-

uated last year, and they, together with many who had left the school without completing the course, were at work at various occupations. In closing Dr. Thorndike alluded to a Boston society formed to secure employment for cripples—the Kings Chapel Club for the Handicapped.

Mrs. Henry Goldman described the Crippled Children's East Side Free School, which had been created twelve years ago. The purpose of this institution was to give crippled children an education, to better their physical condition, and to render them self-supporting by means of manual training. During the first six years of the existence of the society, classes were conducted in elementary training with good results, whereupon the needs of this neglected class were brought to the attention of the Board of Education with the result that there were to-day classes for cripples in many of the public schools in the city, and greater provisions would no doubt be made in the near future. Under a staff of able physicians an infirmary was conducted in connection with the school and there was hardly a child in the school that had not for months undergone medical or surgical treatment of some kind. Dr. Wallace could give a more satisfactory report of this part of the work from a professional standpoint. The school had a trained nurse and three assistants who bestowed individual attention on each of the 230 pupils. It was most important that physical development should form a part of the curriculum of every institution for crippled children. The great and important aim of their efforts had always been manual training, adapted to the needs of the crippled children. Eight years ago they had organized a workroom with but two girls. By careful and proper training they now had 40 workers who had become producers of needlework and accurate machine work. Two of their own girls were now earning from fifty to sixty dollars a month as assistants to the manager of the workroom. The receipts of the workroom this year were over $10,000, and almost $5,000 had been paid to the workers in wages. No doubt better results could be obtained if there were ways and means of bringing this work before the public.

Miss Grace S. Harper, general secretary, King's Chapel Committee for the Handicapped, Massachusetts General Hospital, Boston, said there were a few points which had been touched upon and which she would like to emphasize as most important from the main point of placing and "after care" for cripples. The formation of character and stimulation of ambition from as early an age as possible were quite as important as education. If a crippled person was turned out into the industrial world—and needed to earn his living, he must also be able to get along with his fellow workmen and fit into his job. This lack of character and mental warp which was so common among cripples had been their greatest handicap in the successful placing of them. Dr. Richard Cabot was the means of starting the King's Chapel Committee for the Handicapped in Boston. The problem, as it seemed to him at the time, consisted of two things to be done—first, to find out what trade and occupations could be performed by persons variously handicapped; second, to find employers in these industrial shops who would be willing to give such persons a trial. This left the putting of the man into the job, and here was where the question of lack of character—and the mental outlook had proved to be the greatest obstacles. Much of the fault for this difficulty lay with the community and much with the parents. She personally would hesitate to take too much of the responsibility from the parents, by providing boarding schools, inasmuch as the children had to return to their homes when of age and the parents would not then be ready to maintain the discipline and teach the attitude of self-reliance at the most critical time. She thought that most schools might do a great deal in the way of teaching to the parents themselves. Many of them saw no farther than the present need and yet were intelligent when shown the almost absolute certainty that the crippled boy or girl was going to outlive his elders, and at some time would need to earn his living. If he was allowed to be dependent until past the age of adaptability he would probably become a beggar or a pauper. The teaching of every crippled boy or girl a trade or skilled occupation of some kind was another most important need. Many schools gave sloyd and occupational training, but few offered opportunities for learning a trade which would enable the pupil to obtain a position. She read an article a few nights ago, drawing attention to the thousands of unskilled boys and girls thrown on the market each year and to the constantly increased demand for skilled workers. This was a plea for training for the average normal boy and girl. If able bodied children needed such training, how much more so did the crippled ones who had little choice or selection? And yet they were educating many and turning them out without the essential training which would give them a chance to earn their bread and butter. The problem of placing cripples after leaving school was a difficult one and so far not much concentrated effort had been made in this country. Their committee had now had two years' experience which though slight had brought out many points: firstly, that little could be done without personal work for each individual. The worker had to establish friendly relations and in many cases gave the advice and steadying hand which should have come from the parents. Secondly, when a boy or girl had been placed in a position, the interest and close touch with him must be continued for some time. The cripple was usually a child for a much longer time than the average person. When it came to decisions, adjustments, and compromises to others a small matter would be the means of his losing a position which it had taken time and expense to find and which often could not be found a second time.

Foreseeing these difficulties and being ready to meet them meant forming a habit of "sticking at a job" which might in time become permanent. Miss Harper felt now, after their experience, that a year was not too long a time to plan for "follow up" work, that was if one's efforts were to mean permanent help in each person's life.

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## NEW YORK NEUROLOGICAL SOCIETY.

*Regular Meeting, Held October 7, 1913.*

The President, Dr. Smith Ely Jelliffe, in the Chair.

**Tumor of the Spinal Cord.**—Dr. H. Climenko reported two such cases, and showed the specimens. The first case, which he said was an instance in which syphilis could mask the diagnosis of a tumor of the cord, was that of a married woman, a Jewess, 55 years old; a native of Austria. When she was admitted to the Montefiore Home, on November 17, 1911, she stated that both of her parents had died in the forties, her mother of some wasting disease of many years' duration. One brother died of cardiac disease. There was no history of miscarriages in the family. Her personal history was that she was the youngest child, breast fed; that she had convulsions in early childhood and was always of a weak and delicate constitution. Her menstrual history was negative. She married at the age of 21; she was the mother of nine healthy children and had never miscarried. About four years after her marriage she was treated for cystitis, and ten years ago she had a superficial ulceration of the left leg. Her present illness, dating back about fifteen months, was insidious and progressive. She first suffered from numbness and tingling and tugging sensations, commencing in the soles of both feet and gradually extending up to the hips. Shortly afterward she developed pains in the region of the mid-spine radiating downward into both legs. These were more or less constant. Following these, there was weakness and stiffness in both legs which was preceded by a girdle sensation in the lower abdomen. About three months later she lost the power to walk, and two months prior to her admission incontinence of both the urine and feces developed. A few weeks ago she noticed tingling sensations in the little finger of the right hand. There was no history of diplopia, headache, vomiting, or convulsions. When Dr. Climenko first saw the patient, at the time of her admission to the Home, she could neither stand nor walk. She lay on her back and could sit up only with difficulty. Both lower extremities were flexed and extremely spastic. The double Babinski, Oppenheim, Mendel, and Bechterew reflexes were present. There was double ankle clonus and both knee jerks were very lively. The lower abdominal reflexes were absent. The various reflexes of the upper extremities were present and normal; the pupils reacted to light, accommodation and pain, and consensually. The gross motor power of the active movements in the lower extremities was greatly diminished and carried out very sluggishly. The passive movements were difficult to carry out, due to the enormous spasticity. The spine did not show any deformities, but there was marked hypersensibility to pressure over the tenth, eleventh, and twelfth dorsal spines. The cranial nerves were negative. There were marked sensory disturbances,

extending from the mammæ downward anteriorly and posteriorly. An examination of the blood gave a positive reaction to the Wassermann test. The cerebrospinal fluid was negative, but showed an increase of globulin. The patient was given two full doses of salvarsan and many intramuscular bichloride injections, after which her condition was slightly improved. On May 20, 1912, after a careful study of the sensory disturbances, and influenced by the marked spinal tenderness, a diagnosis was made of a constant lesion within the spinal canal, causing pressure on the cord. The patient was operated on by Dr. Charles A. Elsberg on June 14, 1912, when he removed an elliptical, cauliflower-like tumor, situated at the level of the ninth, tenth, and eleventh dorsal vertebræ, and measuring ¾x½x¼ inch. Pathologically, this proved to be an endothelioma.

The second case reported by Dr. Climenko was that of a widow, 52 years old, born in Russia of Jewish parents, who entered the Montefiore Home on March 21, 1913. In her case the symptoms, which pointed to a lesion in the upper segment of the cord, were such that an operation could not be entertained. She died on July 6, 1913, and the autopsy showed a tumor in the cervical region, the cord here being enlarged throughout the entire length to about twice its normal thickness. Pathologically, the lesion was a gliosarcoma, with resulting degeneration of the cord.

**A Case of Manic-Depressive Psychosis in a Child.**—Dr. M. S. Gregory presented a girl, ten years old, who was born in Austria and came to this country with her parents about three months ago. No history of a pschosis or a neurotic taint in the family or its collateral branches was obtainable. The patient was the third of four children, two of whom died in infancy. Her childhood was apparently normal, and during that period she had the usual diseases, without complications or sequelæ. She was considered an average scholar, and her deportment showed no abnormality. She was bright and cheerful, took an active interest in play and associated with children of her own age. However, she was easily angered and excited, and unduly sensitive. She was an only daughter. The child's parents stated that she was perfectly well until the early part of August, 1913, when she experienced a great disappointment because her mother would not permit her to go to a party. On the following day she was unusually quiet and sad, complained of headache and refused food. She insisted that she was weak and had a pain in the cardiac region. She would remain seated in one place without showing much interest. On August 24, 1913, when she was brought to Bellevue Hospital, a physical examination revealed no objective evidence of a neurological disorder. The pupils responded to light and accommodation; the optic disks were normal. The knee jerks were active and there were no sensory disturbances nor hysterical stigmata. Mentally, she was profoundly depressed and remained in the characteristic attitude of flexion, with head bowed and body bent forward. Her general movements were slow and delayed. She said nothing spontaneously; answered a few questions to the point, but in a rather low tone of voice and after some deliberation. She complied with the usual requests, although slowly. When asked what ailed her she complained of headache and pain in the stomach; said that she could not walk and wished to go home. She would calculate slowly, and occasionally, when she made mistakes and her attention was called to them, she would rectify them. She was well oriented and gave a good account of herself, memory for both remote and recent events being good. There were no hallucinations nor delusions. In the ward she would sit quietly by herself, manifesting no initiative. She took food when it was given to her, but never asked for anything nor expressed any desire. However, she seemed to be in touch with her surroundings and apparently took notice of what was going on about her. She remained in this condition for several days, but gradually improved, so that on September 13, about three weeks after admission, she was taken home contrary to medical advice. Her mother stated that when she returned home she was in fairly good condition for a few days, but that her depression soon returned. She was readmitted to the hospital a week later in a condition much the same as that on her first admission. However, she soon began to improve and at the present time she was fairly active, smiled occasionally, spent her time in playing with picture blocks and puzzles, and took outdoor exercise, but she was still quiet and was rather slow in her movements. She did not talk spontaneously, but when addressed she smiled and answered questions in a low tone of voice. She said she now felt well and was anxious to go home. The Vinet-Simons test showed her scale of intelligence equal to nine and a half years of age. Manic-depressive psychosis, Dr. Gregory said, was apparently very infrequent in childhood. At least, the literature was very meager. It was possible that the disease was more frequent than suspected and that such cases were often unrecognized and mistaken for other disorders. Very often the depression might be associated by the parents and even by the family physician with the bodily condition of the child, and these cases naturally rarely came to the attention of the psychiatrist. During the past eleven years, the speaker said, he had seen only four cases under the age of twelve years. Manic-depressive attacks, however, occurring between the ages of twelve and fifteen were comparatively frequent. The youngest of his four cases was a girl of seven, who had the manic phase of the disease, which lasted six weeks and ended in recovery. In another, a boy of eleven, the disease followed a severe fall. He had alternate attacks of depression and excitement, each lasting a week. He recovered in five weeks. The third, a boy of twelve, manifested an attack of excitement of two weeks' duration, with complete recovery. It was of interest to note that in all of the cases mentioned, the attacks were of rather short duration, which coincided wih the observations of Ziehen and others.

Dr. Jelliffe said that so far as his review of the records showed, this was the first case of manic-depressive psychosis in a child of ten years that had ever been presented or reported at a meeting of this Society. He agreed with Dr. Gregory that such cases might readily be overlooked by the parents or physician, and that the symptoms might be attributed to malaria or constipation or various other bodily ailments.

Dr. William B. Noyes said it was rather difficult to definitely classify a case of this kind without a better understanding of the various gradations of mental depression or excitement associated with mental changes that were not uncommonly observed about the age of puberty. The exaggeration of the normal changes frequently observed in the child at that period of life resembled certain psychoses of later life. In some children, these changes were entirely physiological; in others they were slightly exaggerated, or again we might have the extreme type, as evidenced in this case, although the symptoms might not be so sharply defined. This, perhaps, might be accounted for by the fact that here we had a child of foreign parents, transplanted to a new environment, with poor surroundings and possibly influenced by the strain of over-study. Although the case presented by Dr. Gregory appeared to present clear-cut symptoms of manic-depressive insanity, in the opinion of many who frequently see pathological nervous and mental conditions during childhood, it was better explained as one of a series of mental variations, not so easily classified as Dr. Gregory stated.

Dr. L. Pierce Clark said that an accurate knowledge of the family history in a case of this character might prove a very important factor in making more definite the diagnosis here. Undoubtedly the case was rare in literature only. He had seen two similar cases, though less severe and definite. The case furnished a sad commentary upon our insufficient studies of the psychopathy of childhood. What we really ought to have was an intensive analysis of the development of physical and mental habits, the personality and character of childhood both in normal adjustments and abnormal adaptations to psychic shocks and crises. Often enough in the past all concerned had been quite content to put even as severe a mental depression as shown in Dr. Gregory's case into a class of physical ailments of childhood, but here a fairly defined psychotic disorder was too evident to be disproved in such a manner. He saw no good reason, however, why we should strive so hard to fit adult psychoses upon such young shoulders. Would it not be better to develop our types of psychoses of childhood upon the basis of symptom complexes as they presented themselves, and gradually make disease entities as they came into a well-rounded type largely independent of the nosological designations of adult psychoses? This had been one of the greatest contentions of Meyer, he believed, in his studies upon the nature of dementia præcox, and appeared to be the excellent purpose of Hoch's studies in the development of the shut-in and open personalities of the same group. No doubt psychopathic clinics in connection with the public schools, now being established in this country and abroad, would soon furnish us with a definite material and a better knowledge of just such cases as Dr. Gregory here presents.

Dr. A. A. Brill said he could recall two cases of this type, one a girl of about seven years whom he saw at the Vanderbilt Clinic and later referred to Dr. Gregory, and the other a boy of about ten whom he saw in Dr. Gregory's out-patient department. This boy was in a very excited and maniacal state; he constantly talked about blood,

which his mother attributed to the fact that he had seen some chickens slaughtered. The whole picture presented, besides the maniacal state, a certain phase of obsession of the compulsion neurosis type. The little girl, although evincing an unmistakable maniacal phase, also presented some hysterical features, and suffered besides from a rather severe gonorrheal infection. Dr. Brill asked whether there was any question of hysteria in these cases.

Dr. B. Onuf said that in cases of this kind the question of heredity was a very interesting one to follow up. His own observations had led him to believe that in psychoses of this character, particularly in the circular cases, we not infrequently found a history of manic-depressive heredity.

Dr. Gregory, in closing, replying to Dr. Brill, said he saw no grounds for calling this a case of hysteria. The child showed no evidences of that condition—no sensory disturbances nor hysterical stigmata. On the contrary, she showed all the symptoms of a manic-depressive psychosis. She was very active and restless. It was, of course, true that these conditions, especially the mild or excited types, were apt to be mistaken for hysteria. The speaker said he agreed with Dr. Noyes that we not infrequently saw children about this age with symptoms that were merely an exaggeration of the natural moods, but here we had a child with sharply defined symptoms coming on rather suddenly. The symptoms were those of a manic-depressive psychosis, and he did not see why we should not call it by that name. This girl, formerly very cheerful, meets with a disappointment and becomes depressed and remains in this stupid condition for several weeks. Normal children would not show the effects of such a disappointment for such a length of time, and upon analyzing the case we find psychic retardation and complaints of various ailments, in spite of the fact that she is perfectly healthy. She lacks initiative, and the symptoms are typical of manic-depressive insanity.

**Intraspinous Treatment (Swift-Ellis) for General Paresis.**—Dr. Jelliffe, in introducing a general discussion on this subject, said the year 1913 promised to be a memorable one in the history of general paresis. It was early in the year that Moore and Noguchi announced the finding of *Treponema pallidum* in the brains of paretics. It was demonstrated before this society at the March meeting. It was before this society, at the April meeting, that Drs. Swift and Ellis presented the details of their treatment by the intraspinous method; it was in the early part of this year that Drs. Nichol and Hough of Washington announced the successful cultivation of the treponema from the cerebrospinal fluid of cerebrospinal syphilis, which cultivation experiments were also successfully carried out by Noguchi and others. The findings of Moore and Noguchi were verified in various quarters; they were seen in the dead and living condition, and in the dead and living tissue; the latter first by Förster of Berlin, who obtained them from brain punctures of the living patients. Successful inoculation experiments on rabbits have been made with living brain tissue of paretics, and the results of these successful experiments have been passed on to other rabbits and the organism isolated, and the chain of evidence has practically been made complete. All this has been done within the twelve months preceding this date, and as a result the problem of the treatment of general paresis resolved itself down to the treatment of syphilis in a particular organ of the body, and how best can this be accomplished? Dr. Jelliffe said that his purpose in bringing this subject to the attention of this society again, after the lapse of so short a time as six months, has been determined by a number of reasons. In the first place, it has always seemed to him that perhaps the most important function of a society of this kind, consisting for the most part of active specialistic workers, should be to be on the firing line, as it were, of advance in that branch which the society represents; that subjects brought up for discussion, which have reached a fairly final state of solution, are already the property of most of the members of such a society; that when the final word has been said everybody knows it and therefore the material presented before ceases to have that quickening and stimulating value which would come from considerations of questions which are as yet in the state of being born. Therefore, the discussion which he had planned for the evening, and thanks for which he gave to those about to participate in it, was presented as a more or less nascent problem. If it was somewhat nebulous, if it contained more hopes and aspirations than definite records of positive acquisition, the position already outlined will be sufficient reason for bringing the matter up again. He had thought to narrow the discussion, more or less, to the treatment of paresis, because it seemed to him that here was an avenue in which a great work might possibly be accomplished, and that if attention were baldly and boldly directed toward a problem which in the past has been unconquerable, even an expression of our hope might be of value to the paretic. Certainly the valuable hints that were received at a former session of this society, in which the outlines of the Swift-Ellis method of treatment of syphilis of the nervous system were given, should not be laid aside while there is any possibility that a turning over of the same might result in profit. Even if it be granted that the time is as yet short, that the material as yet is but inconclusive, yet certainly in the experience of some of those about to discuss the paper of the evening, and in that of others who he hoped would discuss it, certain questions might arise which might be worthy of discussion. In the first place, what are some of the accidents which have accompanied spinal puncture, and the free utilization of the spinal canal? Have they been sufficiently serious to constitute a bar to its further use? Have they been sufficiently painful and disappointing to the patient to prevent their use? In other words, have we gained enough information concerning possibilities to enable us to outline a position? On the other hand, to what source must the advantages be attributed? What is the psychic factor of a new hope, of a new method of treatment? What reliance can be placed upon the unquestionable biological improvement? How does it coincide with the clinical manifestations? How long must one wait before a clinical observation must lag behind biological suggestions, and how far does the biological data enable one to extend one's hopes of positive results? Is the optimistic attitude a justifiable one, further than the general philosophical value of all optimistic attitudes in contradistinction to all pessimistic ones? These are the questions which he felt certain are of interest to others as well as himself and which he trusted would enter into the remarks of those about to speak.

Dr. William H. Hough, clinical pathologist to the Government Hospital for the Insane at Washington, D. C., said it had now been definitely established, chiefly through serological investigation and through the finding of the *Treponema pallidum* in the disease process by Noguchi and Moore, Levaditi, Foster, and others, that syphilis was an essential factor in the production of paresis, and although it was quite apparent that it was not the only factor entering into the etiology of the disease, yet our object of treatment, as in all infections, was to relieve the patient of the infectious organism. Therefore, any light that might be thrown upon the nature of the action of the infective virus might be of assistance in the treatment of the disease. This seemed especially important in the consideration of such a protean disease as syphilis. Concerning the treatment of paresis, the speaker said he would consider only the intraspinous injection of salvarsanized serum, as recommended by Drs. Swift and Ellis. We should bear in mind that we were dealing with a general constitutional disease which involved the nervous system especially, and not a disease confined to the brain alone. We were dealing with a disease process which involved a vital and inaccessible part of the body, the infective agent being the *Treponema pallidum*, probably in an especially virulent form. From his own experience with this method of treatment, which included three cases of paresis and one of cerebral lues, he could make no statements as to the final results, and his object in making this report was to show that they had already obtained results which could only be interpreted as evidence of the efficiency of the treatment for the inflammatory syphilitic process, but whether we could arrest the entire paretic process permanently was still undetermined, although from the clinical improvement obtained in some cases and from a theoretical standpoint, the outlook certainly seemed promising. The uniformity of the results obtained thus far indicated to him that it was the most efficient treatment for paresis that had thus far been recommended. The all-important point was to institute treatment early in the disease, and this we were now enabled to do with our improved method of diagnosis. This was perhaps more important in paresis than in tabes, inasmuch as a more vital and inaccessible part of the nervous system was affected. For this reason we naturally expected, and, judging from reports, were obtaining more favorable results in the latter disease than in the former. For syphilis of the central nervous system occurring in the early stage of the disease the speaker said he believed the intraspinous injections were to be recommended, although good results could be obtained in this condition by the proper use of mercury and salvarsan intravenously. Dr. Hough said the technique he had employed was the same as that originally recommended by Swift and Ellis, excepting that after the

first few injections he used 40 c.c. of a 50 per cent. serum instead of 30 c.c. of a 40 per cent. As to after-effects, he had observed none of any consequence, although there was sometimes a slight elevation of temperature, and in one case there was on several occasions a marked reduction of the pulse rate. The urine had remained normal in all cases. Thus far he had given 31 treatments. Dr. Hough then briefly reported three cases of paresis and one of cerebral syphilis in which he had employed this method of treatment. All of these patients were still under observation, and while he could make no statement as to the final results, he was convinced that it marked a distinct advance in the treatment of this hitherto almost invariably fatal disease. Judging from the effect that salvarsan had upon other similar spirochete diseases, especially yaws and other protozoan affections, and from the rapid advancement in chemotherapeutics as particularly indicated in the recent article by Ehrlich, he anticipated that in the near future the chemotherapy of syphilis would be so perfected as to prevent the development of the late nervous manifestations, which now showed such resistance to treatment.

Dr. H. S. Ogilvie, speaking for Dr. John A. Fordyce, who was detained at home by illness, reported the case of man who was taken to the Riverdale Hospital on June 12, 1913. He was extremely loquacious and made numerous unreasonable demands and suggestions. The following night he became very noisy and fought his attendants violently. He was disoriented, and his delusions, both visual and auditory, were very pronounced. He was fearful lest his attendants would kill him, and insisted that his brother and other members of his family were plotting against him. He boasted of his vast wealth and power. On June 19, he was transferred to Sandford Hall at Flushing, L. I., where his condition remained unchanged for the following three weeks. At times he was quiet and would take a small quantity of food, but for the most part he was extremely noisy and at times violent, and it was necessary to keep him almost constantly under the influence of hyoscine and morphine. On July 16, 1913, the patient was given an intraspinous injection of 30 c.c. of a 40 per cent. solution of salvarsanized serum, after the method of Swift and Ellis, the serum being prepared from blood taken from another patient one hour after a full dose of salvarsan. No change in his condition was noted during the following ten days. During this period it was found necessary to catheterize him daily. He was practically confined to bed, as otherwise it was extremely difficult to control him. His delusions and grandiose ideas still persisted. His memory had apparently slightly improved and orientation was better. On July 26, and again on August 4, the intraspinous injection was repeated. Following these treatments he was quieter, took his food well and slept better. His grandiose ideas were less marked and he seemed to have a better insight into his condition. His delusions of persecution, however, persisted, although not as marked as before. On August 14, about thirty minutes after an intraspinous injection, he had a mild convulsion. The nurse reported that his whole body suddenly became rigid and trembled for a few seconds, when he seemed to awaken with a start and looked about the room as though dazed. During the following week he steadily improved and sometimes it was almost impossible to detect any evidence of his psychosis. On August 22, he was given another intraspinous injection, which produced no reaction. The patient now seemed so much better that he was permitted to see his wife. He behaved well for the first fifteen or twenty minutes, but when the question of his leaving the sanatorium came up and he was told that he had better remain a few weeks longer he became very much excited and said that his family had no right to deprive him of his liberty. He agreed to return to the hospital, however, where he was now allowed to take long walks in the country and receive daily visits from his wife. He behaved well and showed but little evidence of his trouble. This was chiefly a tendency to be aggressive and sometimes unreasonable toward his attendants and physicians. On August 29, he received another intraspinous injection. As there had not been much change in his condition during the two previous weeks, it was decided to treat him with serum from his own blood. On September 4, he was given 0.45 gm. of salvarsan intravenously, and fifty minutes later about 50 c.c. of blood was taken from the opposite arm. From this a 40 per cent. serum was prepared, and on the following day he was treated intraspinously. He had no reaction from the salvarsan nor from the intraspinous treatment, and following this there was a very definite improvement in every way. The patient was brighter; he had a splendid insight into his condition; his grandiose ideas had practically entirely disappeared, and he spoke kindly of his brother and his wife. He was so well that he was permitted to go home for two days, and upon his return to the hospital he seemed to be normal in every way. His last treatment was on September 11, when he was again given salvarsan, followed by an intraspinous injection with a solution of his own serum.

Dr. H. A. Cotton of Trenton, N. J., presented a young man of eighteen who first came under his observation about April 29, 1912, with the history of convulsions, the first attack in December, 1911, the second the following April, and after that occurring with greater frequency. He was then attending school, but had to give up his studies on account of increasing irritability and dullness. The patient had a specific history, and a lumbar puncture, made in April, 1912, gave a positive reaction. He received several doses of salvarsan, and in April, 1913, after a consultation with Dr. Swift at the Rockefeller Institute, the intraspinous treatment with salvarsanized serum was commenced. The injections were repeated every two weeks up to June 2, and the patient, who was now living on a farm, was still under Dr. Cotton's observation. The cytological findings were now practically negative, the patient had gained thirty pounds in weight and showed no mental abnormalities at the present time. He still had stiff pupils and an occasional convulsion, but he was able to travel about by himself, and the improvement in his general condition had been very marked under this new method of treatment. In connection with this case, Dr. Cotton briefly reviewed the findings in eight additional cases of general paresis in which the intraspinous method of treatment had been employed by him. In two of these cases that came to autopsy, salvarsan was found in the ventricular fluid, which seemed to effectually answer the query whether the remedy was carried to the brain after the intraspinous injection, or was limited to the cord. Dr. Cotton said that while these reports were only preliminary, the results obtained thus far had convinced him that this method would prove efficient, providing it was undertaken in the early stages of the disease. In his early cases, the clinical symptoms had undoubtedly improved, together with the biological findings. This did not hold good in the late cases. He had, however, seen no bad effects follow the treatment in the late cases; he knew of no contraindications to the method, and expected to continue to employ it, especially in the early cases. He regarded it as a step in the right direction, and said that in the intraspinous method of treatment we had something that promised well in general paresis. We all understood, of course, that there was no possibility of curing these patients in the end stage. Just how far a case of paresis could go before the treatment had lost its effect on the process we could not say. We should not expect to regenerate a paretic brain, but the results thus far obtained led to the hope that we might be able to arrest the process during the early stages of the disease. The extent of recovery would depend on the amount of destruction of the brain that had already taken place. At the Trenton State Hospital the treatment had been resorted to in nine cases, including the juvenile case shown to-night. In all of these the pupils had remained stiff. The knee jerks had returned in one case. All the early cases had shown marked improvement, but in that connection we should take into consideration the normal proportion of remissions that were frequently seen in general paresis, as well as our own optimism in taking up a new method of treatment.

Dr. Burt Asper of the Sheppard & Enoch Pratt Hospital at Towson, Md., said there was practically nothing to add to this excellent presentation of this subject. At the institution with which he was connected they had injected ten cases of general paresis and one case of tabes by the intraspinous method, and their results closely paralleled those reported by Drs. Hough and Cotton. At the Sheppard Hospital they were fortunate in having had two early cases. One was a stonecutter, 39 years old, who gave a history of specific infection dating back 21 years, and who developed mental symptoms some two months before coming to the hospital. The case was unquestionably one of general paresis of the grandiose type, and the symptoms were typical. Following the first intraspinous injection the symptoms were aggravated, but after the second injection they moderated somewhat, and after the third one his mental condition cleared up entirely, although his physical signs remained unchanged. His memory defect had disappeared and he was permitted to return to his occupation, at which he was still engaged. Thus far he had shown no evidence of a re-

lapse. He was still under observation and treatment. The second early case was that of a cigarmaker, 45 years old, whose mental symptoms dated back six months. They were of the maniacal type and cleared up entirely under the intraspinous method of treatment. This patient was still under observation. Dr. Asper expressed the opinion that in the intraspinous injection of salvarsanized serum we had a very valuable method of treating general paresis —something which we had never had before.

Dr. Homer F. Swift of the Rockefeller Institute said that their experience with the treatment of general paresis by the intraspinous method was comparatively limited, and he would restrict himself to a few points in regard to the method. He was interested in the statement made by Dr. Cotton that after an intraspinous injection, the fluid taken from the ventricle of the patient was found to contain arsenic. This finding was in line with some work done in Dr. John Howland's clinic in Baltimore, where phthalein was introduced by lumbar puncture into the subarachnoid space and two hours later fluid obtained from the ventricles was shown to contain phthalein—50 per cent. of phthalein as compared with 100 per cent. in fluid obtained at the same time from lumbar puncture. In cases where the phthalein was introduced intravenously, however, there was no excretion into the fluid of either the ventricles or subarachnoid space. It is fair to assume, therefore, that arsenic or other drugs introduced into the spinal canal by means of lumbar puncture reach all points of the cerebrospinal system (at least the larger cavities) which are bathed by the cerebrospinal fluid. Uhlmann had shown that after intravenous injection arsenic is not present in the nervous tissue in the same proportion as in other parenchymatous organs. Dr. Swift said that the experience with the direct introduction of neosalvarsan into the spinal canal had shown that severe, unpleasant symptoms followed the use of the drug in this way. Both from a practical and experimental standpoint, the direct introduction of salvarsan into the cerebrospinal fluid is inadvisable. Contrary to the experience of some of those who preceded him, no catheterization has been necessary after the introduction of salvarsanized serum into the spinal canal except where the patient has previously suffered from retention. In most of the cases the bladder symptoms have improved following intraspinous injections. Dr. Swift said that he wished to call attention to the value of the titration method in doing the Wassermann test of the cerebrospinal fluid, and the importance of using a large quantity of the fluid. In doing the test, they employ up to five volumes as compared with blood serum and by using these larger quantities, the negative reactions become less numerous. The speaker also mentioned the value of making control tests, continuing either intraspinous or intravenous treatment until a negative reaction is obtained. In their own cases the improvement in the reaction usually goes hand in hand with clinical improvement. In some of the cases the fluid has remained negative for a year and a half after cessation of treatment, and there has been no advance in the tabetic symptoms. They have found that the pleocytosis is the first to disappear, the Wassermann is more likely to disappear next, and, finally, the globulin excess. In the four patients with paresis or taboparesis, the clinical improvement has not been very marked. One of the patients, however, is showing very distinct improvement. Patients with an initial, intensely strong Wassermann reaction in the cerebrospinal fluid usually require much more treatment than those with a weaker reaction. Of twenty-seven cases of tabes that are under treatment with the combined method, 50 per cent. show an entirely negative Wassermann in the fluid; 30 per cent. require the largest quantity of fluid to show a reaction. If tabes and general paralysis are similar diseases involving different portions of the central nervous system, then the results obtained in tabes certainly offer an encouraging outlook in paresis.

Dr. H. LeBaron Peters of Bridgeport, Conn., said he had at the present time six cases under treatment by the intraspinous injection method, of whom none had received more than four treatments. Two of these were cases of general paresis, two of tabes and two of cerebrospinal syphilis. The two paretics had shown considerable improvement from the biological point of view, and in one of them, particularly, there was a marked clearing of the mental condition. Of the others it was too early to speak definitely. No untoward symptoms following the treatments were noted except in the case of one of the tabetics. Here, however, there was for several hours after the treatments a marked exacerbation of lightning pains.

Dr. William M. Leszynsky said that it is not at all surprising that salvarsan should be found in the fluid in the lateral ventricles after injections into the spinal canal. During the epidemic of cerebrospinal meningitis several years ago, it was noted by the late Dr. H. P. Loomis that after argyrol was introduced into the spinal subarachnoid space, it was found at the autopsy distributed over the cerebral cortex.

# State Medical Licensing Boards.

## STATE BOARD EXAMINATION QUESTIONS.

State Board of Medical Examiners for the State of Texas.

*Austin, June 24-26, 1913.*

(*Continued from page 92.*)

### PATHOLOGY.

1. Name some of the tissue changes incidental to old age.
2. Give the pathology of acute lobar pneumonia.
3. Name some of the most essential lesions found in acquired syphilis: first, second, and third stages.
4. Name the chief findings in enteric fever.
5. Give the pathology of chronic interstitial pneumonia.
6. Give the pathology of hemorrhoids.
7. Give the morbid changes resulting from disease of the pituitary body.
8. What morbid condition is brought about from disease of the adrenals?
9. Name some of the pathological changes resulting from cerebral hemorrhage.
10. What is an opsonin?
11. What do you understand by productive inflammation?
12. What is the pathology of diabetes mellitus?

### OBSTETRICS.

1. Describe the changes that take place from the time the ovum is impregnated to the beginning of the second month.
2. Give the cause and mechanism of labor.
3. How would you manage a shoulder presentation?
4. Define ectopic gestation. Differentiate same from uterine pregnancy.
5. Give etiology and management of eclampsia.
6. (*a*) Define uterine inertia. (*b*) What do you understand by primary and secondary inertia? Describe them.
7. Give management of third stage of labor.
8. How would you do a podalic version?
9. Give management of puerperal stage.
10. Give etiology of hyperemesis and management of same.

### GYNECOLOGY.

1. Give the (*a*) clinical diagnosis, (*b*) microscopic diagnosis of carcinoma of the cervix uteri.
2. Differentiate between tubal pregnancy and ovarian cyst.
3. Name and describe the ligaments of the uterus and briefly outline an adequate operation for the correction of retroversion of the uterus.
4. What pathological conditions demand an hysterectomy?
5. Give a clinical description of a case of chronic pyosalpinx and outline an adequate surgical operation for relief of same.
6. Define Amenorrhea, dysmenorrhea, menorrhagia, metrorrhagia, and vicarious menstruation.
7. Describe clinically and pathologically three types of endometritis.
8. Describe the ovary (*a*) as to its anatomical relationships; (*b*) as to its physiological function.
9. A woman, aged 35, has an intermenstrual flow or discharge streaked with blood; mention four probable causes of same and make differential diagnosis with reference to malignant disease.
10. Give the etiology, pathology, and clinical diagnosis of chronic cystitis of woman.

## ANSWERS.

### PATHOLOGY.

1. *Physical changes characteristic of senility:* Cessation of growth; loss of weight; loss of stature; brittleness of bones; rigidity of cartilages; loss of elasticity of crystalline lens; feebleness and atrophy of muscles; grayness of hair; diminution of sexual activity and power;

arteriosclerosis, or other diseased conditions of the arteries; lessened capacity of chest; atrophy and degeneration of digestive glands, kidneys, and testicles or ovaries; slowed reflexes; impairment of the special senses.

2. *Lobar Pneumonia.* "(1) *Stage of engorgement.*—This is the stage of inflammatory hyperemia and edema, and it is characterized microscopically by overfullness and slight tortuosity of the pulmonary capillaries, and by swelling of the alveolar epithelium. The lung is of a dark red color; it is heavier and less crepitant than natural; it pits on pressure; and its cut surface yields a reddish, frothy, tenacious liquid.

(2) *Red hepatization.*—Here there is an exudation of liquor sanguinis and blood corpuscles. The exuded liquids coagulate within the alveoli and terminal bronchioles, the coagulum enclosing numerous white and a few red blood corpuscles. The alveolar epithelium is swollen and granular. The lung is now much heavier than in the preceding stage, and is increased in size, so as to be often marked by the ribs. It is quite solid; sinks in water, and cannot be artificially inflated. It is remarkably friable, breaking down with a soft granular fracture. The cut surface has a markedly granular appearance, seen especially when the tissue is torn, and due to the plugs of coagulated exudation-matter which fill the alveoli. The color is of a dark reddish-brown, often here and there passing into gray. This admixture with gray sometimes gives a marbled appearance. The pleura covering the solid lung always participates more or less in the inflammatory process. It is opaque, hyperemic, and coated with lymph.

(3) *Gray hepatization.*—"This stage is characterized by a continuance of the process of inflammatory cell-emigration, and by more marked changes in the epithelium. The white blood corpuscles continue to escape from the vessels, and the alveolar epithelium becomes more swollen and granular. The alveoli thus becomes more completely filled with young cell-forms, so that the fibrinous exudation is no longer visible as an independent material. The fibrinous exudation now disintegrates, and the young cells rapidly undergo fatty metamorphosis. The alveolar walls themselves, with few exceptions, remain throughout the process unaltered, although very occasionally, when this stage is unusually advanced, they may be found here and there partially destroyed. Owing to these changes, the reddish-brown color of the lung becomes altered to a grayish or yellowish white. The granular appearance is much less marked; the solid tissue is much softer and more pulpy in consistence, and a puriform liquid exudes from the cut surface of the organ. This stage, when advanced, has been termed "suppuration or purulent infiltration" of the lung. (Quain's *Dictionary of Medicine.*)

3. In the *first stage of syphilis,* the chancre is the important lesion.

*The second stage of syphilis* is characterized by: Sore throat, mucous patches; the skin lesions or syphilides, which are characterized: By not itching; by being of a coppery or raw ham color; by being painless; by polymorphism, macules, papules, pustules, etc., being present at the same time; by being generally symmetrical. In this stage may also appear: Iritis, periostitis, and alopecia.

The *third stage* is marked by: Anemia, gumma formation, periosteal nodes, headaches, endarteritis and various other diseases.

4. *Pathology of typhoid fever.*—"Principally inflammation of the lymphoid tissue of the lower portion of the ileum, with more or less catarrh throughout the bowels. Peyer's Patches—1st week.—Are swollen through infiltration of leucocytes, the surfaces raised and fawn-colored—the infiltration involves the submucous coat. The lesions are most numerous at the lower end of the ileum. 2nd week.—The surface becomes abraded; sloughs form which are often bile-stained. 3rd week.—Sloughs come away, leaving ulcerating surfaces. Typical typhoid ulcers are thus formed. A few solitary glands undergo the same process. At the end of the week the ulcers begin to granulate, but healing is usually slow. Mesenteric glands may undergo the same changes, but more often become swollen, red, and tender only, or break down into cheesy masses. Other organs.—Spleen and liver are enlarged; heart is soft and flabby. The voluntary muscles undergo granular degeneration; in fact, similar changes to those found after death from high temperature." (Wheeler and Jack.)

5. In *chronic interstitial pneumonia,* the affected lung is cirrhosed and shows marked development of fibrous tissue; there is also tuberculous involvement of the lung; the lung is much contracted.

6. *Pathology of hemorrhoids.*—"*External piles* are found at the margin of the anus, and are covered with skin. They consist of a small central vein in a varicose state, surrounded by a development of subcutaneous fibrocellular tissue, which latter is much more abundant than the vascular element; in fact, they practically consist of longitudinal folds of skin of a dark brown color radiating from the anus, and superficial to the sphincter."

"*Internal piles* consist of dilated veins held together by a certain amount of connective tissue, and covered by mucous membrane. At first they are quite soft and compressible, and easily emptied on pressure; but when they have existed for some time the connective tissue may be increased in amount, and arterial twigs are often found running into the mass. The condition is limited to the lower 2 inches of the bowel, and may present very varied appearances in different cases. Thus, there may be general dilatation of the veins in the submucous tissue without the formation of any distinct tumors. The mucous membrane is then of a deep claret color, somewhat thickened, and liable to protrude during defecation.....When distinct hemorrhoidal masses form, they may be of two types: (*a*) The *longitudinal or fleshy pile,* consisting of broad sessile masses, dusky in color, soft and compressible in consistency, and covered by mucous membrane, which, although thin and stretched, still remains smooth and shiny, like the skin of a black grape. ..... (*b*) The *globular or bleeding pile* is single or multiple, and as a rule somewhat pedunculated; the surface of the tumor is roughened and granular, like a strawberry, due to the existence of dilated capillaries. When, however, a portion of it has been repeatedly protruded, the exposed mucous membrane becomes hard, and practically converted into skin, and the columnar epithelium may be replaced by the squamous type. The hemorrhage may be abundant, and comes either from the dilated superficial capillaries, or occasionally from a central arterial twig." (Rose and Carless' *Surgery.*)

7. *Disease of the pituitary body* may result in:—Hypertrophy, gigantism, acromegaly, formation of tumors, infantilism and obesity.

8. *Disease of the adrenals* may produce Addison's disease.

9. *Cerebral hemorrhage.*—"Primary effects are tearing and compression of the brain-substance. If the patient does not immediately die, softening occurs. As a result of the staining by the retained hemoglobin the area is known as red softening. Shortly after the blood escapes it undergoes coagulation, forming a cerebral hematoma. This acts as a foreign body and sets up an inflammatory reaction, with more or less hyperplasia of the surrounding neuroglia. The fluid portion finally becomes absorbed, the corpuscles broken down, and the pigment liberated, which stains the walls of the cavity. Occasionally a cyst filled with a clear fluid may form. If all fluids are absorbed, the walls of the cavity may come in contact and a scar result. Other primary effects are distant ones in the form of paralysis, both motor and sensory, and generally on the side of the body opposite to the seat of the hemorrhage. Although there may be a considerable return of the lost faculties, yet in a majority of cases permanent damage is done. This is due to the secondary effects—the secondary degenerations. These are systemic, and follow the direction of the nerve impulses. The commonest degeneration is one of the pyramidal tracts. The optic tract and fibers from the temporosphenoidal area may also be involved. In the brain there is finally loss of nerve-cells, without destruction of the neurogliar fibers. As a result of traumatism, hemorrhages may take place in any part of the brain, with or without fracture of the skull. The hemorrhage may be found on the side of the head opposite to that where the blow was received." (McConnell's *Pathology.*)

10. *Opsonin* is a quality of serum, or something occurring in it, which makes a microorganism more susceptible to phagocytosis.

11. *Productive inflammation* is inflammation specially characterized by the formation of fibrous connective tissue.

12. *Pathology of diabetes mellitus.*—"The normal blood contains a fairly constant quantity of grape-sugar, 0.09-0.1 per cent. This proportion is not decreased by starvation, or increased by the ingestion of carbohydrates; but should the quantity of sugar in the blood increase, an appreciable amount of grape-sugar will appear in the urine. The sugar is derived to a great extent from carbohydrates in the food, to a smaller extent from the splitting up of albuminous bodies and possibly also from fat. The glucose and other sugars, thus formed from food in the digestive tract, pass through the portal vein into the liver; hence the portal vein during digestion may contain as much as 0.4 per cent. of sugar; while a small quantity of sugar may pass into the chylous vessels and thus reach the blood through the thoracic duct. It is generally be-

lieved that in the liver the sugar is converted into glycogen, and by most observers that the glycogen in the liver is changed again into sugar and passed gradually into the blood; but Pavy and others maintain that the liver absorbs the sugar and prevents it from passing into the circulation. It must further be remembered that the muscles also contain glycogen and that they contain more when large quantities of carbohydrates are taken as food and when the muscle rests, but less during starvation and during increased muscular exercise. It is generally held that the liver and muscles by converting the sugar into glycogen act as storehouses, and that the glycogen remains stored up to be again oxidized; fat may also be formed from the sugar; this also becomes oxidized later on." (Quain's *Dictionary of Medicine.*)

OBSTETRICS.

1. *Development of the fertilized ovum:* "(1) When the ovum is mature, two small cells are detached from the main body of cells; these are called polar globules. It was formerly supposed that these were associated with the disappearance of the germinal vesicle, but recent experiments have demonstrated that the germinal vesicle plays an active part in their formation. This can take place independently of fecundation. (2) The portion of the ovum remaining after the throwing off of the polar globules is called the 'female pronucleus.' (3) Fecundation is effected by the penetration of the head of one spermatozoon. This is called the 'male pronucleus.' (4) The male and female pronucleus coalesce. The ovum is now called the oösperm, or blastosphere. (5) The *segmentation* of the nucleus and vitellus, *i.e.* they both split into two masses, these into four, and so on until a large number of segments are formed: This is known as the morula, moriform body, or mulberry mass. (6) A clear fluid is secreted within the ovum, which presses these segments to the surface of the ovum, where they form a double layer of cells, differing somewhat in size. The outer and larger is termed the *epiblast* or *ectoderm*, and the inner and smaller the *hypoblast* or *endoderm*. Together they are known as the blastodermic vesicle. (7) There then appears upon the outside of the vitellus a small oval elevation, surrounded by a depression, which is called the *area germinativa*. (8) There appears in the area germinativa a small, dark line called the *primitive trace*. About this line will be grouped the various parts of the embryo, the rest of the ovum serving only as a covering and for nutriment. (9) A covering for this trace or embryo is now formed. Thus far the vitelline membrane has been sufficient. The embryonic line sinks into the center of the ovum, while the edges of the external blastodermic layer about the area close around it, inclosing it in a sac called the *amnion*. Between the amnion and the embryo, fluid at a later period is deposited; this constitutes the liquor amnii. The vitelline membrane then disappears." (Landis' *Obstetrics.*)

The changes during the period indicated in the question are thus summarized by Polak: "*First week.*—Segmentation of fertilized ovum to form morula while passing along oviduct to uterus. Cleavage cavity present, marking stage of blastula. Great increase in size. Cells of inner cell-mass rearranged to form entoderm and ectoderm. Embryonal area. Primitive streak. Amnion completed at fourth or fifth day. *Second week.*—Ovum in uterus imbedded to mucosa. Chorion and its villi. Vascularization of chorion and its villi. Heart indicated as two tubes. Oral pit. Gut tract partly separated from yolk sac. Medullary plate. Nasal areas. *Fourth week.*—Marked flexion of body. Cephalic flexures. Pancreas begun. Liver diverticulum divides. Bile ducts acquire lumina. Pulmonary anlage bifurcates, the two pouches being connected by a pedicle, the primitive trachea, with the pharynx. Anterior lobe of hypophysis begins. Optic vesicle stalked and transformed into optic cup. Limb buds apparent."

2. *Causes of labor:* Distention of the uterus after it has reached the physiological limit of its growth at the end of pregnancy; increased irritability of the muscle fibers of the uterus; increased reflex excitability of the parturition center in the lumbar enlargement of the spinal cord; extra distention of and pressure upon the cervix uteri; uterine contraction aided by the contraction of the abdominal muscles and the diaphragm.

The *mechanism of labor* differs in the different presentations. In a *vertex* presentation, the stages are: Flexion, descent, rotation, extension, and external rotation. In a *face* presentation, the stages are: Extension, descent, rotation, flexion, and external rotation. In a *breech* presentation, the stages are: Moulding, descent, rotation, and delivery of the breech: descent, rotation, and delivery of the shoulders; flexion, descent, rotation, and delivery of the head.

3. In cases of *shoulder presentation,* if seen before labor, version should be performed to correct the malpresentation; in case of impaction a cesarean section is indicated; sometimes decapitation or embryotomy has been performed, but a cesarean section is preferable. Cases of shoulder presentation have been known to terminate spontaneously, but it is not advisable to rely on this possibility.

4. *Ectopic pregnancy* is a pregnancy where the fetus is being developed outside of the uterine cavity. It may be interstitial, tubal, ovarian, or abdominal. *Symptoms of tubal pregnancy* will be signs of early pregnancy, hypogastric or inguinal pains, probable history of a previous sterility, probable expulsion of decidual membrane or shreds, softening of the cervix, enlargement of the uterus, presence of a distended tube, contractions of the wall of the gestation sac; if rupture occurs, there will be sudden, excruciating pains over the lower abdomen and on the affected side, shock, collapse, and symptoms of internal hemorrhage.

*Positive signs of pregnancy:* (1) Hearing the fetal heart sound; (2) active movement of the fetus; (3) ballottement; (4) outlining the fetus in whole or part by palpitation; and (5) the umbilical or funic souffle. *Doubtful signs of pregnancy:* (1) Progressive enlargement of the uterus; (2) Hegar's sign; (3) Braxton Hick's sign; (4) uterine murmur; (5) cessation of menstruation; (6) changes in the breasts; (7) discoloration of the vagina and cervix; (8) pigmentation and striæ; (9) morning sickness. *Subjective signs of pregnancy,* in the order of their appearance, are: Cessation of menstruation, morning sickness, increased frequency of urination, active fetal movements. *Objective signs of pregnancy,* in the order of their appearance, are: Softening of the cervix, changes in the mammary glands, discoloration of the vulva and vagina, pulsation in the vaginal vault, Hegar's sign, active fetal movements, ballottement, palpation of the fetus, intermittent uterine contractions, hearing the fetal heartbeat, rate of growth of the uterine tumor.

5. PUERPERAL ECLAMPSIA is an acute morbid condition occurring during pregnancy, labor, or the puerperal state, and is characterized by tonic and clonic convulsions, which affect first the voluntary and then the involuntary muscles; there is total loss of consciousness, which tends either to coma or to sleep, and the condition may terminate in recovery or death. *Etiology:* Uremia, albuminuria, imperfect elimination of carbon dioxide by the lungs, medicinal poisons, septic infection; predisposing causes are renal disease and imperfect elimination by the skin, bowels, and kidneys.

*Preventive treatment:* (1) The amount of nitrogenous food should be diminished to a minimum; (2) the production and absorption of poisonous materials in the intestines and body tissues should be limited and their elimination should be aided by improving the action of the bowels, the kidneys, the liver, the skin, and the lungs; (3) the source of the fetal metabolic products and the peripheral irritation in the uterus should, if necessary, be removed by evacuating that organ. The *curative treatment includes:* (1) Controlling the convulsions (by chloroform, veratrum, or chloral; (2) elimination of the poison or poisons which are presumed to cause the convulsions; (3) emptying the uterus under deep anesthesia, by some method that is rapid and that will cause as little injury to the woman as possible.

6. "*Inertia of the uterus* is the somewhat misleading term applied to weakness and inefficiency of the uterine action. It may be either primary or secondary, and it is of the greatest practical importance to distinguish between the two.

"*Primary inertia* is present from the beginning of labor, and is due to some inherent weakness of the uterus. Among conditions that are said to predispose to it are: Nervousness, frequently associated with primiparity, and particularly if the patient be very young or elderly; obliquity of the uterus; fullness of bladder or rectum; these conditions appear to affect the proper innervation of the uterus; previous disease of the uterine wall, or the presence of fibroid tumors; overdistention of the uterus, as in hydraminos or twins.

"*Secondary inertia* comes after the labor has been in progress normally for some time. It is more common in the second and third stages than in the first. It may be due to the same causes as primary inertia, but is more usually an indication of exhaustion of the uterine muscle after a prolonged effort to overcome some obstruction. Such obstruction may be due to the size, position, or presentation of the child, or to some fault in the hard or soft

passages. The all important point is to remember that to deliver the child with the uterus in this state is the worst possible treatment, as it is almost certain to be followed by severe post partum hemorrhage. A flabby, exhausted uterus is not a danger while the child remains inside it, but as soon as it is empty and the placenta begins to be separated the lack of proper retraction may readily permit a fatal bleeding." (Johnstone's *Midwifery.*)

7. In the *third stage of labor* the physician should seize the fundus of the uterus through the abdominal wall and knead and rub it until it contracts vigorously; then he should press it down in the direction of the axis of the pelvic inlet. This should last for about a quarter of an hour after the child is born. The placenta, after it is expressed, should be carefully taken by the physician so as to be sure that it is *all* expelled; at the same time care must be taken that no particle of membrane remains behind. Fluidextract of ergot may be administered. The *dangers* are: hemorrhage, retained placenta or clots or pieces of the membrane, and sepsis.

8. "*Internal version* is done by passing one hand into the uterus, seizing and bringing down one or both feet. The cervix must be sufficiently dilated to allow the hand to pass. It should be done as soon as possible after the membranes have ruptured. If there is only slight retraction of the uterus it may be done, by an expert operator, by deeply anesthetizing the patient, but one who has not had much experience of the operation should not attempt it. If the uterus is firmly retracted it should never be attempted. The patient may lie on her left side, or preferably on her back. The right hand may be used in all cases, but in some the left one does better. It depends on which way the child is lying. Use the hand which will most easily reach the front of the child. Thus, if its back is toward the mother's right side, use your right hand, and if the back is toward her left, the left hand; but if you are not accustomed to working with your left hand always use the right. The hands and arms should be thoroughly sterilized, and well washed in lysol solution. Pass the hand in a cone shape to dilate the cervix, if it is not sufficiently dilated already, and pass the hand on to the front of the child, rupturing the membranes, if they are unruptured. As much of the liquor amnii as possible should be retained in the uterus by damming it back with the wrist. If a contraction comes on, spread your hand flat on the front of the child and wait until the uterus relaxes. If you do not do this the pressure upon your closed hand will almost paralyze it, and may cause rupture of the uterine wall. Catch one or both feet, making sure it is a foot and not a hand. As soon as you get a foot, pull the leg down steadily into the vagina, if the uterus is quiescent, but if a contraction comes on, wait, spreading your hand out as before. The child's body usually rotates quite easily, unless the uterus is retracted round it. If version is attempted when the uterus is retracted, as in a transverse case, care must be taken to unhitch the shoulder from under Bandl's ring, if it is caught, but only an expert should undertake such a risky operation, and it should only be undertaken if there is a chance of saving the child's life. The final part of the delivery is carried out in exactly the same way as when the breech presents." (Jardine's *Delayed and Complicated Labor.*)

9. See HYGIENE, *Question* 3.

10. HYPEREMESIS GRAVIDARUM. *Causes:* Toxemia, reflex irritation, and neurosis. *Treatment:* If possible, remove the cause; pay attention to hygiene, diet; almost any drug can be tried, iodine, cerium, oxalate, bismuth, strychnine, ipecac, bromides, cocaine, have all been recommended; prompt induction of labor or even abortion may be necessary.

## GYNECOLOGY.

1. *Cancer of cervix:* Laceration and erosion are predisposing factors. It occurs most frequently between the ages of 35 and 50. The symptoms are hemorrhage, pain, and discharge. The diagnosis is made on the physical and microscopical examination. The cervix is hard and nodular, and the mucous membrane seems immovably fixed to the underlying tissue. These nodules break down, the entire cervix becomes ulcerated, or large cauliflower-like masses may fill the upper part of the vagina. The diseased tissue is friable and bleeds upon touch.

*Squamous celled cancer* is most likely to begin on the vaginal aspect of the cervix; it appears as an ulcer which erodes the cervix and consists of epithelial cones which invade the underlying tissues. *Columnar celled cancer* attacks the cervical canal; the endometrium here consists of spaces filled with columnar epithelium.

2.

| EXTRAUTERINE PREGNANCY. | OVARIAN CYST. |
|---|---|
| 1. Rapid and regular growth. | 1. Slower growth. |
| 2. Amenorrhea, followed by menorrhagia, with discharge of pieces of decidua. | 2. Menstruation not altered except occasionally in broad-ligament cysts. |
| 3. General symptoms of pregnancy present, changes in color of vagina, etc. | 3. Symptoms of pregnancy absent. |
| 4. Enlargement of the uterus. | 4. No enlargement of the uterus. |
| 5. Attacks of pain increasing in severity, finally culminating in a very severe attack, followed by shock and symptoms of internal hemorrage. | 5. In small cysts, no attacks of pain except from pressure. |
| 6. Pain is intermittent. | 6. The twisted pedicle may cause sudden and acute pain. |

—(From *Wells.*)

And see OBSTETRICS, *Question* 4.

3. The LIGAMENTS OF THE UTERUS are: (1) *Broad ligaments,* which extend outward on each side from the side of the uterus to the side of pelvis. (2) *Rectouterine ligaments,* which extend backward from the intraperitoneal portion of the cervix uteri to the peritoneal investment of the rectum. (3) *Round ligaments,* which extend from the uterus just below the Fallopian tubes, through the inguinal canal to the labia majora. (4) The *ovarian ligaments,* which extend from the superior part of the uterus, behind the Fallopian tubes, to the inner end of the ovary. (5) The *uterosacral ligaments,* which extend from the highest part of the cervix uteri to the sides of the sacrum, opposite the lower border of the sacroiliac synchondrosis.

*Alexander's operation:* "The pubic hair is shaved off and skin and vagina disinfected. The uterus is replaced and a glass stem with attached silk thread introduced into its cavity. A narrow Hodge pessary is placed in the vagina. Next, the patient's legs are extended. The operator stands on the side opposite to the liagment to be shortened; he locates the pubic spine, which is the leading landmark during the whole operation, and makes an incision from 1 to 3 inches in length through the skin over it, in the direction of the slit between the pillars of the external inguinal ring. Its length must be proportionate to the amount of adipose tissue present, but it should, if possible, not extend beyond the hairy portion of the mons Veneris, as then, after the hairs grow out again, the cicatrices will be entirely hidden. Next, the subcutaneous fat and the superficial fascia are divided in the same direction, exposing the glittering, satin-like pillars of the external ring, which is situated above and a little outward of the spine of the pubis and can be felt at the bottom of the wound. It is well to dissect the aponeurosis of the external oblique abdominal muscle, so as to see not only the pillars, but the intercolumnar fascia extending between them. During the incision several small arteries will be severed and must be clamped. In the external inguinal ring is seen a lump of fat which contains the ligament. This whole mass is grasped with an artery-forceps and drawn in the direction of the vulva. The genital branch of the lumbocrural nerve is seen as a fine white cord in front or to one side of the ligament. If it is in the way, it may be cut, but generally it suffices to push it aside. From the ligament extend a number of sinewy threads to the sides of the inguinal canal, which must be severed. Sometimes the peritoneum is invaginated and forms around the ligament a sheath, which must be stripped back with the nails of the fingers. When the isolated white tendinous ligament peels readily out from the canal, the wound is covered with iodoform gauze or sterile gauze; the operator takes his position on the other side and treats the second ligament in the same way. Before fastening the ligaments he should pull both forward and ascertain through the abdominal wall or the vagina, that the uterus is tilted forward. He should then slacken them from ¼ to ½ inch, in order to avoid undue strain on them and the formation of a hernia. They are fastened by passing three sutures of chromicized catgut through them and both pillars on each side, the last one comprising some of the tendinous tissue in front of the pubic bone. When the sutures have been tied, the superfluous

piece of the ligament, which will measure from 2 to 4 inches, is cut off. The superficial fascia is closed with running suture of plain catgut, and finally the skin wound is closed with two or three sutures of silkworm gut. The two wounds are dressed with one piece of iodoform gauze, guttapercha tissue, and plain gauze, kept in place by a double spica or straps of rubber adhesive plaster. At the end of a week the superficial sutures are removed. The patient should remain in bed three weeks." (Garrignes' *Gynecology.*)

4. The INDICATIONS FOR HYSTERECTOMY are given as follows: *For the abdominol operation:* All solid or cystic tumors of the uterus; cancer; uterine rupture during labor; certain conditions of puerperal sepsis; pregnancy complicated by pelvic deformity, cancer, or other serious obstacle to the passage of the child; uterine prolapse or inversion, and incidentally as a step in the removal of complicated suppurative conditions of the uterine appendages.

*For the vaginal operotion:* Bilateral suppurative conditions of the appendages; prolapse, cancer, pregnancy with cancer before the sixth month; certain septic conditions of the uterus; certain rare conditions which may require the ablation of a small movable uterus.

*For the combined operation:* Cancer, certain complicated fibroids; failure to secure hemostasis from below. (From *Reference Handbook of the Medical Sciences.*)

5. CHRONIC PYOSALPINX. *Symptoms:* A dragging sensation in the neighborhood of the affected tube; colicky pain, which is increased on exertion or even on standing; abdominal tenderness; menstrual disorders, as amenorrhea, metrorrhagia, dysmenorrhea, menorrhagia; dyspareunia; there may be septic symptoms and peritonitis; sterility generally ensues. On examination there will be found a fullness in Douglas' pouch and one or both lateral fornices; in these latter will be felt either the tubes, distorted and possibly adherent, or a sausage-shaped tumor, which is very painful; the uterus is retroverted or retroflexed, and may be bound down by adhesions; there may be an intermittent expulsion of pus, accompanied and preceded by a burning pelvic pain. There will be a leucocytosis. *The treatment* of the acute form consists in rest in bed, free purgation with Rochelle salts (5i every hour), hot vaginal douches, and hot applications to the abdomen. If the symptoms become more severe celiotomy is indicated. The chronic form may be treated during the menstrual period by rest in bed, free purgation, hot vaginal douches, local applications of iodine to the cervix and vaginal vaults, and glycerine tampons. If these measures fail removal of the tube and ovary and replacing the retroverted uterus, etc., are necessary.

6. *Amenorrhea* is absence of menstruation during the period of sexual activity. *Menorrhagio* is a condition characterized by excessive loss of blood during the menstrual periods. *Metrorrhagia* is a hemorrhage from the uterus at other than the menstrual periods. *Dysmenorrhea* is painful menstruation. *Vicarious menstruation* is the flow of blood from some organ (other than the uterus) recurring at the monthly periods and taking the place of menstruation. It may occur from the hemorrhoidal vessels, the lungs, the skin, under the nails, the mammary glands, ulcerated surfaces, and many other parts.

7. *Endometritis* is inflammation of the mucous membrane lining the uterus. There is no agreement as to classification, varieties, or terminology. The *acute form* is due to the introduction of septic bacteria, and is manifested by pain, constipation, irritability of bladder, rapid pulse, rise of temperature, and a profuse discharge. *Chronic endometritis* may accompany numerous pathological uterine conditions, but is generally due to gonorrhea. The symptoms are backache, headache, leucorrhea, profuse menstruation, and impairment of the general health.

*Pathology:* "In the *glandular* variety, there is both a hypertrophy and hyperplasia of the glands, the latter taking place mainly by lateral outgrowths of old glands; it is doubtful if new ones grow inward from the surface epithelium, as some state. Many of the glands have, on longitudinal section, a serrated appearance. In the *interstitial* variety, the interglandular connective tissue elements are most affected. The ordinary chronic changes in inflammation are found, the tendency to the formation of spindle-shaped cells and dense tissue being prominent. The glands may become pressed upon and obliterated. Sometimes small retention cysts are formed. These may sometimes cause projections of the surface. In *mixed* forms, the above changes are found in various proportions." (Webster's *Diseases of Women.*)

8. The *ovarics* are almond shaped, about 1½x¾x½ inch; they are attached to the posterior layer of the broad ligament, at the outer end of and a little below the Fallopian tube. Their *function* is to develop ova, and also an internal secretion.

9. Carcinoma, sarcoma fibroid, ectopic gestation, and abortion. In *malignont diseases*, there will be hemorrhage, offensive discharge, pain, and (later) cachexia.

10. CHRONIC CYSTITIS. *Etiology:* Microorganisms (including the gonococcus, staphylococcus, bacillus coli communis, and others), congestion, foreign bodies, rheumatism, gout, cold, traumatism, certain drugs. *Pathology:* The mucosa is thickened, exfoliated, ulcerated, gray in color, and may be covered with pus; villous projections may be observed, and phosphatic deposits are not uncommon. *Symptoms:* Frequent urination, with tenesmus and a burning sensation in the urethra; later on pain in the bladder, hematuria, and the urine contains pus and epithelial cells. Chills, fever, rapid pulse, and headache may also be present. A feeling of weight or pain in the pelvis is noticed.

(*To be concluded.*)

## BULLETIN OF APPROACHING EXAMINATIONS

| STATE | NAME AND ADDRESS OF SECRETARY | PLACE AND DATE OF NEXT EXAMINATION† |
|---|---|---|
| Alabama* | W. H. Sanders, Montgomery | Montgomery... |
| Arizona* | J. W. Thomas, Phoenix | Phoenix |
| Arkansas | F. T. Murphy, Brinkley | Little Rock |
| California* | C. B. Pinkham, 929 Butler Building, San Francisco | Sacramento.. |
| Colorado | David A. Strickler, Empire Building, Denver | Denver....April 7 |
| Connecticut* | Chas. A. Tuttle, New Haven | New Haven...Mch. 10 |
| Delaware | J. H. Wilson, Dover | Dover....June 16 |
| Dist.of Col'ba | Geo. C. Ober, Washington | Washington...April 14 |
| Florida* | I. D. Fernandez, Jacksonville | Jacksonville.. |
| Georgia | C. T. Nolan, Marietta | Atlanta / August } June 3 |
| Idaho* | J. F. Schmershall, Jerome | Wallace....April 7 |
| Illinois | A. Sawyer, Springfield | Chicago |
| Indiana | W. T. Gott, Crawfordsville | Indianapolis..July 14 |
| Iowa | G. H. Sumner, Des Moines | Des Moines...June |
| Kansas | H. A. Dykes, Lebanon | Topeka....Feb. 10 |
| Kentucky | J. N. McCormack, Bowling Green | Louisville....June |
| Louisiana | A. B. Brown, Cusach's Bldg., New Orleans | New Orleans..June 4 |
| Maine | F. W. Saerle, Portland | Portland....Mch. 10 |
| Maryland | J. McP. Scott, Hagerstown | Baltimore....June 16 |
| Massachusetts* | W. P. Bowers, State House, Boston | Boston....Mch. 10 |
| Michigan | B. D. Harison, 205 Whitney Building, Detroit | Ann Arbor....June 9 |
| Minnesota | T. McDavitt, St. Paul | Minneapolis...April 7 |
| Mississippi | S. H. McLean, Jackson | Jackson....May 12 |
| Missouri | J. A. B. Adcock, Jefferson City | Feb. 9 |
| Montana* | Wm. C. Reddell, Helena | Helena....April 7 |
| Nebraska | C. P. Fall, Beatrice | Lincoln....Feb. 11 |
| Nevada | S. L. Lee, Carson City | Carson City...May 4 |
| N. Hampshire | Henry C. Morrison, State Libr'ry, Concord | Concord....July 1 |
| New Jersey | H. G. Norton, Trenton | Trenton....June 16 |
| New Mexico | W. E. Kaser, East Las Vegas | Santa Fe |
| New York | H. H. Horner, Univ. of State of New York, Albany | New York / Albany / Syracuse / Buffalo } Jan. 27 |
| N. Carolina | B. K. Hays, Oxford | Raleigh....June 9 |
| N. Dakota | G. M. Williamson, Grand Forks | Grand Forks |
| Ohio | Geo. H. Matson, Columbus | Columbus |
| Oklahoma | W. Duke, Guthrie | Oklahoma City |
| Oregon | B. E. Miller, Portland | Portland |
| Pennsylvania | N. C. Schaeffer, Harrisburg | Philadelphia / Harrisburg / Pittsburgh... |
| Rhode Island | G. T. Swarts, Provideoce | Provideoce...April 7 |
| S. Carolina | H. E. Boozer, Columbia | Columbia....June 1 |
| S. Dakota | L. G. Hill, Watertown | Pierre |
| Tennessee | A. B. DeLoach, Memphis | Memphis / Nashville / Knoxville } May |
| Texas | W. L. Crosthwaite, Waco | Austin....June 23 |
| Utah | R. W. Fisher, Salt Lake City | Salt Lake City. |
| Vermont | W. Scott Nay, Underhill | Burlington...July 14 |
| Virginia | Herbert Old, Norfolk | Richmond |
| Washington* | F. P. Witter, Spokane | Spokane |
| W. Virginia | S. L. Jepson, Wheeling | Charleston...April 21 |
| Wisconsin | J. M. Beffel, Milwaukee | Madison |
| Wyoming | J. B. Tyrrell, Laramie | Cheyenne |

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for all the details regarding the examination in any particular State.

**Chronic Hypertrophy of the Lips.**—E. G. Graham Little reports the case of a young man, aged about 28, who had suffered from swollen lips for about three years. Both lips were greatly enlarged, covered with hyperemic mucous membrane, without noticeable fissures or increased glandular secretion. The degree of swelling varied within certain limits, increasing and decreasing from time to time, but never receding to normal limits of size. Owing to the persistent swelling the lips were everted, shiny, and rather dry than moist. There was no nasal discharge, but there were numerous carious teeth, especially in the front of the mouth. The gums were not swollen or tender. The Wassermann reaction was negative.—*Proceedings of the Royal Society of Medicine.*

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## Original Articles.

### OCCUPATIONAL DISEASES.*

By W. GILMAN THOMPSON, M.D.,

NEW YORK.

I HAVE been for some years interested in the occupational diseases which have become, in the last few years in this country, a matter for intensive study, leading toward preventive legislation. The first American Congress on this subject was held in Chicago in 1910; the second in Atlantic City in 1912, in cooperation with the American Medical Association. These have been the chief public meetings, and any special study that has been made has been confined to a few states and a few individuals.

The United States Labor Bureau appointed Dr. Alice Hamilton to investigate the subject of lead poisoning in connection with the painter's trade. This trade covers 300,000 painters in various branches of the trade. As an instance of the frequency of poisoning in this trade, 18 per cent. of the workers were poisoned sufficiently to complain of the symptoms and seek treatment; and it was not known how many were less seriously poisoned. but as many as one-fourth had some evidences of poisoning symptoms. The Health Boards of Massachusetts and New Jersey also have investigated the subject of occupational disease, and the Illinois and New York State Factory Commissions have conducted valuable researches.

Poisoning by nitrate of mercury is acquired in the felt hat industry. The fur of rabbits is treated by nitrate of mercury, which seems to be the only substance that affects the cut fur in such a way that the fibers become interlaced, thus producing a firmer quality of felt. One hundred and two cases of chronic mercurial poisoning have been reported in the felt hat trade by Mrs. Lindon W. Bates; and in some of these cases a senile dementia was produced.

Dr. J. B. Andrews has made an investigation of phosphorus poisoning which has led to legislation controlling the match industry. In match factories he found a large series of cases in which either the upper or lower paw had been lost through phosphorus poisoning. In investigating the number of deaths from lead poisoning, in New York State alone in 1909-10, he found recorded 60 deaths, and in my own experience in hospital records 300 cases were gathered of sufficient gravity to seek hospital treatment. At the Cornell Medical Clinic an assistant, Dr. Kenney, has studied 25 cases in one winter. Some very good work has been done in the occupational diseases by Price and Graham Rogers of the New York State Factory Commission. In Massachusetts the State Board of Health has investigated through Dr. Hanson in the past five or six years the inhalation of dust in the dusty trades.

There seems to be a great lack of literature of the subject of the occupational diseases. At the present time in this country we should collect, as physicians, more accurate data. Legislation on the subject has been copied from the English law, by which four poisonous metal trade diseases, caisson disease and anthrax, are required to be reported. This latter is useless as regards this country, as cases of anthrax are so rare that many physicians have not seen one case. In England anthrax comes from sorting hides and rags. Legislators need intelligent cooperation from physicians in order to regulate hazardous trades in this country.

In the "blue beds," where lead workers produce lead carbonate, fermentation is produced by acetic acid, and sometimes by vegetable substances. Often the workmen go into the closed chamber without gloves or masks, their hands and clothes become covered with lead carbonate. Sometimes respirators are worn, but, as a rule, perfectly inadequate protection is found. In rooms where paints are mixed the room is often filled with lead dust, inhaled by the workmen. Workmen who make storage batteries have a particularly dangerous trade. The rooms are often dirty and the red lead paste invades everything. These men often chew tobacco and so swallow particles of lead and become poisoned. One rather exceptional case was that of a track walker: He carried torpedoes covered with lead, and also in the same pocket a quid of tobacco. In this way he acquired plumbism.

In the canning industry, where solder is much used, lead poisoning sometimes ensues.

In England, Sir Thomas Oliver initiated the study of occupational diseases. He found that in the pottery industry a very large number of women and children are employed, a large proportion of whom become seriously affected with lead poisoning. Articles of pottery to be glazed are dipped into lead nitrate solution. All kinds of materials have been tried, but potters prefer lead glaze for the work. Part of the risk is that the men dip their arms into the wet glaze composed of lead solution. In the ware cleaning room of some potteries a large revolving drum scours off the excess of lead glaze. The dust can be carried off by aspirating ducts which minimize the risk of lead dust. A man occupied in polishing porcelain ware may be protected by a respirator and the article polished is held inside a closet, so that the dust is not breathed by the workman. The employers are now interested in an overhead douche where the workmen can strip and wash off the lead particles, and put on clean clothes, so that the body is protected to a great extent from the hazard of lead poisoning. There are one hundred and fifty trades in which lead poisoning is a hazard.

*Abstract of an illustrated paper read at the two hundred and fifty-seventh meeting of the Practitioners' Society of New York, November 7, 1913.

Congressional legislation has placed the employment of white phosphorus under so prohibitive a tax that its further use will be impracticable. This is the only example of legislation of this kind. In the match industry a phosphorus paste is prepared and a traveler carrying thousands of match sticks dips them into the phosphorus, holding them till sufficiently dry to be removed. The fumes and handling of phosphorus are a hazardous condition. Many women and children are employed in this industry and the unhygienic rooms add to the risk of the workers. Child labor is well represented in the match industry, where girls are occupied in sorting matches, and when, as formerly, poisonous phosphorus was used, many cases of necrosis were reported.

A dramatic incident happened in the case of the investigation of Dr. Andrews. The passage of the legislation was blocked by a certain senator, who was suspected of sympathizing with the match industry. Dr. Andrews got permission to make an exhibit. The senator obstructed the motion, but Dr. Andrews produced his exhibit, which was a man who had lost his jaw by phosphorus poisoning. When the senator saw the man he turned pale and fled, and no more was heard of his opposition.

Arsenic constitutes a hazard in many industries, though its use has largely been given up in the manufacture of wall paper, artificial flowers, etc., and has been replaced by aniline dyes. Workmen in dyeing industries are not sufficiently protected. They wear poor overalls and dip their arms into vats containing various solutions, such as Paris green.

In the examination of caisson disease, Dr. F. L. Keays did a very important work as physician to the Pennsylvania tubes under the East River. He had the examination of all the workmen, of whom 10,000 were employed for several years. There were 3,692 cases of caisson disease and 20 deaths. The treatment of the workmen is now regulated by law. When a man comes out with the "bends" he is immediately recompressed in an air lock, so as to allow the nitrogen bubbles which he has absorbed, to escape more slowly. The workmen also have warm and dry clothing on coming out of the tubes.

In the glass cutting industry workmen require protection from the powdered emery used in cutting and polishing glass. Miners require protection in overhead drilling. The stream of dust and falling particles have to be directed away from the workman. Stone cutting needs the same protection. Granite dust is particularly irritating to the lungs, and the workers often have chronic rhinitis and bronchitis. Owners of textile and other factories are careless about dust and report that the girls get used to a chronic catarrhal condition, especially in the button industry, which evolves a large amount of irritating dust. The buttons are made from the inside of mussels obtained in the Mississippi River. The button is punched out and the refuse used for fertilizer. In the making of meerschaum pipes the dust sometimes produces pulmonary disease and bronchial catarrah. Rag sorting is a very dirty, unhealthy process, although the rags are treated beforehand. In jute picking the organic dust is particularly irritating to the lungs.

In the polishing of rubber shoes naphtha is used, and this leads to symptoms of pronounced anemia on the part of the workers. In metal tempering the men stand so near the furnace as to acquire affection of the eyes from the intense heat, and the fumes and steam are a hazard. In glass bottle blowing, which is now not so much done with the lungs as formerly, owing to the introduction of machinery, the glass blower is apt to suffer injuries of the skin of the hands from the hot tubes and may acquire emphysema. In paper mills, because of the chloride of lime used in the manufacture of paper and from the rag sorting and consequent dust, the workers often suffer poisoning from lime and dust.

In Vienna, Berlin, and nearly a dozen other foreign towns, there are now Museums of Safety; and in Milan there is a hospital containing one hundred and fifty beds with excellent laboratories and an Out Patient Department exclusively for the treatment of industrial diseases. In the museums all kinds of devices for securing the safety and health of the workmen are exhibited.

I want to impress on this meeting the importance of definite and cooperative investigation. In my clinic I use a special kind of history card for the reporting of industrial disease.

In connection with the subject of occupational disease a man who recently came for treatment suffered from an unusual condition. He was a motor man who was accustomed to refrain from emptying the bladder for a long time, and in this way the bladder became enormously distended. He also was accustomed to bolt his meals and thus his stomach was distended. This case can be classed as an occupational disease.

The subject of occupational disease calls for the cooperation of economists and philanthropists as well as legislators and physicians. Suitable legislation is bound to come.

61 West Forty-ninth Street.

## BERIBERI.*

### AN ADDITIONAL EXPERIENCE AT CULION. HOW CAN A KNOWLEDGE AS TO ITS PREVENTION BEST BE APPLIED FROM THE STANDPOINT OF STATE MEDICINE?

By VICTOR G. HEISER, M.D.,

MANILA.

DIRECTOR OF HEALTH FOR THE PHILIPPINE ISLANDS.

THE tremendous morbidity and mortality rate in the Orient due to beriberi warrants me, I believe, in bringing this disease to your attention once more.

In previous papers proof was offered of the intimate relationship that exists between polished rice, when used as a staple article of diet, and beriberi. Since these papers were written, medical literature has fairly teemed with additional evidence to support this relationship.

The recent International Congress of Medicine and Surgery held in London during August passed resolutions which substantially reiterated those adopted by this association in 1910 and 1912. It is indeed gratifying that similar action should come so quickly from the foregoing and also from other independent sources.

On account of the large number of persons involved, it was thought that it might prove of interest to report the following additional experience which was had with beriberi in the Philippines. In a previous paper read before this association in 1912 at Hongkong, among other instances cited was that of the Culion Leper Colony, in which beriberi completely disappeared after unpolished rice

*Read at the third biennial meeting of the Far Eastern Association of Tropical Medicine, held in Saigon, November 8-15, 1913.

was used exclusively, and the colony remained free from beriberi from March, 1910, to January, 1912; or, in other words, during the entire period during which unpolished rice was provided.

During the autumn of 1911 there was a great shortage in rice throughout the Orient and this led to much speculation which had for its object the controlling of all the available rice. The price was advanced in some instances 100 per cent. or more. The Philippine Government, in order to protect the people of the Philippines as much as possible from extortionate prices, successfully broke the corner in rice so far as the Philippines were concerned, and in a short time the cost was reduced to more normal figures. Unfortunately, however, in order to accomplish its purpose the government was compelled to purchase large quantities of polished rice and in order to dispose of it, large issues to the Culion Leper Colony were begun in November, 1911, and continued until February, 1912. During January, 1912, cases of beriberi began to occur among the inmates of the colony and the general mortality rate began to rise rapidly. At the beginning of February the use of polished rice was discontinued and the use of unpolished rice was resumed. A reduction in the number of new cases of beriberi soon took place. The following table will show at a glance the morbidity and mortality rates before polished rice was used, during the period it was used, and after it was discontinued:

| 1911. | Total Deaths. | Deaths from Beriberi. |
|---|---|---|
| October | 26 | 0 |
| November | 24 | 0 |
| December | 31 | 0 |
| 1912. | | |
| January | 35 | 2 |
| February | 86 | 36 |
| March | 82 | 60 |
| April | 25 | 3 |
| May | 29 | 6* |
| June | 38 | 2* |
| July | 22 | 1* |

*Cases admitted to the colony suffering from beriberi.

It will be noted that two months after the use of *polished* rice was begun cases of beriberi began to appear and that the maximum number was reached three months after its use began. It may also be seen that three months after the use of *unpolished* rice was begun beriberi had completely disappeared. Nor has there been any beriberi at Culion since that time among inmates who were subsisted by the government. From time to time there are, of course, persons admitted who are suffering from beriberi or occasionally there are inmates who purchase polished rice for themselves and sometimes beriberi occurs among them. All cases, however, regardless of their origin, are recorded in the foregoing table.

In the experience of Culion, then, we have an institution of over 3,000 inmates that prior to the use of unpolished rice in 1910 had an annual death rate of 201 per thousand from beriberi, which was reduced to zero during the period of 21 months that unpolished rice was used, and upon the use of polished rice being resumed beriberi returned and was directly responsible for a death rate of 157 per thousand per annum. When unpolished rice was substituted for polished rice beriberi again disappeared and has remained absent to date, or a period of 20 months.

With the exception of the very general scheme to educate the masses, no practical plan to reduce the occurrence of beriberi upon a large scale has as yet been put forward that has received universal support. With the overwhelming evidence now available that beriberi, in epidemic form at least, can be successfully eradicated among those who use rice as a staple article of diet, it seems strange that at least 100,000 deaths should continue to occur annually in the Orient from this disease. At this conference we should seriously ask ourselves whether everything possible is being done to put our knowledge into practical effect. In the Philippines education has been faithfully tried. Over half a million school children have been taught the contents of Health Bulletin No. 12, entitled "Beriberi and How to Prevent It," of which I submit a copy to each of you in order that you may judge for yourselves as to whether the subject is adequately presented. In Manila, articles have been published in the newspapers since 1910 at intervals of a few weeks in English, Spanish, and the vernacular. Public addresses on beriberi are frequently made.

The official statistics for Manila show the deaths from beriberi to have been as follows:

| Year. | Number of Deaths. |
|---|---|
| 1910 | 970 |
| 1911 | 1480 |
| 1912 | 1209 |
| 1913 | 980 |

From these figures it is apparent that after three years of faithful trial of the educational methods we are practically where we were in 1910. A review of the statistics of other oriental countries shows that much the same condition of affairs exists there.

In the past the writer has recommended that a definite standard as to what constitutes polished and unpolished rice should be adopted and that the amount of phosphorus pentoxide might be used as an index of the degree of polishing which the rice has undergone. There seems to be a very general agreement among workers in beribri that any rice which contains more than four-tenths of one per cent. of phosphorus pentoxide may be regarded as incapable of causing beriberi. A quite extensive practical experience with this standard in the Philippines has shown it to be very satisfactory. The accurate method for arriving at the amount of $P_2O_5$ is, of course, through chemistry, but we have found that for a rough test the method suggested by some writers, that the approximate degree of polishing could be roughly ascertained by the depth of the color when rice is stained with either methylene blue or iodine, is satisfactory. Briefly, any rice that stains deeply with Loeffler's methylene blue or Churchill's tincture of iodine contains less than 0.4 per cent. of $P_2O_5$ and a rice that stains only slightly contains more than 0.4 per cent. $P_2O_5$. By the use of this simple method a dealer could be reasonably certain, by applying the test himself, as to whether he was buying or selling polished or unpolished rice.

The writer has further recommended that probably the best way in which the very general use of unpolished rice could be brought about would be to

place a tax upon polished rice. This plan has many features to recommend it. In the first place, if adopted by general agreement by all the countries in the Orient it would in no way disturb the fiscal arrangements in any country because it would be in addition to any other tax. Second, it would leave polished rice available for those who could afford to pay for it, and among whom, on account of their better financial ability to purchase other foods in addition, it would cause no beriberi. Third, the owners or managers of rice mills would immediately adjust their process of manufacture so as to produce a rice that contained at least 0.4 per cent. of $P_2O_5$. Fourth, the small amount of rice which is polished by hand could be safely disregarded. Fifth, the tax would soon result in the discontinuance of the manufacture of polished rice and there would be no tax to collect. Sixth, in the few instances in which there would be a tax to collect it would be done economically and with the smallest amount of disturbance to business.

Briefly, the greatest obstacle toward bringing about the more general use of unpolished rice has been the fact that rice mill owners refuse to produce unpolished rice, probably fearing that by so doing they would be placed in an unfair position with competitors who had not adopted the manufacture of unpolished rice.

On account of the fact that the solution of the beriberi problem would probably save more human lives and at the same time be of greater economical advantage than any one health measure proposed in modern times, it is thought that this subject well merits the most serious consideration by the various governments concerned, and it is respectfully recommended that this congress urge upon the governments taking part to name a delegate or delegates who would have authority to discuss the matter and to draw up a practical working plan to bring about that desired result. As Singapore is probably the center of the greatest number of interests involved, it might be well to suggest that the convention of delegates be asked to meet there in conference.

## THE RELATION OF EXPERIMENTAL SYPHILIS TO EUGENICS.*

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SYPHILIS is generally conceded to be the worst of all the infectious diseases in relation to the welfare of the next generation. Taken the world over, the only other specific disease which can be compared to syphilis, in this respect, is gonorrhea; and it is doubtful if the evil consequences of gonorrhea, such as sterility in the prospective parents and blindness in the children, equal the sum total of damage which is traceable to the spirochetes of syphilis, in the way of miscarriage and of the flooding of the child's body with such dangerous and resistant parasites. This is not the place to rehearse the tragedies of conjugal and inherited syphilis; but the confidences of the physician's office bring out the terrible reality of syphilis as a family disease and the testimony of school teachers, of employers, of directors of homes for feeble-minded children and of hospitals for the insane is eloquent in regard to the handicap under which congenital syphilitics face life.

In the strict academic sense of a unit character bound up in the chromosomes of the parents' germinal protoplasm, syphilis is not hereditary for generations; although there are authentic cases on record of the mechanical transfer of the parasites of the disease to the third generation. However, from the practical viewpoint of the welfare of the immediate offspring, syphilis is worse than a detrimental unit character because the parasites are not limited to any one organ or tissue, but can and do permeate them all.

The dangers of the marriage of syphilitics have long been known and the medical profession has long insisted on safeguarding the health of prospective parents and that of their children by rules which covered the situation as far as existing knowledge permitted. Until recent years, however, our knowledge of syphilis has been far from satisfactory and our rules have frequently failed of their purpose. Within the past decade our knowledge of the disease has been greatly enlarged especially by experimental and laboratory studies, and we are now equipped with more efficient tests to determine the marriageability of persons who have had syphilis and are better prepared to prevent the advent of damaged successors.

Along with this increase of knowledge and partially dependent on it has developed the modern movement of eugenics, which is only a part of a larger movement for the control of nature and society for human welfare and happiness. The first essential of this movement is knowledge or science, for we cannot act with good effect if we are in the dark. The second essential is rightmindedness or the desire to use knowledge for human welfare. When evils are brought to light, right-minded persons feel an irresistible impulse to correct them and the eugenics movement along these lines is one of the most encouraging signs of the times. In the words of the most illustrious living exponent of the larger movement we may say that the eugenics movement is "a sure indication of the eternal forces of human growth, of the God-given impulse implanted in mankind to make a better race and a better earth."

As has already been pointed out, the great recent advances in our knowledge of syphilis have come from the laboratory rather than from the clinic. Experimental syphilis is still a young branch of syphilology and much work remains to be done, but certain facts have been established and experimental syphilis has a claim for consideration because its findings once established are more reliable than those of the clinic. One of the best examples of the superiority of the experimental and laboratory method over that of simple observation of the patient is seen in the recent downfall of Colles' so-called "law." It has long been taught as an outcome of clinical observation that an "apparently" healthy mother of a syphilitic child will not become infected by nursing or handling her child, because in bearing a syphilitic child she has become "immune" to the disease. It is usually true that the mother under such circumstances does not become infected, but as a result of experimental work and laboratory tests, we now know that she does not become infected, not because she is "immune," but because she herself has the disease, usually in a so-called "latent" form. That is, she is only "apparently" healthy and later on will pay toll to the hidden para-

*Read before the Eugenics Section of the American Association for the Study and Prevention of Infant Mortality, November 15, 1913, Washington, D. C.

sites. The same is true of Profeta's so-called "law" which relates to the "apparently" healthy child of a syphilitic mother. The child is really not immune and really has the disease and will suffer accordingly. There are many other aspects of the disease which can be thoroughly understood and intelligently handled only by the production of the disease in animals and by the study of it under the rigid conditions of scientific experiment.

*The possible affinity of Treponema pallidum for the reproductive organs.*—What is the explanation of the almost deadly certainty that a syphilitic husband will infect his wife and that some at least of their children will be born with the disease? As a result of recent experimental studies in syphilis, we know that the disease is a septicemia in its early stages. The virus is circulating in the blood and has been recovered in as high as 80 per cent. of cases in this period.[1] It would not be surprising, therefore, that in this period the virus should be transmitted in the marriage relation. But this is not the stage in which the damage is usually done; more often it is later in the disease, when the future father thinks he is cured, that marriage occurs and the disease is passed on. Experimental syphilis has something to say on this subject and undoubtedly will have more to say in the future.

It cannot be stated as an established fact that the *Treponema pallidum* has an especial affinity for the reproductive organs, but there are several evidences of this insidious possibility. The most fruitful part of experimental syphilis has followed the transmission of the disease to the rabbit and this field of work remained limited until it was discovered that the sexual organs are the best place for the multiplication of the parasites. It is a fact, also, that an intravenous injection in the rabbit results first and sometimes only in lesions of the scrotum and testicle. Such observations are suggestive to say the least. Along the same line of thought, Uhlenhuth has called attention to the fact that the virus of dourine, a sexual disease of the horse, multiplies best in the testicle in experimental inoculations of the rabbit, either direct or intravenous. Again, Neisser says that in infected monkeys the testicles are more highly inoculable than milk or bone marrow. These observations seem to indicate that infection of the reproductive organs is not merely a part of the general flooding of the body with the parasites, but that the parasites actually have an affinity for these tissues. If this is so we may be dealing with a character of the parasite which has been acquired in order to perpetuate itself, and if this is the case the disease becomes just so much harder to combat. The solution of this problem, which is a very practical one, can come only by the experimental method.

Neisser[2] has reviewed this subject up to 1911. Spirochetes have never been found in the seminal fluid by direct microscopical examination, but inoculation experiments have revealed their presence. Neisser himself failed to infect monkeys in seven trials with fresh seminal fluid from cases in various stages of the disease. Hoffman failed in three trials with fluid from cases of $2\frac{1}{2}$ months, 11 months and 18 months standing. Finger and Landsteiner were successful in two cases. In one the patient had had a syphilitic orchitis so that this case can be ruled out. In the other instance spermatic fluid was obtained from a case in the secondary stage by expression of the seminal vesicles and prostate; it was centrifuged and injection of the centrifugate into a monkey resulted in a definite syphilitic lesion. The fluid was apparently perfectly normal and contained active spermatozoa. This result is a distinct contribution to our knowledge of syphilis in relation to eugenics. It also raises the question if the male sexual element does not actually carry the virus. Since 1911 the only work recorded in this line has been done by Uhlenhuth and Mulzer,[3] who have confirmed Finger's observation in so far as relates to the infectiousness of the seminal fluid in the secondary stage. They obtained seminal fluid from an early case with relapse after salvarsan and successfully inoculated three rabbits. The entire fluid was used. Seminal fluid from the same case after treatment failed to infect the rabbit.

It will be seen from these experiments that the seminal fluid of secondary cases is infectious. We are still uncertain about the seminal fluid of later cases, but clinical suggestions are strong here and it remains for experimental syphilis to say the final word. We are also in the dark about the mechanism of infectiousness, whether the virus is in the fluids or in the male elements themselves. The entire subject of the relation of the spirochetes to the female reproductive organs is untouched. In the solution of these problems little headway is to be expected, except by the experimental method.

Uhlenhuth and Mulzer have also taken up the difficult subject of experimental hereditary syphilis by breeding syphilitic rabbits. The great practical difficulties of this subject are apparent, but Uhlenhuth and Mulzer have already had some success. They have shown that there is no immunity in young born from syphilitic females and that the young may be infected *in utero* by producing the disease in the mother. A continuation of this work will probably yield very valuable results. If known to our misguided friends who oppose the experimental method, this work will also probably provoke the usual protest. This protest can be met by one question which has never been satisfactorily answered by the "antis" and until it is so answered it must remain as a stumbling block. The question is, how many rabbits is one human child worth?

*The relations of syphilis to the family.*—The relations of syphilis to marriage and the fruits of marriage may be outlined as follows: (1) The husband has syphilis. He infects the wife and she infects the embryo and has a miscarriage or an infected child. This is probably the most usual occurrence, but as stated above, it is possible in some cases that the father infects the ovum and that the mother is secondarily infected. (2) The husband has syphilis. He infects the ovum without infection of the mother. This is very rare, if indeed it is possible. (3) The wife has syphilis and infects the child *in utero;* the husband may be infected or not. (4) The wife is infected after conception and infects the child. In any case the result seems to be the same, the child is infected and suffers accordingly. It may be said that this outline should also include the more cheerful statement that either the father or mother may have syphilis and the child may be healthy. This may be true of the later children, but in a given case any such statement, unless backed up by the results of modern methods of examination, should be heard with scepticism. If a child is born to syphilitic parents and is not all broken out with sores on the skin, it is no sign that the child is healthy. The evil consequence of syphilis may not become evident for years afterward, and who has followed these "apparently"

healthy children for a sufficient length of time to speak with certainty of the clinical results? The only sure way is to use the laboratory tests available at present and the more they are used the more widespread the disease appears in the family. We frequently hear a syphilitic father say that his wife and children are healthy, but on examination we rarely fail to find evidence of the disease in the wife and in one or more of the children.

*The fitness of persons who have been infected for marriage.*—When is a person who has had syphilis fit to marry? In other words, when is syphilis cured? If either a man or woman still has syphilis we cannot safely give consent to marriage because there is a distinct risk in either case that the offspring will be infected. We cannot say that this will always happen, much less can we say that it will not happen. The chances are all in favor of its occurrence. Under the older rules, if a syphilitic had had more or less continuous treatment for one or two years and had shown no external symptoms for two or three years more, he was allowed to marry. It has been a great disappointment to find that a large number of such cases were not really cured and that they were not really fit for marriage. In fact, in the light of our modern tests for the presence of the disease, we have reason to believe that the majority of cases treated in the most approved way by mercury and potassium iodide were not really cured.' The disappointment over the failure of salvarsan to produce permanent effects in a small number of doses does not compare with the disappointment over the failure of our historical remedy, mercury, even when given for years to really cure the disease in the majority of cases.

At present we have four tests which have been contributed by experimental and laboratory work for the detection of the disease. These tests cannot safely be disregarded in determining the marriageability of persons who have had syphilis. These are as follows: (1) A series of Wassermann reactions. (2) The provocative Wassermann reaction. (3) The luetin reaction. (4) Examination of the cerebrospinal fluid. If any of these tests are positive, I believe that consent should not be given to marriage, because a positive result in any one of these tests, according to our present knowledge, indicates the presence of living parasites. In regard to the Wassermann reaction there is a tendency on the part of some clinicians to regard a positive result in late cases simply as an evidence of past infection, like the persistence of the Widal reaction after typhoid. In my opinion this is an entirely mistaken view and one full of danger. Everything we know about this reaction indicates that it is a symptom of the disease and it should be regarded as such. It is not strange that the other more comfortable view should be held, because, unless we hold such a view, we are compelled to admit that the older methods of treatment failed to cure in a majority of cases and even with salvarsan we are compelled to admit that some cases are practically incurable. But it is the duty of scientific medicine to seek and to state the truth and while the clinician in daily touch with the hopes and fears of the patient may be inclined to take the easiest route, it is the duty of the laboratory to stand by the facts as it knows them.

It is not necessary to enter into a detailed discussion of these tests here, but they should be used to supplement each other. I have compared the results of the first three tests in a series of late cases in the following table:

| | Wassermann Reaction | Provocative Wassermann Reaction | Luetin Reaction |
|---|---|---|---|
| 1 | – | + | + |
| 2 | – | + | – |
| 3 | – | + | – |
| 4 | – | + | – |
| 5 | – | + | – |
| 6 | – | + | – |
| 7 | – | + | – |
| 8 | – | + | – |
| 9 | – | – | + |
| 10 | – | – | + |
| 11 | – | – | + |
| 12 | – | – | + |

It is evident that we cannot safely rely on a single test; we must use all the means at our disposal. We must insist on a clean bill throughout if practical advance is to be made in eugenics. The standard here outlined is a severe one and many candidates will fail to measure up to it, but in view of the nature of the disease as already outlined, it seems to me the only safe standard. The requirement of an examination of the reproductive fluid is probably an impracticable measure, but it is not out of the bounds of possibility.

On the other hand it would be a great mistake to imagine that syphilitics are doomed because we find evidence of a hidden infection in so many cases. We have good reason to believe that a majority of the human race have tuberculosis at some time of life and in most cases without even knowing it, and syphilis in many respects is no worse than tuberculosis. In addition we have means of treatment. We can control the disease even if we cannot thoroughly eradicate it in late cases. Many syphilitics do the hardest kind of physical and mental work and are fit for all the activities of a useful citizen, with the one exception of the perpetuation of the race. For this function they should be made to qualify. In my experience most men, under these circumstances, are right minded. They are not willing to experiment with human flesh and blood. They are willing to forego marriage, for the time, and entirely, if necessary. Of course there are others who are not so mindful of duty and they should be forced into the same position by the combined efforts of parents, physicians, clergymen and public opinion as seen in the eugenics movement of to-day.

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## REPORT OF CASES OF AMEBIC DYSENTERY TREATED WITH EMETINE.*

By JEROME WAGNER, M.D.,

NEW YORK.

THOUGH there is no doubt that heroic doses of ipecacuanha administered in bulk has greatly lowered the death rate of amebic dysentery, it is far from an ideal method of treatment, aside from the fact of its many failures. Dr. Leonard Rogers, who has performed noble service in India in combating this disease, is responsible for the use of emetine, the active principle of ipecacuanha, in the treatment of dysentery due to *Amœba histolytica*. Vedder has shown that emetine in dilutions of 1 to 100,000 killed the ameba in broth culture. At present there are still doubts as to the purity of these

*From the Clinic of Professor Jerome M. Lynch, New York Polyclinic Medical School and Hospital.

cultures, consequently Rogers determined to test the efficacy of emetine on the amebas as they exist in the stool. He found that placing mucus containing numerous active amebas in a physiological saline solution of emetine hydrochloride resulted in the killing of the amebas and in an instantly altered microscopical appearance, the strength of the emetine solution being 1 to 10,000. A solution of 1 to 100,000 resulted in death to the amebas within a few minutes. The first opportunity of testing the worth of emetine in the human subject came when a case presented itself where ipecacuanha could not be administered by mouth, and the results of the use of the drug were most gratifying. In his preliminary report Rogers cites three cases, one of acute hemorrhagic dysentery, one of chronic dysentery and one acute. In each case the drug effected a cure, whereas ipecacuanha had failed.[1] In these cases blood disappeared from the stools as early as the second day, and formed feces appeared. A later report by Rogers mentions twelve cases in which the drug had been used. This series of cases included all varieties and stages of amebic dysentery and its sequela, liver abscess. As Rogers states,[2] he had previously shown that in the vast majority of cases of liver abscess the pus in the liver was sterile, containing only the *Amœba histolytica* (85 per cent. of cases). The cases of plain amebic dysentery he treated with hypodermic injections of emetine hydrochloride, though at first the hydrobromide was used, but was found to be too insoluble, the dosage varying from injections of one-third grain to one-half grain twice a day, though at times as much as two-thirds grain was given at a dose. In fact, as much as one grain has been administered subcutaneously. In this series two of the cases had abscesses of the liver and the third a splenic abscess. In the first case the pus of the liver abscess was aspirated and quinine injected, but this resulted in failure. The emetine was then resorted to. Eight ounces of pus were aspirated and one grain of emetine in two ounces of sterile salt solution injected into the cavity; cure resulted. In the other case of liver abscess, in addition to the injection of the emetine into the cavity, one-half grain of emetine was injected subcutaneously for four successive mornings. An abscess of the spleen was similarly treated and cured. In none of the cases did nausea or vomiting follow the use of the drug, regardless of the dosage; though one-third of a grain of the salt, emetine hydrochloride, is equivalent to thirty grains of ipecacuanha. Two cases of persistent bloody diarrhea were also treated with emetine, but without result. Subsequently these proved to be other than amebic dysentery. From this fact Rogers assumes that it is only in dysenteries of the amebic type that emetine is effective. To sustain his argument that emetine is specific in amebic dysentery, he claims that he lost one-third of his cases treated with ipecacuanha in doses ranging from thirty to sixty grains a day and one-quarter of the cases left the hospital uncured. He finds that the emetine may be given by mouth in one-third grain doses, providing that the stomach is empty three hours before administration and kept empty for three hours following. In these cases no nausea or vomiting has resulted. It might be interesting to peruse a table that Rogers has prepared showing the relative action of emetine hydrochloride and ipecacuanha. The table covers thirty cases treated with the latter and twenty-five with the former.[3]

| | Died | | | Discharged otherwise | | |
|---|---|---|---|---|---|---|
| | In 3 days. | After 3 days. | Of other disease | Very bad. | Not cured. | Cured. | Total. |
| Ipecac | 4 | 7 | 2 | 2 | 4 | 13 | 30 |
| Emetine salts | .. | .. | .. | .. | .. | 21 | 25 |

The two cases treated with emetine that died of other causes can not in fairness be classified as failures, while the other two cases treated with emetine who died, were moribund at the time of admission. So it may be said that all the cases treated with emetine were successful. In those cases dying from other causes, the ameba was not found in the bowel post-mortem. With ipecac the average stay in the hospital was 16.4 days, with emetine 7.2 days. The stools became normal on an average of 11.4 days with ipecac, while with emetine they assumed their normal character in 2.35 days. The average number of grains of ipecac required was 406, with emetine two grains of the drug sufficed, the equivalent of 180 grains of ipecac. In two to four days all blood and mucus disappeared, while in acute hepatitis the pain disappeared in twenty-four hours. The temperature was reduced within a few days. In one case Rogers introduced one-half grain of emetine hydrochloride intravenously in 5 c.c. of saline with good results as to action. From this brief survey of the work of Rogers it can readily be seen that the active principle of ipecacuanha must be of undoubted value, and only time is necessary to render proof.

Allen[4] reports two cases of amebic dysentery treated with soluble salts of emetine, in one of which enormous doses of the drug were required. In this case the hydrobromide solution was first used, supposedly, but response came only after the hydrochloride was used in a dose of four grains. This dose caused nausea and vomiting. Lyons[5] reports six cases in which emetine hydrochloride was used with successful results in five, the sixth dying. In the five cases the stools became normal in nine days. Thompson[6] reports seven cases of cure after the use of emetine, one being a case of acute hepatitis. He states, further, that he has so treated one hundred and fifty cases, in some of whom the drug had no effect. This he explains by stating that in all probability they were a dysentery of the bacillary type. In these cases the emetine had no effect. The important item, however, is that of the dysenteries, 85 per cent. are of amebic origin.

There have been other isolated cases reported where emetine has cured an amebic dysentery.

No mass of evidence has ever been presented in so acceptable form, relating to the specificity of a drug in dysentery. Though Wadhams and Hill report three cases of amebic dysentery in whom the ameba disappeared after treatment with neosalvarsan, no further record is at hand.

The first case of amebic dysentery in America was reported by Osler in 1890. Since then the presence of this disease in our community is more or less a recognized fact. Ipecac has had its advocates and its opponents. Phenomenal success has never attended its use in this country, particularly when the cases are not under hospital control. At our clinic in the New York Polyclinic Hospital we have seen over one hundred cases in the past twelve years. While in most of these cases the diarrheal symptoms were severe, in only a small percentage was hospital retention necessary, and no moribund case has ever come under our observation. In all our cases the diagnosis was made only after the

finding of the *Amœba histolytica* in the stools, although we were always able to recognize the typical ulcers in the lower bowel.

In the cases reported below the treatment was ambulatory, the patient returning to the hospital each day for examination and treatment. In the first case the buttocks were used as the site of injection; but in the others, we used the fleshy part of the arms. We used one-half grain tablets of emetine hydrochloride dissolved in ten to fifteen minims of saline solution. In these cases we endeavored to give the patients total doses of three and one-half grains in daily fractions, thus consuming seven days in the treatment of a case. Protoscopic examinations were made as frequently as was possible, and microscopical examinations of the stools were also made at each opportunity. These examinations were made on a warm stage, and the material used was obtained from the surface of the ulcers in the bowel. When ulcers were no longer present mucus from the bowel was utilized. At times it was necessary to give the patients salts by mouth in order to obtain good material for examination.

From the study of the cases which have come under our observation, and which we are reporting in detail, we find that the average number of stools per diem, before treatment was instituted, was twelve to fifteen. On an average of one and two-thirds days after the initial injection the number of stools dropped to one, or at the most two, in twenty-four hours. At the end of a series of seven injections the stools numbered but one a day, and continue so to the present time. In all the cases the stools were fluid and freely mixed with blood and mucus before the first injection. In two of the cases the blood and mucus disappeared from the stools twenty-four hours after the first treatment, while in the third case the stools were free from blood and mucus on the third day after the first dose of emetine hydrochloride. This was the first time in years, the patient said, that his stools did not contain blood and mucus. On an average of three days after treatment had started, the stools became formed. In no case was the *Amœba histolytica* found after the first twenty-four hours. It required, on an average, two days to relieve the patients of all tenesmus, in two of whom this symptom was very severe at the time they first came under observation. In all cases following the first injection the patients felt very much better according to their own statements, and in each case there was great improvement in the appearance of the rectal mucosa, as revealed by proctoscopic examination three days after the first injection; while at the end of a week little sign of the ulcers remained, however numerous at the first examination. At the end of two weeks, with the exception of a slight anemia, the mucous membrane of the lower bowel was absolutely normal, and even the anemia had disappeared at the end of three weeks' time. One month after the patients came under observation a protoscopic examination showed a perfectly healthy mucous membrane in the lower bowel. In all cases the patients felt better, generally, reported gain in weight, and ability to indulge themselves in varieties of food. None of the cases receiving hypodermic injections of emetine ever vomited following the injection, nor were they even nauseated. The site of injection never developed any pathological condition. In but one case was a blood count made, as reported hereafter.

Case 1.—No. 240. P. M. Age 42. Male. Married. Occupation—Bottle Washer. Family History, Negative. Past History, Never ill before. Non-alcoholic. No tobacco. Venereal denied. Present condition. Dates back ten years when patient had his first diarrhea. The stools at this time were watery and had a foul odor. One week later noticed blood and mucus in stools. At first the blood was dark but later assumed a lighter hue. The stools now became very numerous, numbering twelve to fourteen a day; and associated with each movement there were severe griping pains in the abdomen and a bearing down sensation in the rectum. He went to a hospital in this city where he remained for two weeks and was discharged as cured at the end of this time. He said the diagnosis of dysentery was made. For two years he was free from all trouble, then a similar attack occurred, more severe than the first. The patient went to a hospital in this city, where he was confined for two months, at the end of which time he was again discharged as cured. Two years later he had another attack, which necessitated his confinement in a hospital for three months. Since then he has been free, until three months ago, when the patient was again attacked with diarrhea. The bowel movements numbered fifteen to twenty a day, consisting mostly of blood and mucus. Though he had no abdominal pains between movements, he suffered severe tenesmus with and immediately following each movement A severe headache was almost constant. In the past three months he had lost thirty pounds in weight.

*Physical Examination:* Revealed a poorly nourished individual, evidencing loss in weight; dirty, yellow complexion, with appearance of a profound anemia.

*Proctoscopic Examination:* Showed typical amebic ulcers in rectum. There was a large amount of blood and mucus in the canal from which emanated a characteristic foul odor. A specimen of this mucus was examined microscopically by Dr. Jeffries (Pathologist of Polyclinic Hospital) and the *Amœba histolytica* was found. *Treatment:* On May 14, two hypodermics of emetine hydrochloride were administered, one into each buttock. The dose was one-half grain. The following day this dose was repeated. May 15. On this day the patient said he felt better inasmuch as his bowels had moved but twice in the previous twenty-four hours instead of fifteen times, and in addition both movements were free from blood. The odor of the movements was still foul. On May 16, the following day, the patient reported but two bowel movements for the twenty-four hours, of a pea-soup consistency with but little odor. He had been absolutely free from all pain of any kind. A proctoscopic examination was made this day and showed a marked improvement over the previous existing conditions in the rectum. There was very little bloody mucus in the bowel. Another one-half grain dose of emetin was administered this day. Patient returned three days later, May 19, and was again proctoscoped. At this examination very few ulcerations were left in the rectum and the mucous membrane had a normal appearance. His stools were now formed, and for three days past his bowels had moved but once a day. On the 20th of May another half grain of emetin was given by hypo. Patient reported one movement in twenty-four hours, well formed and free from blood. No pain had accompanied the movements the previous week and the patient had gained one pound in weight. On May 24 a proctoscopic examination revealed but two ulcers in the lumen of the bowel while the patient reported regular daily formed movements. On June 3, patient came for treatment, reporting three loose movements after a glass of beer on June 1. On June 6, patient was again examined with the proctoscope, and showed a perfectly normal mucosa, with no signs of any ulceration, no mucus in stools or any amebæ in any of the excreta. Stools were now hard and well formed. On July 11, patient returned for observation and reported that he had some diarrhea after drinking beer or eating sour food. Was given five grains of ammonium bromide and ten grains of sodium bromide *t.i.d.* On the following day patient reported cessation of diarrhea and since then there has been no recurrence. One month later patient was still free of all trouble, regardless of what he ate or drank.

This was the first case in which we had an opportunity to test the efficacy of emetine as a specific in an amebic case. For this purpose the case was an ideal one. Typical ulcers were present in the bowel, the amebas were found and the patient was having from fiteen to twenty movements a day. The above

history describes most graphically the effect of the administration of the emetine. Though we have no means of knowing, we might make bold and assert that in all probabilities the patient was not cured of his ulcers in the previous attacks, notwithstanding a two months' confinement in a hospital. As is well known in amebic disentery, there are periods of rest where the patient has no diarrhea; and, in a small percentage of cases, there are even intervals of constipation. And although we have at present no means of knowing whether the patient will now remain free of his infection, the immediate action of the drug must be described as nothing short of most marvelous and gratifying. Our next case might be said to have been of even greater severity. The history is as follows.

Case II.—No. 279. W. P. Age, 33. Single. Shoemaker. U. S. *Family History:* Negative. *Past History:* Diphtheria at thirteen. Malaria and dysentery in Philippines in 1899 (14 years ago). Chancroids in 1901. (Sixteen sores.) Moderate drinker and smoker. General diet. *Present Condition:* Dates back to 1899 when patient contracted dysentery in the Philippine Islands. At that time had twenty to thirty daily movements with severe tenesmus. Was in the hospital for two months and although at the time of his discharge he was improved, he still had three or four soft movements each day, occasionally passing blood. This condition had persisted for all these years and for the past six months he had had at least six movements a day with passage of blood and mucus. Occasionally he had severe tenesmus and complained of great weakness. He was at least thirty pounds under his normal weight.

*Physical Examination:* The patient was extremely thin and sallow. The spleen was enlarged though there had been no malarial attacks in seven years.

*Proctoscopic Examination:* The entire mucous membrane of the lower bowel was thickened and edematous and there were numerous small and coalescel ulcers surrounded by an area of swollen white tissue. Temperature 99.6°, pulse 90, resp. 18. A microscopical examination of the mucus obtained from the surface of the ulcers revealed the presence of the *Amœba histolytica*. Treatment was instituted on June 27, one-half grain of emetine being injected into the subcutaneous tissue of the right arm. This was repeated on the following day, the left arm being used. There had been no improvement. This dose was repeated on June 29 and 30, and on the last occasion patient reported but one movement for the preceeding twenty-four hours, stating further that for the first time in years his stool seemed to be entirely free from blood. The movement was a semi-solid formed one. On July 1, the report was four stools, watery with traces of blood. Again one-half grain emetine was given by hypo. On the following day he reported three stools, soft, but no pain accompanying the movement or blood in the stools. One-half grain emetine was injected. July 3, the following day, was exceedingly hot and the patient felt very much depressed, consequently no emetine was given this day; there had been two soft passages in the past twenty-four hours. July 4, two movements, no pain. July 5, one movement, slight abdominal pain, no blood in feces. July 6 and 7, one stool, well formed, no blood or mucus. One-half grain emetine injected. On July 7, 8, and 9, there was one normal movement each day, without concurrent symptoms. On the 9th, one-half grain of emetine was iniected. On July 11, the patient returned for examination. His appearance was greatly improved, the pallor was not nearly so marked, his appetite was better and he was having one normal movement each day. A blood count was taken and showed 4,200,000 red blood cells and 15,000 whites, as compared with 3,800,000 red cells and 18,000 whites on June 23. A proctoscopic examination showed the mucosa to be somewhat pale and anemic but absolutely free from any kind of ulceration or other abnormality. No mucus was present, except in normal state, and no amebas were to be found in the excreta. July 16, was the last visit of the patient and on this occasion the mucosa of the lower bowel showed a decided improvement over the condition existing five days previously. The anemia of the mucous membrane was no longer present, and as before, no ulceration was evident. The patient said he felt like a different man, was having but one movement a day, rarely two; stools were perfectly normal in character and to all intents and purposes a cure had been effected.

This case must impress the reader with the remarkable powers of emetine when injected hypodermically. Suffering from a constant diarrhea for nearly fourteen years, a mere shadow of his former self in body and mind, subjected to the ravages of *Amœba histolytica*, abetted by germs in the lower bowel, finding a perfect media in the ulcerated areas; this man was relieved after three daily injections for the better part of three weeks, and at the end of three weeks was cured. Quite true is it that equally remarkable results have been observed following appendicostomy; but it must be borne in mind that whereas one is a major operation, attended with those dangers with which general anesthesia and intraperitoneal manipulations are always fraught, the other is a simple procedure —merely the administering of a hypodermic injection, a procedure which, if necessary, could be performed by the patient himself at any place or at any time.

Case III.—J. S. No. 281. Age 26. German Sailor. Present condition dates back to a sojourn in India, one year ago, since which time patient has had a steady diarrhea. This consists of a bloody mucus, watery stool, more frequent at night, at which the patient claims he has movements as frequently as one every hour. Proctoscopic examination showed that *Amœba histolytica* was present, together with the typical ulcers of amebic dysentery. The general condition of the patient was good and on July 27 the injection of one-half grain doses of emetine was started and continued for seven days. The arms of the patient were utilized as the site for injection. After two injections the bowel movements dropped to one a day and so continued to the end of treatment, at which time the proctoscope showed that the lower bowel was clear of ulceration. Further trace of the patient was lost, as he failed to return after the seventh day. It is presumable that he had no further difficulty.

There is a fourth case, a private patient of Dr. Lynch's, that also responded most ideally to injections of emetine; but, unfortunately, the history and data of this case have been lost, and we are unable to cite the case in detail.

First thought might lead one to assume that four cases are only too few from which to draw conclusions or upon which to base statements of substantiation. The work and reports of other observers, however, are all characterized by the similarity of results, results which can be summed up in one word, "cure." Marvellous as the results obtained by the hypodermic injection of emetine, more wonderful still is the rapidity of action. As our cases show, within a few days of the initial injection, improvement is most marked. The number of movements decreases within three days, blood and mucus disappear from the stools in a period equally brief, while at the end of a series of seven injections of one-half grain of emetine each, the patient is apparently cured, the ulcerations within the bowels healing in that length of time. In none of our cases has the *Amœba histolytica* been identified in the stools or mucus after the first injection. The most skeptical cannot fail to be impressed by the apparently deadly effect of emetine upon the ameba of dysentery.

Ipecac has been used for years in the treatment of amebic dysentery, with variable success. There have been many other medicinal remedies recommended, and only recently, as stated above, has salvarsan been used as a curative measure. There is no question, however, that medicinal treatment, up to the time of the use of emetine, has not been

attended with constant success, and operative treatment has been resorted to. The object, of course, being a ready means of irrigation of the lower bowel. Two operations have been utilized, the cecostomy, as devised by Gibson; and appendicostomy, first used by Weir. The latter, to date, has been used more frequently and seems to be the operation of choice. Dr. Lynch, who has performed appendicostomies on over one hundred cases of amebic dysentery, has never met with any untoward results, and has never failed to effect a cure, providing the bowel was irrigated for a sufficient length of time. In these cases the opening was left for a varying length of time, depending upon the condition of the lower bowel, and the irrigations were always continued for some time after the bowel was free from ulcerations. The kind of solution used in irrigating the canal was of no material consequence, as the purpose is to keep the bowel clean. In the average case the appendicostomy opening was not closed before a lapse of two years. In the past year Dr. Lynch has been performing the operation under local anesthesia, thereby greatly lowering the operative risk. No difficulty has been experienced in performing the operation in this manner, and we thought the ideal method for treatment was at hand. Then came reports of the wonderful success of Rogers in his treatment with emetine, and in the light of present results it would appear that the day of appendicostomy in amebic dysentery has passed.

The purpose of this paper is not to describe amebic dysentery, but the author of this paper would like to impress upon his readers that amebic dysentery is not endemic or epidemic alone in the tropics. There are many cases in this section of the world, and only too many of them are not diagnosed. The reason for this, perhaps, is due in part to inadequate facilities to assist in arriving at a diagnosis. It is not easy for the inexperienced to demonstrate the amebas in the stools, particularly when it is remembered that below 65° F. the ameba ceases to move. On the other hand the man who has seen a number of cases recognizes the typical ulcers in the bowel, on proctoscopic examination; but, here again only too few of us resort to proctoscopic examinations when a patient comes with diarrhea. Now, however, no case of persistent diarrhea should escape our hands without first proving to our own satisfaction the presence or absence of amebic dysentery. As Rogers has shown, emetine is a diagnostic specific. A few doses of emetine, injected hypodermically, will result in improvement in a diarrhea providing it is of amebic origin; on the other hand, if due to some other cause, the emetine is without effect. There is no danger attendant on its use, no constitutional effects ever having been observed. Indeed is this to be marveled at when one considers the deadly action of the drug upon the ameba.

We have had no experience with the drug in the treatment of liver abscess due to amebic dysentery, but as Rogers has shown, the drug is as potent as in an uncomplicated case of dysentery. For some unknown reason the occurrence of liver abscess, complicating amebic dysentery, is not as frequent with us as in the tropics, though no doubt many of the liver abscesses brought to the operating table could be traced to an amebic origin.

From our own experience with emetine hydrochloride injected in cases of amebic dysentery we draw the following conclusions:

1. Emetine hydrochloride is a specific in dysentery due to *Amœba histolytica*.
2. The method of administration is hypodermatically in daily doses of one-half grain of emetine hydrochloride dissolved in sterile water, extending over a period of seven days.
3. The effect upon the pathological condition is most pronounced and immediate. At the end of seven days all the symptoms of the disease have disappeared.
4. The patient shows no ill effects from the use of the drug.
5. To date there has been no reason to suspect the possibility of recurrence.
6. Two or more doses may be injected in cases of diarrhea to assist in diagnosing the origin of the dysentery. Improvement indicates an amebic dysentery.

January 5, 1914. Since the writing of this article two additional cases have been treated with emetine hydrochloride with results similar to those obtained in our other case.

Within the past week, two of the cases originally treated have returned with recurrences. In each the amebas were found though the diarrhea had been of but a few days duration. Emetine treatment has been promptly instituted.

Recently there have been other reports of recurrences, so it would seem that intermittent treatment with emetine is necessary.

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# SOME REMARKS ON THE MEANING OF DREAMS.*

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THE subject of dreams has taken on a new interest to most of us since the origin of the psychoanalytic movement. Whereas, previously, most dreams were looked upon as curious products of the imagination, without meaning or significance, and of no practical value whatever, we have now come to appreciate that dreams are not merely the insignificant and meaningless conglomerations of a wandering mind. We now know that there is a meaning to every dream and to every portion of a dream; that there is a reason, a definite explanation for the trend and content of the dream thoughts; that it is frequently important to be able to analyze and interpret dreams; and that there is a real, practical benefit to be obtained by a study and understanding of the mental processes and mental content of dreams.

The members of the Freudian school have given considerable attention to the subject of dreams. Freud has devoted a book to the "Interpretation of Dreams." About dreams as a basis an extensive psychology has been elaborated by the Freudian school. This psychology is the basis of the Freudian method of psychoanalysis and is the

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groundwork upon which as a foundation most of the sweeping and dogmatic conclusions of the Freudian school have been built up.

It is not my object here to attempt to explain the principles of the Freudian psychology. Nor shall I enter into a comprehensive exposition of the Freudian conception of dream interpretation. This has already been done by many writers, and articles along this line have previously appeared in this journal and elsewhere. I shall, however, be compelled to enumerate the essential points in the Freudian conception of the meaning and interpretation of dreams. This I must of necessity do, since I wish here to present certain views more or less diametrically opposed, in many respects, to the Freudian viewpoint; differing from it in others and agreeing with it in still others.

Let us, therefore, note, categorically, the main conclusions arrived at by Freud and his school with respect to dream analysis and interpretation. For a full exposition of the Freudian conception the reader is referred to Freud's "Interpretation of Dreams" and to the writings of certain Freudians, particularly Jones and Brill here in America. In this paper, as above stated, I shall merely note the essential landmarks of Freud's contention.

Very briefly stated, Freud's ideas concerning dreams and their meaning may be summed up as follows:

(1) The law of rigorous psychical determinism holds true for dream life. This means that for every psychic state, for every idea in the dream there is a logical and efficient antecedent causative mental state in the present life of the individual. All the dream thoughts are related to one another and are of more or less intimate significance to the dreamer.

(2) Dreams express wish-fulfilment.

(3) The underlying thoughts or sources of the dream are always unconscious; they are (4) generally of infantile origin, and fundamentally are (5) usually of a sexual nature.

(6) The dream is the result of a struggle between repressed, unconscious tendencies striving for recognition and what has been called the endopsychic censor, as a result of which a compromise is brought about so that the hidden thoughts, unacceptable to the individual in their naked form, and constituting the latent content of the dream, are transformed into other, more acceptable forms, which go to compose the manifest content of the dream (which is the dream as we have it), this manifest content thus symbolically expressing the meaning of the latent content. Various mental mechanisms are employed in a free and high-handed manner to bring about this transformation which is purposive and which accounts for the strangeness, the bizarreness, the shifting scenes, the changing persons, the kaleidoscopic, crazy-quilt, topsy-turvy tendencies of so many dreams.

(7) Thus the function of the dream is to guard sleep, to prevent certain disagreeable thoughts from appearing in undisguised form. When the dream is not accomplishing its purpose of properly transforming the latent content by the free employment of symbolism, no matter how far-fetched, the endopsychic censor rouses the dreamer who, by awaking, prevents these unacceptable thoughts or ideas from disporting themselves in nude form in the dream.

The forgetting of a dream is also purposive, the most significant parts being frequently earliest and most completely forgotten, the least important being longest and best recalled. The distortion of dreams during the waking state is a continuation, in greater degree, of the distortion taking place during sleep.

In fine, according to the Freudian conception, dreams are the result of an intrapsychic struggle. They usually represent, in disguised form, the repressed sexual strivings of the individual. Somatic and external stimuli and recent experiences, generally of the day before, although woven into the dream, are merely inciters of the true dream thoughts, which, in their ultimate analysis, are found to be of a wish-fulfilling nature, unconscious, of infantile origin, of sexual nature, hitherto repressed, hidden, kept in subjugation, but continually lurking in the dark and ever silently but powerfully striving for expression and unconsciously guiding the individual during his sleeping and his waking state.

To analyze a dream thoroughly, therefore, and unravel its true, underlying meaning, the psychoanalyst must, according to the Freudians, penetrate to the infantile and early childhood life history. Dreams will then be seen to be a means of gaining various sense-gratifications and emotional heavings which Dr. Putnam of Boston would classify as sensuous or sexual. With this classification I cannot agree since it would mean that all feeling, all affectivity, all bodily yearning, hence all human energy, in fact the vital energy of the universe, would have to be called sensual or sexual and be included within the meaning of the term libido. On the other hand, most Freudians, in employing the term sexual, include under this heading, in addition to the usual meaning, all possible incestuous, bisexual, narcissistic, and polymorphous perverse sexual tendencies, physical and psychical, conscious or unconscious. It is in this latter sense that infantile sexuality is commonly and almost universally used by Freudians, and it is from this standpoint that they conduct their analyses and interpretations.

I shall not here take up seriatim these beliefs of the Freudian school and analyze them with regard to their truth or fiction. A few of these points are discussed to some extent in previous papers. I shall, however, without comparative discussion pro and con, enumerate the points on which I take issue with Freud's conception of dream interpretation. To discuss the various points of difference of opinion would require more time and space than can here be devoted to the subject at hand.

The author's conception of dreams, very briefly sketched, may be stated as follows:

(1) The law of psychical determination does hold true for dream life. True, for every psychic state, for every thought in the dream, there is and must be a logical and efficient antecedent causative mental state. But this mental state cannot always have occurred in the present life-history. On the other hand, the entire ontogenetic and phylogenetic history, the evolutionary life-history, must be taken into consideration. When this is done we find that our instinctive tendencies, physical and mental, play a prominent part. Moreover, although all thoughts, tendencies, activities, and reactions have a valid cause, which occurred in the past, nevertheless all these states, even when closely related and of a similar nature, do not necessarily show a cause-to-effect relationship between early and late experiences, nor is any special intimacy to the individual

indicated by the appearance, due to association, of any of these.

(2) Instead of wish fulfilment, which is not a broad enough term and does not include all fears, I would say that the biologic tendency, conscious or unconscious, toward *self-expression* is the real driving force of the dream, and, incidentally, of all other mental states (which merge by an imperceptible series of gradations one into the other and which differ from dreams primarily and essentially in degree of consciousness).

(3) The basic sources of origin of dreams are not necessarily of an unconscious nature, using the term unconscious in the sense in which it is employed by the Freudian school. If subconscious were used in a broad sense, as including co-conscious thoughts (those just beneath the realm of clear consciousness, Prince)—corresponding to Freud's foreconscious and unconscious (the latter being really physiological in nature) mental processes—then I should be willing to admit the term unconscious. But if all past experiences, all memory, physiologically and biologically, temporarily or permanently forgotten, be referred to as unconscious thinking, then I cannot agree to the use of this term. Dreams are at bottom composed not only of so-called unconscious thoughts and tendencies but of thoughts, tendencies, activities, and yearnings of all degrees of awareness and significance to the individual, and of a varying life-history both as to age and intensity.

(4) Dreams are not primarily of infantile origin. Infantile and early childhood experiences, tendencies and activities play a very important part in determining our later lives, and hence our dreams, but, besides these early influences and determinations, recent experiences, presleeping thoughts, especially of the day before, and various somatic and external stimuli play a most important rôle in dream content and dream formation. As a matter of fact, any portion of our past life, up to the very moment of the dream thoughts, plays its part. And, in the end, it is the instincts which are really at the bottom of all dream activities—as of all other tendencies and activities, physical or psychical, conscious or unconscious.

(5) Consequently, any one or more of our instincts may be the root of the dream. It is about the instincts as nuclei that our mental life is built up. Hence, in the ultimate analysis of a dream or of any other mental state, as a final explanation of a certain tendency, activity or reaction, we come upon our instincts. The material with which our instincts play may be taken from any portion of our lives.

(6) Let us next endeavor to learn the significance of the mental processes during sleep. Briefly stated, we can explain them in the following fashion: Sleep is an instinct. It is just as much of an instinct as are eating and other similar processes. Sleep is a biological and physiological defense against the possibility of fatigue and exhaustion. The sleeping state is characterized by a certain degree of consciousness which is much lower in the scale of mental evolution than that which is present in the waking state. Reasoning, judgment, critique, intellect, logical and orderly thinking are greatly lessened; creative activity is slight or absent. There is a return to free play on our instincts and emotional strivings, the material being furnished by the past (recent or remote) mental content or make-up of the dreamer. Some dreams may deal with particular, intimate experiences, centred about one or the other of our instincts. Other dreams may have to do with experiences or thoughts which are not specially important to the dreamer or make only a feeble appeal to one or more of our instincts. In the latter case association, and flight of ideas, often initiated by peripheral stimuli, is apt to be very marked, touching upon this or that past experience or tendency or thought; related first to this, then to that instinct. The experience may be of any degree of intimacy. Association of ideas is frequently determined by the law of chance or probability, as conditioned by the expectations or anticipations of the dreamer, this being dependent, of course, upon his past life history. Retardation of one portion, scene, idea, etc., and anticipation of another may result in fusions, condensations, reversals. These may or may not be of significance. This will explain the protean manifestations and the helter-skelter, panoramic, kaleidoscopic, apparently purposeless tendency of so many dreams.

Repressed ideas may make their appearance in dreams. But they are brought into play in exactly the same way that insignificant ideas are woven into the dream. There is no special transformation of "latent" into "manifest" content, no special symbolism is employed, no ever-present intrapsychic struggle is going on behind the scenes. It is just like in the waking state—but on a lower order. The same symbolism, the same intrapsychical struggle, the same mental mechanisms are found in dreams as in the waking state, except that in the former thinking is less logical, less orderly, more loose, less critical, is guided much more by our instinctive reactions and tendencies, and our emotional strivings.

(7) As to the function of the dream it may be said that so long as any appreciable degree of consciousness exists, there must be some degree of mental activity. This mental activity results in the dream, during which thoughts of recent or ancient origin play havoc with our instincts and emotions.

The forgetting of a dream is essentially, biologically and physiologically and not individually purposive, although, by the exercise of repression for one reason or another, the individual factor may be brought prominently into play. It permits the clearer consciousness to once more deal with the cold, hard facts of the real, waking life.

In short, according to the writer's conception, sleep is physiologically and biologically useful and necessary, and easily explained. So, likewise, with the mental processes during sleep. The mental material may be of any date of origin, and of any degree of intimacy; the mental processes may be of any degree of clearness, directness and logicalness; not the infantile experiences alone, but rather the instincts are at the bottom of dreams; not only the sexual instinct but any one or more of the instincts may be the groundwork of the dream; not mere wish-fulfilment, but rather self-expression or self-preservation (in the broad sense of preservation of the bodily and mental personality or individuality) is at the bottom of all dream life; furthermore, ideas of all degrees of consciousness or awareness may be employed. Dream thoughts and mental processes run the gamut of possible variations of like conditions occurring in every-day life. They vary from simple to very complex; from clear and definite to vague and indefinite presentations; from a brief, direct, clearly remembered dream to a long,

circuitous, hazily recalled dream; from a very significant to a most insignificant dream; from dealing with recent experiences to the employment of early childhood and even infantile mental material; from appealing to one instinct to touching the chords of several instincts; from showing us the recent heart-pangs, wishes, fears, disappointments, cravings, etc., to showing us the instinctive make-up and underlying personality of the dreamer. And so we can enumerate all the varieties or types of dreams. They are as numerous and as different as are the individuals about us; as numerous and changeable as are our feelings, emotions, sentiments, passions and moods.

Sometimes they lay bare the soul of the dreamer. At other times they show those hidden, instinctive forces which are ever urging us on and on and, like an octopus, stretching forth their tentacles in all directions, forming the foundation for the springs of conduct which make us what we are and which are characteristic of our personalities.

He who understands dreams understands human psychology. He who can analyze a dream and properly interpret it is at the very root of psychoanalysis.

The analysis of dreams may be important in the diagnosis and treatment of certain mental disturbances, particularly the psychoneuroses. But the most practical use of dream analysis should be its value in permitting us to understand the workings of the normal and abnormal mind—in understanding Man.

The Freudians have justly made dreams the central theme of their psychoanalytic work. It is upon dreams as a basis that psychoanalysis is developed. If our ideas with regard to dreams be incorrect, then the foundation for our psychoanalysis is faulty, our conclusions are false, and our work has not only been of no avail but actually harmful, and actually pernicious. If the author's conception of dream analysis and interpretation be well-founded, as he believes it is, then, it seems to him, it is of the utmost importance to correct our notions with regard to certain conclusions of the Freudian school of psychoanalysis.

This paper deals with the subject very briefly. Detailed explanation and discussion have not been entered into. Nor are any illustrative dream analyses here presented because the writer desires to present, in the briefest possible manner, only the essentials of dream analysis and interpretation. For a somewhat fuller discussion of the writer's views, and for the presentation of dream analyses from the standpoint here discussed, the reader is referred to other papers by the writer.*

*See "A Contribution to the Analysis and Interpretation of Dreams Based on the Motive of Self-Preservation," to appear shortly in *American Journal of Insanity*; "Analysis and Interpretation of Dreams Based on Various Motives," *Journal of Abnormal Psychology*, June-July, 1913; also "The Interpretation of Dreams Based on Various Motives," *International Clinics*, December, 1913, and "On 'The Analysis and Interpretation of Dreams Based on Various Motives' and on the Theory of Psychoanalysis"—Reply to Dr. James J. Putnam, etc.—*Journal of Abnormal Psychology*, 1914.

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**Concentrated Solutions of Neosalvarsan.**—P. Ravaut has employed glass ampoules containing the ordinary doses of neosalvarsan dissolved in 8 c.c. of distilled water. He finds that these concentrated solutions eliminate the toxic febrile effects attributed to the large volumes of water usually used. He has kept these ampoules for two months, and has found that the contained solution is in no respects inferior to that prepared with freshly distilled water.—*La Presse Médicale.*

## THE HEALY PUZZLE PICTURE AND DEFECTIVE ALIENS.

By M. K. GWYN, M.D.,

NEW YORK.

SURGEON, U. S. PUBLIC HEALTH SERVICE.

THE problem of the feebleminded is one of growing importance and is attracting a great deal of attention. Whether the condition is one of pure heredity; due to the lack of some internal secretion; or due to some poison within the body is still to be determined. Each school has its numerous followers. The Eugenists point out the presence of a strain of feeblemindedness in families, and have collected a large amount of data in support of their contention. There are records of two especially famous ones, the Jukes and Kallicak families which are quoted rather extensively. The transmission of anatomical characteristics is capable of demonstration by direct animal experiment, but in the human being it is necessary to depend upon such cases as may be run across from time to time. Every one is familiar with the resemblance of the members of an immediate family, and deformities like supernumerary fingers may be traced through two generations; but to say that a condition of defective mentality may be traced through several generations extending over a period of a hundred years or more is open to question.

Cretins are an example of lack of internal secretion. Fed upon thyroid gland, they improve both mentally and physically. Work has been done along this line by feeding pituitary gland to feebleminded persons, but the results so far are not very encouraging.

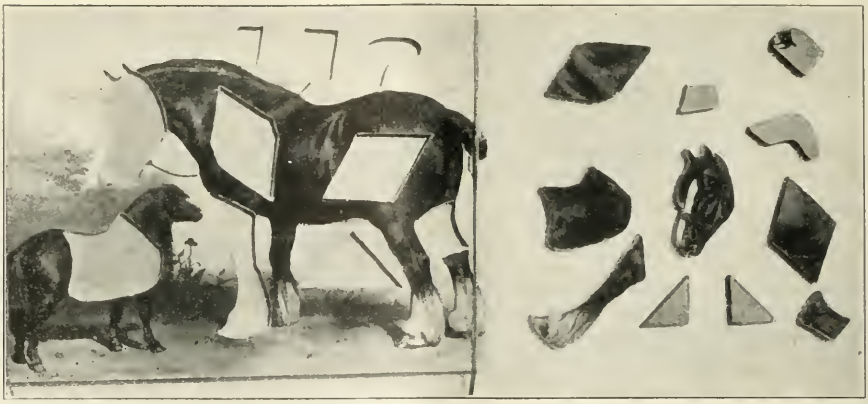
That feeblemindedness is due to a poison of some kind, is on a theoretical basis. It has much to recommend it. Whatever may be the cause of the condition, there is no question that something must be done to control it if possible. Of course, if the absolute cause were known, then a definite attempt might be made to eradicate the condition, but as it is, the best that can be done at present is to ameliorate it as far as possible.

First, institutional treatment appears to be the best method of attack offered at present.

Second, educational treatment in the public schools, by segregating these unfortunates in special classes under skilful teachers. The special classes in the public schools undoubtedly do some good, but it is doubtful if the returns justify the amount of time, money, and energy expended. The child after school hours is back on the streets, a danger to every normal child with which it comes in contact. In the institution they are continually under observation, and what is more important, they are separated from normal children.

Another phase of the feebleminded problem is one that is especially important to the Public Health Service, and that is to prevent as far as it is humanly possible the introduction into the country through the immigration stream of these undesirables. It is a unique problem in that it is not alone one of diagnosing the condition, but of picking out from the enormous number of aliens entering the country those who are defective. How far they are successful is shown by the increasing number of feebleminded deported during the past two years over that of previous years.

Given a history by parents or school teachers extending over a period in which the child has been under observation, the fact that a defect exists is



Picture-puzzle Test Made for Alien Defectives.

usually not difficult to establish. All these agencies have in view the helping of the child, and the examination is made to determine the best method of treatment to adopt.

With the Public Health Service Officer the problem is essentially one of diagnosis, without aid from parents or other agencies who might help. It is complicated by the large number of races involved; each one of which presents its particular characteristics, which only a large experience permits them to make allowance for. A large number are illiterate and come from a very poor environment. Once the diagnosis is determined the case is reported to the Board of Special Inquiry of the Immigration Service for action. Under the law these cases are mandatorially deportable, so that for the alien it is a serious thing.

A great deal of work has been done during the past two years in detecting the feebleminded among aliens arriving at Ellis Island. The Simon-Binet tests were tried out but found to be impractical on a large scale. They required too much time in the first place, and in practice were not found suited to illiterates. It was necessary to secure tests which could be used in common among a mass of people of various races, or varying school advantages, together with a large number who were utterly illiterate.

The most hopeful method appeared to be a series of performance tests. What may be called the Healy frame, and the Fernald test, and the Healy Picture Puzzle, taken from the series of tests devised by Healy and Fernald have been found of great value. To show the value of the picture puzzle in determining feeblemindedness among defective immigrants, a small series has been tabulated from the case histories available at the present time. The time only has been recorded, and ten minutes allowed for the test. The picture with the cut out parts lying by its side are shown to the alien, and he is told that this is a picture which can be completed by filling in the vacant spaces with the pieces lying by the side of the picture. He is also told that the pieces will all go in easily when placed in the right position, that it is not necessary to use force. The parts are so cut as to give a clue to the correct position by shape and color and reference to animals in the picture. If successful the time is recorded in minutes and seconds. A failure is recorded as "F" followed by the time within ten minutes during which the alien works at the test before deciding that he can not do it. Normal aliens over 16 years of age will usually solve the picture within two minutes; defectives, on the other hand, require more than five minutes, if they are successful at all. The main portion of the picture gives comparatively little trouble except to the idiot and imbecile, who here fail utterly. The fitting of the two component triangles into the large triangle takes ordinarily twice as much time as the rest of the picture. It is here that the defective shows up so glaringly with his absurd mistakes. The fact that the two right triangles are the component parts of the isocles triangle is not noticed at all until by a process of elimination by fitting the rest, they are the only two pieces left on the board. At this point I have frequently seen the alien lift up the board and look underneath to see if there were some parts missing. Almost invariably this is left to the last, although during the fitting of the rest of the picture he may pick up one of the triangles only to drop it immediately in favor of some other part of the picture. Although no single test is sufficient for a diagnosis as a general thing it will be found that immigrants who take more than three minutes to correctly solve this puzzle should be gone into further before deciding that they are normal. It has been found in practice that an alien who solves the picture puzzle in two minutes or less will usually solve the Healy frame and Fernald test equally as well, but I have not been able so far to determine the lower age limit at which success is attainable for the picture puzzle, as most of my cases have been over sixteen years of age. But the few instances in which I had an opportunity of testing the picture puzzle in nine, ten, and twelve-year-olds they have failed to solve the triangle although successful with the rest of the picture.

At present this puzzle appears to be essentially an adult test, that is to say that although those under sixteen are successful in filling in the geometrical portions of the puzzle and the portions of the figures cut away, with the exception of the isosceles triangle, it requires the adult type of mind to solve this latter difficulty.

From the results tabulated in the accompanying table, of twenty-two feeble-minded aliens it will be seen that ten failed utterly, twelve were successful after working from 2 minutes and 22 seconds to 7 minutes, eight requiring more than 4 minutes.

There was one case aged thirteen years and one aged eleven years in the series; the rest ranged from sixteen to forty-four years.

The sexes were evenly divided.

Only three members of the group could read and write.

| Race | Age | Sex | Literacy | Diagnosis | Time |
|---|---|---|---|---|---|
| Greek | 20 | M. | Illiterate | F.M. | f. 5′ |
| Italian, South | 13 | F. | " | " | f. 7′45″ |
| " " | 35 | M. | " | " | 6′17″ |
| " " | 22 | M. | " | " | f. 6′ |
| " " | 24 | M. | " | " | 6′ 5″ |
| " " | 28 | F. | " | " | 7′ |
| " " | 16 | " | " | " | 3′ |
| " North | 18 | F. | " | " | 5′ |
| " South | 32 | M. | " | " | f. |
| " " | 22 | M. | " | " | f. 5′ |
| " " | 11 | F. | " | " | f. 7′45″ |
| " " | 16 | M. | " | " | 5′28″ |
| " " | 21 | M. | " | " | 2′22″ |
| " " | 20 | " | " | " | 6′17″ |
| " " | 39 | M. | " | " | 4′ |
| " " | 23 | F. | " | " | f. 3′25″ |
| Irish | 18 | F. | Literate | " | f. 9′20″ |
| Irish | 20 | F. | " | " | 3′35″ |
| Russian | 20 | " | " | " | f. 8′22″ |
| Dalmatian | 44 | M. | " | " | 3′30″ |
| Polish | 18 | M. | Illiterate | " | 5′40″ |
| Russian | 36 | F. | " | " | f. 2′32″ |

NOTE.—10 failed; 12 successful from 2′22″ to 7′; 8 cases over 4′.

10 Castleton Park,
New Brighton, Staten Island.

## A VEGETABLE HORMONE IN CASES OF ILEUS AND GASTRIC DILATATION.

By DOUGLAS H. STEWART, M.D.,

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EMETOCATHARSIS may be produced by swallowing putrid cheese, decomposed shad-roe, or an overdose of podophylin. Control dictates the use of the plant-product if remedial measures are the desired aim. Even the lowered blood pressure, collapse, and other possible bad effects of hormonal might be avoided by substituting the aforesaid podophylin were it not for the five to ten days of severe pain which its injection causes. Yet the best synergists to cascara are this very podophylin (and belladonna) for internal administration and physostigmine and arecoline if hypodermic service is prudent. Cascara, frangula, and senna will serve as examples of exciters of vermicular constriction in the intestine, blood absorption being the preliminary to the action of such vegetable hormones. This paper will limit itself to cascara.

Veterinarians have experience with hypodermic purgation. The horse eats hay, but possesses a small stomach and a one hundred foot intestine. These anatomical and dietary conditions have led to the discovery that when physostigmine fails arecoline will suffice and *vice versa*. I have always begun with the first and followed with the second, but the reverse is usual in veterinary practice.

E. C. Dudley has used a preparation of cascara bark in 32 cases. With one patient it was successful alone, with ten it required annexed measures (physostig, enemata, etc.), and in the remainder all treatment was absolutely ineffective. I, too, have sometimes passed through that "absolutely inefficient" stage aided by the very best consultants that I knew. If the preparation be the same I think it should be given during or prior to anesthesia. This holds true of pituitary extracts, etc., because if distention once takes place its persistence so thins, stretches, and exhausts the musculature that peristalsis is put beyond attainment. There should be an earnest attempt to forestall the possibilities of meteorism by initiating preventive measures in advance of their need. Waiting for clear indications may mean that one's best but belated endeavors will obtain the doctor's well delineated word picture and secure "absolute inefficiency" as a terminal result.

Call the vicious circle either preanesthetic purgation or post-cathartic anesthesia it means a hurt, over-stimulated, or dehydrated bowel at a time when prophylaxis demands an empty colon and noninterference with the small intestine, which latter is the "lion in the way" or the "sleeping dog" so far as the operator's chances of success are concerned. It is a funnel the caliber of which is arranged to promote an upward movement of its contents; it is a barrel hooped inside and unfit to withstand internal pressure; its motive power depends upon the impetus of peristalsis from above downward and yet when pinched between one's fingers and thumb it immediately starts a contraction on the "distal" side.

After testing the quality of the ingredients have capsules made containing cascara gr ii, podoph., gr 1/8, ext. belladon., gr. 1/16. Three hours before anesthesia give an enema and two such capsules. Repeat these in one hour and then the peristaltic wave would be started in the precise direction; but it may be postponed, at the will of the surgeon, by the use of morphine and without possibility of salivation, occult blood, or other evil consequence of drug retention. Proceed with two capsules night and morning till the bowel movements are redundant, then diminish the dosage according to indications but persist in the daily administration of a suitable quantity, for thirty days or longer, to forestall late symptoms which sometimes appear after the patient has returned to a more or less distant home. Should excessive vomiting persist on the second day replace the capsules with a hypodermic of cascara (active principles) combined with (gr. 1/50) physostig. salicylat. Repeat the latter in one hour. If no flatus is passed give it a third time at the end of the second hour. Ten minutes later administer an alum enema. Should inefficiency persist for a half hour longer give (gr. 1/10) arecoline hydrobromide. Repeat this in another hour, if absolutely necessary. Should everything fail and marked distention appear, then stop the action of the splanchnic nerves (rami communicantes) by lumbar anesthesia.

Inhibition is more persistent than contraction, since the constrictor fibers lose their irritability sooner, but even powerful peristalsis may be brought to a standstill by electric stimulation of the splanchnics. On the other hand a man's bowels may be moved by over-stimulation of the motor fibers of the pneumogastric-spinal accessory (*e.g.* in death by hanging). Just why this happens belongs to the province of physiology, and its discussion may be omitted here. Lavage and all other valuable aids must be taken for granted, if indicated, as they surely will be as a sequence of procrastination in initiating the downward tendency of the peristaltic wave which the relaxation of deep anesthesia has a tendency to reverse.

The usual cause of failure to empty the bowels with lumbar anesthesia is an hypertrophied sphincter ani, commonly caused by uterine, septic, or prostatic troubles. Dilatation is necessary and fortunately easy.

*Summary.*

1. In laparotomy danger should be considered the normal.

2. Cascara is a peristaltic excitant.

3. Get the wave under way in the right direction.

4. Start preventive measures in advance of anesthesia.

5. Use internal administration of remedies, if possible.

6. If impossible, employ the hypodermic syringe.

7. By hypodermic, give combined active principles of cascara reinforced by eserin.

8. Aid them with arecoline.

9. Maintain the downward wave for at least 30 days.

10. There are distentions in which all measures must fail, but the plan proposed will lessen their number.

11. As a last resort lumbar anesthesia, plus dilatation of sphincter ani, is invaluable.

128 West Eighty-sixth Street.

## THE TREATMENT OF DEAFNESS WITH SONOROUS VIBRATIONS BY THE ZUND-BURGUET METHOD.

By LESTER MEAD HUBBY, M.D.,

NEW YORK.

All the cells of the body must functionate or degenerate. In subnormal hearing all the physiological processes of the entire auditory apparatus (the membrana tympani, tympanic ossicles, and muscles, Corti's organ, auditory nerve fibrils and nuclei, and all the auditory central nuclei in the medulla, corpora quadrigemina, cerebrum, etc.) functionate only a fraction of the amount that occurs in health. For instance, if the hearing is reduced to one-thirtieth of the normal, the auditory nervous system receives one-thirtieth of the impulses received in health. This continuous reduction (for the auditory apparatus never absolutely sleeps) has its necessary sequelæ not only on the parts actually used but also on the neighboring structures such as the tympanic and Eustachian mucosa, the labyrinth, etc.

The application of sonorous vibrations of sufficient intensity at the external auditory meatus, affects the different parts of the auditory apparatus in the following ways: Vibratory massage is produced on the external auditory meatus and all its parts, such as the ceruminous glands, etc., increasing their circulations and functions. The membrana tympani is massaged and also vibrated within physiological limits. The ossicles and the hair cells of the organ of Corti are exercised. The tympanic mucosa is stimulated by the vibratory massage transmitted through the membrana tympani and by the exercise of the ossicular chain. The Eustachian mucosa is stimulated by the vibratory massage of the tympanic portion and its venous circulation is also bettered by the improvement of the tympanic venous circulation. The tensor tympani and stapedius muscles are exercised and therefore their circulation and metabolism are increased. The internal ear is massaged by the vibratory waves in the endolymph and perilymph. The auditory nerve fibrils and nuclear cells (peripheral, along the course, and central) are exercised—their efficiency therefore developed.

Thus it is evident that all the constituents of the auditory apparatus are stimulated and their circulation and metabolism improved.

Stimulation of the auditory apparatus of the deaf by sonorous vibration is not a new idea. From the first century A. C. when Orchigène, a Greek physisian from Alexandria, used sounds of varying intensities for improving the hearing of deaf-mutes, up to the present time, various sounds and exercises have been tried with more or less success.

Thus the human voice, bells, clocks, tambourines, the flute, whistles, tuning forks, the accordion, the phonograph, sirens, etc., etc., have been utilized as means of stimulation.

Since the hearing for the human voice is the especial objective of all treatment for deafness, the use of instruments not containing the tones and harmonics of the human voice can not be of much value in developing the perceptions for the latter.

For instance, with the pure tones of the tuning-forks, perceptions for the latter especially are developed and all the intermediate tones and harmonics are neglected.

The use of the human voice of one individual as an excitant can be utilized only for a short time each day, as the required intensity is too great for even the strongest voice to bear without injury. Moreover at least three voices should be used each time, namely of low, medium, and high registers.

Urbantschitsch has successfully used the voice supplemented by his accordion, but the length of his course of treatment is prohibitory.

The phonograph has too many extraneous noises (the noises of the needle producing the original record, the noises of the needle used in the reproduction, the exaggeration of other noises, etc.). The prominence of the extraneous noises prevents the proper increasing of the intensities of the tones desired, and the impossibility of sufficiently varying the sounds, produces a monotony which is exceedingly trying in a long series of treatments.

The sirens of Marage are open to the same objections as the tuning forks. The hearing is improved for certain vowel sounds only and the course of treatment is exceedingly long and tiresome,—half-hour treatments for a period of many months.

The Meyer-Rowan instrument is constructed as follows: It has faradic hammers which strike on mica plates over four cylindrical chambers of different dimensions. These hammers cause the air in the chambers to vibrate, thus producing three different notes depending on the different sizes of the chambers. By opening or closing the connections with the other chambers the tones are varied in pitch. In this way several notes can be produced with each of the four chambers. Rubber tubes carry the sounds directly to the ears.

Suction or compression can be exerted on the ears by means of a piston pump attached to the system of tubes. A pneumomassage motor is also connected.

The objections to the instrument are as follows: The notes produced are too few, they contain too few harmonics, and their intensities cannot be sufficiently controlled. The use of either the piston suction and compression pump, or of the pneumomassage motor, is liable to cause harmful stretching of the membrana tympani.

The electrophone of Zünd-Burguet comes nearest of all instruments thus far devised in fulfilling the requirements in the treatment of the deaf by means of sonorous vibrations.

It covers the range of the human voice. It contains about the same harmonics. By means of the three registers, the timbres of three voices (low, medium, and high) are produced. The amplitude

of the vibrations can be instantly varied to stimulate each ear according to its separate requirements. The intensity of the sounds can be raised sufficiently so that the length of treatment is not fatiguing to the patient or the operator. The tones can be maintained at a given intensity as long as is necessary. The length of the course of treatment is not nearly so great as that of the methods of Urbantschitsch, Marage, Dussaud, etc.

In its essential details the instrument consists of three faradic hammers, whose lengths can be altered by means of levers; telephonic ear receivers; switches for altering the intensities of the sounds to each receiver; switches for shifting the current to the different registers; a switch for shifting the current to both receivers at once or to a single receiver; an ampèremeter to show the amount of current passing, and a volt-meter to show the condition of the battery used.

The usual method followed is to give a course of 50 treatments of three minutes duration, two treatments a day. This can be varied somewhat to suit the requirements of the patient. One treatment a day can be given to those who find it impossible to come twice a day. This is not so effectual and is not to be recommended.

A very good method is as follows: 30 treatments, two given each day. 4 to 6 weeks of rest. 20 treatments, two given each day. 1 to 3 months of rest depending on the progress of the case. Then 10 to 12 treatments every 3 months, two treatments each day.

For obstinate cases the following method may be followed: 50 treatments, two treatments a day. 1, 2 or 3 months of rest, not more. 30 treatments, two treatments a day. 1, 2 or 3 months of rest. 20 treatments, two treatments a day. Then 10 treatments every 3 months, or 20 to 30 treatments every six months, two treatments being given each day.

But no rigid system can be outlined in advance. Each individual must be studied and the appropriate method selected.

Functional examinations are made before beginning the course and after the fifteenth, thirtieth, and fiftieth treatments.

By these examinations an accurate measure of the progress and an estimate of the probable length of treatment can be obtained.

The treatment consists in continuously playing scales on each of the three registers separately, shifting from one ear to the other, the rapid varying of the intensities of the sounds by the finer adjusting button during the production of the scales, the varying of the intensities by coarse shocks produced by shifting the primary button while making the scales, the production of jerky scales, etc., etc.

All these exercises can be changed in many ways at will. The intensities of the tones to each ear must be altered frequently to meet the changing sensibilities of the two ears.

After each treatment there are often some subjective sensations in the ear such as a feeling of fulness, numbness, etc. Zünd-Burguet overcomes this with a Delstanche vibrator, gently used. I prefer to use a mechanical vibrator on the skin in the neighborhood of the ear and also over the pinna, care being taken not to cover completely the external meatus.

Indications.—Some improvement is to be expected in all diseases of the sound-conducting apparatus such as otitis media catarrhalis chronica, otitis media chronica residualis, radical mastoid deafness, partial ankylosis of the ossicular chain, and also secondary partial so-called nerve deafness, and otosclerosis if not too advanced.

In subacute otitis and chronic purulent inflammations of the middle ear, the treatment can be gradually and cautiously tried. The improvement of the circulatory tone due to the stimulation of the tympanum by the vibratory massage is said to be very efficacious in these conditions.

Psychic functional deafness is said to be often curable by this treatment, through its strongly suggestive therapeusis, and its stimulating effect on the auditory perceptive apparatus.

The following claims have been made for the treatment: The ceruminous secretion becomes more normal. The Eustachian tube becomes more healthy, and if it has a tendency to remain too closed, its patency increases, provided there is no organic stricture. The metabolism and health of the tympanic and Eustachian mucosa improve. Partial ankylosis of the ossicular chain decreases and sometimes disappears. The muscular tone and strength of the stapedius and tensor tympani increase, so that the patient is again better able to properly adjust the receiving mechanism of the membrana tympani, and the ossicular chain, for the proper transmission of the sonorous vibrations. Tinnitus of aural origin generally decreases in intensity or entirely disappears. Sensations of numbness and fulness, neuralgic otalgias, etc., diminish or disappear. Obstinate otorrhea frequently ceases.

Zünd-Burguet thus tabulates his results in 528 cases, after one course of 50 treatments by himself according to the above method:

| Number of Cases | Hearing Distance Increased | Percentage |
|---|---|---|
| 44 | 12 times | 8.3 |
| 52 | 10 " | 9.9 |
| 48 | 8 " | 9.1 |
| 70 | 6 " | 13.3 |
| 68 | 5 " | 12.8 |
| 60 | 4 " | 11.4 |
| 84 | 3 " | 15.9 |
| 64 | 2 " | 12.1 |
| 38 | Less than 2 times | 7.2 |

In this series there were the following conditions:

| | |
|---|---|
| Otitis media catarrh. chron. (simple and mixed) and otosclerosis.. | 497 cases |
| Otitis media catarrh. chron. residualis | 12 cases |
| Otitis media purulenta chronica | 4 cases |
| Trauma of the perceptive apparatus | 1 case |

A. Raoult of Nancy, G. de Parrel of Paris, John Helsmoortel of Antwerp, and others report similar results.

27 West Sixty-eighth Street.

## CLINICAL OBSERVATIONS OF AUSCULTATION AT THE ACROMION PROCESS

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Acromial breathing was first described by Dr. Robert Abrahams in the *Archives of Diagnosis* for April, 1913: "When the bell of the stethoscope is placed over the acromion process with perfect adaptation to the bone and the patient is told to breathe, count, whisper, or cough, the sounds conveyed to the ear will be found to be greatly accentuated."

In my observations of many cases of incipient tuberculosis in the Medical Clinic of the N. Y. Post Graduate Medical School; the above method

has proved a valuable auscultatory sign. I dare say that resort to an *x*-ray examination in a large number of our so-called questionable cases will be found unnecessary in many instances with a proper interpretation of the acromial breathing sign.

Remembering that at the right apex normal breathing is bronchovesicular and that the whispered and spoken voice is louder than that heard at the left apex, we have a mental picture of the normal right apex in auscultation. It is here that the general practitioner not especially trained in diagnostic methods of incipient tuberculosis will encounter some difficulty.

The change from normal bronchovesicular breathing in a questionable case of right apex tuberculosis to the prolonged expiratory note of incipiency is not always well defined. The importance of acromial breathing here becomes apparent to one who has given this sign some study. Auscultation of the acromion process in this condition will show the breath sounds exaggerated in quality and sharply defined; the whispered voice will be heard louder and clearer. This sign will be found of some help in determining definitely the progress of the disease in its different stages.

Auscultation of the left apex normally reveals vesicular breathing and indistinct whispered voice. In early involvement of this apex, with only one or two auscultatory signs present, diagnosis is sometimes made difficult through musculature of patient, poor breathing, and other causes. Examination of the acromion end will here accentuate signs if present and help eliminate sound foreign to lung tissue.

Appreciating the significance of crepitant râles when heard at the end of inspiration, and the tendency to overlook this very important sign when not prominent, we can with some degree of certainty establish its presence or absence through the above-mentioned method.

While this sign was found to be present in a small number of cases of chronic bronchitis and probable healed tubercular processes this would not discount its value; breathing here when not forced would show little change, and the whispered sound and spoken voice were not influenced.

To summarize the advantages of this new sign:—

1. We auscultate over a fixed point eliminating anatomical peculiarities of the patient that may be present.

2. In right apex tuberculosis when the step from normal to incipient disease is not always easily elicited, a clearer transmission of sound will be obtained over the acromion process.

3. Râles can be found very often by acromial breathing sings that were not heard when examining the apex. This alone should give this method place in a routine examination of the apices for incipient tuberculosis when we consider that upon the presence of râles depends our determining the activity of a tubercular process.

4. It is a corroborative sign and should be made use of after first having examined the apices by the regular methods in use.

340 East Seventy-ninth Street.

**The Gastric Ferments in the Urine.**—Carlo Romagnolo has demonstrated the presence of a minute quantity of pepsin and rennin in the urine of normal individuals. These are either absent or greatly diminished in cases of carcinoma of the stomach. They are absent in cases of achylia gastrica. In pregnancy they are increased in amount. They are slightly increased in febrile conditions, and are diminished in states of cachexia.—*La Riforma Medica.*

## Medicolegal Notes.

**Practising Without a License—Officers of Corporations.**—In proceedings for practising without a license, it is held that an officer, employe, or agent of a corporation who practises medicine without a license commits an offense, though he purports to act for the corporation.—Norwood v. State, Texas Criminal Appeals, 158 S. W. 270.

**Privileged Communications — Waiver.** — In a personal injury action it appeared that the plaintiff was taken to the office of Dr. C., who dressed his wounds, which included an injury to his hand, and treated him for about three weeks. He then changed physicians and consulted Dr. M. He testified himself that Dr. C. took out a bone, and lanced his hand, which was festering, and Dr. M., as a witness for the plaintiff, testified that when the plaintiff came to his office his hand was very much swollen and infected. It was held that by introducing the evidence of Dr. M. the plaintiff had waived the right given to a patient by Missouri Rev. St. 1909, P. 362, to object to testimony by his physician as to information acquired in his professional character, so as to permit Dr. C. to contradict such evidence by testifying that when he stopped treating the plaintiff the hand was healing.—Oliver v. Aylor (Mo.), 158 S. W. 733.

**Malpractice—Opinion's Evidence—History of the Case—Insufficient Evidence.**—In an action for damages for alleged malpractice in mistakenly diagnosing and treating an ailment of the leg it was alleged that the defendant diagnosed the disease as blood poisoning, when in fact it was a disease of the leg "at the right tibia," which disease and ailment had well-known and peculiar signs and symptoms. The disease was not named, and it was not alleged wherein the treatment was wrong. It was held that the complaint was uncertain and not specific and subject to demurrer on the ground of uncertainty. Two physicians were called as expert witnesses to give their opinions based upon assumed facts and the "history of the case," which history of the case was material to their opinion. It was not within the personal knowledge of the expert witnesses, but had been obtained from conversations with the parents and friends of the plaintiff. It was held that their opinions had no value as proof. The defendant contended that it was necessary for the plaintiff to establish (1) that he had octeomyelitis at the time the defendant treated him; (2) that the defendant's mistaken diagnosis was due to negligence on his part; (3) that the treatment, judged by the proper legal standards, was improper, and that the injury resulted therefrom. It was held that, the opinions of the expert witnesses being eleminated, there was no evidence showing that the plaintiff was afflicted with osteomyelitis prior to the defendant's last visit to him. There was not sufficient evidence to show that the defendant carelessly and negligently treated the disease or that the disease was not blood poisoning or septicemia. It further appeared that osteomyelitis might develop from the septic condition due to septicemia, and that the presence of osteomyelitis on a date subsequent to the defendant's last visit to the plaintiff was not proof positive of its existence in the plaintiff's leg previous to the defendant's last visit. Judgment for the plaintiff was reversed.—Osborn v. Carey, Idaho Supreme Court, 133 Pac. 967.

MEDICAL RECORD.

*A Weekly Journal of Medicine and Surgery.*

THOMAS L. STEDMAN, A.M., M.D., EDITOR

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New York, January 31, 1914.

## OPERATIVE TREATMENT OF THE GASTRIC CRISES OF TABES.

MAUCLAIRE (*Archiv. Gen. de Chir.*, Nov. 25, 1913) has given a very clear and concise résumé of the operative attempts to cure this condition, or at least afford some relief from the intense suffering experienced during these crises. He first calls attention briefly to the factors concerned in the production of gastric crises. The sensitive innervation of the stomach is furnished by the pneumogastrics and the sympathetics. Between these nerves and their branches there are countless anastomoses. The gastric path of conduction towards the center ascends from the stomach toward the posterior roots by passing through the splanchnic nerves, which spring from the thoracic ganglia, then by the communicating branches, by the intercostal nerves, by the posterior roots and their ganglia, and finally arrive at the cord, the center of the reflex pain. The initial cause of the gastric pains is a sensitive reflex starting from the gastric mucosa. But the point of departure of the painful sensitive reflex is perhaps also localizable at the level of the medullary roots themselves, or upon the meningeal root sheaths, or at the surface of the posterior columns. Many different suggestions for operative treatment to overcome these pains have been made and Mauclaire considers the most promising of these.

Regarding lumbar puncture he recalls that there was a great amelioration of the symptoms in one single case that has often been cited, that of M. Debove, while in another there was a grave syncope. Intraspinal anesthetic injections have been inadequate. The next four suggestions receive short adverse comment. Jaboulay, in 1900, suggested that the elongation of the solar plexus would be beneficial. Mauclaire cites seven instances in which this formidable operation was tried. In one case the patient was relieved for two years, in one for one month, and in the other five there was an immediate recurrence of the symptoms. Root resection was tried by Dana, Abbe (1889), Horsley, and others, but it was Foerster who recommended the methodical employment of intradural root resection in the treatment of Little's spastic paraplegia and the gastric crises of tabes. This operation has been done many times for Little's disease in America, but the early enthusiasm seems to be dying out, and the proposition to treat tabetics by root resection never gained much headway. Abroad the most extensive series is that of Foerster, which is summarized by Mauclaire as follows: "In 64 operations there were 6 operative deaths, plus 4 secondary deaths from urinary infection; 52 ameliorations, 2 negative results. There is, in fact, nearly 24 per cent. mortality. As for late results, among 47 patients re-examined one notes 29 cures without recurrences, 18 have had recurrences but less painful, while the other cases could not be followed up." Foerster says that it is necessary to resect at least seven roots between the fifth dorsal and second lumbar. Küttner had two deaths in thirty-two operations; von Eiselsberg none in eleven cases. In spite of these favorable statistics, Mauclaire thinks that the operation remains a very serious one, for certainly many of the failures have not been published. Guleke advised extradural rhizotomy in order to avoid injuring the arachnoid, thus preventing the escape of spinal fluid. Leriche tried this modification of Foerster's operation four times, finding it easy once and very difficult in the other three cases, while in two it was impossible because of abundant hemorrhages.

Regarding subdiaphragmatic resection of the pneumogastric, Mauclaire states that in two cases Exner did a gastrostomy in addition in order to avoid postoperative paralytic dilatation of the stomach, and also put a drain into the pylorus in order to avoid pyloric spasm. This resulted in one success and one failure; von Eiselsberg had two successes and one failure; Küttner had one failure. Exner himself, however, reports (*Zentralblatt für Chir.*, Dec. 27, 1913) that in the last nine cases, besides the subdiaphragmatic resection of the vagi, he has also done a gastroenterostomy with no deaths. He states that the mortality of Foerster's operation amounts to 12 to 15 per cent. and is thus appreciably greater than in vagus resection; that Foerster's operation gives failures and recurrences in about 40 per cent., and these percentages are about the same in his (Exner's) operation. Whether a special case may be suited for one or the other of these operations may be decided perhaps, under the circumstances, through the injection of novocain into the neighborhood of the spinal ganglia or atropine injection.

In one case, where the vomiting was so severe and incessant that the patient threatened to commit suicide if the operation was not done, Küttner did a two-stage intracranial resection of the left vagus. The patient appreciated the gravity of the operation and had made provision in advance for his funeral. This turned out to have been wise, for while there were no immediate serious symptoms either as to pulse or respiration, a fistula, with discharge of cerebrospinal fluid, appeared on the sixteenth day and this was soon followed by purulent meningitis and death. The interval between the first and second operations was eleven days, the patient dying three weeks after the preliminary craniectomy. Franke's operation (avulsion of the intercostal nerves and the medullated roots, the spinal ganglion and the communicating branches) calls to mind the avulsion of the nerves in the treatment of facial

neuralgia. In pulling upon the intercostal nerves he expected to act upon the communicating branches of the great sympathetic and upon the root ganglion. Twice out of three times the ganglion does come away with the nerve. It is necessary to resect in this way the third to the eleventh intercostal nerves in order to avoid the intestinal as well as gastric crises. The principal operative accident is the opening of the pleura. There are reports extant of eighteen cases operated upon by this method. There were three deaths, one two weeks after operation from purulent pleurisy, one forty-three hours after operation from shock (and unilateral pneumothorax); the third cannot be charged to the operation, since it was brought about by an intraspinal injection for the treatment of recurrent crises five months after operation. There were eight recurrences of gastric crises at periods varying from six weeks to a year. There were seven complete cures. It is evident that Franke's operation gives a good percentage of cures or ameliorations and that the death rate is much lower than in Foerster's operation; it would seem justifiable therefore to try this before doing the more serious root resection.

## THE CAUSE OF DIABETIC COMA.

A GREAT deal of controversy has arisen regarding the pathogenesis of diabetic coma. In spite of ample experimental and clinical evidence that this condition represents an intoxication by β-oxybutyric acid and its derivatives, there is still no consensus of opinion as to the actual rôle played by these substances. Klemperer and von Noorden advanced the view that certain unknown toxic products arising in diabetes act upon the brain, causing coma, and then act destructively on the protoplasm of the body as a whole, giving rise to β-oxybutyric acid. This substance, according to the theory of the above observers, is a result rather than a cause of diabetic intoxication and bears the same relation to the latter as it does to hunger and fever, in which it is also produced in fairly large amounts. The coma of anemia and of dyspepsia is also accompanied by the excretion in the urine of acetone and diacetic acid, and occasionally by β-oxybutyric acid. The last is sometimes excreted in uremia and hysteria, although coma may not be present.

Stadelman and others of the Naunyn school pointed to their investigations which seemed to show that diabetic coma is not the result of a specific acid intoxication but is to be attributed to the withdrawal of sodium from the organism. The good effect following the administration of sodium bicarbonate apparently confirmed this hypothesis. But within recent years a number of investigations carried out by Goldscheider and his pupils tended to discredit the above teaching. The latest attempt to solve this question was made by J. Masel, who died just as he completed his investigations. His article appears in the *Zeitschrift für klinische Medizin*, Vol. 79, Nos. 1 and 2.

From a review of the most recent work on this subject, Masel concludes that diabetic coma is a poisoning caused by β-oxybutyric acid, diacetic acid, and acetone which act chiefly upon the cerebrum and the respiratory and vasomotor centers, and produces both experimentally and clinically the symptom-complex of diabetic coma. In a series of observations made on animals subjected to experimental coma, and on diabetic individuals in the precomatose and comatose conditions, Masel noted that a real acid state of the blood, that is, an excess of the hydrogen ions over the hydroxyl ions, is not present in any of these states. On the other hand, in other conditions, particularly in narcosis, there is a pronounced excess in the amount of hydrogen ions. This shows that the relative diminution in the hydroxyl ions is not present in diabetic coma. Moreover, Masel studied different stages of diabetes and found that some patients with a pronounced degree of acidosis have the same hydroxyl content in their blood as normal individuals, even though they have not received any sodium for several days. Conversely, it was found that some individuals suffering from gout have even a smaller content of hydroxyl ions in the blood than diabetic individuals. The conclusion is drawn that the occasional reduction in the hydroxyl ions in diabetes is not a primary manifestation, but, occurring in consequence of the disturbed metabolic regulating mechanism, is to be regarded rather as a secondary manifestation, such as occurs during narcosis and in agonal conditions. The point is emphasized that the reduction in the hydroxyl ions is merely a relative one; there is no actual acidity in the reaction of the blood.

Masel concludes from his study of this subject that an acid intoxication or acidosis in the sense implied by Naunyn and Stadelman does not exist. There is no excess of free acids in the blood, β-oxybutyric and diacetic acids being present in the form of salts. These compounds therefore are responsible for diabetic coma which is not, according to the theory advanced by Masel, to be regarded as an acid intoxication.

## MEDICAL EDUCATION.

THE question of medical education is one that is attracting a good deal of attention just now, for it is generally recognized by those who are in the best position to judge, that all is not as it should be, so far as medical education is concerned in the United States and in Canada. Nor is the training which is given to medical students in Great Britain meeting with that full meed of approval which has been given to British methods of medical training in days gone by. Criticism of a severe kind has been directed against the British system recently by well-known members of the profession of Great Britain. All are practically agreed on one point, and that is that the curriculum of the medical student is too full. It is impossible for a man to digest and assimilate all the various subjects which make up his course. He may indeed pass searching examinations on these subjects but this is not to say that he really knows them, merely that he has crammed sufficiently to pass, while as a matter of fact he has only a bowing acquaintance with most of them. He has

perforce to specialize and consequently a great deal of his time has been wasted and probably his health injured by cramming subjects for which afterwards he will have little or no use. Even examinations are beginning to be regarded askance and indeed it may be doubted if a large number of severe examinations serve any useful purpose.

But the point chiefly in question now seems to be as to whether the German system of medical education or the English system is the best adapted for turning out the well-rounded practitioner and the specialist. Possibly the German system is the best from the scientific standpoint, but it is now argued in some quarters that it is also the best from the clinical point of view.

In the *Dominion Medical Monthly* for December, 1913, is published the presidential address delivered before the Academy of Medicine of Toronto by Dr. Herbert I. Hamilton which deals with medical education. Referring to the matter of clinical teaching the speaker noted that it had been suggested by some that the clinical teaching in Toronto hospitals should be in the German way, that is by professors who devote their whole time to this work, and undertake no private practice whatever, occupying a chair in the university and receiving adequate remuneration. Their work consists of teaching, setting examinations, and determining the qualifications for practice. In the opinion of Dr. Hamilton such an arrangement would be by no means ideal and he goes on to point out that while it is, of course, essential that the clinician should be thoroughly acquainted with theoretical medicine and hospital practice, it is at the same time highly desirable that his experience should not have brought him into contact with hospital patients only, but that he should have also had ample opportunities for coming into close contact with private patients and of thus acquiring the qualities which make for success in that line of work. It would be as easy, thinks Dr. Hamilton, to fit a square peg into a round hole as to find a man who has never himself personally had to deal with patients of this class, who is capable of imparting to the students the tact and intuition which are so essential in dealing with them.

It may, perhaps, be said that the British system of medical education tends to produce the most efficient general practitioners and the German system is calculated to turn out the best laboratory workers and possibly specialists. The former system is responsible for the best general practical results and the other system for the best theoretical results. Would it not be possible to evolve a system of medical education in which were to be found the best features of each system? It would seem that the solution of the problem lies in this direction and that thus an ideal system might be brought about.

## A Simple Treatment of Anthrax.

An important communication presented before the recent International Medical Congress was that in which Salvatore Gucciardello, Surgeon to the Hospital of Vittoria, Italy, described his rapid method of treating anthrax by means of live steam. The virtues of this method reside in its bloodless character and in the fact that it can be carried out with an improvised apparatus. Any kettle or vaporizer can be used, provided that it be fitted with a spout 2 cm. in diameter, bent in such a manner that the outer end points in a horizontal direction. Generally a temperature of 50° to 55° C. can be easily borne. The steam is directed upon the lesion and the normal parts that immediately surround it, the whole being enclosed within a cardboard cylinder, which serves to confine the action of the steam. The cardboard cylinder should be 30 to 40 cm. long, and may be held at a slight distance from the skin so that the steam may have ready egress. If the lesion of anthrax is on the neck or head, the latter should be wrapped in cold cloths, frequently renewed, in order to prevent cerebral congestion. From five to seven applications of the steam, of one hour each and at intervals of one and a half hours, may be given in the course of one day. During the intervals the sore part may be covered with gauze dipped in hot water. From the very beginning of the treatment the patient is said to experience its soothing effects. The pain diminishes, sleep becomes possible, and the temperature tends to subside. The extension of the disease process is stopped from the outset. The infected tissue becomes less hard, the characteristic sieved appearance becomes more marked, and a small amount of pus, together with other substances, exudes from the openings. No washing or irrigation of the parts is necessary. The fever ceases and every sign of infiltration about the lesion disappears in mild cases in from two to three days, and in the worst cases in from five to six days. In cases that have been subjected to the knife the vaporizing treatment effects a still speedier recovery. The author's experience comprised fifty cases. The good effects of the treatment are attributed to the great degree of heat to which the diseased part is subjected. The temperature of 50° to 55° C. at the surface, and of 42° to 48° in the interior of the lesion serves to destroy the anthrax bacillus and the secondarily invading staphylococcus. At the same time the vitality of the tissues and their resisting power are increased.

## Death of Goldmann.

A scientist barely known to the American medical public has just passed away at the age of fifty, and the Germans are mourning the loss of one who was coming to the front so rapidly that he might, had he lived, have become a Virchow, or greater. To anticipate, he was best known for his patient and triumphant work in staining living tissues. His contributions in this field would alone have made him famous. According to an appreciation in the *Münchener medizinische Wochenschrift*, No. 49, 1913, Goldmann was an odd example of a cosmopolite. He was born in Dutch South Africa of German parents. Under the English rule he grew up an intensely British subject, and all his life belonged to the Anglican Church. He was of the theological bias and throughout his brilliant medical and surgical career was always wishing himself a cleric. He returned to Germany with his parents and finished his medical studies at Freiburg, 1886. Proceeding to Frankfurt he mastered histology and pathology under Weigert; then surgery under Kraske. His work afterwards was chiefly in these fields. Some special influence, or perhaps lack of influence, always prevented his promotion as a teacher. He should have held a full chair at an early date, and have

risen rapidly, but his honors were so meager that he hardly regarded them. His work in pathology and surgery touched almost all great subjects and adorned them. He was only professor of surgery in a Diakonnissen Home in Freiburg but patients came to see him from all regions for surgical treatment, which he did not hesitate to style "the brutal art." As an operator he was excelled by no one. One of the greatest students of malignancy, he died of sarcoma of the eye. The sensation caused by his discovery of vital staining has not yet abated. Goldmann, with his religious bent had also a strong esthetic bias. He was unusually gifted in the arts and music.

## News of the Week.

**To Revoke the License of Drug Addicts.**—A bill drawn up by Dr. C. B. Towns of this city and now under consideration by the Senate Committee on Public Health, is designed to prevent the sale of all habit-forming drugs except under severe restrictions. One of the sections of special interest to physicians provides that "Any license heretofore issued to any physician, dentist, veterinarian, pharmacist or registered nurse may be revoked by the proper officers or boards having power to issue licenses to any of the foregoing upon proof that the licensee is addicted to the use of any habit-forming drugs, after giving such licensee reasonable notice and opportunity to be heard." If such a bill is to become a law it should state specifically what are "habit-forming drugs" and to what extent one may use them before being regarded as "addicted" to them. Alcohol and tobacco are habit-forming drugs.

**Health of the Canal Zone.**—For the months of October and November, 1913, the death rate among employees in the Canal Zone was 7.61 and 10.01 per thousand respectively, these figures representing a total of 37 deaths from all causes among employees in October and of 45 in November. For the entire population of Panama, Colon, and the Canal Zone the death rate during October was 25.33 per thousand, and during November 27.94. During the two months there were 11 deaths from tuberculosis, 5 from lobar pneumonia, 3 from malarial fever, and 35 from external violence. Smallpox is reported as prevalent in Lima and Callao, Peru, and the plagues as decidedly on the increase in Guayaquil. No case of the latter disease has reached the Isthmus, however, but one case of smallpox was removed from a vessel entering Balboa during the month of November, and was carefully isolated. No cases of yellow fever originated on or were brought to the Isthmus during the month. Surgeon John L. Phillips is the Acting Chief Sanitary Officer of the Isthmus.

**City Hospital Alumni Dine.**—The Society of the Alumni of the City Hospital, New York, held its annual dinner at the Hotel Royalton on January 21. The guest of honor was Michael J. Drummond, former Commissioner of Public Charities, to whom an album containing resolutions in commendation of his work was presented.

**Wisconsin Law Invalid.**—The so-called "eugenics law" recently passed in Wisconsin, which provided for the issuance of a marriage license only upon a certificate of good health, was declared to be unconstitutional in the Circuit Court on January 20. It was held that the law was of unreasonable salutary limitation in so far as the physician's fee was concerned, and that it was an unreasonable and material impairment of the right of proper persons to enter into matrimony. Although praised because of its aim toward the suppression of sex diseases, the law was condemned because its enforcement was a practical impossibility.

**Typhoid Fever Carriers.**—The annual report of the Medical Officer of the Local Government Board of London cites two cases of women, apparently healthy, who are carriers of typhoid bacilli. Sixty cases of the disease, of which six were fatal, were traced to one of the women. The situation was met by the allowance to each woman of a pension sufficient to support her and keep her from coming into contact with others.

**Smallpox at Niagara Falls.**—Every theater in Niagara Falls was ordered closed by the Board of Health on January 22, because of the prevalence of smallpox. Seventy-nine houses are under quarantine, many of the churches are closed, and twenty-nine patients are being cared for in the Quarantine Hospital.

**Another Typhus Ship.**—Among the passengers on the steamship *Kaiser Franz Josef I*, which arrived in New York on January 19, there was found one man suffering with typhus fever and another with suspicious symptoms. This was the third case of the disease to reach the Port of New York within the last two weeks. The Greek port of Patras seems to have been the course of infection of all the cases. The Health Officer ordered 149 of the steerage passengers removed from the ship to Swinburne Island, and the ship was then thoroughly disinfected.

**Low State Mortality.**—The death rate in New York State for 1913 was 14.9 per thousand of population, a very slight advance over the record rate of 14.8 per thousand for 1912. The total number of deaths for the year was 145,056. The most notable increase occurred in deaths reported as due to cancer, which numbered 8,525, as compared with 8,234 in 1911, and 7,500 in 1910. During the past five years the deaths from cancer have been 5.3 per cent. of the total mortality, while in 1892 they formed only 2.6 per cent. During 1913 there were only 89 deaths from tetanus and but one death from smallpox, the lowest figures reported in many years. Three cases of pellagra occurred in the State during the year, but none was fatal. As usual the death rate in the cities was lower than that in the rural districts.

**Vaccination Law Upheld.**—The Appellate Division of the Supreme Court of New York in a recent decision upheld the law covering the vaccination of school children. It was stated that parents must permit their children to be vaccinated in order to attend school, and that if they refuse they may be fined five dollars for a first, and fifty dollars or thirty days in jail for a second offence.

**The Government and Radium.**—During the last two weeks the Committee on Mines and Mining of the House of Representatives has been hearing arguments for and against the bill providing for the withdrawal from public entry of lands containing radium-bearing ores. Considerable opposition to the plan has developed among the people of Colorado as well as among those financially interested in the production of radium. Dr. Robert Abbe, Dr. Howard Kelly, and Dr. Harvey Gaylord were among those appearing before the committee in favor of the bill, and Mine Commissioner

Henahen of Colorado and others argued against it. At one of the hearings the statement was made that a wealthy man of philanthropic ideas who preferred to remain unknown was prepared to provide fifteen million dollars to be used for the erection, equipment, and maintenance of twenty radium institutes for the treatment of cancer throughout the country. No corroboration of the statement and no further details as to the identity of the supposed donor have been forthcoming.

**National Drug Fight.**—A State and National campaign against the promiscuous use and sale of cocaine and heroin has been started in New York, with the financial backing of Mrs. William K. Vanderbilt.

**Gift for Medical Education.**—The Medical Department of Washington University, St. Louis, recently received from the General Education Board a grant of $750,000, which is one-half of the amount which the University has been trying to raise for the benefit of its medical school. The money was given under the same conditions as attached to the gift to Johns Hopkins University a short time ago: that is, that the teachers in the departments benefited while free to give medical or surgical service of any kind, must do so without personal gain, and that practically their entire time must be devoted to hospital work, teaching, and research. The specific purpose of the gift is to create full time teaching and research departments in medicine, surgery, and pediatrics.

**Dr. Williams for State Health Department.**—Dr. Hermann M. Biggs, the new Commissioner of Health of New York State, on January 21 announced the selection of Dr. Linsly Rudd Williams as First Deputy Commissioner of Health. Dr. Williams has had large experience in public health work and is a member of the Metropolitan Sewage Commission, a director of the Association for Improving the Condition of the Poor, and a member of the Public Health Section of the New York Academy of Medicine. It is understood that Dr. Williams will accept the appointment.

**Physicians' Mutual Aid Association.**—The forty-fifth annual meeting of the Physicians' Mutual Aid Association of New York was held at the Academy of Medicine on January 20. One of the interesting items of the president's report was the announcement of a bequest from Dr. Charles A. McBurney of $1,000 to be added to the fund of the Association. Dr. McBurney's name was placed on the list of benefactors. The president also reported that the average age of new members was thirty-five years. The following officers were elected: *President*, Dr. W. F. Mittendorf; *Vice-Presidents*, Dr. W. C. Phillips and Dr. Joseph W. Ingalls; *Secretaries*, Dr. A. E. Davis and Dr. Edward S. Peck; *Corresponding Secretary*, Dr. W. B. Jennings; *Treasurer*, Dr. Daniel Lewis; *Trustees*, Dr. Samuel Lloyd, Dr. Edward H. Squibb, and Dr. Robert T. Morris.

**Friedmann Sanatorium Closes.**—The Lower Saranac Lake Health Resort at Saranac Lake, N. Y., which was opened last July as a place for the administration in the Adirondack region of the Friedmann treatment for tuberculosis, was closed recently. Its abandonment apparently marks one of the final stages in the exploitation of the treatment around New York.

**Value of an Eye.**—Damages to the amount of $8,500 were awarded by a jury in Philadelphia recently to a boy and his father for the loss of the boy's left eye. The suit was brought against the company operating a large iron foundry in Coatesville, Pa., where an explosion of dynamite destroyed the sight of the eye.

**Charitable Gifts.**—Mrs. William G. Warden of Philadelphia has offered to erect, as a memorial to her husband, a fully equipped home for nurses in connection with the Germantown Hospital and Dispensary, at a cost of $60,000.

The Mountainside Hospital of Montclair, N. J., has received a bequest of $1,000 by the will of the late John C. Williams of that city.

**Smallpox Among Refugees.**—Several cases of smallpox were discovered on January 23 among the Mexican soldiers and refugees at Fort Bliss, Tex., and wholesale vaccination was ordered.

**Metropolitan Sewage Commission.**—Having completed a plan for the disposal of the sewage that now pollutes the water of New York Harbor, the members of the Metropolitan Sewage Commission tendered their resignations to Mayor Mitchel on January 23. A brief report of the work done was submitted with the resignations, as a preliminary to the detailed report which will not be completed until April. The commission was appointed in 1906.

**Medical Society Elections.**—PHILADELPHIA MEDICAL CLUB.—At the annual meeting held on January 16 the following officers were elected for the ensuing year: *President*, Dr. Samuel D. Risley; *Vice-Presidents*, Dr. McCluney Radcliffe and Dr. John W. West; *Secretary*, Dr. William S. Wray; *Treasurer*, Dr. Lewis H. Adler, Jr.

MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.—At the annual meeting held at the Academy on January 19, the following officers were elected for the ensuing year: *President*, Dr. Thomas H. Southworth; *Treasurer*, Dr. Isaac Hartshorne; *Chairman for the Borough of Manhattan*, Dr. Thomas Darlington; *Chairman for the Borough of Queens*, Dr. L. Edward Moss; *Member of the Council*, Dr. Frank Herbert Daniels.

GEORGIA MEDICAL SOCIETY.—*President*, Dr. Justin L. Jackson; *Vice-President*, Dr. Eugene R. Corson; *Secretary-Treasurer*, Dr. Victor H. Bassett; *Delegates to the Medical Association of Georgia*, Dr. George R. White and Dr. Thomas J. Charlton.

**Obituary Notes.**—Dr. JOHN BOWMAN, retired, of Millersburg, Pa., a graduate of the Jefferson Medical College, Philadelphia, in 1865, died at the home of his son, after a long illness, on January 31, aged 72 years.

Dr. HANSON L. RAYMOND of Vinal Haven, Me., a graduate of the Medical School of Maine, Portland, in 1894, died at his home after a long illness on January 9, aged 54 years.

Dr. JOSEPH B. THOMAS of Carthage, Mo., a graduate of the State University of Iowa College of Medicine, Iowa City, in 1883, died at a hospital in New Orleans, La., following an operation for intestinal ulcer, on January 6, aged 54 years.

Dr. JAMES DRYSDALE BALFOUR of London, Ont., a graduate of the Western University Medical Department, London, in 1887, associate professor of obstetrics and professor of pediatrics in the Western University, and formerly superintendent of the Victoria Hospital, London, died at his home from pneumonia, on January 7, aged 57 years.

Dr. RICHARD VAUX L. RAUB of Quarryville, Pa., a graduate of the University of Pennsylvania, Department of Medicine, in 1896, second resident physician at the Phoenixville Hospital, Phoenixville,

and a member of the Medical Society of the State of Pennsylvania and the Lancaster County Medical Society died at his home after a long illness on January 1, aged 41 years.

Dr. JEFFERSON DAVIS GOBER of Beaumont, Texas, a graduate of the Louisville Medical College, Louisville, Ky., in 1888, and a member of the State Medical Association of Texas and the Jefferson County Medical Society, died at his home after several months' illness on January 2, aged 53 years.

Dr. EDGAR PATTON MCCOLLUM of Greensboro, Ala., a graduate of the University of Alabama Medical Department, Mobile, in 1893, a member of the American Medical Association, the Medical Association of the State of Alabama, and the Hale County Medical Society, and former mayor of Greensboro, died at his home after a long illness on January 2, aged 41 years.

Dr. JAMES DALLAS CROOM of Maxton, N. C., a graduate of the Medical College of the State of South Carolina, Charleston, in 1876, a veteran of the Civil War, having served throughout in the Condeferate Army, and a member of the Medical Society of the State of North Carolina and the Robeson County Medical Society, died at his home on January 5, aged 69 years.

Dr. ERASTUS R. ELLIS of Detroit, Mich., a graduate of the Cleveland University of Medicine and Surgery, Cleveland, Ohio, in 1857, died at his home on January 7, aged 81 years.

Dr. JOHN WILEY HAGLER of Prattville, Ala., a graduate of the University of Alabama Medical Department, Mobile, in 1894, and a member of the Medical Association of the State of Alabama and the Autauga County Medical Society, died at the Williamson-Faulk Infirmary, Gadsden, from blood poisoning, after a short illness, on January 3, aged 44 years.

Dr. JAMES A. SEXTON of Harnett, N. C., a graduate of the University of Maryland, School of Medicine, Baltimore, in 1873, and a member of the Medical Society of the State of North Carolina and the Harnett County Medical Society, died at his home after a long illness on January 7.

Dr. DUNCAN MCALPINE of Grand Haven, Mich., a graduate of the Toronto School of Medicine, Toronto, Ont., in 1893, and a licentiate of the Royal College of Physicians, Edinburgh, 1894, died at his home on January 4, aged 43 years.

Dr. CLINTON HELM, retired, of Rockford, Ill., a graduate of the College of Physicians and Surgeons, Keokuk, Ia., in 1852, died recently at his home, aged 85 years.

Dr. GEORGE E. FULLER of Monson, Mass., a graduate of Georgetown University, School of Medicine, Washington, in 1865, and a member of the American Medical Association, the American Academy of Medicine, and the Massachusetts and Hampden District Medical Societies, died suddenly at his home on December 23, aged 75 years.

Dr. WILLIAM C. LANE of Cambridge, Mass., a graduate of the Howard University School of Medicine, Washington, in 1880, died at his home, after a long illness, on December 21, aged 59 years.

Dr. BENNO A. HOLLENBERG of New York, a graduate of the Memphis Hospital Medical College, Memphis, Tenn., in 1885, died at his home on January 1.

Dr. JOSEPH H. SCHENCK died at Wynnewood, Pa., on December 27 at the age of 66 years. He was graduated from Jefferson Medical College in the class of 1869.

## Correspondence.

### OUR LONDON LETTER.

(From Our Regular Correspondent.)

TROPICAL MEDICINE FUND—CHANGES IN ANIMAL TISSUES CAUSED BY X-RAYS—REPORT ON THE PNEUMONIA OF THE RAND MINES—BOOKS EXHIBITED AT MEDICAL SOCIETY.

LONDON, January 9, 1914.

THE fund raised for the London School of Tropical Medicine by Mr. Austin Chamberlain has been closed at £72,000. That is enough for immediate needs though it was hoped £100,000 would have been reached. Mr. Chamberlain has sent a letter to the contributors thanking them again and informing them of the manner in which he has disposed of the money. The new buildings have cost £15,000, which he hopes will not be considered an undue amount to spend on bricks and mortar. It has provided very efficient laboratories and sleeping rooms for a few students the need of which had been felt. Ten thousand pounds has been devoted to research—this is the amount bequeathed by Lord Wandsworth to Sir William Bennett, who placed it at the disposal of the school. Six thousand pounds has been invested for the income to provide beds for tropical cases in persons who cannot afford the special nursing and treatment which some tropical diseases require. The remainder has been invested in trustee securities and its income will be available for the general purposes of the school, including the provision of the best modern appliances, the general equipment, and maintenance in full efficiency of the laboratories and improvements that may be found necessary for the teaching staff.

On Monday evening Dr. Jean Clunet of Paris read a paper at the Middlesex Hospital on the "Histological Changes Produced by *X*-rays on Animal Tissues." The Roentgen Society was in full force to hear this contribution which had been eagerly anticipated and at the conclusion of the paper Dr. Barlow, the director of the cancer research department at the hospital, described it as marking a point in the history of radiation and of radiumtherapy.

Dr. Clunet opened with the statement that skin grows in progressive layers from below upwards and on reaching the surface is cast off in dead scales. On the other hand, he continued, in cancer of the skin the young cells do not submit to this ageing process but become active on their own account and multiply at the expense of the organism. The effect of *x*-rays is to hasten the normal cell-ageing process—the cells exposed to the rays passing more rapidly through the several stages to their death, the speed varying with the strength of the application so that all the layers may be simultaneously hurried into dead scales or under milder doses only become thin and atrophied. In the former case an ulcer is produced. By repeating mild applications hypertrophy is produced.

Dr. Clunet went on to explain that under the strong rays the cells of the skin were stimulated to age so quickly that death took place before they could reproduce new cells. Under milder applications a proportion of the cells was aged, but a sufficient number remained unaffected or retained vitality enough to maintain the atrophied thin, "glassy" skin. Very small mild doses had a stimulating effect on the cells resulting in more active growth and even increasing reproduction. When

strong doses were applied to skin cancers—epitheliomata and rodent ulcers—the ageing seemed to be produced *en masse*, the deadly reproductiveness was destroyed, the cells carried on rapidly to their death in scales—harmless to the organism.

Again, the minute doses to which operators with radium were subjected stimulated the cells enough to cause overgrowth and even inflammation of the skin. In some cases actual cancer supervened. These *x*-ray cancers are extremely difficult to heal. Dr. Clunet said that in one case, acting on the principle he had enumerated, that strong doses destroyed growth, he tried full applications. The effect was favorable, but the nerves became involved and the treatment on that account had to be abandoned.

The report of the inquiry into the pneumonia which affects the laborers and in particular the tropical native laborers in the Rand mines, which was undertaken by Sir A. E. Wright in association with Drs. Parry Morgan, L. Colebrook, and R. W. Dodgson has now been published in full. You will remember that portions have previously appeared and that the inquiry was undertaken for the Witwatersrand Native Labor Association. The report deals in a thorough manner with the causation, prevention, and treatment of the disease. As you may have anticipated, the account of the employment of vaccines by inoculation is the most interesting part and is the last word on this mode of treatment which is recommended as a precautionary measure for every native before commencing work on the Rand.

The culture medium for the pneumococcus vaccines at first employed by the authors contained 1 per cent. of peptone and 1 per cent. of lemco with 2½ to 5 per cent. of human serum and an amount of alkali fixed by neutralizing to phenolphthalein, then adding 6 c.c. of normal acid solution to each liter of medium. Later they added up to 1 per cent. of glucose.

The experiments undertaken for this report are carefully described and the available statistical evidence considered. Some mass-experiments as to prophylactic inoculation showed a striking diminution in the number of cases for the first two months but after that period the preventive virus seems to have lost its effect as such. The question of therapeusis has to be answered in quite a different manner. It is not recommended generally but as a subject of further research with properly controlled experiments *en masse*.

After four months from the inoculation on recruiting it is recommended that the native laborer should be reinoculated, the dose each time, a thousand millions of pneumonia bacilli, cultivated on the glucose blood broth.

A special object of further research is suggested to try and determine whether 1000 millions is the optimum dose. Further a mass experiment is proposed in which each patient should be given at the outset of his attack a dose of 500 millions.

Other measures which may be taken are (1) for avoiding correction of infection, (2) for holding off influences which might impair the normal resistance of natives to infection. As to the first early detection, isolation, disinfection, ventilation, and quarantine are considered, each of which may have some influence; but it is held that on the Rand their effect will be doubtful on account of the difficulty of carrying them out, the many varieties of pneumococcus, and the fact that the bacillus is found living in a majority of healthy men.

Concerning the influences referred to in the second place, *e.g.* provision for changing houses to safeguard the natives from chills and similar measures their place in a plan of campaign against pneumonia is looked upon as quite subordinate. The report insists that the predisposing moment in pneumonia is not in incidental, temporary impairments of resisting power connected with mining work, but in the abiding defect of that power which is normal in the natives.

Last evening there was an assembly of bookworms in the rooms of the Medical Society of London for some of the treasures of its library were exhibited and the librarian, Mr. Bethell, discussed the origin of the society and the early working of its library. He drew attention to the manuscript diary of Dr. John Ward which he thinks of getting published; among the entries is one referring the death of Shakespeare to a merry meeting with Drayton and Ben Jonson, "of a feavor there contracted." Another manuscript supposed to be in Mead's handwriting relates to the appointment of an under library keeper who "shall at least understand Latin and Greek, also ye modern languages, if such a one can be procured." He is to take care that the library "be kept clean and neat by having it swept, ye windows and seats dusted down, and when necessary ye floors washt, and at least once a quarter all the books and shelves be cleaned." To help in this the college will allow him 10 shillings a quarter for an assistant. But he is himself to make a catalogue of the books, a list of donations, and to see that no candle be brought into the library. For all this the salary was to be £20 and no more. One of the most interesting volumes exhibited was the "De Trinitate Divini" of Servetus containing, it is said, the anticipation of the circulation of the blood some eighty years before the announcement of Harvey.

## Progress of Medical Science.

**Boston Medical and Surgical Journal.**

*January* 15, 1914.

1. The Study of Cancer. S. W. Little.
2. Measured Feeding for Older Children. W. B. P. Emerson.
3. Leprosy—Some Notes and Suggestions. J. A. Honeij.
4. Institutional Dentistry: Methods; Results. Report No. 2 F. A. Keyes.

1. **Study of Cancer.**—S. W. Little states that the theory that the internal secretions have direct normal physiological relations with each other in the sense of aids or antagonists does not appeal to him. On the contrary, the theory that each secretion is independent of all the others except in the sense that each is essential to the whole organism and therefore to the working of the others does seem reasonable. All those internal secretions of which we have accurate knowledge do affect tissues of widely different origins, but it is just as easy to understand how that is possible indirectly as directly and far more rational. With this idea as a basis many nutritional diseases at once assume a different aspect and a hopeful instead of a hopeless. In studying various diseases of faulty metabolism it suddenly occurred to the writer that cancer is absolutely and essentially such a disease, and at once many things became clear. In the production of cancer there must be some factor other than failure of some ductless gland or glands and trauma. Little believes the explanation to be either one or both of two events. In the first place it seems highly probable that cancer always occurs at the site of cell injury for the following reasons: 1. Cancer certainly does occur often at the site of a known injury. 2. Organs which are most protected

from injury are the rarest seats of cancer. 3. Organs which are most exposed to injury are the commonest seats of cancer, with one enlightening exception, the skin. 4. The skin. But even here, remember that skin cancer is commoner by far in men than in women; men are more exposed to skin injuries than women. The reason why cancer of the skin is rare in spite of frequent injury will appear later. 5. Even those organs, apparently well protected, which occasionally are the seat of cancer may conceivably be injured, *e.g.* the kidney by stone and the liver ducts similarly. Also it is confirmatory of the idea that cancer of the gall-bladder and the ducts is far commoner than of the liver itself.

3. **Leprosy.**—Honeij as a result of investigations on leprosy concludes as follows: 1. When the disease is advanced the patient's health varies daily; he feels exceptionally well one day and the next presents every symptom and appearance of a seriously sick person. 2. In comparison to the severe symptoms and general appearance of the patient, physical examination will reveal nothing. Lungs and abdomen are normal, and with the exception of a soft systolic murmur over the precordia, the heart is normal. 3. During eruption the skin is usually hot and dry. 4. Extreme mental depression at irregular intervals and nervousness are characteristic of every case. 5. Ulcers may heal rapidly and continually, or, as is seen in one or two cases, they become chronic and refuse to respond to treatment. Medicinal treatment varies in each case; in leprosy this fact is particularly accentuated. 6. The clinical symptoms of leprosy, although somewhat confused and often indefinite, are nevertheless correct symptoms of the disease and in the care and treatment of leprosy patients, are to be carefully observed and seriously considered. The consideration of the pulse, temperature and blood are so important and instructive, that a more careful study is being made and will, in all probability be reported in the future.

## New York Medical Journal.

*January* 17, 1914.

1. Hypertonicity and Hypotonicity of the Vagus and the Sympathetic Nervous System. J. C. Hemmeter.
2. The Cerebrospinal Fluid and a Special Method of Treatment of Essential Epilepsy. A. Gordon.
3. The Results of Tonsil Operations on Public School Children in New York City. G. H. Cocks.
4. Treatment of Wounds and Infections. A. E. Hoag.
5. Functional Leucorrhea. W. Allan and I. H. Wright.
6. Intestinal Kinks: Their Diagnosis and Treatment. J. S. Haynes.
7. Periodic Explosive Toxemia. B. B. Crohn.
8. A New Urethrotome. W. W. Bredin.
9. The Institutional Treatment of Drug Addiction. C. J. Douglas.
10. Standardization of Brains. R. Alexander-Bowers.

**1. Hypertonicity and Hypotonicity of the Vagus.**—J. C. Hemmeter in investigating the hypertonicity and hypotonicity of the vagus and the sympathetic nervous system concludes with regard to organ neuroses that increased excitability of the vegetative nervous system may give rise to organ neuroses. These may be brought about by two conditions, either the overexcitability of the nerves supplying the organ, or a morbid condition in the organ itself rendering it more reactive. In this way we can conceive of the origin of gastric, intestinal, sexual, heart and respiratory neuroses. But no one has as yet thought of conceiving neuroses of internal glands under this neurochemical viewpoint. Another factor which enters into this aspect of the etiology of organ neuroses, and which might be added to the two already defined, is what might be called "psychic pathbreaking," by which is meant the facility with which neurochemical influences are made to go in one definite direction to a certain organ because the individual has his or her attention concentrated upon that organ. We have, therefore, three conditions in the development of organ neuroses: First, a heightened nerve excitability; second, increased reactive power of the organ of response, and third, psychic facilitation by the attention. It is evident in considering the dissociation of neurotropic substances that those organs which are most readily and most easily appealed to are in the foreground with their effects. Patients that are already stomach sufferers will predominately react to epinephrine and pilocarpine by gastric symptoms. Asthmatic patients will react to very small doses of pilocarpine with profuse bronchial secretion. Hemmeter also emphasized in this connection, that the three states, increased excitability, increased reactive power of the organs, and increased psychic facilitation, may, one and all, be affected in the same or opposite direction. They may be inhibited, and therefore we may have organs of a lessened responsive power. All this goes to show the immense complexity of the problem of pharmacodynamic and physiological parallels in the antonomic and sympathetic nervous system.

**7. Periodic Explosive Toxemia.**—B. B. Crohn reports three cases of this nature and after pointing out that it is essential to find a fundamental cause for these cases as a group states that he is inclined to agree with those who have held it before, that the entire group represents a reaction to toxins gradually accumulating in the intestinal tract due either to abnormal intestinal bacteria or to ferment activity. The transition from the mild cases of intestinal autointoxication, characterized by languor and headache, to the group with periodical outbreaks of headache, vomiting, prostration, and even jaundice is a gradual one; a transition of degree rather than of kind; the same case only in a different bed; the same fundamental pathology, but, in the words of the evolutionist, "a variation from type in a single species."

**9. Institutional Treatment of Drug Addiction.**—C. J. Douglas after twenty years' experience is prepared to say that there is no chronic disease known to medicine that is more surely curable than morphinism, and curable, too, without the suffering supposed to be necessary. He suggests three principal requisites in the successful treatment of any form of drug enslavement: First, a physician who is familiar with the pathological condition of these cases, and who has had experience in their care and treatment; second, an institution where patients can be under the constant care of physicians and nurses; third, a method of treatment that provides for the individual study of patients and the adaptation of therapeutic means to the peculiar condition of each. The various forms of drug addictions, whether based upon opium or alcohol, constitute a cluster of diseases that deserve careful study and classification. Our best medical men should devote more attention to the subject, and take it out of the hands of quacks and semi-quacks and the vendors of infallible specifics. The serious character and wide prevalence of these ailments entitle them to this much consideration.

## Journal of the American Medical Association.

*January* 17, 1914.

1. Lichen Planus. R. L. Sutton.
2. Treatment of Tabes and Paresis. W. H. Hough.
3. Autoserosalvarsan Treatment of Syphilis. G. W. McCaskey.
4. Roentgen Ray Burns. G. E. Pfahler.
5. Tetanus. W. T. Brem.
6. Alcoholism. B. L. Spitzig.
7. Alcoholism. A. Gordon.
8. Local Anesthetics. A. H. Miller.
9. Gastric Irritation from Drugs. G. G. Ballenger and O. F. Elder.
10. Movable Spleen. R. S. Fowler.
11. Defensive Action of Spleen. J. B. Murphy.
12. House-fly and Diarrheal Disease. D. B. Armstrong.
13. Nitroglycerin. G. G. Ebright.
14. Oxycephaly. F. Stein.
15. Strangulated Hernia. W. W. Mott.
16. Rabies. M. B. Wesson.
17. Bowel Obstruction. W. D. Mamaker.
18. The Sponge Count. P. E. Truesdale.

2. **Treatment of Tabes and Paresis.**—W. H. Hough says that in the treatment of nervous syphilis in its earlier stages, all authorities are now agreed that mercury and salvarsan are the most efficacious remedies. In the later manifestations, however, such as paresis and tabes, which have been shown to be active syphilitic conditions, treatment has not been so generally successful. Salvarsan seems to have a greater predilection for most of the other tissues of the body than it has for nerve tissues, which may explain some of the non-success. It has been shown that the blood-serum of recently treated or cured syphilitics has a marked trophic action on the specific spirochete and the following technique has been devised by Swift and Ellis for bringing an effective medical agent into immediate contact with the diseased process without incurring the danger of direct infection of salvarsan into the subarachnoid space. A dose, generally the maximum of salvarsan or neosalvarsan is given intravenously in the usual manner. At the end of an hour from 50 to 60 c.c. of the patient's blood are drawn by means of venous puncture, clear serum is separated, diluted to 40 per cent. with normal salt solution heated to 132.8° F. for half an hour, kept cool until the following day, then warmed to body temperature and injected into the subarachnoid space by means of lumbar puncture after the withdrawal of about 15 c.c. of spinal fluid, the amount of diluted serum injected being 30 c.c. After the first few injections if well tolerated 40 c.c. of a 50 per cent. serum is usually injected. It must be injected slowly without much pressure. After the injection the patient is kept in bed for about twenty-four hours with head covered. The number of treatments varies with the case, but the general rule is to give eight or ten treatments, one every second week and then discontinue them for a time, repeating, if necessary, and using as indices the Wassermann test with the blood and spinal fluid and the cell and protein estimations of the latter. Hough gives a brief summary of the cases of tabes in which he has tried this mode of treatment. The general opinion of those who have tried the method is that it is the most promising one for tabes and paresis that has yet been devised.

3. **Autoserosalvarsan Treatment of Syphilis.**—G. W. McCaskey draws attention to the fact that the discovery of the syphilitic origin of tabes and general paralysis has served to clear up the pathology of these diseases and that one factor of their intractability to antisyphilitic treatment is probably the inaccessibility of the subarachnoid lymph-space. He points out that salvarsan introduced intravenously does not enter the cerebrospinal fluid, as shown by positive Wassermann in spinal fluid while the blood test is negative. He describes the technique of intraspinal injection of autosalvarsanized blood serum which was introduced by Swift and Ellis of the Rockefeller Institute and reports on the results of this method as used by him in seven cases. He states that in twenty treatments administered over a period of three months he has seen remarkable improvement in some cases and he is of the opinion that the method in careful hands, when properly administered, is devoid of danger and offers a new and rational treatment in cases of cerebrospinal syphilis.

13. **Nitroglycerin.**—G. G. Ebright quotes from an article as well as from a private communication by Dr. George E. Laws with respect to the maniacal excitement occasionally produced among those engaged in the manufacture of nitroglycerin and also as to its aphrodisiac effect and the well known facts regarding its physiological action. Observations of the working conditions among the employees of the Dupont Powder Company at Hercules, Cal., showed that occasionally a workman was found who was immune to the action of the drug, but this was a very rare exception and the degree of the exposure required to produce the characteristic headaches varied with the individual, with the weather, and the length of time that the person had been in contact with the drug. A new man was very susceptible and warm weather aggravated the symptoms. After three or four days a considerable degree of immunity was produced, but the symptoms might still appear from extended exposure. The immunity was, however, rapidly lost and the absence from work for even two days was sufficient to effect this. It is a common practice among the workmen to place some nitroglycerin on their hat bands during periods of absence in order to maintain immunity. A characteristic symptom is a throbbing headache; this is often so severe as to cause loss of sleep, but the author had not observed maniacal attacks in his investigation. Permanent effects appear to be lacking. The general health of the workmen was uniformly fairly good and there were no evidences of destructive blood changes. Alcohol aggravates the symptoms by relaxing the blood-vessels. A case illustrating this feature came under his notice. A foreman of an excavating gang handled a large quantity of dynamite and following advice took some whisky to relieve symptoms produced; the result was an attack of homicidal mania. No evidences of a nitroglycerin habit had been noticed. The natural dread the workers in nitroglycerin have of the headaches precludes any likelihood of the acquiring of a pernicious habit. As far as the limited number of cases afforded an opportunity to judge, there was no evidence of any cardiovascular changes of importance and long continuance at the occupation seems compatible with good health.

14. **Oxycephaly.**—I. F. Stein reports a case of oxycephaly, steeple head. A Roumanian Jewess with this deformity came for treatment for cardiac trouble. According to Stein early and rapid blindness is a frequent accompaniment of the condition, but it has not occurred in the case reported. The shape of the head, prominence and size of the eyes, slightly deviated nose, high arched palate, intense headaches, nervous fits, which were ascribed to hysteria by former medical attendants, and characteristic dimpling of the inner table of the skull as shown in the roentgenogram, establish the diagnosis of oxycephaly in this case. In Stein's case the intelligence was not impaired.

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### American Journal of Surgery.

*January*, 1914.

1. The Treatment of Fractures. E. P. Magruder.
2. Deductions from Our Experience at the Hospital of the Good Shepherd in the Open Treatment of Fractures E. S. Van Duyn.
3. Conservation in the Treatment of Fractures. W. L. Estes
4. Metal Bone Plating a Factor in Non-Union. W. M Brickner.
5. The Inlay Bone Graft as a Treatment of Ununited Fractures. F. H. Albee.
6. On the Diagnosis of Fracture. L. A. Stimson.
7. Vicious Union in the Neighborhood of Joints. J. K Young.
8. A Splint for Maintaining Nail Extension During Transport. J. C. A. Gerster.
9. Astragalus Injuries. F. J. Cotton.
10. Some Immediate and Remote Results of Fractures of the Skull and of the Spine. C. A. Elsberg.
11. Fracture of the Skull. The Roentgen Ray as an Aid in Its Diagnosis. W. H. Luckett and W. H. Stewart.
12. The Operative Treatment of Fracture of the Olecranon. A. W. Shea.

1. **Treatment of Fractures.**—E. P. Magruder compares the open and closed methods of treating fractures to the disadvantage of the former. He concludes that the closed method is the method of choice even when an approximate coaptation can be secured. On the

other hand, operation is indicated in the closed fracture of wide displacement and when correct apposition is otherwise impossible. Provided hospital facilities can be obtained operation is indicated in articular fractures when ankylosis threatens, and the best results are obtained after exact coaptation and suturing of the fragments. When operation is indicated at all, the earliest operation is the best. The operative treatment for open fractures is that which most nearly reduces them to the type of the closed fracture, except as to drainage.

2. **Experience of Open Fractures.**—E. S. Van Duyn gives his experience of twelve years in the open treatment of simple fractures at the Hospital of the Good Shepherd, Syracuse, N. Y., and concludes as follows: We hold that the open treatment of fractures is more scientific and gives more satisfactory results than the older method in those cases where complete reduction cannot be immediately accomplished and maintained; that the dangers of open treatment lie only in faulty technique; that excepting where it is necessary to bridge in a gap, foreign material other than sutures should not be introduced; that when such foreign material is necessary bone from the patient himself is best; that all cases should be examined at regular intervals with the *x*-ray to determine the amount and extent of callous formation, and when failure in such formation is manifest in spite of early manipulation strain pressure and massage should be employed.

4. **Metal Bone Plating a Factor in Non-Union.**—W. M. Brickner, among other deductions drawn from his own experience against the use of metal bone plating, gives the following: A metal plate screwed to a fractured bone can of itself cause delayed union and nonunion. Neither a 3⅝ metal plate nor an additional well applied plaster cast can be depended upon to maintain the alignment of a fractured femur shaft in a very muscular thigh.

5. **The Inlay Bone Graft.**—F. H. Albee reports bone graft in fifteen cases of pseudoarthritis, bony union in every case, and concludes that in the repair of deformity and the result of traumatism of the skeleton the advantage of the use of its own material and of the avoidance of seemingly necessary foreign substances has been clearly demonstrated. Metal introduced into the tissues is in most respects the direct antithesis of the bone graft. It favors infection, absorption, and disintegration of tissue.

## The Lancet.

*January* 10, 1914.

1. Observations on Prophylactic Inoculation Against Pneumococcus Infections. Sir Almroth Wright, W. P. Morgan, L. Colebrooke, and R. W. Dodgson.
2. Unpolished Rice and the Prevention of Beriberi. H. Fraser.
3. Studies on Growth. C. Funk.
4. A Simple and Successful Measure for the Perforation of a Gastric or Duodenal Ulcer. E. M. Corner.
5. Note on the Treatment of Sciatica. J. J. Grace.
6. Two Cases of Post-Operative Hemiplegia. A. W. Jones.
7. Secondary Hemorrhage from Deep Epigastric Artery after Operations for Appendix Abscess. J. O. Skevington.
8. Rupture of the Heart by External Violence. A. M. Kennedy.
9. Health Temples in Ancient Greece and the Work Carried on in Them. R. Caton.

1. **Prophylactic Inoculation Against Pneumococcus Infections.**—Sir Almroth Wright and coworkers from an extended trial of prophylactic inoculation against pneumonia, record in every case in which pneumococcal vaccine was used a reduction in the incidence rate and death rate from pneumonia. In adjudicating upon a procedure of prophylactic inoculation the following general theses must be taken into account: 1. The advantage derivable from a prophylactic inoculation will be limited by the patient's power of immunizing response. 2. The advantage derivable from prophylactic inoculation will depend upon the degree to which the population to which it is to be applied has already run the gauntlet of the particular microbe infection in question. 3. Where in comparative statistics we find that the difference between the inoculated and the uninoculated is after a time effaced, this does not necessarily indicate that the immunity of the inoculated is diminishing. 4. Comparative statistics furnish only a very incomplete account of the profit earned by any successful prophylactic inoculation. Among the recommendations put forward by the authors of the paper are these: In connection with prophylactic inoculation the task of research should be to obtain confirmation of the conclusion that we have in 1,000 millions the optimum dose for prophylactic purposes. It would also be well to make certain that reinoculation after a period of four months is really required. In connection with therapeutic inoculation the first task of research should be to institute a mass-experiment in which one large dose of vaccine should be given to the patient at the outset of his pneumonia attack. It is suggested that a dose of 500 millions might be tentatively employed in such an experiment, and that in such an experiment every alternate patient should be taken for a control.

3. **Studies on Growth.**—C. Funk early in 1913 pointed out that the results of the investigations of numerous students as to growth, together with the gain in our knowledge as regards the vitamines, now important constituents of our normal dietary, cannot fail to produce some effect on the investigation of cancer. Lately Funk succeeded in arresting the normal growth of young chickens, for the first time, on a diet containing vitamines. Here was a new hope for influencing the tumor growth without danger of producing a deficiency disease. He therefore inoculated chickens arrested in growth with Rous' sarcoma, a very virulent chicken tumor which takes in nearly 100 per cent. The result was that the tumor grew undoubtedly more slowly and was smaller in size than in controls on normal diet. The experiments described must be considered as a series of orientation experiments in an endeavor to influence tumor growth by diet. At present they do not admit of a practical application, but they suggest that, especially in cases of a quickly growing but not very malignant tumor, such a diet might have some slight inhibitory effect on the rate of tumor growth without producing a deficiency disease.

5. **Treatment of Sciatica.**—J. J. Grace reports the results of the treatment of sciatica by the use of the 500 candle-power lamp and static electricity. He gives the history of six cases successfully treated in this manner and states that he cannot feel any doubt but that, in addition to the local effects, general metabolic effects of a beneficial character are taking place in the organism from the employment of the static wave current.

## British Medical Journal.

*January* 3 *and* 10, 1914.

1. Cancer and Radium. A. Gould.
2. The Triple Syndrome in Abdominal Emergencies. Rutherford Morison.
3. A Retrospect and a Forecast. W. Osler.
4. On the Teaching of Clinical Medicine. J. Mackenzie.
5. A Family with Cerebellar Ataxia. C. A. Sprawson.
6. A Case of Woody Phlegmon of the Neck. G. Parker.
7. An Address on Pneumonia. Its Nature and Treatment. Sir James Barr.
8. Investigations on Syphilis as Affecting the Health of the Community. C. H. Browning.
9. The Treatment of Hydatid of the Liver. C. Mac Laurin.
10. Two Cases of Tuberculous Peritonitis and Salpingitis, with Menstrual Complications. W. G. Spencer.
11. The Administration of Guaiacol in Pulmonary Tuberculosis. G. H. Mayberry.
12. Epidemic Cervical Adenitis. R. D. Rudolf.

1. **Radium and Cancer.**—A. P. Gould points out that the selective power of radium, enables us to use it to remove the cells of a malignant growth and to leave behind the healthy tissue. The true therapeutic use of radium rests upon its selective affinity for cancer cells and not upon a general caustic or destructive power. A list of cases of cancer successfully treated by radium is given and Gould emphasizes the point that these cases show the much more rapid and satisfactory effects of radium when introduced into a tumor than when it is applied as a plate on the surface of the body. The question is whether after operating for cancer we ought to use radium as a prophylactic measure to prevent recurrence. Gould does not see his way to do this. In the first place, we do not know where the supposed cancer cells are lurking and, as he said before, we have at present no clear evidence that the selective effect of radium on cancer cells is exercised over a wide area. But we do know that radium can produce such active cell growth as will end in cancer. His own experience warrants him in saying that in radium we have an agent that in many cases can be used in the treatment of cancer with great hope of success, and that the selective action upon cancer marks it out from all other known remedies for this disease; but this same experience also shows that it would be a gross exaggeration to speak glibly of radium as the "cure for cancer" in the sense that it will deal with any and every case of this disease. Such is not the case, but remembering what he started as a preface to this paper, that on the one hand the nature of cancer is unknown and most variable in its manifestations, and, on the other hand, that radium is almost the youngest of the known chemical elements, and has been studied but for a few years and by relatively few investigators, there is good ground for hope that in the time, which will surely come, when we shall unravel the secret of the nature of cancer and know more of the properties of radium, and how to use them better and to control them, we shall have a great extension of the therapeutic value of radium in cancer.

2. **Triple Syndrome in Abdominal Emergencies.**—Rutherford Morison draws attention to the importance of "The triple syndrome in abdominal emergencies." The principle of the law has been to some extent recognized for cases of appendicitis, for which a "lethal interval," "the dangerous remission," "the deceptive calm," etc., have been described and emphasized in many papers, but what is true of appendicitis is true for other abdominal emergencies. In all there should be three phases or stages which are as follows: (1) The stage of shock. (2) The stage of reaction. (3) The stage peculiar to each lesion. In all the dangerous lesions pain is severe enough in the first stage to produce symptoms of shock, varying from a feeling that something serious has happened, accompanied by pallor, sweating, and feebleness, to such a bad sensation and symptoms as to threaten and rarely to cause death. This is the period to which he is anxious to draw attention because it is of the greatest importance. If looked at fair and square it is difficult to miss the meaning of the symptoms but there may be only a single chance, the first look, the first visit. Half an hour, even a few minutes later, the second phase, that of reaction, has set in and in a short time the patient may be apparently so well that it is now almost impossible to believe that any dangerous condition is present. This is the time when mistakes are made. Morison thinks that the time has come to make a rule that all cases of abdominal injury and of acute abdominal pain should be sent to a hospital without delay for observation.

7. **An Address on Pneumonia.**—After referring to the incidence of pneumonia the influences of race, sex, and age upon its causation and its etiology Sir James Barr has this to say regarding its prevention: Any septic condition of the mouth increases the virulence of the pathogenic organisms, and so a foul-mouthed individual is usually a greater danger to himself than to others. The mouth should always be kept perfectly clean and as aseptic as possible and the teeth in good order. The nasal passages and throat should be kept clean with some simple oily preparation, such as pure liquid paraffin, as they are frequently the paths of infection for pneumonia, rheumatic fever, influenza, diphtheria and cerebrospinal fever. In the treatment of pneumonia he is in favor of the injection of pneumococcal vaccine and is absolutely opposed to the administration of phenacetin, antifebrin, and other coal tar products. Indications for treatment of cardiac failure are, 1. To lower the temperature and control the inflammatory process at the earliest possible period, before stagnation of the blood and hepatization have taken place, and thus preserve as far as possible the integrity of the respiratory apparatus; this also lessens the risk of involvement of the nutritive vessels of the lungs; 2. To maintain fair systemic blood pressure; 3. To keep the respiratory pump acting by lessening the frequency and increasing the depth of the respirations; 4. Remedies to lessen the toxemia and maintain the tone of the cardiac muscles; 5. Methods to lessen the spread of the mischief. In order to limit the spread of the disease the administration of lime salts is recommended. In the acute stages of pneumonia the more scanty and more sticky the expectoration, the more viscous the blood, the more lime salts and leucocytes it contains the more favorable the prognosis; on the other hand, the more fluid and hemorrhagic the expectoration, the more liquid the blood, the less the lime salts and leucoctyes, the worse the prognosis. Pneumonia should always be regarded as a serious disease; no matter how mild the case may at first appear, you cannot always forecast how it may develop, and every medical man in dealing with this affection should feel the responsibility of a human life in his hands. It has been said that young men kill their patients and old men allow them to die, but Sir James points out that early recognition and prompt treatment in all cases of pneumonia will save many a valuable life.

11. **Guaiacol in Pulmonary Tuberculosis.**—G. H. Mayberry is of the opinion that guaiacol is not used nearly so much in pulmonary tuberculosis as it might be. It has no doubt been used by a considerable number of practitioners, but abandoned as of little use, 1. It was not given in large enough doses; 2. It was not continued for a sufficiently long time; 3. It may not have been possible for the drug to be administered regularly. Even intervals of a few days in the administration have a prejudicial effect. Mayberry gives records of several cases in which he administered guaiacol in the manner stated above with conspicuously successful results.

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## Berliner klinische Wochenschrift.

*December 29, 1913, and January 5, 1914.*

**Ozena an Infectious and Contagious Disease.**—Dr. Perez of Argentina presented his well-known views on this subject before the Berlin Laryngological Society upon the invitation of Professor Killian. Perez is easily the first authority on this subject and seems to have devoted most of his activities to it. His theories of its origin and nature have not been disproved. He points out the familial character of the disease, as when the condition exists in a mother and several

children. It is only necessary to find a microorganism to make this familial incidence a matter of contagion. Two germs accused here have been the Lowenberg-Abel coccobacillus and the Friedlander pneumobacillus. The author, dissatisfied with his results, then resolved to study the entire flora of the nasal passages, which comprise a dozen microorganisms, mostly familiar to all. In only one, the coccobacillus fetidus ozenæ, was there pathogenicity found in respect to ozena. This germ long ago received the name of bacillus Perez. The various tests by which this germ has been shown approximately to be the sole cause of ozena are now well known. The bacillus is able to enter the bloodstream and attack the nasal chambers as well as to act locally. Through his experiments Perez has demonstrated that ozena *per se* is the same radically as chronic atrophic rhinitis. The latter is a chronic coryza with little or no atrophy; but its apparent mildness does not prevent a good proportion of its victims from having the true ozenous qualities—the crusting and stench. The severer type is characterized by extreme atrophy and deformity (saddle nose). Perez's work depends as much as anything also upon his following up case after case, in which there were two or more people in prolonged intimate contact. The number followed up in this manner is very large and each case has been tested bacteriologically. Dogs have been known to act as carriers and hosts, and the coccobacillus Perez is a normal denizen of the dog's nasal chambers. The author has collected a very large number of such cases of apparent canine contagion.

**Etiology of Genuine Ozena.**—Hofer spoke after Perez on the same subject, and announced that he had followed the South American's lead in making the same tests upon German material. There have already been those who have believed the disease infectious, as shown, by efforts to trace it to tuberculosis or syphilis. In regard to Perez's bacillus, they were able to find it in the majority of cases. The difficulties of isolation were very great. When cultures were injected intravenously into dogs, the amount of germs in the nose was augmented, but this phenomenon was not always constant. Pure cultures of the coccobacillus gave off the characteristic odor, which is also very perceptible in mixed cultures. The dog can be directly inoculated in the nose. Next in order comes a word on other noses which in shape resemble the nose of severe ozena. Here belong various types of syphilis, which produce the extreme type of saddle nose. The atrophy may be chiefly responsible for the crusting, but however the latter arises, the greater the crusting the stronger the odor. The fetor which comes from diseased nasal sinuses, while penetrating, is quite unlike that of true ozena. Syphilis, according to its severity, destroys more or less of the nasal framework and produces a saddle nose, which is deeper than the mild degree seen in ozena. The latter has always been regarded as incurable, so that at best a victim can learn only to live with it. Hofer, after accepting all or nearly all of Perez's dicta, believes that there is possible cure through active immunization by means of a serum made from Perez's germ. If the response to treatment by means of this serum were favorable, it would furnish the last and most convincing link of proof of the assumed etiology of ozena.

**Paradidymitis Erotica Acuta.**—Heller describes a condition which has never received the attention it deserves, and the connection of which with the sexual life is not regarded as a direct one. It plays a part in determining whether or not continence is injurious. That it appears after suppression of frequent intercourse is admitted, also that it disappears at once after the resumption of sexual relations. But the question of a rapid relief of a turgid condition may be dealt with in a twofold manner. The seat of the trouble is not an active part of the genital apparatus; and turgescence should occur in the organs which participate actively in coitus—notably the testicles, seminal vesicles and prostate. Now the direct results of abstinence or continence, is as is well known, nocturnal emissions. The question is properly asked whether the men who suffer from "paradidymitis erotica" have not previously suffered from gonorrheal epididymitis. In 1891 Porosz described it under the term "bridegroom pains" by which he referred to certain phenomena caused by the almost continuous turgescence of the genitals. This expressed itself at times as a swelling in both epididymi, circumscribed and firm to the touch, which passes off in 24 hours. In a more severe type a true epididymitis develops, confining the patient to bed for days. This condition does not result from mere abstinence but from the almost continuous contact shortly before the wedding period with his wife to be. Cases have been reported in which sexual incapacity for coitus, swollen epididymi, nocturnal pollutions, and sexual neurasthenia occurred side by side. Hence abstinence as a result of impotence may act like voluntary restraint in producing the epididymal lesions. Wälsch has described a sympathetic, erotic epididymitis which he ascribes to an acute hyperemia. In one case the patient had been through a gonorrheal epididymo-orchitis, but others did not show this history. One of the simplest cases was in a traveling man who always suffered while on the road, but who was at once relieved by marital relations upon his return home. The man had once had gonorrhea, but there is no mention of an epididymitis. Another man who never had had gonorrhea, always developed swelling and tenderness of the epididymi, after a single episode of prolonged excitement without gratification. A great variety of similar cases could be cited from authors, but Heller believes that the older teaching is all based on anatomical misunderstanding. From Eberth's "Anatomy of the Male Genitals" he obtains the idea that the testicular adnexa called the "paradidymis" is the true seat of these clinical affections. It is really the remnants of an embryonal structure. In a certain per cent. of men it persists, and in a few autopsies has been found to be the seat of compression by tumors, cysts (hydatids). The true mechanism of acute distention and acute relief is undoubtedly dependent on the alternate filling and emptying of the seminal vesicles. Only an autopsy can settle this question beyond doubt.

**Primary Intrahepatic Gallstone Formation.**—Siber reports a case of this unique affection which he cured by hepatotomy. Thus far he has found in the literature no similar case. The clinical report should therefore be the more interesting feature of the case. Patient a woman of 34, no trouble until two weeks before, when she began to feel vague abdominal pains. Within past few days began to vomit bile. Chills with high fever. When first seen was in collapse, and her extreme emaciation made more prominent a tumor in the hepatic region. Diagnosis, hepatic abscess. Laparotomy, with incidental appendectomy. No stones in gall-bladder or ducts. Liver showed tumor, in which fluctuation could be detected. After small incisions had brought away fluid the author made a number of deep ones which laid bare a cavity of the size of the fist. From this cavity 51 stones were extracted, composed of cholesterincalcium. The patient made a good recovery.

### Münchener medizinische Wochenschrift.

*December* 23, 1913.

**Soothing Screaming Nurslings by Blowing on Them.**—Salge refers to screaming while being handled and quotes Nussbaum in this connection who checks the screaming in part while a hernia is being reduced. The lay press made a feature of this announcement. He then announces that the blowing upon the faces of children by nursemaids for the purpose of quieting them is an old popular custom, which child-conservation enthusiasts have been trying to abolish because of its insanitary possibilities. Aside from the possible infection with a dangerous disease there is danger in spasmophilic children of causing laryngismus. It is the custom of all nursing stations to forbid the practice. The author adds from his own experience a method by which abdominal palpation is facilitated, when the child's screaming interferes. This is simply a rectal enema of choral, which is well tolerated, even by the youngest nurslings. The resourse soon quiets them and being in a sound slumber mild manipulations are well borne.

**Strictures of the Ureters.**—Baar, an American, gives an extensive article on this subject quoting chiefly from American colleagues. Osler admits that there is no medical treatment for the condition. Surgically the simplest resource is gradual dilation. This method seldom succeeds. Kelly with his great experience has notes of some favorable results. The method is ideal in theory. Pyelotomy with rendering patent the ureter has been very little successful in curing pyelitis because of the frequent fistula formation. Kelly has occasionally cured pyelitis by catheterising the ureter and irrigation of the pelvis. In certain cases of inflammation which threaten to envelop the ureter, it has been possible to cut down and isolate the latter. Another portion of the paper is devoted to ureteral strictures simulating stone. He reports such a case in full.

**Thymus, Ovary, and Blood Pictures.**—Heimann sums up his studies as follows: the thymus gives up to the blood substances which influence the lymphocytes. When the gland is removed we see a picture which is confirmed by use of thymus press juice—the loss of the thymus causes a fall in lymphocytic values, while incorporation of thymus matter causes the latter to rise. The lymphocytes in the blood also affect the ovarian secretion, but ovarial press juice acts antagonistically. This means apparently that the entrance of the latter into the blood depresses the number of lymphocytes in the blood.

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### Deutsche medizinische Wochenschrift.

*December* 25, 1913.

**Appearance of Menstruation During the Climacteric.**—Levy has recently witnessed a case of this sort which he pronounces extremely rare. His title "appearance of menstruation" should really be reappearance, etc. The woman was born in 1836, and menstruated when 16. At 22 she married and presented the world with 14 children, all breastfed and all born at full term, and from 18 months to 2 years apart. She had never aborted, and in fact, had had no illnesses whatever. Periods always regular, lasting 6 days. At the age of 57 the menses ceased but without any symptoms of climacteric. At 71 the menses reappeared, and regularly until nearly 76. She is now 78 and hale and hearty.

**Saving of Radiant Energy in the Treatment of Inoperable Cancer.**—Klotz gives a résumé of his subject as follows: First he gave intravenously 5 c.c. of electrocobalt. Then during the next two days beginning immediately after the injection he gives from 400 to 450 X—in three localities—belly, back, and vulvovaginal. After 9 days he injects more cobalt and gives radium treatment to the vagina alone (800-1,000 mgm-hours). Again 9 days more he injects 5 c.c. of electrocobalt (as high as 10 c.c. may be given if the kidney is not affected) and resumes the *x*-ray treatments. The electrocobalt is a colloid of the metal, used for its tumoraffin properties which resemble those of selenium. The sole end of this method appears to be in the direction of economizing costly substances.

**Brophy's Cleft Palate Operation.**—Kaerger gives his experience with this long known operation which goes back to 1861. In the meantime there is a long record of poor work, until it was learned that early operations alone promise favorable results, while in older subjects an obturator could be made to give good service. At present the methods of Brophy and Arbuthnot Lane are much in vogue. Both require that the operation should be done in early childhood, losing no time by delay. Lane endeavors to operate before the irruption of the teeth, suturing the hare lip first and leaving the bony cleft to unite in part by natural growth. Brophy after suturing the hare lip unites the bony cleft by an osteoplastic method. The German surgeons thought the latter correct in theory but attended in practice by incomplete results, but after Brophy himself (1911) had demonstrated his methods, instruments, etc., they regarded it in a new light and the author sought to try it out in Bier's clinic, at the latter's request. Some results are as follows: There were six cases of double hare lip, fissures in upper jaw and palate. Four of these were cured completely, while the other two are now under treatment. There were 25 cases in which the same condition was unilateral; 13 patients have already recovered, the rest presumably under treatment. In 7 other children the fissures were limited to the palate (hard or soft) or palate and lip, the jaw bone being intact. There is allusion to 15 cases of simple cleft palate, 13 of which were cured by Brophy's method, and the other 2 are under treatment.

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**The Chemotherapy of Tuberculosis.**—L. Rénon reports the results of his experimental and clinical observations on this subject. He investigated three classes of substances: (1) radioactive substances as radium and thorium; (2) mineral salts; and (3) electrical collodidal metals. The bromide and the sulphate of radium had no effect upon cultures of the tubercle bacillus, nor did either of these substances prevent or arrest the development of experimental tuberculosis in the guinea-pig. Variable results followed the use of ether agents on human beings. Whatever benefit had been derived was probably the consequence of psychic influence. The same results were obtained with thorium. The next set of experiments were carried out with the salts of nickel, yttrium, zirconium, and calcium. Chloride of nickel in a concentration of 6 to 1000 prevents the growth of a culture of tubercle bacilli, but it had no effect on the disease in the guinea-pig. In the human being doses of 5 centigrams of nickel chloride diminish expectoration and reduce the temperature in some patients but have no effect on the evolution of the disease. Chloride of yttrium has no effect on cultures of the tubercle bacillus, neither does it arrest tuberculosis in the guinea pig. Doses of 10 centigrams in the human being improve the general condition but have no effect on the pathological process. Chloride of zirconium inhibits slightly the development of the cultures, and the evolution of the disease in guinea-pigs. Doses of 2 centigrams in man improve the general condition, particularly the weight and the appetite, and diminish the expectoration, but otherwise they have no effect. The author has obtained good clinical results with the tannate and albuminate of calcium. Electrical colloidal preparations of nickel, silica, ruthenium, and carbon were found to have no curative influence in tuberculosis. Nickel and ruthenium may relieve the secondary infections.—*Bulletin Général de Thérapeutique.*

# Insurance Medicine.

## SUGGESTIONS TO MEDICAL EXAMINERS.

BY THE INSURANCE EDITOR.

### PLEURISY.

A STUDY of insured lives with a history of pleuritis shows an excessive mortality, the rate varying in a general way according to the form in which the attack declared itself. The cause of this high death rate is readily understood in view of the recognized fact that the tubercle bacillus, alone or in combination with other organisms, is frequently responsible for the attack of pleuritis. A good many medical examiners attach too little importance to a history of pleuritis if one judges by the incomplete reports submitted by them.

*Dry or Fibrinous Pleurisy.*—The proportion of cases in which the presence of the tubercle bacillus is a factor in the etiology of dry pleurisy is large, though not definitely known. Osler obtained a positive tuberculin reaction in 33 per cent. of a group of cases. The same authority further states that out of 60 cases followed up after discharge from the hospital, 30 per cent. developed pulmonary tuberculosis during the next twelve years.

Certain mistakes are liable to occur in the diagnosis. For instance, it is quite probable that a small amount of liquid is present in many of the so-called cases of "dry pleurisy." Other mistakes arise through the confusion of dry pleurisy with pleurodynia, due to the fact that both ailments give rise to the same characteristic pain, and that dry pleurisy is sometimes indicated by this pain alone. Therefore when a history of either ailment is acknowledged an effort should be made to find out the true nature of the attack.

*Serofibrinous Pleurisy.*—It is generally accepted that a large percentage of the cases of pleurisy with effusion, the so-called primary as well as those secondary to tuberculous lesions, are due to the invasion of the tubercle bacillus. The proportion varies from about 25 to 85 per cent., according to different observers. The remaining non-tuberculous infections are usually due to the presence of the pneumococcus or streptococcus, or both. The belief that a large number of the cases of serofibrinous pleuritis are tuberculous is supported by the fact that many of those who recover from the effusion suffer afterward from tuberculous disease. Bowditch followed up ninety cases and found that thirty-two of them died subsequently of pulmonary tuberculosis. Hedges traced 130 cases treated at St. Batholomew's Hospital and found that 40 per cent. of them became tuberculous within the next seven years. Of 300 cases treated in the Massachusetts General Hospital and followed up by Cabot, 117 died within five years. As Osler puts it, the chances are about three or four in ten that an individual with pleurisy with effusion will develop pulmonary or other tuberculosis within a period of six or seven years.

It should not be forgotten that the foregoing estimates are based upon experience with the inmates of large public hospitals, and that it is not fair to compare them with the results which may be expected among the class of people who apply for life insurance. Generally speaking, the latter are more amenable to good advice and more apt to consent to a careful supervision and regulation of their daily life in the years following the pleurisy. Nevertheless the ultimate results in the better class are unfavorable enough to materially increase the hazard of insuring the individuals of the group.

*Purulent Pleurisy.*—Most pathologists consider that empyema is seldom due to the presence of tuberculosis, and that it usually occurs as a pure infection by the pneumococcus or streptococcus or both. The finding of these organisms does not, however, necessarily exclude the tubercle bacillus.

*Conclusions.*—The results obtained by the different authorities are corroborated to a large degree by the experience of life insurance companies.

It will often be difficult to secure a definite history of the original attack of pleurisy, but the medical examiner should make an earnest effort to elicit the important points, especially the precise date, duration, severity, and form; furthermore, whether there was any suspicion of tuberculosis. A close and searching inquiry should be made into the family history and suspicious causes of death should be positively cleared up. It should be made clear, whenever there has been a sudden increase in weight, whether it was due to forced feeding or change in climate and whether the previous lighter weight was due to any illness. A loss of weight is still more important and should be regarded with suspicion. The habits, occupation, and surroundings should receive careful attention, and the examiner should ascertain if the applicant lives in overcrowded quarters and understands the importance of the proper disposal of infected material.

The physical examination should be made with all clothing removed from above the waist, and a careful and painstaking search should be made for old adhesions and thickening of the pleura, especially at the apices. Adhesions often exist as the sequel of simple pleurisy occurring during an attack of pneumonia and unless they are extensive or situated at the apices will usually be ignored by the approving officers at the home office when they are convinced that pneumonia without tuberculosis was the provoking cause.

Even after the examiner has made a searching inquiry and strict examination, there still remains a doubt which can only be cleared up by the physician who attended the patient during the actual attack, and who is the only one in a position to give definite and authentic information as to the character of the pleurisy. For this reason the companies usually require the applicant to furnish a statement from the attending physician in addition to submitting to the regular examination.

The experience of clinicians and of the various companies teaches that it is unwise to insure an individual who has had dry or serous pleurisy until at least five years have elapsed since full recovery, and that even then he should be scanned carefully with regard to other conditions which tend towards tuberculosis. When an applicant has had empyema, a full history of the attack should be reported, even though the information will not be regarded seriously at the home office if a period of about two years has elapsed, the applicant has regained his former weight and health, and there is no marked thickening of the pleura or deformity.

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**Life Insurance a Guarantee for Marriage.** — French says that a man possessing a life insurance policy furnishes a sufficient guarantee to the woman who is desirous of marrying him, and that it should be one of the demands made by the bride-to-be that the marrying man possess this passport to physical fitness and long life.—*American Medicine*, October, 1913.

# Book Reviews.

Die Ambulante Therapie der Lungentuberkulose und Ihre Haufigsten Komplikationen. Von Dr. Karl Blümel. 208 pages. Price, 6 marks. Berlin: Urban. New York: Rebman Company, 1913.

This monograph is dedicated to the memory of Hermann Brehmer, the creator of present day phthisiotherapy. The author enumerates the indications and contraindications of ambulatory treatment of tuberculous patients. He strongly emphasizes the fact that the febrile patient can not be treated in a dispensary, nor can those whose home hygiene or personal characteristics make the careful carrying out of the hygienic and dietetic directions an evident impossibility. Although not absolutely new, Blümel recommends "Luft und Sonnenbäder" as part of aerotherapy. These therapeutic means are relatively rarely resorted to by our American phthisiotherapeutists, although their value, when carefully carried out, seems unquestionable. Hydrotherapy the author considers of greatest importance in the treatment of pulmonary tuberculosis. He insists that the ambulant patient should receive most careful instructions concerning his mode of life. The rest of the volume is devoted to tuberculin therapy and does not offer anything new; on the other hand, it is interesting to note a short chapter on chemotherapy. He mentions dioradin (a preparation recommended by Bernheim of Paris and which met with little success in this country), but speaks discouragingly of it. The cases in which he tried it ended fatally. In the same chapter Finkler's iodide of methylene blue is mentioned as well worth a trial in selected cases. Under symptomatic treatment the author emphasizes very justly the great importance of the mental quiet of physician and patient in case of a hemoptysis. All in all, the monograph deserves a careful perusal by practitioner and specialist.

The Practical Medicine Series. Comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Under the General Editorial Charge of Gustavus P. Head, M.D., Professor of Laryngology and Rhinology, Chicago Post-Graduate Medical School. Charles L. Mix, A.M., M.D., Professor of Physical Diagnosis in the Northwestern University Medical School. Volume III. The Eye, Ear, Nose and Throat. Edited by Casey A. Wood, C.M., M.D., D.C.L.; Albert H. Andrews, M.D.; Gustavus P. Head, M.D. Series 1913. Price $1.50. Chicago. The Year Book Publishers.

"It is possible that the practice of ophthalmology, like that of dentistry, may come, in America, at least, to form a distinct department of surgery." This quotation from the book sums up the writer's discussion of the optometry question and the necessity for better facilities in our universities for the study of ophthalmology. In an article on the conservation of hearing, J. F. Barnhill says: "Much of the deafness as it exists to-day is entirely unnecessary; it should have been prevented by a closer and more intelligent attention to the ear on the part of the profession, and by a more responsive cooperation on the part of the parents or those having control over children in the first decade of their lives." Some space is devoted to the subject of orthodontia and its relation to rhinology. These are only a few of the many pertinent subjects treated in this book.

Die Untersuchung der Luftwege. Ein Vortrag zur Einführung in die moderne Rhino-laryngologie fur Ärzte und Studierende von Dr. P. H. Gerber, A.O., Professor und Director der Königlichen Universitäts-Poliklinik für Hals- und Nasenkranke zu Königsberg. Mit 49 Text-Abbildungen und 12 Abbildungen auf 4 tafeln. Forty-five pages. Price 2 marks. Würzburg; Verlag von Curt Kabitzsch, 1913.

This is a profusely illustrated small booklet on the most practical and modern examinations of the nose, posterior nares, pharynx, larynx, trachea, and bronchi. The contents are very instructive.

Verhandlungen des Vereins Deutscher Laryngologen, 1913. Herausgegeben im Auftrage des Vereins vom Schriftführer Prof. Dr. Rich. Hoffmann, Dresden. Price 7 marks. Würzburg: Verlag von C. Kabitzsch, 1913.

The book consists of the business and scientific portion of the society. Some of the contributors to the latter are Drs. Killian, Oppkofer, Thost, Brüggemann, Blumenfeld, Preysing, Marx, Ephraim, Spiess, Kahler, Solger, Denker, Albanus, Gutzmann, and about a dozen others. The topics cover a large field in this specialty, such as bronchoscopic tubes for children, diagnosis of carcinoma of the larynx, operations on the hypophysis, theory of bronchial asthma, positive Wassermann's reaction in malignant tumors, electrochemical treatment of laryngeal tuberculosis, paralysis of the recurrent nerve in mitral stenosis, comparative bacteriology of the nose and mouth, intranasal opening of the frontal sinus, etc.

Die Röntgendiagnostic der Darmkrankheiten. Von Dr. M. Faulhaber, Privatdozent an der Universität Würzburg. Mit 34 Abbildunger im Text. Price 1.50 marks. Halle a. S. C. Marhold Verlagsbuchhandlung, 1913. (Sammlung zwangloser Abhandlungen aus dem Gebiet der Verdauungs- und Stoffwechsel-Krankheiten. Prof. Dr. A. Albu in Berlin. V Band, Heft 1.)

This contains a description of the technique of Röntgen diagnosis in intestinal disease, with findings in the normal tract, action of drugs, anomalies of form and position, chronic functional obstipation, ulcerations, stenosis, and adhesions.

Technik der Ärztlichen Massage für praktische Ärzte. Von Dr. Anton Bum, Privatdozent an der Wiener Universität. Mit 54 Textabbildungen. 109 pages. Price, 3.30 marks. Berlin, Wein: Urban & Schwarzenberg. New York: Rebman Co., 1913.

This small unpretentious volume appearing at the same time as the author's much larger work, "Handbuch der Massage und Heil Gymnastik," deals with the physiological indications and method of application of mechanotherapy in different diseases. The book shows in word and picture the technique of medical massage which the author has practised for many years. A consideration of massage in the specialties, like laryngology, rhinology, and otology is omitted, since the book is intended for the general practitioner.

Die allgemein pathologische Bedeutung der Dermatomykosen. Von Bruno Bloch, Basel. Price 3 marks. 110 pages. Halle a. S.: C. Marhold, 1913.

The dermatomycoses falling into the two great groups of favus and trichophytoses are here discussed. Their symptoms, the clinical manifestations of their various subdivisions, and pathological physiology (biology) are taken up. Many cases are discussed in great detail with results of immunization tests, etc. An extensive bibliography is attached.

Über Kinderrekzeme. Von Prof. V. Klingmuller in Kiel. 35 pages. Price 1 mark. Halle a. S.: C. Marhold, Verlagsbuchhandlung, 1913.

A comprehensive discussion of the eczematous diseases of the child in the light of the newer teachings of diatheses, dyscrasias, autointoxications, and anaphylaxis.

Die Störungen der männlichen Geschlechtsfunktionen und ihre Behandlung. Von Dr. Emil Kantorowicz. Price 3 marks. Berlin: Urban and Schwarzenberg. New York: Rebman Company, 1913.

The author takes a conservative view of the therapy of the disorders of the male sexual organs. Some space is devoted to the psychical suffering frequently accompanying such disorders and the methods to alleviate it. In the chapter devoted to genuine psychopathies and perversions, however, Dr. Kantorowicz seems inclined to the attitude of a judge rather than that of a physician, and rejects perhaps too absolutely the ideas of irresponsibility and congenital disposition. This attitude may act in the consulting room as invigoratingly as a cold douche on enervated constitutions.

Sterilisation und Kastration als Hilfsmittel im Kampfe gegen das Verbrechen. Von Dr. Friede Ludw. Gerngross. Preis 1.20 marks. München: J. F. Lehmanns Verlag, 1913.

Dr. Gerngross believes that forced sterilization is only justified from the eugenics standpoint, and that it is indicated in cases of criminals who have shown an inborn criminal instinct which can be traced to heredity (either criminal, insane, epileptic, or alcoholic). Also in cases of idiots, epileptics, and the insane; in cases of drunkards who have been treated several times successfully in asylums, and in cases of the mentally deficient below a certain standard. From the legal point of view, Dr. Gerngross concludes that society has an undoubted right to protect itself by any measure it deems proper, and that sterilization has no such ill effects even physically on the criminal as imprisonment for years.

Diagnostic Methods, Chemical, Bacteriological and Microscopical. A Textbook for Students and Practitioners. By Ralph W. Webster, M.D., Ph.D., Assistant Professor of Pharmacological Therapeutics and Instructor in Medicine in Rush Medical College, University of Chicago; Director of Chicago Clinical Laboratory. Third edition, revised and enlarged. With 37 colored plates and 64 other illustrations. Price $4.50 net. Philadelphia: P. Blakiston's Son & Co., 1913.

The rapidity with which this work has reached a third edition is sufficient evidence that its worth has been appreciated by the medical profession. In its revised form the book presents in a remarkably full and exhaustive manner the diagnostic methods in use in all parts of the civilized world. Only those tests, however, have been included which have undergone the fire of criticism or which have opened up somewhat new fields of investigation. Among the changes and inclusions in this edition may be mentioned a discussion of streptococcic sore throat; Darling's method of staining amebæ; Rose's method for creatin; Hart's qualitative test for β-oxybutyric acid; Pappenheim's panoptic blood stain, and Collignon and Rilod's test for meningococcic meningitis. Also pregnancy has been given in great detail. It is becoming more and more evident that chemical, bacteriological, and microscopical tests are absolutely essential, in the majority of diseases, to a correct diagnosis and that therefore laboratory work is the necessary corollary of clinical examination. The book is well arranged, well printed and provided with a sufficiency of illustrations and diagrams. Dr. Webster may congratulate himself on having written a work which in its revised form cannot but prove extremely useful to the up-to-date medical practitioner.

Taschenbuch der Magen- und Darmkrankheiten. By Dr. Walter Wolff, Oberarzt der inneren Abteilung am Augusta Hospital, Berlin. Mit 13 Textabbildungen und 1 farbigen Tafel. Price, 4 marks. Berlin and Vienna: Urban & Schwarzenberg; New York: Rebman Company, 1912.

An unusually comprehensive and complete description of the diseases of the stomach and intestinal tract is presented in this manual of 164 pages, which is based upon the methods of diagnosis and treatment of gastro-intestinal disorders as carried out in the Augusta Hospital of Berlin under the direction of Professor Ewald. The author emphasizes the point that the technical difficulties of examination and treatment are overemphasized by the general practitioner. The various methods employed in gastroenterology are briefly but fully described. Special stress is laid upon the differentiation between organic and functional conditions. The subject of treatment is accorded more ample space than is usually given in the smaller textbooks.

Indigestion, Constipation, and Liver Disorder. By G. Sherman Bigg, Fellow of the Royal College of Surgeons, Edinburgh; Member of the Royal College of Surgeons, England; Licentiate of the Society of Apothecaries, London; Fellow of the Royal Institute of Public Health; Honorary Surgeon of the Society for Prevention of Cruelty to Animals; late Surgeon-Captain, Army Medical Staff; Staff Surgeon. Allahabad, Indies; Surgeon Medical Charge of Officers, Women, and Children, Brighton and Dover; Sanitary Medical Officer, Shorncliffe Camp; Surgeon-in-Charge, Native Followers' Hospital, Allahabad, India; Surgeon-inCharge, Women's Hospital, Allahabad, India. Price, $1.50. New York: Paul B. Hoeber, 1913.

This small manual presents an interesting and practical discussion of constipation, indigestion, and liver disorders, which are probably the most common ailments that the physician is called upon to treat. The detailed management of these conditions is given and useful prescriptions are included in the text.

Diagnose und Therapie der Herzkrankheiten. By Von Prof. Dr. Ludwig Braun, Primararzt in Wien. Zweite, vollständig umgearbeitete Auflange. Mit 37 Text figuren. Price, 15 marks. Berlin and Vienna: Urban & Schwarzenberg; New York: Rebman Company, 1913.

Since the publication of the first edition of this work in 1903 the study of heart disease has been greatly enhanced by the use of radiography, by the discovery of the conducting system, by the recognition of the full significance of the venous pulse, and by the application of electrocardiography in the study of the abnormal events in the heart cycle. All of these developments are described and given their due application in the second edition of this work, which, like the first edition, is designed as a textbook for the student and practitioner. The various topics are taken up in the following order: physiological conceptions; the pathological changes in the heart; general diagnosis; the signs of cardiac impairment, and general therapy, including a full discussion of the action and indications of the numerous drugs used in cardiac therapeutics, dietetic measures, and physical agents, the carbonic acid bath, etc. There is a special chapter on the hydratic treatment of cardiac disease by Alois Strasser, and one on the mechanical treatment of heart disease by Anton Bum. The next portion of the book is headed Special Section and discusses separately the chronic cardiac insufficiency, the diagnostic and therapeutic aspects of arteriosclerosis, the diagnosis of syphilis of the circulatory apparatus, acute cardiac insufficiency, the principles in the prophylaxis and treatment of chronic cardiac insufficiency, aortic aneurysm, and the heart neuroses. The book is exceptionally complete and well written. Ample attention is paid to the subject of treatment and many useful prescriptions are incorporated in the text.

Theorie und Praxis der Inneren Medizin. Ein Lehrbuch für Studierende und Ärzte von Dr. Erich Kindborg in Bonn. Dritter Band: Die Krankheiten der Nieren und der Harnwege. Die Blutkrankheiten. Die Erkrankungen des Nervensystems. Die allgemeinen Infektionskrankheiten. Die Wichtigsten Vergiftungen. Mit 71 Abbildungen im Text und auf 4 Tafeln. Price, 13 marks. Berlin: Verlag von S. Karger, 1914.

This is the third and concluding volume of a work which the reviewer has already characterized as an original presentation of the subject of internal medicine. It is a combined textbook on medicine, clinical pathology, medical physics and chemistry, pharmacology, and therapeutics. The advantages to the student of coordinating the various studies whose ultimate aim is the single one of relieving human suffering, are obvious. Thus, before discussing the clinical manifestations of any group of diseases the author describes the physical and chemical methods employed in their diagnosis. In the sections on treatment the author shows the graphic formulæ and the relationship of the drugs that are commonly used. Three interesting and valuable tables are those that contrast the numerous modern hematinics, diuretics, and narcotics. The present volume deals with the diseases of the kidneys and urinary passages; the blood and its diseases, the diseases of the nervous system; the general infections diseases, and the most important forms of poisoning. As mentioned in the reviews of the previous volumes considerable attention is paid to the subject of treatment. From the didactic viewpoint this work is planned on correct psychological principles. It is eminently practical and will undoubtedly enjoy a wide circulation among German students and others who are able to read the German language.

Die Krankheiten der Nase und Mundhöhle sowie des Rachens und des Kehlkopfes. Ein Lehrbuch für Ärzte und Studierende. Von Dr. Alfred Bruck. Berlin. Zweite, wesentlich vermehrte und verbesserte Auflage. Mit 252, zum Teil farbigen Abbildungen und 2 Tafeln. Price, 14 marks. Berlin and Vienna: Urban & Schwarzenberg; New York: Rebman Company, 1912.

This is the second edition of Bruck's well-known textbook on the diseases of the nose, mouth, and throat. It represents a revision and enlargement of the former edition, such new topics being included as radiography in nose and throat work, the suction of the alæ nasi inwards against the septum, Killian's frontal sinus operation, emphysema of the parotid, etc. The last-mentioned condition is described as occurring in glassblowers, and the result of the dilatation of Steno's duct and the entrance of air into the alveoli of the parotid. Many parts of this work have been rewritten, as those dealing with the diseases of the accessory sinuses, the direct methods of examination, tuberculosis of the larynx, and disorders of the voice. This book may be recommended to the student and practitioner. It is unusually complete and succinct, and is eminently practical.

# Society Reports.

## SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

*Twenty-sixth Annual Session, Held at Atlanta, Georgia, December 16, 17 and 18, 1913.*

THE PRESIDENT, DR. JOHN YOUNG BROWN, ST. LOUIS, MISSOURI, IN THE CHAIR.

**Successful Suture of Stab Wound in Right Ventricle of the Heart.**—Dr. JOSEPH DANNA of New Orleans summarized the salient points in connection with the case as follows: (1) The whole procedure was very easy and could have been done by any one possessing the average surgical ability. (2) The removal of the third, fourth, and fifth costal cartilages and free incision of the pericardium, exposed the heart to the full view of all the bystanders. (3) Manipulation of the heart was not attended with either shock or pain; the patient talked and felt comfortable during the process of suturing, sponging, etc. (4) The heart moved very freely, but could be steadied by forceps or sutures without harm. (5) The placing of the sutures through and through did no harm in this case, although that was also advised. (6) The pleura was opened in getting the proper exposure, an accident which usually happened in those cases, but which he believed might have been avoided with care. (7) The heart alternately contracted and relaxed, and during the state of relaxation it felt as soft as jelly. (8) Every case of wound of the chest, with signs of severe hemorrhage, where the bleeding was believed to be the result of injury to the intercostals, internal mammary, or the heart or its coverings, should be operated upon. No case should be considered too far gone for operation. If that was done, a life would occasionally be saved, and more reports of suture of heart wounds would find their way into medical literature.

**Direct Suture of the Brachial Artery for Traumatism; Restoration of Circulation; Subsequent Development of Ischemic Paralysis.**—Dr. J. GARLAND SHERRILL of Louisville, Ky., reported the following case: The patient, a young man twenty-three years of age, was first seen about an hour after an injury which had resulted from torsion of the arm and had produced a dislocation at the elbow, with rupture of the brachial artery. He was complaining greatly of pain; there was marked swelling in the forearm, which was purple in color, and also an entire absence of radial pulsation, but there were no symptoms of false aneurysm present. Both bones of the forearm were dislocated backward at the elbow, but the skin of the arm was unbroken. It was at once suspected that the brachial artery had been severed; his arm was at first immersed in hot water for some time to determine whether or not the circulation could be restored. At the end of three hours, there being no improvement and a marked increase in the pain, swelling, and discoloration, an incision was made down to the brachial at the bend of the elbow. The humerus, which was lying in front of the condyle of the olecranon, was restored to its position; the ends of the brachial artery stood forth prominently in the wound, both being filled with blood clot, no fresh blood being present. A small amount of clot was found among the torn muscles. It seemed to the writer that with the blood vessel occluded a noticeable collateral circulation should have formed by this time, if such result were likely to obtain. Therefore, it was concluded that a direct suture of the torn ends of the artery offered to the patient the best possible chance of saving his arm. The clots were removed from both the distal and proximal ends of the vessel and a Crile clamp then placed upon each to control the bleeding during the steps of the operation. It is likely that the clamp on the lower end was not necessary, as that vessel did not bleed when the clot was removed, but its use facilitated considerably the manipulation of the torn vessel. The sheath of the artery was torn away from the distal portion and had contracted somewhat over the proximal end. This was held out of the way while the vessel itself was sutured. In making the anastomosis, the method described by Carrel and employed by Crile was used. A very fine linen thread was separated into its three primary strands, one of which was carried through a very fine round needle (No. 16, Kirby), the thread being previously saturated with sterile vaseline. Three guy sutures were passed through the coats of the vessel; the lower suture was held by a forceps which was allowed to hang down, and the other two caught by forceps which were held by my assistant, thus giving a straight line for the suturing, which was done by continuous suture. The dragging of the forceps below prevented any possibility of catching the wall opposite the line of intended suture. The vessel was turned after each suture in such a way that each side of the triangle was completely closed. After the anastomosis was accomplished the clamps were released and the blood was allowed to flow, a small amount escaping; an additional suture controlled the hemorrhage and the sheath was drawn down from the proximal side and united to that from which it had been torn below. Following this the clamps were again removed and the blood allowed to flow through the line of anastomosis, which it did without any escaping from the vessel. The median nerve was exposed in the wound, but was apparently uninjured. The wound was closed without drainage, and the arm put up in a voluminous dressing in a position of partial flexion. Within five minutes after the suturing of the vessel was completed the circulation had returned in the hand, although we were unable to certainly determine a pulse at the radial artery. Some time elapsed before a distinct pulse could be felt at the wrist. However, it was soon restored, and is still easily felt. The patient made a somewhat protracted convalescence and was disturbed some by the numbness in the fingers, which was thought to have resulted from the stretching of the median nerve.

**Surgical Repair of Blood Vessels: Its Technique, Its Uses and Limitations.**—Dr. J. SHELTON HORSLEY, of Richmond, Virginia, said that sensational newspaper articles had done blood-vessel surgery much harm. Even in animals no organs such as the kidneys and no limbs had been transplanted with permanent success. A transplanted limb continued paralyzed and useless, and while a transplanted kidney might functionate for a while, it gradually lost its structure. However, blood-vessel surgery had four fruitful fields: (1) Trauma of the vessels. (2) Malignant growths that involve the blood-vessels. (3) Aneurysms. (4) Transfusion of blood. In suturing vessels, Dr. Horsley claimed the same principle of approximating endothelium obtained as in suturing intestines—only the endothelium was on the *inside* of the vessel, while on the *outside* of the bowel. So in suturing vessels a flange must be turned *out*, just as in suturing intestines it must be turned *in*. He described his technique for vessel suturing. Three guy sutures were inserted and attached to buttons on an arterial suture staff of his design. The threaded ends of the last two guy sutures were not cut, but used as a double mattress, or cobbler's stitch. The suture staff converted the circumference of the vessel into a triangle and the vessel was held so that the intima was everted in the third that was being sutured. All stitches were placed under the same tension instead of under varying tension as when the sutures were held by hand, and a flange with everted intima was turned out, the intima being accurately approximated by the cobbler's stitch.

Dr. R. H. HILL, of Montgomery, Ala., stated that his interest in this subject began when he saw a case in the service of his brother, Dr. L. L. Hill, of a needle stuck in the heart of a little girl. The needle was removed under local anesthesia. The external end of the needle could be seen plainly under the skin with each movement of the aorta. In another case he assisted his brother in removing a piece of a hat pin from the heart of a negro man. The man suffered no special inconvenience, although his pulse was irregular as long as he occupied the upright position, but when he undertook to lie down he had considerable pain and great difficulty in breathing. The foreign body was removed by a modified Rotter operation. He also assisted his brother in suturing the heart of a boy who was stabbed with a penknife.

Dr. WALTER C. G. KIRCHNER of St. Louis had seen five cases of heart suture and had operated on two himself. One of the patients on whom he operated recovered. It was important for the surgeon, who was likely to have emergency work of this kind, to have a definite plan of operation, a definite means of opening the chest, so that it could be opened quickly and without much confusion. Deep anesthesia was dangerous because when the chest was opened the function of the lungs did not work as well as when the patient was partially anesthetized. So it was better to use light general anesthesia or local anesthesia. The danger of pneumothorax had been overestimated. In all the cases where

he had seen the chest laid wide open, the lung functionated to a moderate extent when the chest was widely opened, so that repair of the heart even under these conditions could be undertaken.

Dr. HERMAN J. BOLDT of New York City suggested that rectal anesthesia might well be substituted for general anesthesia in these cases.

Dr. FRANCIS REDER of St. Louis said it might be a refinement in technique, but the suture he had employed was that instead of placing the matress suture parallel with the plane of the intestine, he had placed this suture vertical to the axis of the vessel.

Dr. I. S. STONE of Washington, D. C., asked Dr. Sherrill how much usefulness of the arm was preserved in the case he reported.

Dr. SHERRILL, in reply, stated that he had considerable power in carrying things on the forearm; that he had some prehensile ability and could pick up things with the fingers to a small degree, but the result was not as satisfactory as he had hoped to obtain.

**Accidental Injury to the Vena Cava During Nephrectomy.**—Dr. LEGRAND GUERRY of Columbia, S. C., reviewed the literature and reported three cases in which he had injured the vena cava during an operation for the removal of the kidney. In the first two cases it was his belief the accident was unavoidable. In the last case, in spite of care used, his feeling was it should not have occurred. In one case the hemorrhage from the torn vena cava was successfully controlled by gauze tamponade. In all his cases the clamp alone was used to close the injured vessel wall. The clamp was unlocked on the seventh day and removed on the eighth day.

**Elements Frequently Overlooked by Surgeons in the Treatment of Exophthalmic Goiter.**— Dr. A. J. OCHSNER of Chicago discussed the following ten features whose consideration had a distinct bearing upon the surgical treatment of exophthalmic goiter. (1) The physiological hyperthyroidism present during pregnancy, puberty, etc. (2) That resulting when persons suffering from goiter and living in goiter districts changed their residence to other regions. (3) A class of patients was considered who maintained a balance between production and consumption of thyroid secretion until this balance was disturbed by some sudden physical, mental, or emotional strain. (4) The necessity of planning the operation in relation to the margin of safety in the individual cases as pointed out. (5) The importance of bearing in mind the periodicity of exacerbation in hyperthyroidism and its relation to proper time of operation was considered. (6) Attention was once more directed to the harmfulness of undue operative traumatism. (7) The relation between absorption of wound secretion and post operative hyperthyroidism was discussed. (8) The uselessness and harmfulness of heart stimulants, thyroid extract, and iodine were mentioned. (9) The question of anesthetic was given due consideration. (10) And last and most important of all definite rules for after treatment were laid down with a view to prevent the patient from falling back into the unhygienic modes of life without which she would probably never have suffered from exophthalmic goiter.

**Choice of Operations for Retroversion When the Abdominal Cavity Is Opened.**—Dr. HENRY T. BYFORD of Chicago stated that Alexander's operation utilized the round ligaments in a natural way by drawing toward the inguinal ring, so the intraperitoneal shortening should draw in the same direction. It should also preserve the normal uterine attachment and best part of the ligament. It should not change the relation of the uterus to its surroundings. The relief should be permanent and not nullified by postoperative complications. There were certain objectionable features that should be avoided, namely, dependence upon peritoneal adhesions, for they were unreliable; the production of exudates, for they interfered with normal mobility and were apt to produce symptoms; the leaving of exposed sutures in the peritoneal cavity, for they gave rise to exudates and adhesions; the suturing of the uterine body in any way, for it frequently interfered with normal function traction in an upward direction, for it should, as far as possible, be downward upon the filling and emptying bladder. The steps of the operation were as follows:—the ligament was grasped near its exit from the internal inguinal ring and pulled toward the median line until it was taut. A slender 20-day catgut thread was passed through it about a centimeter from the internal inguinal ring and again about five centimeters from its uterine attachment, and tied. The edges of the resulting loop of the ligament were sewed so that it would form a double cord, and leave the end of the thread projecting beyond its free end. Then separate the peritoneum freely from the abdominal wall at the lower end of the incision laterally as far as the internal inguinal ring. With the point of a pair of slightly curved hemostatic forceps puncture the peritoneum from without inward about a centimeter mesially from the ring, grasp the thread and pull the loop through the puncture until all of the sutures are extraperitoneal. With a permanent suture the loop is attached at a point about a centimeter from its base to the inner surface of the abdominal wall as near the inner ring and as low down as possible without risk of puncturing the epigastric or femoral artery. The pulsating arteries are easily felt, and each step of the operation should be guided both by sight and touch. Twist the loop half way around on its long axis and sew it with catgut along the abdominal wall toward the median line. The same is done on the opposite side with the other ligament and the abdomen closed. A small pessary should be introduced to be worn for about three months. When the operation is done in this way the sutures are all extraperitoneal, the intraperitoneal relation of parts is practically normal, and the traction of the ligament is toward the internal inguinal ring.

**Artificial Vagina by Intestinal Transplantation.**—Dr. H. J. BOLDT of New York reported two cases of formation of an artificial vagina by intestinal transplantation, and said that it was the only method that had given a satisfactory result. Other methods that he had used were eventually always failures. In both of his cases there was a complete congenital absence of the vagina. His first step was to open the abdomen and to eliminate a sufficient length of ileum to make the artificial vagina —about twelve inches—and then to reestablish the intestinal tract by lateral anastomosis. He believed that this was freer of risk to injury of the rectum and bladder than to first make the canal into which the artificial vagina was to be implanted. The making of this canal was easily done without appreciable risk of injury with the abdomen open. The eliminated part of the ileum was grasped with a spongeholder at its median part and drawn down to the vulva and there sutured all around the vulva. The apices of the bowel used to make the vagina were then fastened in the pelvis and the abdomen was closed, after covering the vault with pelvic peritoneum. The bowel was then opened and its interior wiped out with a gauze strip saturated in boric acid solution, but this was not, in his opinion, absolutely necessary nor essential, since all the mucus and contents would drain out during the days after operation. After the bowel loop had been opened, the everted mucosa was further fastened to the vulva with silk sutures. In the main his technique was that devised by Baldwin. In both of his cases the result was all that could be desired. Both cases had previously been operated upon elsewhere, but both were complete failures. In his first case the operation was complicated by many intestinal adhesions, due, in all probability, to a previous abdominal operation.

**Adenomyoma of the Rectovaginal Septum.**—Dr. THOMAS S. CULLEN of Baltimore briefly referred to adenomyoma of the uterus, of the round ligament, and of the umbilicus and then considered a hitherto relatively unrecognized growth situated in the rectovaginal septum between the cervix and rectum. The growths had the same histological picture as adenomyomata of the uterus, namely, they consisted of typical uterine glands lying in their characteristic stroma and surrounded by diffuse myomatous tissue. They evidently started in the lower part of the uterus and then spread out in the rectovaginal septum. It was a well-known fact that adenomyomata had an inherent tendency to grow fast to surrounding structures. Thus those growths, which in the beginning might be readily shelled out, later became so fixed to the rectus that it was necessary to take away a portion of the bowel with the tumor. He also stated that these growths could clinically be easily differentiated from cancer of the rectum. Adenomyomata of the rectovaginal septum invaded the bowel from without. They extended into and narrowed the bowel lumen, but the overlying mucosa was still intact. The only rectal symptoms that one might expect were those due to partial obstruction of the bowels. Cancer of the bowel, on the other hand, started in the mucosa and extended outward. It was usually accompanied by hemorrhage from the bowel and later by the fetid discharge, due to breaking down of the cancerous tissue. With adenomyoma of the rectovaginal septum there

was usually no bleeding. On rectoscopic examination in the one case, the cancerous area could be readily seen; in the other, while the bowel was narrowed, the mucosa was nevertheless everywhere intact. While those growths were histologically benign, and while they naturally never gave rise to metastasis, nevertheless, if portions of the growths were left behind they continued to grow and as a result of the adhesions, alarming and, in fact, fatal obstructive symptoms might develop. He also referred to a most interesting case reported by Cuthbert Lockyer before the Royal Society of London, January, 1913. He also mentioned two specimens that were sent him by Dr. D. S. D. Jessup of New York, and reported two cases of his own. He said that the observation of several cases of this character in such a short time seemed to indicate that adenomyoma of the rectovaginal septum was not rare, and that a more careful and systematic examination of all rectal growths would, in the future, bring to light more similar cases.

**Further Notes on the Use of the Paquelin Cautery in Cervicitis; with Special Reference to Its Value in Sterility.**—Dr. GUY L. HUNNER of Baltimore referred to his paper read before the society in 1905 on "The Treatment of Leucorrhea with the Actual Cautery," in which he held that most cases of chronic leucorrhea were due to a cervicitis, and as such were amenable to successful treatment by destruction of the deep cervical glands with the Paquelin cautery. He now reported a series of 241 cases treated with the cautery with practically universal success in the class of cases then outlined as suitable for this method. Now, as in the former paper, he warned against the use of the cautery in the acute or subacute stages of gonorrhea. He also warned against losing valuable time by using the cautery on an early case of epithelioma of the cervix. Any suspicious case that could not be diagnosed grossly should have a specimen removed for microscopic examination. In the chronic inflammatory cases in which a portion of the leucorrhea comes from a metritis or edometritis, the cervical treatments should cease when the cervix had a normal appearance and the cautery failed to empty more retention glands, although there would still persist some leucorrhea from within the uterus. Other pathological conditions for which the cautery had been found useful as an instrument for office treatments were urethral caruncle, polypus of the cervix, fibroma of the vaginal wall, retention cysts and abscesses of Skene's and Bartholin's glands. More recently the writer had found the high frequency spark the ideal method for cauterizing urethral caruncle. This report was made with the special purpose of placing before the profession a method that might prove of great value in handling certain sterility cases. Fourteen cases were reported in which the patients became pregnant after the use of the cautery. Some of these cases had not been married long enough to be classed as sterile, and others had borne children and were probably only temporarily sterile, and others had reposition of the pelvic organs with placement of a pessary, treatments that might have resulted in pregnancy without the use of the cautery. Of the list of fourteen it was more than probable that in six the pregnancy followed as a consequence of using the cautery. Eight cases were reported as failures. Many others complained of sterility and were treated with the cautery, but were not reported; some because of having had only one treatment, others because the presence of a small fibroid or of pelvic inflammatory disease made it probable that the cautery treatment would not give results, and others because the husband's semen had not been examined. Azoöspermia was the cause of sterile marriages in such a high percentage of cases that no method of treating the wife could have its merits passed upon without first excluding the sterilities due to the husband.

**The Treatment of Vesical Fistulæ at the Vaginal Vault Following Surgical Operations.**—Dr. HOWARD A. KELLY of Baltimore stated that occasionally after an operation for a fibroid tumor, and more frequently after an operation for an advanced cancer of the cervix, where the disease had extended anteriorly, a vesical fistula was left which was troublesome and persistent, rarely tending to close of itself. The opening was always found high up at the vaginal vault where it was fixed by scar tissue often inaccessible and difficult to manipulate by any operation through the vaginal introitus. Dr. Kelly had seen such cases operated upon repeatedly and in vain. One of the difficulties arose from the fact that the patient, if she had had a fibroid tumor, was often unmarried or nulliparous, and had a tight vaginal orifice which added to the embarrassment of the surgeon. Furthermore, the margins of the fistula were often thin and devitalized and ill-adapted to denudation and approximation. Added to these technical hindrances was the constant dread of the operator lest he should make a small opening on the peritoneum and introduce infection and run the risk of a fatal peritonitis. Dr. Kelly discovered an excellent plan of operating upon these cases which obviated all the difficulties and dangers, simplified the treatment, and gave a maximum certainty of cure. The patient would lie well anesthetized in the lithotomy posture with the posterior vaginal wall well retracted, if necessary a paravaginal incision was made to expose the vault and the fistula. Then the operator cut transversely just above or through the scar tissue and carefully but with deliberate purpose opened the peritoneal cavity the very first thing. As soon as the peritoneum was opened the incision was continued from side to side until it reached a maximum width and it was possible to introduce three fingers by which it was further extended from side to side until it was as big as it was in the operation for vaginal hysterectomy. This must be done without injuring the bladder or affecting the fistulous tract in any way. The previously taut tissues were now set free to such an extent that they lay loose and flaccid, dropping down towards the outlet into any desired position for denudation and suturing. A good plan now was to incise the tissues longitudinally through the fistula down to the bladder which was dissected away from the vagina and sewed up separately with one or two layers of a fine chromic catgut suture after which the vagina was conveniently united over the vesical wound, if the operator preferred it at a right angle to it so that the two lines of suturing crossed each other. Following such an operation he usually left an opening in the peritoneal cavity about a quarter of an inch wide for drainage. He had in some cases left a considerable part of the vesical peritoneum in the vagina forming a new vaginal vault. A mushroom catheter was put into the bladder for a few days to keep it at rest during the first part of the healing process, and the patient remained in bed from eight to twelve days, the peritoneal drain being removed in from four to six days. In one of his recent cases he started in intending to open through the vaginal vault into the peritoneum, but as he cut a little behind the scar at the vault, he found that he could dissect up the scar area from side to side and detach it and the peritoneum above from the rectum with its fat and so set the tissues free and loosen them up sufficiently from the surrounding parts to be able to bring the fistula down and close it perfectly without opening the peritoneal cavity at all. This was an exceptional case, and the method when applicable was of course better than the last. He felt sure that this procedure of setting free the fistula with all the surrounding tissues in order to denude and suture with perfect accuracy would simplify a class of cases in which they had often found themselves in considerable difficulty in the past.

**The Terminal Results of Biliary Obstruction.**—Dr. HENRY O. MARCY of Boston said that the object of his paper was to show especially that the terminal results of operations upon the biliary passages were serious, at the best often imperfect, owing to the pathological changes which had taken place in the structures. One verdict only could be rendered—that in favor of early operations. It had been truly said, "The easier the diagnosis, the worse the prognosis." Every surgeon was constantly seeing cases of biliary obstruction, diagnosed by the general practitioner too late to give satisfactory results. It was the duty of the surgeon to instruct the general practitioner as far as possible. Just here lay the great profit accruing to the experienced surgeon who had studied a long series of his own operations. Such conditions demanded long and painstaking study. More and more were we individualizing such study, considering the patient's physical state, his resisting powers—all the factors, indeed, which went to make him a warrantable subject for operation. It was probably beyond the limits of human skill always to diagnose the presence of gallstones, it was not to the discredit of a surgeon if, upon operation, they were not found. Exploratory laparotomy was, in itself, not especially dangerous. His clinical records showed that he had opened the abdomen over seventy times when conditions did not warrant further interference. More commonly these were cases of advanced cancer. That experience had been duplicated since the date of examination of his records, without a single fatal result—not too large a percentage in about five thousand abdominal opera-

tions. His purpose was not to dwell upon operative technique. He would urge the utmost care not to overlook a gallstone so placed as to be difficult of detection. This very stone might be the primary cause of obstruction; without its removal, the operation went for naught, and the patient was left worse because of it. Few conditions tested the skill of the surgeon more severely. The trained touch, the *tactus eruditus* of the earlier writers, was nowhere else called into finer requisition. More careful study of the surgical diseases of the abdominal cavity in their earlier stages, especially those of a progressive type, would be sure to lessen mistakes and to broaden the role of surgical intervention. Surgery would no longer be considered as the *dernier resort* by both patient and physician, but would be welcomed as offering a bright promise of speedy and permanent cure.

**Resection of the Rectum for Cancer with Preservation of the Sphincter.**— Dr. CHARLES H. MAYO of Rochester, Minn., said that extirpation of the cecum and ascending colon for cancer had given a high percentage of cures because an anastomosis of the ileum into the colon was an ideal enterostomy for delivering semiliquids. The two-stage Mikulicz method was one of the safest known, although convalescence was protracted. A permanent colostomy, though abhorrent to all patients, undoubtedly gave a higher percentage of cures than did methods which restored function. Mayo advised a colostomy when necessary made through an incision large enough to permit general examination of the abdomen. In a summary of his paper he advised (1) thorough abdominal exploration, (2) a temporary or permanent colostomy in the majority of cases of the type under discussion, (3) increasing the lumen of the anterior and, if necessary, the posterior portion of the bowel to double their normal diameter at the point of union, (4) rotation of the anterior peritoneal-covered bowel to secure rapid healing posteriorly, and practically free peritoneal surface anteriorly, (5) stretching or division of the sphincter to secure drainage of the bowel, (6) closure of the colostomy to secure function, and (7) if there were no metastasis and the colostomy was to be permanent, that the rectum be removed at a second operation.

(*To be continued.*)

## THE PRACTITIONERS' SOCIETY OF NEW YORK.

*Two Hundred and Fifty-seventh Regular Meeting, Held November 7, 1913.*

THE PRESIDENT, DR. JAMES, IN THE CHAIR.

**Occupational Diseases.**—Dr. W. GILMAN THOMPSON read this paper, which was illustrated with fifty lantern slides. (See page 185.)

Dr. MILLER said that he had been greatly interested in this instructive paper. Some of the pictures he had never seen before, and a great many aspects of the subject were new to him, although he had been connected with the work in a minor capacity. It was not too much to say that Dr. Thompson had done more than any other of the profession in this country to stimulate interest in, and to start organized effort to prevent occupational hazards. If the medical profession at large were to cooperate along the lines he suggested it would be a great advance in practical preventive medicine. One question Dr. Miller wished to ask because it had a bearing upon some work he did some years ago in studying the connection between certain dusty trades and pulmonary tuberculosis. In factories such as button, brass and smoking pipe factories, where the dust was intense and often very little protection was afforded to the workers, in some instances he had made as many as 100 physical examinations, and though many workers were affected with bronchial and catarrhal troubles pulmonary tuberculosis did not seem to be very prevalent, nor did the reports upon the health of the other workers point to the prevalence of tuberculosis. In a more extensive study among printers there was shown a high mortality from tuberculosis. Fifteen per cent. of printers in 300 examined were affected with tuberculosis. More than half of these, however, had had tuberculosis previously, had gone away and had come back to take up the same work, but under new home environment, and had kept well. In many cases it was a case of alcohol or bad home environment. Another occupation investigated by Dr. Miller with Dr. Soper was that of subway employees. He had examined about 400 of the men. So much iron dust in the subway was caused by friction of iron that it was estimated to amount to a ton a mile a year. To demonstrate the effect of iron dust the employees were examined. There was a difference between trainmen and motormen. Motormen became fat and were robust, so much so that the expression "subway fat" was applied to them. Trainmen were mostly thin, unhealthy men and many of them had tuberculosis. Perhaps the fact that the motormen had moving currents of air about them all the time made the difference. The environment of the trainmen was stuffy and the air bad. The general impression derived from these observations was that other factors in environment and habits of life were the important ones in the incidence of pulmonary tuberculosis rather than the constant inhalation of various kinds of irritating dust. Could Dr. Thompson throw any light on that subject from his experience?

Dr. MEARA said that the fact that conductors were crowded in with tuberculous people, who coughed in their faces, had much to do with accounting for the large incidence of tuberculosis in the case of conductors.

Dr. STARR said he was much interested in the whole subject and very much indebted to Dr. Thompson. The object of stimulating interest in legislation was a very excellent one, for much work must be done in framing laws for the protection of labor. The matter should be brought before the public by physicians and what they heard should incite them to use their influence in furthering work along these lines. He had gone pretty carefully into the subject two years ago. He was quite surprised to find that all the literature came from England. It had been carefully analyzed by Sir Thomas Oliver and his book, Diseases of Occupation, was one of the important guide books on the subject. He had been much impressed with the fact that in his clinic he saw less of lead palsy than fifteen years ago. Whether this was due to knowledge of preventive conditions on the part of the workers or not he could not say. In the investigations of the Germans on lead poisoning it was found that the typesetters who handled metallic type were poisoned by antimony as much as by lead, which is introduced into the system. Some of the worst cases were due to the mixture of poisons, lead and antimony. In connection with mercurial poisoning a doctor at South Orange sent him every year cases of poisoning from the felt hat factories. He had shown them to the students every year. Two years ago there was a very marked case with tremor of the jaw and very marked mental symptoms, so much so that the patient had to be brought by relatives to the clinic.

Another thing that physicians, who were in touch with the better classes of the community, could do was to try and stimulate the interest of employers of labor to run their factories in a more protected manner. He had succeeded in interesting the president of a large porcelain factory in the question of lead glaze and the results had been satisfactory in that case. In another factory where tooth powder was manufactured the architect had placed ventilators at the top of the room. An intelligent workman remarked to the firm that it would have been better not to have placed the ventilators where the powder would be drawn up past their mouths, but to have put them low down where the powder would have been drawn off. The firm spent $40,000 in correction of the mistake in ventilation, because they appreciated the fact that the workman had made a just criticism. In the case of intelligent employers much could be done in this way.

Dr. DANA said he had been much interested in Dr. Thompson's paper. He had taken great interest two years ago in occupational neuroses. He set his assistants to work to investigate and classify nervous troubles related to occupation. The results had been of direct benefit. In the matter of environment having a direct bearing on the condition of the patients the domestic condition was important. It was not possible to cure one without the other. His assistants had collected 400 cases of nervous trouble to be analyzed on the basis of home and industrial conditions. Specific work had to be done to discover the etiological factor.

Dr. EWING said he was much interested in the presentation of the subject by Dr. Thompson. The question of pathology and etiology was important in dealing with the factors that made up environment. The term occupational diseases could be interpreted in a broader way and everything in the way of pathological processes would be included. The relation of occupation to lobar pneumonia was well known; drivers much exposed to

the cold northwest wind were under the classification of occupational disease. Tuberculosis was always a question of occupation or environment or had some such predisposing cause. The connection of the habits of the individual was an important one. Diseases from habit were distinctly occupational diseases. Cancer was no doubt due to habits of environment. If Dr. Thompson were to pursue this to the end he would have the whole field of human environment and disease included in his subject. Habit entered in almost every instance into the conditions which determined the existence of disease. The view of the subject in this light was extremely impressive.

Dr. JAMES said that there was one group of occupational disease which Dr. Thompson had omitted from his very complete and instructive paper, and which might particularly interest such a group as the members of the Practitioners' Society. In a book, which is probably the first serious work upon occupational diseases, written early in the eighteenth century by Ramazzini, a distinguished Venetian physician, there is an entire chapter devoted to what he calls "The Diseases of Learned Men." In this he quotes from Celsus as follows: "All men of learning and almost all dwellers in large cities suffer with their stomachs."

Dr. THOMPSON said that Dr. Philip King Brown of San Francisco had established the pottery industry for the tuberculous workers in his sanatorium, and that if these industries only were properly conducted they were not detrimental to the health of the individual. He never spoke of occupational diseases without feeling somewhat as did the little girl whose grandmother told her that so many things were "dangerous." At last she said, "Grandmother, you seem to think there is nothing safe but knitting." As to the question of occupational neuroses he had an assistant who was going into the subject of neurasthenia in garment workers and it would be seen what was due to the home and what to the work. Authoritative data were much needed. In some trades, such as those of street sweepers and ashmen, the dust which they inhaled, especially in emptying ashes and other substances, would be supposed to cause bronchial conditions and tuberculosis, but it was not especially prevalent among them, perhaps on account of the open air life. What Dr. Starr said about interesting employers reminded him that when he had been over factories where economic conditions could be bettered by improved protection he had found the employers ready and willing to effect a change. The U. S. Steel Corporation had done wonders in that way. As Dr. Starr said, in the case of typesetters' poisoning, it was no doubt caused by antimony and lead.

Dr. DANA said that Dr. Thompson had interested him two or three years ago in occupational neuroses and he had been following up the subject in his clinic. He had set his assistants to work to investigate and classify nervous troubles related to occupation. The results had been of direct and indirect benefit. There had developed a deeper interest in the matter of environment of the patients and their domestic conditions. A better knowledge of nervous disease was thus secured. One of the assistants, Dr. Leverty, had 400 cases of nervous trouble and was analyzing these on the basis of home and industrial conditions. Such work would be necessary to help us when employers' liability laws and medical insurance laws were enacted, as they would be.

**Keloid Scars of the Face.**—Dr. ABBE presented a case of extreme keloid scars of the face, shown before radium was to be used and to be shown after a year. The patient was a young clothing-cutter who had had acid thrown in his face two years ago. One eye was destroyed and enormously thick scars were spread over the chin, cheek, forehead and nose. Some were the size and thickness of the finger laid upon the skin. For several years it had been demonstrated by Wickham in Paris that keloid scars are reduced by radium treatment and that for true keloid it is a specific. Every surgeon knows that cutting out keloid scars results in redoubling the energy of the tissue and matters are made much worse than before, even if primary union of the scar be obtained or if Thiersch skin grafts be applied. It is therefore a welcome addition to our surgical resources that radium is able to conquer this *bête noir* of the surgeon. The principle of the action seems to be that active cell growth, in the case of true keloid, is killed, and, in the hypertrophic scar keloid an inflammatory irradiation is produced which on subsiding leaves a formed tissue remnant, which undergoes metamorphosis gradually and becomes flatter and softer with time. Dr. Abbe showed photographs of cases now under successful treatment and partially cured; of ugly keloids of the face following herpes zoster which had left distressing red masses resembling high reliefs sculptured on an otherwise fair skin; and of a young girl whose chest was half covered by extreme keloids following the scalding by hot soup; of other cases also over the breast bone in several ladies who had had small keloids cut out with larger ones returning, with the added scar of surgical stitch marks. Except for this new resort surgery has to confess impotence.

Dr. BRYANT said that he had been up against a similar problem and that he congratulated Dr. Abbe on the results achieved. He would certainly not attempt cutting such a mass as in the case presented.

Dr. THOMPSON said that in regard to the keloid of the upper chest there was marked diminution of the pain and the result was most gratifying. He did not know when he had seen a more gratifying result achieved.

Dr. STARR asked if one point of the keloid was exposed to the radium, or if several points were exposed.

Dr. JAMES said he had seen an interesting case at the Presbyterian Hospital, illustrating the constitutional element in the formation of keloid. A colored man who came in for Bright's disease had keloids on his face which had come from little wounds inflicted by shaving; he also had on each arm pretty extensive keloids from vaccination in childhood. He asked if there were any possibility of such an intensive application turning any growth into a malignant growth. Did the closeness of relation of radium rays to *x*-rays, for instance, suggest that malignancy might be produced in the skin?

Dr. ABBE said that the scars showed some results after mild treatment, but that with severer treatment better results followed. In reply to Dr. Starr he said that two liberal applications of a radium plaque would be made on adjacent parts and the sequel would be a marked hyperemia and reaction of a certain quality of inflammation, followed by a speedy subsidence and later whitening of the mass. In reply to Dr. James he said he had never heard of such a sequel and could not conceive of it. Malignant epithelioma of the hands following prolonged *x*-ray work had been shown to be uniformly cured by radium as easily as epithelioma elsewhere.

**Specimen from Unusual Case of Carcinoma of the Stomach.**—Dr. CONNER showed a specimen of carcinoma of the stomach which was presented because it seemed to him to illustrate a point of some importance in considering the question of operability in such cases. The patient, a man aged 55 years, had had mild symptoms of indigestion for two years, but his general health had been good up to four months before his death. Then he began to lose strength and flesh and became very anemic. He vomited occasionally, but had little gastric pain or discomfort. During his stay in the New York Hospital he showed constantly the presence of occult blood in the stools and an absence of free HCl in the stomach contents, together with marked retention of food. Soon after admission a small, movable, slightly tender lump could be felt in the epigastrium which before his death had increased almost to the size of an egg. The patient would not consent to an exploratory operation. Post-mortem showed on the greater curvature, just above the pylorus, a flattened, circular mass about 7 cm. in diameter, the entire central portion of which had been destroyed by ulceration down to the muscular coat. The regional lymph nodes were quite free from involvement and no metastases were to be found elsewhere in the body. Histological examination showed the growth to be a typical example of the special type of adenocarcinoma, known as malignant adenoma. The circumscribed character of the growth and the absence of all metastases made it a singularly favorable one for radical operation. There was a very general feeling, Dr. Conner thought, among surgeons and clinicians that when a cancer of the stomach had reached a sufficient size to be felt readily through the abdominal wall, it usually had involved neighboring structures to such an extent as to make the chance of successful removal very small. On the other hand, among pathologists the fact was well recognized that the large, bulky tumors of the stomach were apt to be of the type of malignant adenoma and that such malignant adenomata in the stomach were not prone to form metastases. It was therefore important for the surgeon and clinician to bear in mind that the existence of a palpable, circumscribed mass of even considerable size was not, in itself, a contraindication to operation, but, on the contrary, might rather be looked

upon as evidence pointing to the probability that the tumor was a malignant adenoma and therefore likely to be suitable for removal. In view of these facts and of the further fact that palpable masses were occasionally encountered in cases of simple ulcer of the stomach or duodenum, the speaker felt that exploratory operation should be resorted to even in apparently unpromising cases.

Dr. EWING said that he agreed with Dr. Conner that bulky tumors of the stomach are usually adenomata which grow to considerable size before invading the lymph nodes. On that account they offer a better surgical prognosis than other forms of gastric carcinoma. This type of tumor does not follow an ulcer, which gives a more diffuse and rapidly infiltrating growth and greater surgical hazards. A third group of tumors produce much mucus, and these, while starting as adenocarcinomata, early infiltrate the wall and may perforate. The same rule applies generally to tumors of the intestine and colon.

Dr. THOMPSON said that one often wished one had advised operation before the patient reached the extreme stage, because cachexia might be so slight with large tumors.

Dr. MEARA said he was one of those ignorant practitioners who were not yet acquainted with the fine distinctions necessary as indications for an operation in such a case. At St. Luke's Hospital a case had come under his care of a patient with a carcinoma at the pyloric end of the stomach. The patient was much reduced and after consultation with two gastroenterologists it was decided that the patient could not stand an operative procedure. At the autopsy a growth was found of the size of a golf ball completely blocking the pylorus of the stomach. The section of this tumor showed so little of cellular tissue that it was difficult to determine that it was actually carcinomatous. The man died of starvation. Had an exploratory operation been done while he was still able to endure the procedure this growth might have been removed and the patient might well have been alive to-day.

## NEW YORK ACADEMY OF MEDICINE.

### SECTION ON MEDICINE.

*Stated Meeting, Held December 16, 1913.*

DR. LINSLY R. WILLIAMS IN THE CHAIR.

**Demonstration of Method of Stretching the Pylorus.**—Dr. MAX EINHORN presented a patient on which he demonstrated his method of stretching the pylorus, upon which he spoke later. The tube had been introduced the night previous and by morning the balloon was in the duodenum. The balloon was then dilated by the attached pneumatic apparatus. If the balloon would not pass through the pylorus after inflation the air pressure was diminished until it would pass. In order to ascertain whether the balloon was in the stomach or in the duodenum an attempt was made to pull it out and if one met with resistance the bulb was in the duodenum; if in doubt the balloon should be filled with air and pulled again. Of course only gentle traction should be used. In this instance it was found that the bulb had not passed into the duodenum, and when this happened it was necessary to wait for several hours longer until it did pass.

**Demonstration of the Introduction of the Modified Duodenal Tube and Gastroduodenal Tube.**—Dr. I. O. PALEFSKI illustrated his method of introducing these instruments. He said that so many men had been working on this problem of the visualization of the upper intestinal tract and so many methods had been devised that if only a part of them were useful they would soon be in a position to know much more than formerly. He had had an experience of 500 duodenal examinations on 25 patients, and had come to regard some of these methods as worthless, some as good, and some as questionable. The *x*-ray was not always satisfactory as a means of visualizing the upper intestinal tract. The fluoroscope was somewhat better. The introduction of the duodenal tube followed by an *x*-ray showing the course of the tube gave a great deal of information. The necessity of being sure that the tube had entered the duodenum before taking an *x*-ray should be emphasized. There were three signs that showed whether the tube had entered the duodenum or not. First, by the duodenal contents; second, by inflation of the intestines, independently of the stomach. If the patient belched on inflation and experienced a great deal of discomfort the tube was still in the stomach. Third, by auscultation. There was a wheezing sound when the tube was in the duodenum. The average time required for the tube to reach the duodenum was from one and one-half to two hours. When the tube reached the second portion of the duodenum one got the typical contents of the duodenum with bile. Dr. Palefski referred to his vacuum bulb which was described in the MEDICAL RECORD some time ago. In introducing the instrument there were three things to be considered. The diameter of the tube must be in proportion to the diameter of the pylorus; the tube must have weight (the tube he was using weighed two and one-half to three times as much as Einhorn's); the time that would be required for the tube to reach the duodenum, and this varied from one to three hours. In introducing the tube the patient assumed three characteristic positions. He first swallowed the bulb while lying in the prone position; he then sat up and the tube was worked in about fourteen inches; then the patient turned on his right side and breathed deeply, at the same time opening his mouth when the tube passed through the lesser curvature and reached the pylorus. The patient was examined on an empty stomach.

**Visualization of the Upper Intestinal Tract by Means of the X-Ray in Conjunction with the Duodenal Tube.**—Dr. I. O. PALEFSKI read this paper.

**Motor Insufficiency of the Stomach.**—Dr. HAROLD BARCLAY presented this paper. He stated that modern investigation had shown that the normal gastric motility was capable of subdivision into three component parts, the correlation of which constituted the normal motor functions of the stomach. They were: 1. The perisystole, by which was understood a concentric drawing together of the stomach so that it adapted itself to its food contents. 2. Peristalsis, or a vermicular series of muscular constricting rings running in the direction of the longitudinal axis from left to right, which action propelled the food from the fundus toward the pylorus. 3. An alternate contraction and relaxation of the pyloric sphincter regulating the output of food, the pylorus remaining tonically closed against the pressure of food until a certain degree of acid gastric juice had been secreted, when the sphincter relaxed and permitted a portion of the acid chyme to escape into the duodenum, when it again closed until this escaped portion of food had been neutralized. A motor insufficiency occurred when there was a loss of equilibrium between the requisite labor and the power of labor, and when the motor power of the stomach was not sufficient to meet the demands made upon it, the viscus discharging its contents only partly and becoming empty only after a long period of time. The two fundamental causes of motor insufficiency were a deficient muscular tone of the gastric muscularis, by which there was either a failure in its perisystole or peristalsis, or both, which was known as atony, or a mechanical interference with the expulsion of its contents. Each of these two conditions represented a distinct clinical entity, the first being purely of a functional nature, while the second, mechanical motor insufficiency, was the expression of a definite organic lesion of the gastrointestinal tract. The condition designated as atony was quite common. It might be hereditary and was frequently encountered after infectious disorders, anemic and cachectic conditions. It was present in neurasthenia and psychasthenia. The simplest form was the insufficient perisystolic tone. Such stomachs, while giving rise to symptoms suggestive of atony, showed no delay in their capacity to expel their food contents within normal time limits. In the normal stomach the ingestion of 30 or 40 c.c. of bismuth mixture did not pass at once to the most dependent portion of the stomach, but remained in the upper one-third and was maintained in tubular form. In the atonic stomach the reverse picture was presented, the food passing at once to the most dependent portion of the stomach. Such stomachs filled like a bowl from the bottom upward. This motor function of the stomach was very important in the digestive process. Normally acid chyme passing through the pylorus excited, through harmones, the secretion of the intestinal and pancreatic juices. It also excited a nervous reflex which closed the pylorus after a certain amount of acid chyme had passed into the intestine. With lessened acidity of the stomach contents it was found that the stomach emptied itself much more rapidly than if the chyme were acid. With hyperacid conditions, on the other hand, the food might be retained too long, and but a small amount of acid

chyme would be tolerated in the duodenum and the duodenal reflex kept the pylorus in a state of spasm. The first of these conditions was well illustrated by functional achylia, in which the stomach emptied itself so rapidly that the intestinal digestion was inadequate to care for the food and a diarrhea was often the result. The symptoms of motor insufficiency depended upon the degree of insufficiency. The characteristic symptoms were a feeling of weight or oppression in the epigastrium following the ingestion of food, and there was a desire to eructate gas; vomiting was infrequent. Physical examination was, as a rule, unsatisfactory. Individuals who presented the enteroptotic habit were very prone to disturbances of motility, and it was among these that one found the pure type of atonic stomach most frequently. The ptosed stomach was not necessarily an atonic stomach, however. Examination of the fasting stomach in the simpler forms failed to show impairment of the propulsive power as a rule, such stomachs emptying within normal limits. In the more marked types examination of the stomach six to seven hours after a meal would demonstrate the presence of food remnants in varying degrees. The test breakfast in atony presented no characteristic picture. The older tests, such as the absorption time of salol, had now been abandoned. The only accurate test for atony was by means of the fluoroscope or the *x*-ray. The second form of motor insufficiency, the mechanical, was the result, as has been said, of some lesion whereby the pyloric sphincter was prevented from dilating to its full extent and allowing a free exit of the food from the stomach. This interference might be intermittent, as in pylorospasm from a chronically diseased appendix or ulcer, or permanent, as the result of inflammatory thickening of the pyloric wall, cicatricial contraction, or adhesions, and tumor growth both benign and malignant. In their earliest conception these cases presented a condition of hypermotility with hypertrophy of the gastric muscularis. The symptomatology of mechanical motor insufficiency was that of the primary pathological condition plus the symptoms due to varying degrees of pyloric stenosis. These were pain, varying in degree and due to different causes as increased peristalsis, food stagnation, or inanition. In the mild cases actual pain might be absent. The symptoms of hypersecretion were in many respects similar to those of the increased peristalsis. With the inability of the stomach to expel its food contents vomiting sooner or later appeared, usually occurring several hours after a meal. According to the inability of the chyme to pass into the small intestine, symptoms of malnutrition developed. The examination of the fasting stomach was of paramount importance in the diagnosis of mechanical motor insufficiency due to obstructive pyloric lesion. After a mixed meal taken between 10 and 11 o'clock in the evening, if the stomach were aspirated nine or ten hours later, it would be found either empty, save for five or ten c.c. of swallowed saliva, or it might show the presence of fasting hypersecretion, with or without any evidence of food remains. The presence of a fasting hypersecretion, that was, any quantity of gastric juice above 30 c.c, was among the earliest evidences of disturbance of motility due to some organic lesion of the gastrointestinal tract, and if it was constantly present it was of great diagnostic importance as differentiating the case from one of simple atony. Dr. William Mayo had called attention to the fact that he had often discovered latent disease of the appendix in persons who seemed to require a gastrojejunostomy and that the removal of the appendix was followed by subsidence of the gastric symptoms. In 53 personal cases of fasting hypersecretion, 29 showed at operation a demonstrable lesion of the gastrointestinal tract, the amount of hypersecretion varying from 30 to 90 c.c. In reviewing 261 cases of simple motor insufficiency, in which over 60 per cent. were complicated by some degree of ptosis, no hypersecretion was found. Evidence of food stagnation might alternate with a pure fasting hypersecretion, as was illustrated by a case which the speaker cited. The test breakfast had not the same diagnostic value as that afforded by the fasting stomach. Its chief characteristic was the large amount of return and the frequent evidences of alimentary hypersecretion. The *x*-ray was also of great value in the diagnosis of mechanical motor insufficiency due to pyloric obstruction or stenosis, especially in the early cases. The principal characteristic was undue retention of bismuth six hours after the bismuth meal, this being far in excess of that seen in simple atony. It was not only essential to recognize the pyloric stenosis, but to determine, as far as possible, the causative factor, and to this end the examination should be exhaustive, including not only the history, physical and gastric examination, but also the examination of the urine and feces. In the early stages of duodenal ulcer there were in many cases distinct evidence of an irritation of the pancreas. It should also be borne in mind that in certain instances latent disease of the appendix and the gall-bladder could produce gastric motor symptoms.

**A Few Illustrations of the Use of the Roentgen Ray in the Examination of the Digestive Tract.**—Dr. H. M. Imboden said that he did not intend to discuss the various phases of *x*-ray examination of the digestive tract, but to show a few illustrative examples of the results obtained. In recent years much had been written about this subject and claims of extraordinary accuracy in diagnosis had been made by several writers. The statements made by different workers had been in many cases conflicting and no doubt much that was in error had been published. The method was of very great value in many cases, but in general the possibilities of obtaining detailed and absolutely positive information concerning all organic lesions of the digestive tract had been much overstated, often through lack of enthusiasm and often through lack of experience. In too many instances the *x*-ray itself had been credited with making a correct diagnosis when in reality the information was obtained from the history, the symptoms, and the physical examinations, and the *x*-ray deductions were based upon these observations. This was true especially in certain well-known continental clinics, where the ordinary routine examination, the history, and the laboratory tests were carried out with admirable skill and the Roentgen technique was from the American standpoint very clumsy and unsatisfactory. The method of making *x*-ray examinations of the digestive tract varied greatly with different individuals. Some were content with the fluoroscopic examination only; others were willing to make a diagnosis on three Roentgen plates with or without screen examination, while others, notably Cole, insisted on making as many as forty to sixty or more plates with no direct fluoroscopy except to accurately place the plate over the stomach area. Dr. Imboden was of the opinion that direct fluoroscopy was of great importance, both for the observation of the ordinary movement of the bismuth through the tract, and also to observe the effect of manipulation of the stomach and intestines through the abdominal wall. The speaker said that he also believed that Roentgen plates were extremely important, both because they showed more detail than could be obtained under any fluoroscent screen and because they were valuable for repeated and continued study, while the screen gave only a fleeting picture. Dr. Cole's plan of making a large number of plates was valuable. The constant changing appearance of the stomach shadow with the passage of the bismuth meal through the tract made it desirable to have a fairly large number of plates. Dr. Imboden said he believed, however, that the number plates might be reduced to comparatively few, if careful fluoroscopic examination was made in addition, and this was his practice at present. Unfortunately the expense of these examinations was essentially large unless the work was limited to a little fluoroscopy or to a very small number of plates. When this was done the information obtained by the *x*-ray alone was correspondingly limited, though taken with the rest of the clinical and laboratory investigation, it might be sufficient. Under these conditions there was always danger of attributing to the *x*-ray plates deductions that really came from other sources and were influenced very little by the *x*-ray. The speaker said he was sorry that he could not as yet be contented with the shortened methods of examination, such as the double meal, proposed by Haudeck, and usually they wished to begin by watching the patient swallow a single bismuth meal and then make observations at intervals for two or three days following, or until the bismuth had passed through the colon. Ordinarily this was supplemented by another examination with bismuth enema. It was to be hoped that in time shorter and simpler methods might be found that would be satisfactory and that the expense of the work might be correspondingly decreased. Although they had in many cases obtained by the *x*-ray valuable information concerning a great variety of conditions affecting the digestive tract, they had often been reminded that the *x*-ray was not an infallible test. With the help of a few lantern

slides Dr. Imboden showed examples of some of the problems of interpretation that confronted the roentgenologist.

**Further Results of Stretching the Pylorus.**—Dr. MAX EINHORN said that the idea of stretching the pylorus had come to him some five years ago. The principle of the method lay in the fact that they could reach the duodenum by allowing the stomach to push what was in it into the duodenum. The apparatus was very simple, consisting of a rubber tube with an attached balloon for introduction into the duodenum and an attached apparatus constructed on the plan of a piston syringe for inflating and deflating the balloon. It was not always necessary to leave the tube *in situ* over night. The balloon would pass into the duodenum in three or four hours in achylia, sometimes even in a shorter time. On the other hand, in many pathological conditions of the pylorus it would take a long time. It was least annoying to the patient, however, to give the tube at night. Fifty or sixty cm. of tubing should be introduced. In some instances it took as long as twenty-four hours for the tube to pass into the duodenum. Dr. Palefski had stated that weight was an important factor in hastening the passage of the tube into the duodenum, but, in his opinion, the weight had very little influence and neither did the position of the patient have much to do with the passage of the tube. The pyloric dilator was first dipped in water and was then introduced past the pharynx and the patient given a drink. The tube was then left over night. The instrument could be used with or without the aid of the *x*-ray or fluoroscopy. When the balloon had reached the duodenum it should be inflated to just that size which could be pulled through the pylorus by gentle traction. Dr. Einhorn said that some time ago he had published the history of 34 cases in which he had used this method and since that time had had others, and the results had been quite good. There was no danger attendant upon this method, so that there was no reason why it should not be practised. He had employed it in about 120 sittings and there had been no bad results. It was a very safe method of widening the pylorus. As to the indications, it was applicable in all cases of pylorospasm in which there was no fresh ulcer. Here stretching was of great benefit and he had seen as striking results as in cardiospasm. If there was an ulcer present, the patient should first be subjected to a course of treatment and the ulcer cured, when one could proceed with the stretching with safety. The method could be used only in benign cases, not in malignant ones. This method was also indicated in beginning stenosis of the pylorus. The question arose here as to how to differentiate between stricture and pylorospasm. In pylorospasm, if the patient was given atropine, the balloon could be pushed through the pylorus at a considerable size, while in real stricture it could not be pulled through, neither could the duodenal bucket be passed. Again, if the instrument could be passed at one time and not at another, it was evident that one was dealing with pylorospasm and not with stricture. The third indication for the use of this method was in advanced stricture in which an operation could not be performed as in aged people or those with heart, kidney, or liver trouble, or where the patient refused operation. If the small bucket would pass then one could push the dilator through, that was a size of about 10 F. This method he had used in advanced cases and it was worth something in these desperate and inoperable cases.

Dr. G. R. LOCKWOOD said that the first paper suggested great possibilities for research work in obscure conditions, but it seemed that the instrument in less skilled hands might possibly inflict traumatism. When the tube was passed for ten to fourteen inches of intestine around angles scratching traumatism could easily be inflicted. Again, if the instrument was passed into the duodenum and, as stated, inflation was apparent through the abdominal walls, in the presence of an ulcer one would be treading on ice. Dr. Lockwood said he did not see how one could diagnose duodenal adhesions through the fluoroscope or the *x*-ray. Dr. Barclay's paper was of peculiar force because of his study of the misconception as to atony and pyloric stenosis due to the fact that physicians failed to examine the empty stomach. The condition of hypersecretion as well as other information could be ascertained from an examination of the fasting stomach and it was important that the examination of the fasting stomach be made rather than that of a test meal. Dr. Imboden's paper was fair and interesting, its *motif* being that fluoroscopy and the *x*-ray were not infallible, but had to be combined with history, physical examination, and symptoms. Personally he felt that in the majority of cases about as much could be learned from the three-plate method as from a series of plates. Dr. Einhorn was to be congratulated on his ingenuity in devising this method of stretching the pylorus, and while he saw its applicability in inoperable cases, one should hesitate a little before employing a measure which acted so far from the field of sight and touch. One should remember that absence of symptoms did not necessarily mean that an ulcer was healed. While there were the slightest suspicions of the possibility of ulcer he would hesitate to use this procedure, but in other conditions it might prove of value.

Dr. CHARLES H. PECK said he, of course, looked upon the subject from the surgical standpoint. The methods of diagnosing and treating these conditions by the duodenal bucket and *x*-ray were interesting, and might be of value in determining the position of the duodenum and the relative position of the stomach. Dr. Barclay's paper on stomach motility, especially the differential diagnosis between atony and mechanical obstruction, was most interesting. However, from the surgical standpoint, pyloric stenosis was a surgical condition and should be treated surgically. Dr. Einhorn's method was applicable in inoperable cases, but pyloric stenosis was a condition that could be treated most satisfactorily surgically and the patients remained well, while after the stretching process it seemed to him there was a possibility of recurrence of the condition. In regard to the group of cases included under pylorospasm, it was rather difficult to decide; the surgeon seldom saw these cases in the early medical stage, and consequently looked upon them as surgical. In those cases of duodenal ulcer and appendicular dyspeptic type it was difficult to form a judgment and examination by the *x*-ray and bismuth and chemical analysis of the stomach contents, as well as a careful examination of the blood and stools should be resorted to when there was doubt as to whether there was duodenal ulcer, pyloric or appendicular disease. It was seldom that they failed to find a lesion somewhere. Negative exploratory operations were becoming fewer and fewer. Dr. Peck said that he was coming to believe that all these methods should be used before resort was had to surgery, but there was a time limit to such investigations and an exploratory operation should be made rather than to allow the patient to drift beyond help. Important assistance was given by bismuth and the *x*-ray in deciding whether a case of cancer was operable or not.

Dr. W. J. WEINSTEIN said that Dr. Palefski's work was very interesting, but he had not done enough to enable one to judge of its real value and it should be corroborated. The combination of the tube and the *x*-ray was certainly an improvement over their old methods. Dr. Barclay's paper was very satisfactory, both from the diagnostic and the therapeutic standpoint, but few cases were so easily diagnosed. Three signs in the diagnosis should be emphasized: 1. The peristaltic waves in the stomach which were the effort of the stomach to propel the food through the pylorus were absolutely diagnostic of obstruction at the pylorus. 2. The presence of sarcinæ indicated the presence of advanced motor insufficiency and might be detected by a certain peculiar, sickening odor. 3. Stagnation or stasis was the best and surest sign of motor insufficiency and was always present in this condition. The normal stomach disposed of a regular dinner in seven hours and one that did not do this, but retained remnants of the meal for sixteen or seventeen hours, was in a state of advanced motor insufficiency and that probably meant obstruction. By means of the stomach and duodenal tubes one could see the real contents of these viscera while by the *x*-ray one could not gauge the quantity of food. Dr. Einhorn had given them many valuable things and it was to be hoped that this method of stretching the pylorus would be as valuable as some of the others. It was possible to cure some cases without stretching and this method did not appeal to him. Divulsion had been abandoned because it was followed by recurrence. A method which had given him good results was that of washing the stomach seven hours after a meal and then not allowing the patient to eat over night. This gave the stomach an opportunity to regain its muscular tone. In motor insufficiency the stomach never got a rest, but if one could give it fourteen or fifteen hours rest it could regain its tone. This would not cure advanced cases.

Dr. L. Pierce Clark said that Dr. Palefski's and Dr. Barclay's papers left nothing to be added. One point in determining motor insufficiency was the readiness with which one could detect the splash. In stenosis of the pylorus one found relatively thick stomach contents as the thinner substances were permitted to pass on. It was marvelous how long the motor function of the stomach would continue good in cases of pyloric stenosis. This was indicated by the marked peristalsis. Occasionally one saw this in marked spasm of the pylorus where there was no absolute obstruction. As to the etiology there was one more factor: undoubtedly stasis was responsible, but there might also be a jejunal angulation.

**Election of Officers.**—*Chairman*, Dr. Joseph C. Roper; *Secretary*, Dr. T. Stuart Hart.

## NEW YORK NEUROLOGICAL SOCIETY AND SECTION ON NEUROLOGY AND PSYCHIATRY OF THE NEW YORK ACADEMY OF MEDICINE.

*Joint Meeting, Held November* 11, 1913.

Dr. Smith Ely Jelliffe and Dr. I. Strauss in the Chair.

**The Irregular Bony Formations of the Sella Turcica in Some Epileptics.**—Drs. L. Pierce Clark and E. W. Caldwell presented a joint paper on this subject, with lantern slide demonstrations. The authors stated that cranial asymmetries and osseous deformities in epileptics had long since been the subject of intensive study by many able investigators. A thickening of the skull, general or in special parts, had been carefully studied by American writers, including Peterson, Sachs, Fisher, Prout, and Clark. In some instances the skull thickenings were very limited in area, forming the exostoses described as osteosclerosis by Binzwanger. Some young epileptics presented a markedly thickened skull, but usually the thickness was increased after the twenty-fifth year and became very marked after the fortieth year. The calvarium of the epileptic was heavier than that of the normal individual of the same age. These facts and others bearing upon cranial thickenings and asymmetries formed a striking part of the literature of epilepsy. Müller, in an examination of the heads of forty-three epileptics, found but four that he considered normal, and it was at once apparent that when we attempted to estimate the importance of the special cranial deformities and variations in epileptics, one entered upon a particularly difficult task. This was especially true when one selected so small a part of the base of the skull as the osseous formation of the sella turcica, a part of the skull which, until very recently, had attracted but little attention. Comparative studies of this region in health and disease were still to be made, and we were soon to face the problem more definitely, and solve its bearings upon epileptic states. The issue would not be so much upon the significance of the relationship which sella deformities might have upon the cerebral content itself, as the bearing the variations had upon the possible alteration of function of the posterior lobes of the pituitary bodies, and the rôle this defect or alteration of function might have upon convulsive disorders of epileptics in particular. Dr. Clark said the very considerable variations of the bony formation of the sella turcica in epileptics was first called to his attention by Dr. Caldwell, who had made a number of *x*-ray examinations in the routine study of the speaker's cases. He believed that Dr. Caldwell's notice was particularly directed to this peculiarity of the sella in epileptics by Dr. Johnston of Pittsburgh, who had not yet published his full study of the subject. The work on the sella and its variations in health and disease by Cuching and others were fairly familiar to all. Three types of the pathologically deformed and enlarged sella had been distinguished and classified by Cushing. The one with which the authors were immediately concerned was associated with thickening of the clinoid processes and dorsum ephippi. Here the enlargement was accompanied by thickening of the walls, but inasmuch as Cushing stated that this type was confined to the acromegalics and gigantics, he believed the bony thickenings were merely a feature of the osseous tendency to overgrowth, which, of course, threw no light on the condition shown in some epileptics. The circulatory disorders in epilepsy shown frequently in slow pulse, vasomotor stasis in the extremities, and, in the speaker's experience, an invariably low blood pressure when arteriosclerosis was not advanced, the tendency to obesity and a ravenous appetite might make one pause before excluding the possibility that there may be some association between epilepsy and a marked disturbance of the pituitary body, and that it might ultimately be found that pituitary disease may sometimes have more or less bearing upon some types of epilepsy in some of its broader and more general manifestations. Certain it was that in so mysterious a disease as epilepsy we had need of the widest possible study in its causation.

Dr. E. W. Caldwell then gave a brief clinical outline, with lantern slide observations, of a few cases of epilepsy showing bony variations in the sella turcica.

Dr. Clark, in reply to a question, said that little or no reference had been made to this condition of irregular bony formations of the sella turcica by those who had made a special study of the cranium, and its significance could only be conjectured. Dr. Johnston of Pittsburgh was the first to suggest that it might have some bearing upon epilepsy, and the treatment of his cases with pituitrin had been followed by rather remarkable results. His own experience with the remedy in epilepsy, Dr. Clark said, had been unsatisfactory.

**Brain Structure According to Age.**—Dr. H. H. Donaldson of the Wistar Institute, Philadelphia, showed a series of lantern slides illustrating changes that occur in the brain according to age. He traced the histological changes from birth to maturity, limiting himself to brains that were normal at birth and free from hereditary taint, the only sources of modifications considered being those represented by deficient nutrition. Slides showing the alterations in the chemical constitution of the brain from birth to maturity, as determined by Dr. Koch, were also presented. The influence of age on the human brain weight was discussed, and a corrected graph for these weights was shown.

**Newer Researches Concerning the Hypophysis.**—Dr. Frederick Tilney of Brooklyn, with the aid of reconstruction models and lantern slide illustrations, gave the results of his recent research bearing upon the development of the hypophysis in man and certain birds and mammals. By this work, which was carried on in the laboratory of Professor Huntington of Columbia University, it was now possible to give an embryological, histological and morphological description of a hitherto undescribed portion of the hypophysis. This portion is known as the pars tuberalis. The ontogenesis of the organ demonstrates the necessity of revising the nomenclature applied to the pituitary body, inasmuch as certain neural and glandular elements have not hitherto been recognized. The study of the development in a number of vertebrate forms is the basis for the following classification of the several parts of the organ: (1) The pars neuralis, consisting of (*a*) the eminentia saccularis of the tuber cinereum; (*b*) the infundibulum; (*c*) the infundibular process. (2) The pars glandularis (epithelial), consisting of (*a*) the paratuberalis (hitherto undescribed); (*b*) the pars infundibularis; (*c*) the pars distalis. Dr. Tilney said the complete report of this research was now in press, and would appear in the *Internationale Monatschrifte für Anatomie und Physiologie*, Bd. XXX.

**Some Causes of Disappointment in Operations on Brain Tumor.**—Dr. William G. Spiller of Philadelphia said the discussion on brain tumor introduced by Bruns and Tooth at the recent International Congress in London called forth some discouraging statements. Bruns said that about 30 out of 100 brain tumors were so situated that a radical operation might be advised; the localization was accurate, and the tumor in these cases was accessible. He believed we might expect surgical success in from three to four per cent. of all brain tumors. Tooth studied the records of 500 cases of brain tumor at the National Hospital obtained during the years 1902 to 1911, inclusive. Of these, about half came to operation. He thought a high mortality was inevitable, but that it could be reduced by a judicious choice of cases and by selection of the operation best suited for individual cases. The immediate dangers common to all growths, all situations, and apparently all operations were shock, collapse, and respiratory and cardiac failure. Dr. Spiller said that many causes of disappointment would occur to any one familiar with operations for brain tumor. The best

known were incorrect diagnosis, the infiltrating character, large size and inaccessible situation of the tumor, errors in technique, and impaired general vitality. While others equally important might be mentioned, the speaker said he desired in this communication to speak of the hyperplasia of the brain caused by tumor, the distortion of the brain, especially from tumor in the posterior cranial fossa, and the acute swelling of the brain, which was probably an important element in the production of hernia cerebri. Increase of intracranial pressure was believed to be the cause of many of the general symptoms occurring with brain tumor, and it would seem from the writings of certain authors that the increase of pressure was attributed directly to the tumor and varied with the size of the growth. There was a condition resulting from tumor to which little attention had been paid, and which was as important, if not more so, than the size of the tumor itself, namely, enlargement of the brain. This hyperplasia was not directly proportional to the size of the tumor; it might be moderate with a large tumor or sufficient to cause much enlargement of one cerebral hemisphere where the tumor was small. The hyperplasia might be the result of irritation either from pressure, or possibly from some substance elaborated by the tumor, and was caused by an overgrowth of neuroglia tissue. The condition was not unknown in medical literature, although little was said concerning it. This hyperplasia of the brain might occur with any variety of tumor, and was not confined to glioma. It should not be confused with enlargement from glioma tissue, for it had not the appearance, microscopically, of tumor, nor should it be confused with the acute brain swelling of Reichardt. The sudden fatal termination that occurred in some cases of tumor was probably the result of this enlargement of the brain, and of interference, by the general increase of intracranial pressure, with the important functions of the medulla oblongata. It might also be that hyperplasia of the brain was an important cause of impairment of mentality in some cases of brain tumor. Distortion of certain parts of the brain was a grave complication of tumor. The displacement of the cerebellum and the occipital lobes complicated the operation, and sudden relief of pressure probably had injurious effects on parts that had been distorted gradually. Cranial nerves in the region of the medulla oblongata were liable to be stretched gradually by such distortion, and the effect of this stretching on the pneumogastric might be serious. Hernia cerebri was a serious complication of brain tumor. Where it resulted from decompression it had been supposed to be indicative of the degree of intracranial pressure and to show to what extent the pressure had been relieved. This view was not entirely correct, as such a hernia may develop in cases where there had been no decided increase of intracranial pressure. A hernia may cause pressure against the edges of the opening in the skull, with occlusion of vessels and softening of the part of the brain implicated in the hernia, causing in this way hemiplegia and other grave symptoms. In connection with his paper, Dr. Spiller showed a number of lantern slides illustrating this condition of hyperplasia of the brain, with enlargement of the hemisphere, complicating brain tumor. Also pictures of distortion of the brain caused by tumor.

Dr. M. Allen Starr said he had seen a number of cases of brain tumor associated with a distinct hypertrophy of the corresponding hemisphere, but he had never ascribed to this condition the novel and very interesting explanation offered by Dr. Spiller, nor could he recall any reference to it in the literature. The form of hypertrophy that followed operation in some cases and failed to occur in others had often puzzled him: he could not understand why in some cases after an operation for brain tumor there should develop an enormous hernia cerebri, while in other cases it was entirely absent, and he did not believe that it was always an evidence of sepsis. The distortion of certain parts of the brain resulting from tumor was a well recognized fact, and by causing pressure upon or stretching the cranial nerves it might give rise to secondary symptoms and obscure the diagnosis. Dr. Starr said that a review of his last fifty cases of brain tumor seen in private practice showed that the diagnosis as to the location of the growth was possible in thirty; in the remaining twenty, its location could not be definitely determined. In twenty of the fifty cases, an operation was urged, and in eighteen of these it was actually performed. In eleven of the eighteen the operation confirmed the diagnosis, and the tumor was removed; in two the tumor was found, but could not be removed on account of difficulties encountered in connection with the operation; in five, nothing was found. The death rate was six per cent.

Dr. B. Sachs said that while doubtless many had observed this hyperplastic enlargement of the hemisphere accompanying brain tumor, he thought Dr. Spiller was wise in attempting to lay stress upon it. Referring to the causes of disappointment in operation on brain tumor, Dr. Sachs said that at the recent International Congress in London Sir Victor Horsley made the statement that unless the diagnosis was made before the appearance of optic neuritis, which was generally regarded as such an important feature of the condition, it was almost too late to do the patient any good. This, Dr. Sachs thought, was rather an extreme view; in the recognition of this condition, it was not an easy matter to forego the advantages that went with the presence of a pronounced optic neuritis, and he could recall a number of instances where the diagnosis, without the eye symptoms, would have been practically impossible. In a case that was recently under his observation there was no optic neuritis, but there was evidence of tumor involvement of the fifth nerve. In addition to this, there were marked cerebral symptoms and an operation was contemplated, but after three weeks' observation in the hospital and under simple hygienic treatment all the symptoms gradually disappeared with the exception of the fifth nerve involvement, and the patient had been temporarily discharged. Dr. Sachs said he still believed that here they had to deal with a brain neoplasm, but the patient was so much better that the idea of an operation had been abandoned for the present, at least. In their work at the hospital during the past year, *x*-ray plates of the cranium had been carefully studied with regard to possible changes in the formation of the sella turcica in the presence of certain brain lesions; their results, however, had proven of no practical value and were about as negative as those reported by Dr. Clark tonight in connection with epilepsy. The high mortality accompanying operation for brain neoplasms might perhaps be lessened to some degree by a more careful manipulation of the brain. The most gentle manipulation and the rapid checking of hemorrhage he regarded important factors in the reduction of the death rate after these operations.

Dr. Robert Abbe said he was quite in accord with what had been said in regard to the disappointments attendant upon operations for brain tumor, and he had practically come to the conclusion that decompression was the operation of choice, both on account of its comparative simplicity and the benefits that accrued from it. He had in mind several instances where this procedure was followed by great prolongation of life, together with improvement in the eye symptoms. In one case where no tumor was found, although that diagnosis had been made and was well founded, the patient survived a decompression operation for four or five years and has resumed work. In another case where the sight had been entirely lost, the decompression resulted in restoration to health, and the patient was alive three years after the operation, when she was lost sight of.

Dr. J. Ramsay Hunt said that in common with others he was familiar with the enlargement of the convolutions and parts of the hemisphere in the neighborbood of brain tumors, and that he had always regarded it as the result of stasis due to an interefernce with the circulation, near the growth, of the blood and lymph streams. A similar condition was observed in abscess formation of acute onset, and under those circumstances the term hyperplasia was certainly scarcely applicable. The speaker said he would be inclined to attribute this swelling and enlargement to a chronic stasis and edema, and not to a true hypertrophy or hyperplasia of brain tissue. That in old cases, as a result of pressure and stasis, there should be some changes in the appearance and relation of the histological elements was not surprising, but certainly in his experience there had been nothing in the microscopic picture of the swollen region that would have suggested the occurrence of hypertrophy and hyperplasia.

Dr. Walter Timme said that in the May (1913) issue of the *Journal of Nervous and Mental Diseases* he had published an article giving the results of some observations, made in Dr. McCallum's laboratory, which perhaps might throw some light on this subject. The experiments were in connection with artificial nerve

pressure, produced by tying the vagus nerve above the diaphragm enough to cause pressure, but without severing the nerve. It was found, upon killing the animals four or five months later, that there was a remarkable hyperplasia in the glands of the wall of the stomach. The number of glands of the stomach was increased from 5,000,000 in the normal cat to over 9,000,000 in the operated animals. When both vagi were treated in this way, the hyperplasia of the glands was more pronounced. There was perhaps some analogy between this condition and the hyperplasia of the brain tissue observed by Dr. Spiller in connection with the pressure produced by brain neoplasms.

Dr. CHARLES A. ELSBERG said that he had also noticed this asymmetry between the size of the two lobes in cases of brain neoplasm, and had ascribed it to an increase of the fluid content on the affected side. He did not understand whether Dr. Spiller attributed the occurrence of hernia cerebri to this hyperplasia. In many cases of hernia cerebri, the protrusion could be reduced by elevation of the patient's head or by lumbar puncture or by aspiration of the ventricles or the corpus callosum, or by a combination of these methods. The speaker called attention to the varying degrees of pressure that existed in these cases: thus at times we had a large, tense hernia occurring without apparent explanation, while at other times the protrusion might be almost collapsed, and if it was attributable to this condition of hyperplasia it would be difficult to understand these marked differences in the pressure. Dr. Elsberg said that within the past few years he had seen two cases of tumor in the left frontal region, both located in the cortex and of the endothelial type, where the wrong side of the brain was exposed. In both of these cases there was no increase in pressure; on the contrary, there was a diminution to such a degree that it led to a subsequent opening of the skull on the opposite side, where the tumor was really located.

Dr. FOSTER KENNEDY asked Dr. Spiller if by hyperplasia he really meant an increase in the brain elements or whether he referred to an edema of the brain. In the more acute types of rapidly growing gliomata, edema seemed to be the largest factor. He also inquired whether the reader of the paper regarded this edema or hyperplasia extending to a point some distance from the growth as a misleading factor in the diagnosis of brain neoplasms. Personally, he had always thought that the edema produced by a brain tumor varied inversely with the distance from the tumor and that the symptoms would correspond with the lines of pressure radiating from the tumor. Dr. Kennedy then described two cases of expanding cerebellar lesions producing much edema, and consequent equivocal diagnostic signs which, however, were the result not primarily of the edema, but secondarily of the intense medullary and pontine distortion and constriction of unusual tracts by the foraminal ring.

Dr. SPILLER, in closing, said that in his paper he did not discuss edema of the brain. That was an entirely different process. He spoke of hyperplasia, which referred to an overgrowth of the neuroglia tissue. In these cases, as shown by the microscope, there was little or no increase of the neuroglia cells, but sometimes proliferation of the neuroglia fibers could be demonstrated. The hyperplasia possibly was caused by chemical changes resulting from some substances elaborated by the tumor; but more likely from irritation by the tumor. It was probably not the cause of hernia cerebri and should not be confused with edema or acute swelling of the brain, which probably have some relation to hernia. This hyperplasia may extend for a considerable distance beyond the limits of the tumor, and possibly may be in part the cause of the symptomatology of brain growths. We know that a tumor of the brain may be removed at times in its entirety, and yet the symptoms may not entirely disappear, and possibly this persistence of symptoms may be attributed to alteration of nerve cells, to hyperplasia, or other changes. The same was true after a decompression operation. The mere relief of pressure does not usually remove all the symptoms, and the speaker said he had known the condition to be aggravated by a decompression. He had shown lantern slides of a brain in which a very small subcortical tumor of the parietal lobe had caused great enlargement of the cerebral hemisphere of the same side. It would be unreasonable to attribute the hyperplasia in this case to stasis and edema of the brain. Such conditions as these described, Dr. Spiller said, were the causes of many disappointments in operations upon brain tumor.

### PATHOLOGICAL SOCIETY OF PHILADELPHIA.

At a stated meeting held December 11 Dr. ALFRED GORDON presented a specimen of "Anencephalia." The fetus was obtained from a woman who had had several miscarriages, and whose husband, previously of good habits and free from evidences of syphilis, and with a negative Wassermann reaction on the part of his blood and cerebro-spinal fluid, had become addicted to periodical excess in the use of alcohol, conception in each instance taking place during such a period.

Dr. GEORGE W. OUTERBRIDGE presented specimens as follows: (1) "Carcinoma of the Ileo-cecal Valve, with Intussusception of the Ileum into the Ascending Colon"; (2) "Multiple Cysts of the Omentum"; (3) "Papillary Carcinomatous Cyst of the Parotid Gland."

Dr. W. H. F. ADDISON demonstrated "The Frankfort Method of Mounting Microscopic Specimens on Gelatin, without Cover-glasses." A ten per cent. solution of the finest photographic gelatin, carefully filtered, is employed, and it is especially available where stains in aqueous solution are used.

Drs. ERNEST H. GOODMAN and J. STUART RODMAN presented "Heart and Pericardium from a Case of General Septicemia." The patient was a boy with a reddened swelling of the leg, which was found to be due to osteomyelitis and was incised, with negative result. Subsequently, additional swellings appeared at the ankle, and when excised yielded pus. At a later period signs and symptoms of pericarditis, pleuritis, and pneumonia developed. Pericardotomy was performed, and 1050 cu. cm. of pus evacuated. Drainage was provided for, but death resulted from hemorrhage, as a result of erosion by the drainage-tube of the internal mammary artery.

Dr. F. D. WEIDMAN exhibited a specimen of "Congenital Stenosis of the Arch of the Aorta." The patient had been a colored man, 35 years old, who had died from acute edema of the lungs. The autopsy disclosed a narrow coarctation of the descending aorta.

Dr. E. D. FUNK demonstrated specimens of tuberculosis of the mesenteric glands and of the thoracic duct.

Drs. A. I. RINGER and E. M. FRANKEL presented a communication entitled "Studies in Diabetic Acidosis."

Drs. O. H. PERRY PEPPER and T. G. MILLER presented a paper entitled "Report of Culture of Plasmodium of Malaria by Bass' Method," and they demonstrated a number of illustrative specimens. While the investigations were not highly successful, they opened the possibility of obtaining information as to the mechanism of malarial hemoglobinuris and of studying the influence of drugs in the treatment of malarial conditions.

## Books Received.

*The* MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

RESEARCHES ON RHEUMATISM. By F. J. POYNTON, M.D., Lond., and ALEXANDER PAINE, M.D., D.P.H. Illustrated; cloth; price, $5.00 net; 461 pages. The MacMillan Company, New York.

CUNNINGHAM'S TEXT-BOOK OF ANATOMY. Edited by ARTHUR ROBINSON, M.D., F.R.C.S. Ed. Fourth Edition, Enlarged and Rewritten. Illustrated; cloth, price $6.50 net; 1596 pages. William Wood and Company, New York.

MEDICAL AND SANITARY INSPECTION OF SCHOOLS, For the Health Officer, the Physician, the Nurse and the Teacher. By S. W. NEWMAYER, A.B., M.D.; 318 pages. Illustrated; cloth; price $2.50 net. Lea and Febiger, Philadelphia and New York.

INTERNATIONAL CLINICS. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Treatment, Medicine, Surgery, Neurology, and Other Topics of Interest to Students and Practitioners. By Leading Members of the Medical Profession Throughout the World. Edited by HENRY W. CATTLE, A.M., M.D. Price $2.00; cloth; illustrated; 312 pages. J. B. Lippincott Company, Philadelphia and London.

MENINGOCOCCUS MENINGITIS. By HENRY HEIMAN, M.D., and SAMUEL FELDSTEIN, M.D. With Introduction by HENRY KOPLIK, M.D. Illustrated; cloth; price $2.50; 313 pages. J. B. Lippincott Company, Philadelphia and London.

Transactions of the American Otological Society. Forty-sixth Annual Meeting. Hotel Raleigh, Washington, D. C., May 6 and 7, 1913. Volume 13, Part 1. Paper; illustrated; 252 pages. Mercury Publishing Company, New Bedford, Mass.

Progressive Medicine. Edited by Hobart Amory Hare, M.D. Assisted by Leighton F. Appleman. Volume 15, No. 4. Paper; price $6.00 per annum; illustrated; 411 pages. Lea and Febiger, Philadelphia and New York.

The Supposed Death Rates of Abstainers and Non-Abstainers and their Lack of Scientific Value. By Edward Bunnell Phelps, M.A., F.S.S. Reprinted from *The American Underwriter Magazine and Insurance Review* Vol. XL, No. 1 (July, 1913). Cloth; 30 pages. Thrift Publishing Company, New York.

Pyorrhea Alveolaris. By Friedrich Hecker. B.Sc., D.D.S., A.M., M.D. Illustrated; cloth; price, $2.00: 157 pages. C. V. Mosby Company, St. Louis.

Science and Education. A Series of Volumes for the Promotion of Scientific Research and Educational Progress. Edited by J. McKeen Cattell. Volume II—Medical Research and Education. By Various authors. 536 pages; cloth. The Science Press, New York and Garrison, N. Y.

Fruchtabtreibung und Praventivverkehr im Zusammenhang mit dem Geburtenrückgang. By Dr. Max Hirsch. Paper; 267 pages; price, 6 Mks. Curt Kabitzsch, Wurzburg.

Causes and Cures of Crime. By Thomas Speed Mosby. Illustrated; cloth; price, $2.00: 354 pages. C. V. Mosby Company, St. Louis.

Case Histories in Pediatrics. By John Lovett Morse, A. M., M. D. Second Edition. Cloth; illustrated; 639 pages. W. M. Leonard, Boston.

Die Heliotherapie der Tuberculose. Von Dr. A. Rollier, Legion mit 138 Textabbildungen. 119 pages; price, 6.60 Marks. Julius Springer, Berlin, 1913.

Dysenteries, Their Differentiation and Treatment. By Leonard Rogers, M.D., F.R.C.P., B.S., F.R.C.S., C.I.E., I.M.S. Cloth; illustrated; 336 pages; price, $3.75. Oxford University Press, New York.

The Principles and Practice of Medical Hydrology, Being the Science of Treatment by Waters and Baths. By R. Fortescue Fox, M.D., F.R.Met.Soc. Cloth; 295 pages; price, $2.00. Oxford University Press, New York.

Surgical Experiences in South Africa 1899-1900. Being Mainly a Clinical Study of the Nature and Effects of Injuries Produced by Bullets of Small Calibre. By George Henry Makins, C.B., F.R.C.S. Cloth; illustrated; 504 pages: price, $3.75. Oxford University Press, New York.

A Manual of X-ray Technic. By Arthur C. Christie. Illustrated; price, $2.00; cloth; 104 pages. J. B. Lippincott Company, Philadelphia and London.

Das Chronische Partielle Herzaneurysma. By Dr. Maximilian Sternberg. Paper; illustrated; 76 pages; price 3 marks. Franz Deuticke, Leipzig und Wien.

Theorie und Praxis der Inneren Medizin. By Dr. Erich Kindborg. Volume 3: cloth; illustrated: 751 pages S. Karger, Berlin.

Die Wassermannsche Reaktion. By Dr. Harald Boas. Paper: 242 pages; prices, 8.80 marks. S. Karger, Berlin.

Die Geschwülste der Hautdrüsen. By Prof. Dr. G. Ricker and Dr. Johannes Schwalb Paper; price, 10 marks; illustrated; 240 pages. S. Karger, Berlin.

Praktische Winke fur die Chlorarme Ernährung. By Prof. Dr. H. Strauss. Paper; price, 1.50 marks; 63 pages. S. Karger, Berlin.

Archiv fur Experimentelle und Klinische Phonetik. Herausgegeben von Prof. Dr. J. Katzenstein. Volume 1, Part 1; price, 24 marks; 116 pages. S. Karger, Berlin.

Lietfaden der Hygiene. By Dr. Aug. Gärtner. Paper; illustrated; 676 pages. S. Karger, Berlin.

Taschenbuch der Therapie. Herausgegeben von Dr. M. T. Schnirer. Cloth; price, 2.50 marks; 474 pages. Curt Kabitzsch, Wurzburg.

Klinik fur Psychische und Nervöse Krankheiten. By Robert Sommer. Vol. 8, Part 2; price, 3 marks; paper; illustrated. Carl Marhold, Halle a. S.

Klinik fur Psychische und Nervöse Krankheiten. Herausgegeben von Robert Sommer. Paper; vol. 8, part 3. Carl Marhold, Halle a. S.

The Physician's Visiting List for 1914. Leather; price, $1.00 net. P. Blakiston's Son & Company, Philadelphia.

The Medical Record Visiting List or Physicians' Diary for 1914. Newly revised; leather; price, $1.50. William Wood & Company, New York.

## Miscellany.

**The Doctor in Art.**—W. Sampson Handley states that the late Sir Seymour Haden, founder and President of the Royal Society of Painter Etchers, the leader, along with Whistler, of the revival of etching in England, and one of the greatest exponents of the art, was a surgeon, and no mere dilettante one, for he had studied not only in London but also in Paris and Grenoble, he had obtained the Fellowship of the College of Surgeons, and he had practised as a surgeon until the age of 52. He considered etching rather as a recreation than as the serious business of his life, so that his etched plates number only about 200 in all. Perhaps he gave too much of his life to medicine. If his art had been the single passion of his life he might have been the English Rembrandt. But he had that sanity and love for a balanced life which has often characterized gifted Englishmen, and he refused to become the slave of his genius. The same struggle and the same victory is exemplified in the career of Robert Browning, who managed to become a poet, and a great one, without ceasing to be a man of the world. Mr. Henry Tonks, assistant professor at the Slade School of Fine Art, is another instance of the doctor turned artist. Many generations of students have felt for him the affection not unmingled with wholesome dread which Sir Henry Morris used to inspire. Deeply interested in his work and his students he will permit no slack worship at the shrine of Art.—*Lancet*, October 4, 1913.

**Breakfast and Brainwork.**—In an editorial article in the *Lancet*, September 27, 1913, it is pointed out that, as the evidence of some literary men proves, there is no time of day more fitted for the production of intellectual or imaginative work than the early morning hours. A little fresh-air exercise to start the day, following the habit of some athletes in training, is a thing that many a professional or business man might cultivate with advantage, but his breakfast should often be lighter than that of the average individual. There is a great deal to be said in favor of the "coffee and rolls" plan, and for men whose day is spent in work which taxes the brain and nervous system generally more than the muscles, the wise course is to relegate anything approaching a hearty meal to the period of relaxation, the evening. But that part of the continental system which involves the eating of a heavy lunch is as objectionable as the heavy breakfast plan. It can be excused only if adequate time is given after the meal for the digestion thereof, and most professional and business men cannot spare the hour's ease which should follow a hearty midday meal. In most European cities where the midday meal is a heavy one an hour or so is commonly spent in smoking and chatting afterward. This leisurely proceeding, however, is not possible with the more strenuous business habits of England and America, as the "quick lunch" institution testifies. Nor need the quick lunch be severely deprecated if the quantity of food ingested is reduced in accordance with the time taken for its consumption. If the quick luncher is also a heavy luncher then he combines the evil properties of both the continental and English methods, and will, doubtless, incur the punishment of the dyspepsia which his habits invite. But if the meals during the day be light the writer does not believe that the worker need be asked to forego either breakfast or lunch.

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## Original Articles.

### TREATMENT OF RETRODISPLACEMENTS OF THE UTERUS.*

By W. M. POLK, M.D.,

NEW YORK.

Retrodisplacements are so often free from vexatious symptoms that many look upon them as mere anatomical freaks, to be let alone as long as the deformity lets the patient alone. This is no doubt good practice in many instances, notably, congenitals, and in the unmarried.

Marriage introduces elements of congestion which sooner or later cause symptoms of distress. The same may be said of pregnancy and of the parturient state. These symptoms hover around the uterus and its appendages, but, in my experience, come more directly from the body of the uterus. There are more or less pelvic pain and discomfort, and, in some cases, women with susceptible nerves are prone to irritability, pessimism, and phases of hysteria. Naturally in such a person, an elongated, painful fundus in Douglas' culde-sac is not helped by marital contact. If such composite misery can be traced to a retroverted uterus it must be treated. How? Before operative work was rendered safe by present day methods, pessaries were somewhat in vogue in these cases, but the safety with which operations might be applied has so far driven that remedy from the field. It now is rarely heard of, yet it is very valuable, especially if we remember that no one form of operation has so far established itself as the one procedure to be universally applied. There are too many of them offered to insure confidence in any one. Why not give the pessary a place in the field of contention? If so, I have an idea its quota of cures will rank with several operations, and this, too, without arguing in its favor the unfavorable liabilities attached to some of the latter. The treatment cannot be applied promiscuously to-day any more than it could in the period of its popularity; only certain cases are available.

The higher the attachment of the vaginal wall to the posterior face of the uterus, the greater the purchase on the organ, and the more certain the relief. Of course the uterus must be movable, not adherent; if adherent it should be previously freed through posterior vaginal incision, followed by fitting of the pessary then and there. The simplicity of this procedure and its safety remove it from the domain of such major procedures as constitute any one of the operations for retrodisplacements.

Given favorable conditions the most aggravated cases of this disorder can be cured by pessary. An important necessity to this cure is proper involution of the uterus. Whatever exists as a hindrance to this must be removed before satisfactory results can be obtained; for instance, a big cervix, torn or much hypertrophied, must be gotten rid of by operation; not by amputation, if avoidable, because this will lower relatively the vaginal attachment to the posterior wall of the cervix of the uterus and lessen efficacy of the pessary. Certain cases which from long continuance have acquired thickened endometria, can only be involuted by curettage and immediate packing, the latter to provoke contraction. It should be done but once and removed in twenty-four hours. It is obvious that the pessary must have a resting place, making obligatory a thorough repair of the ruptured or chronically relaxed and over-strained pelvic floor; the more perfect this is the more satisfactory the work of the pessary.

I am afraid you will all laugh, if, after this laudation of the treatment by pessary, I turn round and say, "But I have an operation to recommend to you." I suggest, however, that it be only used if the pessary fails. The symptoms found with retrodisplacements depend upon venous congestion and consequent swelling of the uterus—the absence of this gives you the deformity but without the distress. Fact and theory show that traction upon and some twisting of the veins is the gross ultimate element in this congestion. Remove this and even without getting an ideal position for the uterus you relieve your patient.

I will not bore you by detailing the defects of other operations devised for this difficulty, but at once put before you the one I am trying so far with good results.

In a few words, it is an operation which deals directly with that peritoneal covering of the pelvic floor which is in closest contact with the lower parts of the uterus. Analysis of these displacements shows that the cervical setting of the uterus is lowered and carried forward by the downward and forward movement of the front sections of the floor. Correct this and you strike at the root of the difficulty.

The method of correction is as follows: Take up the slack tissue between the uterus and the bladder by folding it in along a line running from the bladder to and through the area of loose attachment of peritoneum to the anterior face of the cervico-uterine region. Take up as much as you can without undue tension. Use, if necessary, two rows of sutures, one outside the other. To determine the exact line of attachment of bladder to vagina, which is the line at which you begin the infolding, draw the uterus well up, so as to put all the parts on the stretch. After the infolding has been accomplished shorten the posterior and lateral attachment of this lower part of the uterus by encircling them with one or more sutures, treating each side separately.

*Read at the Two Hundred and Fifty-eighth Meeting of the Practitioners' Society of New York.

The process is accomplished as follows: Thrust the extended figures into the cul-de-sac, push the uterus forward and upward, locate the uterine artery, pass a suture from before backward, a finger's breadth above the artery and half an inch from the uterus, so as to emerge half to three-quarters of an inch from the uterus, just below the uterosacral folds. Return over this fold through the intervening tissues, about quarter of an inch above the point of entry, alongside the uterus. For anchorage carry this end of the suture through the antero-lateral face of the cervical tissue, and tie. At least two such sutures should be used on each side.

7 East Thirty-sixth Street.

## SOME OBSERVATIONS UPON THE ETIOLOGY OF MENTAL TORTICOLLIS.*

By L. Pierce Clark, M.D.,

New York.

Not the least important fact brought out by the modern analysis of mental disorders is the enormous significance of a closer study of infantile life. A few years ago it was thought that little or no mental data bearing on the after-life was taken up by the child before five or six years of age. It has

Fig. 1.—Front view of E. K. before treatment, showing torticollis.

been conclusively proven to most of us, however, that it is precisely the early childhood that is most important in the formation of physical and mental habits. From a neurologic and psychiatric standpoint the nursery life of the child is of greatest importance in determining the trends that in later life make for safe voyaging or mental shipwreck. To many the above statements may appear more or

Fig. 2.—Side view of E. K. before treatment.

less trite and commonplace, but at the risk of restating the obvious, I wish to call attention to these views with the hope that studies of the infantile mental life may be a matter of more frequent report in our study of the neuroses and psychoneuroses. As the latter class of nervous disorders make up the major portion of neurologic practice, the practical value of these remarks is evident.

If it be true that tics are rare in mental defectives of the feebleminded class and habit movements* are extremely common in this type, in fact, exist in some form in almost every case of non-apathetic idiocy and imbecility, then it would seem to follow that the types of individuals in which tics appear are afflicted with the mildest type of mental inferiority and psychoneurotic tendencies, and such individuals possess a unidefect instead of a polydefect, by which latter term some eugenists designate the mental state of feeblemindedness.

In the light of deeper researches in the origin of tics it is interesting to note that much of the modern literature on the real nature of tics are

*Read before the N. Y. Neurological Society, December 2, 1913.

*"A Study of the Significance of Habit Movements in Mental Defectives," L. Pierce Clark and Charles E. Atwood, *Jour. A. M. A.*, March 23, 1912, Vol. LVIII, pp. 838-843.

excellent examples of specious casuistry, as illustrated in the first and obvious origin in my own case. The alleged causes of tics run a parallel course with those assigned to all the psychoneuroses and even to the etiology of many obscure organic

Fig. 3.—Condition of practical recovery from the torticollis as seen in Figs. 1 and 2. The dropping and atrophy of muscles of the right shoulder are due to the nerve resections.

disorders. In this category epilepsy, a true organic disease, was formerly arraigned. The hardest death to die in the category of causations of all the functional neuroses has been the reflex one; the indictment of eye, nose, and throat disorders has held on for centuries; more than vestiges of some of the reflex causes for the neuroses still remain, as notably shown in the articles still indexed under eye strain. However, the steady enlargement of the importance of mental infantilism in the tics as first urged by Brissaud points the way of escape from the reflex obsession as a real causation of head and face tics. It seems a pity that the brilliant work of Janet in this and kindred fields of the etiology of the psychoneuroses should have really stopped short in the final pursuit of tic symptoms to their genetic origin and their real rôle in developing the mental and physical habits in the individual.

It is both interesting and pathetic that the majority of ticeurs are usually the last to recognize the abnormality of their tic movements. The point is, however, not without parallel in other parts of the psychoneurotic field, notably among those afflicted with lisping and other speech delinquencies as well as the simpler sort of obsessive and compulsive acts that rarely attain to the dignity of a distinct nervous disorder. That these peculiarities of manner and behavior are a real and integral part of the personality are not the least evidenced by the ready defense or excuse for them the possessor makes when they are brought to his individual notice. The intensity of emotional feeling he shows, and the quick animosity stirred by the discussion of these defects or attempt at their removal, beshew that the individual's real psyche and personality have been ruthlessly approached or handled.

In resolving the tic movement back into its simpler terms of origin, I have been struck with the fact that nearly every accessible case susceptible of analysis has shown that the tic is only a further elaboration of a habit movement which, as a crude symbol, still endures and furnishes an important and deep-seated satisfaction to the individual's real psyche. In order to make a clear-cut issue of the above introduction, I shall confine my remarks to a particular type of tic usually designated as mental torticollis.

It matters little for the purpose of this short discussion whether all types of torticollis are classed with pure spasm or whether some of them are tics in their real nature, as I shall confine my remarks to that sort of muscular spasm of the spinal accessory distribution which behaves like a

Fig. 4.—Back view of E. K. showing practical recovery from the torticollis.

tic in that it is a reflex, defensive or voluntary movement which has assumed an imperative character, has been long enduring and is not of simple reflex origin nor of the rheumatic type. Overlooking, therefore, the confusion in the exact classi-

fication of the variation of types of spasms and tics that exist in literature, one is impressed that some ordinary spasmodic disorders behave like tics and others like true spasmodics. This fact is especially true of ordinary torticollis, upon which the above question is most mooted. However this may be, careful and repeated examination of torticollis proves that many such have their essential origin in a defective ideation or in a mixed neuropsychopathic constitution just as have the true tics. The essential causation in many cases of spasmodic torticollis is as truly mental as the pure tics. Both at such times have the same general character of movement or involve the same neuromuscular apparatus with bizarre movements. All who look most carefully into the psyche of torticollitics are more and more impressed that all torticollis is preponderantly or wholly of psychic origin, especially in those cases where gross nerve lesions can be excluded. It is as a contribution to this latter contention that this thesis is made. I desire to make the general statement, that torticollis is in the majority of instances a benevolent excess of functioning of which we do great harm to suppress or rid the patient, and, considered purely as a help mechanism, it should not be removed until the real cause is abolished; failing in this task, the torticollis should be allowed to continue. We then should strive to make the individual as comfortable as possible in the enjoyment of his excrescence of function. Every ticeur comes in time to believe this doctrine, just as firmly as it is ordinarily denied by many physicians. It may be said as a sort of medical irony that Nature fights silently but effectively with the patient against all our usual efforts to abolish the tic, and in consequence a torticollis temporarily eradicated or suppressed usually returns or endures in spite of all treatment. Heretofore the tic disorders have been the bane of our neurologic lives and one rarely sees a complete cure.

If one believes that mental torticollis or tic is not solely an excess of physiological habit but that it has profound and intimate association with the full depth of the patient's real psyche, and that the act is laid down or flows out of the deepest needs of that particular personality, the importance of the continuance of the tic movement is obvious. We thus will learn to treat such disorders with the gravity and deference they really deserve. Much and more of what I have already pointed out will receive illustration by citation of a case I have intensely analyzed for the past two years. I shall point out only the salient features of the case and give the summary conclusions of the study. While the future treatment of torticollis may not be essentially more hopeful as to cure, it is safe to say that further research is bound to give us a radically new and more complete knowledge of its origin and the reason why it is not more often cured. We shall be no longer content to take refuge behind the statement that its real nature is inaccessible because the patient happens to be a psycho- or neuropathic individual.

My case is as follows:

E. K., a single man of 34 (bookkeeper) was referred to me two years ago for study and treatment by Dr. Reginald Sayre of New York City, as suffering for the past three years from a severe degree of spasmodic torticollis of the tic type which had defied all lines of treatment, even to that of full nerve resection of the spinal accessory; which was done at my request.

Aside from some degree of neurotic instability in the patient's immediate family (brothers and sisters) and a moderate degree of alcoholism in the father, who died of Bright's disease, the family history was negative. The patient suffered from no physical defect aside from a gradually increasing and severe left-sided spasmodic torticollis. This disorder had been present for several years and of late had gradually involved the splenius and trapezius muscles as well. The type of movement in this torticollis is well shown in the photos which Dr. Sayre has kindly lent me for this presentation, and is of an only too common type for detailed description here. I shall pass over the inhibitional and medicopedagogical training which was most intensively followed up for a year, which treatment only ameliorated the torticollis, and give the mental history which seems of more moment, and especially lay stress upon that part of the psychic history, the personality study and habit formation.

Our patient showed no unequal development. His power of observation was not very good, although the reproductive memory was fairly so. He had developed well and equally according to his opportunities.

His judgments were formed rather impulsively, the first one to be considered best, and most of his conclusions were arrived at with little deliberation. He was rather imaginative and resourceful as a boy, which continued in later business life. There is a distinct contrast between a certain amount of indefiniteness of purpose and lack of clearness of intention as shown in private affairs, and that of his general clearness and definiteness of purpose in business life. As a young man he planned for the day only, and did not look ahead. He was capable of mastering difficult situations, but experienced considerable trepidation and doubt until the actual work was begun.

He was always of a practical turn of mind, capable in handling tools, and lively and active as a boy. He had a very good understanding and appreciation of himself, was reliant, but always had a certain amount of internal misgivings as to just how to go at things. He was not conceited nor given to self admiration but rather the reverse. He was neverthless sincere, and disliked shams. He was rather inclined to remain by himself and not particularly sociable; not that he really didn't want to be, but it was too difficult for him to get *en rapport* with his social environment. He was not talkative with strangers and felt ill at ease in their presence. He got on better with boys, and was extremely diffident with girls. He was generous and over-trustful than otherwise. As a boy he was considered rather stubborn and self-willed, and was decidedly over-critical. His personality was of the open type, but not markedly so. He was rather over-conscientious in his school work, but was easily adaptable to the standards and moods of others. He was not suggestible nor imaginative and never had much self-assertiveness. His general mood was happy and even-tempered, but as a boy he had fits of rage, saw red, etc. He was mildly optimistic and not easily worried about the real daily tasks. He was considered quick-tempered, but this was more or less corrected in later youth. His temperament and general appearance followed the mother's type. His mother died when the patient was eight years old.

The patient's love affairs were frequent in early life, although he always felt ill at ease with the opposite sex. He was attracted to older women who seemed to resemble the mother-type. As he grew older this attraction was converted to almost the opposite physical type, and the age attraction steadily receded until now women several years his junior are most attractive. He had various love affairs, which were always broken off, the patient states, on reasonable grounds, but his explanations are unconvincing and vague.

He was natural in his manner with other boys in athletics and otherwise, but was rather particular and sensitive to bodily exposure. He has always been interested in his work, and is ambitious. He is fond of all outdoor sports. He prefers reading literature and classics to the lighter reading of the present time. He is not interested in religion nor is he superstitious or fanatical, and states that "these things do not concern him."

We have, therefore, as a summary from the patient's own story and corroborated by his sister, a young unmarried man rather strictly brought up as the term goes, who was always of a nervous temperament and especially lacked self-confidence. He was never sure of himself until actually on the job and in the mean-

time he was given to rigid self-examination and worry before each new task, whether studies at school, competitive games in athletics, or boy fights. The same feeling of inadequacy followed him in business life later. As he says, although events would prove that such feelings and thoughts were needless, they have continued to exist, even to this day, although he has much improved since the special treatment was undertaken.

An analysis of the sexual life showed that he had little sexual curiosity until about 13 years of age. The embryo formation of sex-hunger, however, showed itself at a very early age in his firm attachment to his mother, who died when the patient was but a child. The mother attachment was strong, as we shall see later.

He suffered forced kissing as a boy of 5, from his sister's older girl friends, which produced violent anger and a keen sense of outrage. At 7 or 8 years he was very repressed in manner and conduct toward the opposite sex lest he should be forced into the kissing embarrassment again. When 3 years old a little girl friend had bit him severely under the deception that she wished to kiss him. He was a moderate masturbator from the 13th to the 17th year and built up a lively sex fancy thereafter. In Java, under sexual restraint he had free "outlet sprees" of getting drunk. When sexual continence is maintained he has a good deal of anxiety and restlessness.

We have here, then, a hastily sketched and well-known type of neuropathic individual upon which psychopathic subsoil our tic torticollis developed.

The obvious cause of the tic would be the constitutional type of individual which has been briefly outlined plus the fact that the patient is an expert bookkeeper, accustomed to long hours of close desk application in which he is obliged to follow ledger accounts and price-lists spread out before him. In consulting these records a side-to-side movement of the head was almost the sole movement throughout the tedious day's work. The work was as strenuous as "making up railroad time-tables." The movement of the head to the left was several times more frequent than to the right, and quite of the type seen in the torticollis movement. The above explanation would be the popular and obvious origin, if not the real cause of the torticollis. However, we must go further back than this, to the patient's business experience in Java under a superior officer in the company, who was a very questionable commercial and moral character, and between whom there developed a keen antagonism. His superior took particular delight in complicating the otherwise harmonious business relations between the patient and the owners of the company. This man drank heavily and when he appeared at the office in an intoxicated state, as he frequently did, he was especially obnoxious and insulting to the patient, who thought he might be obliged to fight him or leave the firm's employ. Some of the patient's friends frequently told him he had better "look out," and "keep a sharp eye about him," and others suggested that someone might "stab him in the back," etc., etc. All these statements made an incisive psychic suggestion of obvious significance and intensified the patient's mental stress in his work, and he took added precaution that his superior might not "get anything on him" and thus cause his discharge. Added to the stress above detailed, extra work was put on him on account of the sickness of new arrivals in the office force to extend the firm's work in other parts of the island. Alcoholic indulgence then began to increase in our patient even more rapidly than ordinarily obtains in Europeans undertaking prolonged and arduous business in the tropics. Our patient was in Java several years. The keenness of mental and physical stress, alcoholism, and the peculiar character of the work detailed in the first explanation seemed at last sufficient to adequately explain the tic disorder. However, having reached this point we found we must still go deeper in the etiology for a more definite understanding, so we now enter upon the third investigation.

It will be remembered that the patient freely admitted that he was always of a nervous temperament, shy, diffident, and lacking in self-confidence, never sure of himself until actually on the job, always worried about his ability to do things whether at school, in athletic competitions, or in business, though to a less extent in the latter. Although he really had no cause to worry (he always did things well) yet with each new task the old feeling of inadequacy would return and plague him until the work was actually entered upon. It was found that on entering school at 5½ years of age he had a habit of stroking the left side of the occiput with the left hand. The stroking movement began with the fingers partially flexed and applied with slight pressure held motionless against the occiput, then the hand was allowed to slowly slip to the angle of the jaw, at which latter point of contact there was another short fixation of hand to jaw and firm pressure; then the hand was let fall. This rather common habit persisted throughout the whole of the patient's adolescent and adult life until about one year before the torticollis appeared. At this latter time the whole habit movement became for the first time a fully conscious one, and the patient made up his mind that the habit was purely mental, and "while it made no difference what the Malays and Chinese thought of his habit, it would seem mighty peculiar to civilized society, which he hoped soon to adopt again by returning home." Later information shows that his real motive for returning was to take up some of his old love affairs again and follow them to their natural conclusion. After considerable trials and self-conscious effort, he succeeded in breaking himself of raising his left hand to the head, but each time he checked the hand he noticed a slight instability, a sort of shaking tremor in the head, whose maximum of excursive movement was to the left. In the patient's words, "It seemed to be teasing for the petting movement of the left hand as of old."

Further inquiry revealed a still deeper and more satisfactory explanation.

In still more definite analysis it was found that the patient began the stroking of the head at the time of his entrance in school. As he had been taught at home he entered two classes in advance of boys of his age and was brought into association with those much older than himself and with whose play and mode of thinking he had little in common outside the recitation room. He therefore felt isolated from friendly associations and this increased his lack of confidence in himself so that the habit movement became doubly necessary and frequent as a protection from embarrassment and the trembling agitation of the daily recitations. Still further, it was found that during home instruction by an elder sister the patient used to recite to his sister standing and facing her, and during such recitations her right hand kept up a caressing movement which the patient afterward self-maintained. This sister's affectionate reassurance by stroking the patient's head always enabled him to gain confidence and learn easily.

Now for the real and final root of the habit movement out of which the torticollis grew: During infancy and until nearly three years of age, the patient remembers he was rocked to sleep in his mother's lap, and during her lullaby the mother used to keep up, as many mothers do, a light stroking of the patient's head. This was his favorite method of going to sleep.

*Summary.*—We have here a case of torticollis of the tic type which seems to have been precipitated by the character of the work above mentioned, but which has its essential origin in the order of its development from an infantile, pleasurable stroking movement started by the mother and continued until her death when the patient was eight years old, and which became a part of the education at home with the sisters and was self-participated in by the patient on entering school and continued through adolescent and adult life until brought into the conscious life, when the patient strove to break himself of the habit. Then the head developed a symbol or fragment mechanism and continued to perform its part of the act after the hand had ceased to cooperate in its part of the habit.

From a psychosynthetic point of view, these various trends or fragments in the psychic development of the tic would make, when chronologically arranged, a fairly understandable mosaic pattern of a ticeur, the neurotic center of which is largely conditioned by an abnormal sexual development. The case might then be stated as follows:

Our patient had an intensive love attachment to and for the mother, which is common enough, but in this case was kept up and cherished unconsciously, kept alive and intact by the mother's particular petting and caressing, and in consequence the boy was retarded and incomplete in opposite sex finding during early youth. The retardation was further increased by the forcible kissing episodes, which latter acts served as revivals of the psychic shock of being bitten instead of kissed at three years of age. Then there succeeded a rather late and prolonged period of masturbation aided and supplemented by the continuance of the autoerogenous habit movement of the head, which latter movement was made more intense when the inadequacies were manifest. In consequence of the above, the love affairs were superficial and indecisive in outcome, there was the migration to Java and the maladaptations there, the alcoholic indulgences, and the final attempt to break the habit of head stroking, and finally a pursuit of the love quest as shown in the patient's returning home for that purpose, and the final break into a real ticeur as shown in his mental torticollis when he tried to stop the habit movement.

Even a short summary of genesis of this single case of torticollis shows us the enormous pains one must take in unraveling the complicated mechanisms concerned in this form of psychoneurosis. Nor is the end yet. When the patient was given the full benefit of this analysis of the neurosis several months ago, there was an astonishing and immediate improvement. The old feeling of tension to hold the head steady largely disappeared.

Still the patient is not fully recovered. He still shows feelings of inadequacy and under difficult situations the torticollis returns, less completely and intensely it is true, but at times the tic is still there. Analysis is now in progress to root out the central core of inadequacy of feeling and will, etc., as far as possible.

I believe one is justified in saying that the central core of the habit movements is an autopleasurable act or acts based upon an inherent defect. When these autopleasurable acts are inhibited or modified they continue in tic movements in later life which still gratify an unsatisfied psyche. Inadequacy is partly analyzable in an over-ambition of the individual patient. A tendency latent or acquired to rise beyond the family stock level, a failure to reach this new goal, generates the need of some artificial help or stimulus, which is more or less the general problem of much of all our psychoneurotic and drug addicts. It will therefore be apparent to most that whichever school one follows, the old one that counted spasmodic or tic movements as an essential affection or expression of the will, of which the above case is a fair example, or the new analytic school, both schools arrive sooner or later at about the same spot, namely, that the essential defect in the tics is a neurotic constitution, the anlage. In other words, that tics occur in people essentially inadequate and inferior and that our efforts to correct the neurosis must be directed not alone to disclosure of the genesis of the movement but to a much more elaborate scheme of making the patient seek his own level in aim and capacity of life work. We can eradicate the tics just so far as one may gain the patient's confidence, cooperation, and his pliancy and will to readjust along these lines. I repeat, the tics and habit movements are compensation mechanisms or helps to overcome inadequate adaptation of the individual in his life work in the particular environment to which he is born.

The basis of the feelings of inadequacy is *doubt* and shares the same explanation in that it is a conflict between the primal love and hate instincts, and we have no right to charge the anlage too definitely with the burden ordinarily imposed upon it until we have sought to explain the inadequacy in its simplest terms. The conflict between the love and hate instinct is, of course, essentially infantile and during this period first one and then the other instinct strives to seek expression, and this engenders impediments in the developmental play of emotional and intellectual life. For instance, in our own patient, the essential constitution must have been greatly accentuated by the emotional trauma of forced kissing and the surprise of pain instead of affection in the three-year-old experience mentioned. The whole episode in itself engenders much thought in regard to the acts of kissing and biting in their relation to food and sex hunger and also their association to sadistic habits both in the child and in the sexual experiences of the adult life. The love and hate complex was singularly marked in our patient, who had fierce rages, saw red, trembled in anger, etc., but early learned to control the same in part, but even now, though very affectionate and peaceful by nature, he has periods of rages and a desire for destructive violence. All these factors concerning conflicts would be simply interesting and academic if it were not that they are the main sources of inadequacy expressed in weakening the will and incapacity for resolution. These defects are especially shown when love or pursuit of its ideals has been the issue. The love episodes were inconclusive, inconstant, and lacked definiteness and finality. Nor does such weakening of the will regarding love in its broadest sense remain long confined about the genetic goal, but easily spreads and ramifies throughout the whole life of the ticeur and forms no small part of the vacillating character in everyday life which such individuals usually show. It thus makes for much of the psychic deterioration which the French writers have particularly defined, but which they have naïvely said rarely amounts to intrinsic loss of mental capacity. Their view of the situation becomes much more understandable when we look at it more intently from our standpoint. The inadequacy of feeling, which is the outcome of the doubt instinct in action, corresponds to the inner irresolution which was formerly felt in the conflict of the old hate and love conflict now spread all over the psychic life, with renewed accessions of difficulties from time to time, and naturally turns with a greatly exalted value in the ticeur's movement, which was the original battleground of the first great conflict in infancy. In process of time the tic movement accumulates to itself still other obsessive movements and even thoughts, throughout the whole life of the individual, and these all become of immense importance and meaning to the individual personality. In many instances the tic movement only completely disappears when the original runways of feelings of hate are fully transmuted to paths of friendship, loyalty, etc. An incomplete transformation is, of course, the rule. One often sees ticeurs who think they have striven successfully in many instances to displace the original tic movement, but innumerable other small ones in

adjacent territories of movement have taken their place. It is quite obvious in such cases that their efforts at inhibition have caused the main issue of single tic to overflow, to become sidetracked, and in some instances the inhibition treatment pushes the patient into a pure obsessional neurosis or, worse still, the whole psyche may be engrossed, indicating that a deeper and more intangible mental disorder is in operation. The psychic contagion then becomes general.

Much more might be said here upon the successive orders of elaboration which the ticeur undergoes on his way to becoming a truly obsessive individual, and that his crude tic symbol may often be raised to the nth power of the grand obsessive neurosis, or, better, to a broad and deep habit of obsessive thinking. The natural history of this sort of pathological mind is still to be described. Perhaps I may be pardoned in reiterating that probably the greatest fault in the ticeur's disorder is not in the movement itself, but in the amount of isolation and banishment which the mental torticollis engenders within him. His conflict with his inadequacy, with his doubt, drives him away from reality and makes him lead a life apart. *He* thinks that it is due solely to the nonconventional movement in which he indulges that makes him shunned and stared at, and that the tic doesn't lend itself as a personal charm in ordinary social intercourse. His greatest fault is really due to his desire to concern himself with purely personal issues or unreality where the tension is less; where the goal is uncertain; where the speed in competition is not essential or not measurable, and where his individual efforts show up to less disadvantage than in the everyday world of facts and in competition with those free to run the race of life unimpeded. Further analysis of the ticeur's character and personality would lead us too far afield, as I am afraid these few random remarks already have done.

In conclusion I would say that the modern analysis of the tics and habit movements proves that the two are at bottom essentially alike in genesis, and that they are but a part of the large class of obsessive neuroses and should be handled and treated as such. Finally, I may say my case furnished an additional point of interest in racial psychology as regards the constitutional makeup of our neurotic, shown by the fact that our patient is one of a rather neurotic generation, which family is apparently the first one to appear in either paternal or maternal family stock. The father was a pure German type and the mother equally pure Irish; this, in the opinion of some eugenists, is not considered a good race crossing. I offer the statement for what it is worth.

84 East Fifty-sixth Street.

## OPERATIONS FOR THE CORRECTION OF DEFORMITIES OF THE NOSE.*

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Gentlemen, I thank you most sincerely for the high compliment that you have paid me in asking me to appear before your excellent Society. Your President has requested me to present this subject in a practical way, and I am glad that he did, for I am quite certain that more is to be gained by a discussion of one's own clinical experiences and by demonstrating one's methods practically on the cadaver than by an academic presentation involving the rehearsal of all the literature upon the subject. I must say here that the literature upon bone transplantation is filled with fanciful opinions, many of which could not, in my opinion, be established by clinical experiment.

Fig. 1.—The Bridge-Splint.

For our practical purposes tonight nasal deformities may be divided into (1) Those without loss of tissue. (2) Those in which there has been more or less destruction of the bony and cartilaginous framework of the organ.

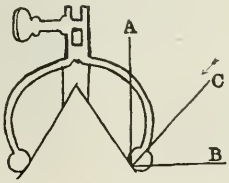


Fig. 2.—Showing the Mechanics of the Bridge-Splint.

In the first class the deformity is *congenital, acquired,* or due to *traumatism.* There is enough framework present but it is abnormally placed, thus producing the deformity. The majority of these cases are amenable to the bridge-splint operation, a procedure with which I am sure most of you are familiar, as I first described the operation several years ago. However, in discussing this subject it is necessary for me to refer to it in detail as in my opinion it is the most satisfactory method for correcting this class of cases.

The bridge-splint consists of a lightly constructed steel bridge, the two wings of which are hinged together in the middle, and the distance to which they can be separated is regulated by a thumbscrew. The edges of these wings are padded with rubber. The second part of the instrument con-

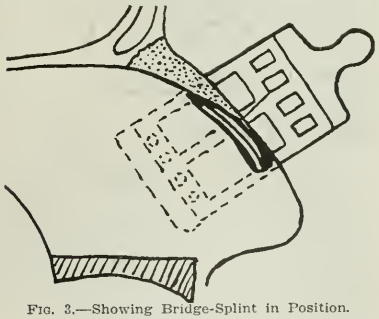

Fig. 3.—Showing Bridge-Splint in Position.

*Read before the Philadelphia Laryngological Society, October 21, 1913. (Practical demonstration on cadaver.)

sists of two small intranasal splints perforated by several small holes.

*Description of Operation.*—In describing the use of this instrument, we will assume either that we have a recent fracture, or, if it is an old deformity,

FIG. 4.

FIG. 5.—Showing correct position for transplanted bone.

that the framework of the nose has been thoroughly mobilized by suitable means; this involves the use of special instruments that I have devised for this purpose.

Silk sutures are first passed through holes in the intranasal splints and knotted. By means of a curved needle each suture is then passed from within

FIG. 6.—Rib-transplantation; specific deformity.

the nose through the roof fairly near the junction of the bony with the cartilaginous dorsum. The bridge is then placed over the nose and the correct amount of pressure applied to the base of the nasal arch by means of the thumb-screw adjustment. The sutures are then passed through corresponding holes in the bridge and sufficient tension applied to pull the nose up in to its proper position. The sutures are then tied together over the hinge of the bridge.

Though the apparatus is self-retaining and cannot be easily displaced, I have found that it is better to keep the patient in bed during the twelve days that it is necessary for him to wear it. This, however, is not necessary if the bridge is anchored to the forehead by means of an adhesive strap.

The instrument exerts its force along lines diametrically opposed to those of the force that produced the deformity. It tends to duplicate the forces employed by Nature in the development of the flattened nose of the infant into the normal adult organ.

I have found this instrument most useful in treating recent fractures, in correcting lateral displacements, depressed and irregular deformities.

FIG. 7.—Patient shown in Fig. 6 after operation.

This method has the great advantage of correcting the intranasal as well as the external deformity. In many cases it is necessary to do the submucous operation before attempting to correct the external deformity, but on several occasions, by making a

liberating incision through the septum above and below and then placing the bridge-splint in position, I have succeeded in straightening the septum and at the same time correcting the nasal deformity.

FIGS. 8-11.—Specific Destruction of Entire Nose. In this case bone from rib was first transplanted into the arm, and later flap containing bone was transplanted to face. Patient breathes through nose. Condition excellent two years after operation.

I have frequently used the bridge-splint in connection with the bone transplantation operation where there was need for additional support.

In cases where the nose is quite flat the septum is frequently too short to admit of the bridge being raised; in these cases I lengthen the septum by making a diagonal incision through it, beginning at the floor of one nostril and emerging at the roof of the other. Then when the bridge is raised the two segments of the septum can slide by each other to a certain extent, and the septum

FIG. 9.

is lengthened without causing a perforation.

In using this instrument it must be remembered that it is capable of exerting a tremendous force; we must be careful therefore to guard against too much pressure on the skin by the wings of the bridge. The edges of these wings should be well padded with additional layers of gauze, and each day the instrument should be loosened up by means of the thumb-screw and the skin where the instrument rests should be bathed with alcohol.

FIG. 10.

*Bone Transplantation.*—In the second class of cases, namely, those in which there is a deficiency in the bony framework, the transplantation of bone is indicated. The development of this method of correcting these deformities is due chiefly to my early recognition of the limitations of the bridge-splint operation.

Cases belonging to this class may be congenital, but they are more frequently due to atrophic rhinitis, to traumatism followed by secondary infections, and to syphilis.

The technique of the operation has been previously described, however, in order to present the subject clearly and to call your attention to certain

FIG. 11.

modifications I have made in the method of procedure, it is necessary for me to review the details of the operation:

First, it should be remembered in transplanting bone, that strict asepsis is absolutely essential; the

slightest transient infection means death of the bone graft and its subsequent absorption; therefore the greatest care should be exercised in every detail of the operation.

No syphilitic patient should be operated upon

Fig. 12.—Bone with periosteum—7 months after transplantation.

unless he is in a good physical condition and we are satisfied that his disease is in a quiescent state, the Wassermann test being negative.

Preparation of the Patient.—Several hours before the operation the skin over the nose, face, and right side of the chest is scrubbed with green soap, followed by alcohol. A wet dressing of bichloride 1-5000 is then applied. Just before the operation, both operative fields are painted with tincture of iodine, and the eyebrows are covered with collodion.

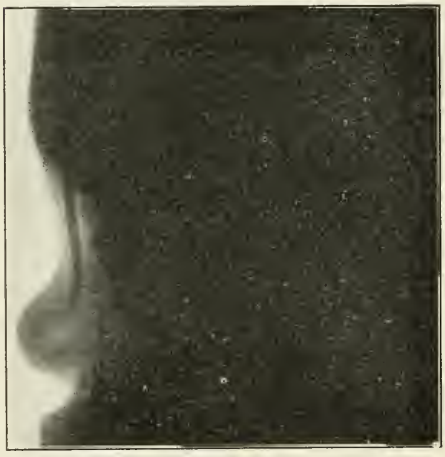

Fig. 13.—Bone transplanted with periosteum—15 months after operation. (Same case as Fig. 12.) Note development of canal in center of transplant.

After the operation begins no solution is used except sterilized physiological saline solution (Salt 9 gm., Sterile water 1,000 c.c.).

Technique of Operation.—A curvilinear incision, convexity downward, is made between the eyebrows; this incision extends down to the periosteum over the frontal bone. Lifting the flap up, a transverse incision is made through the periosteum and into the bone in order to favor osteogenesis at this point. This incision corresponds to a line connecting the two cornua of the semilunar incision, and is at a point just below the glabella. Above this incision the periosteum is elevated for about three-eighths of an inch. With the sharp elevator devised especially for this purpose, the skin and subcutaneous tissue is then elevated over the dorsum of the nose, and to an extent corresponding to the degree of deformity, over the sides of the nose and in some instances over the cheeks. If any of the nasal bone is left its periosteum should be elevated so that the bone graft, when it is introduced, will lie in close contact with the bone and its torn periosteum. The value of this is shown in the *x*-ray plates of one of my cases.

The nose having been prepared for the reception of the graft, we proceed to remove about two inches of the ninth rib, preserving the periosteum on the outer surface. This piece of rib is then split in its

Fig. 14.—Bone transplanted with periosteum—20 months after operation. (Same case as Figs. 12 and 13.) Note growth of bone and development of canal in center.

transverse diameter, the outer half is shaped to suit the deformity, and the cancellous tissue is scraped away, leaving only a thin layer of compact bone.

Without removing the blood, which by this time has accumulated in the wound in the nose, the bone graft is inserted nearly to the tip of the nose, and the upper end is carefully placed beneath the periosteum over the frontal bone. The semilunar flap is then brought down into its place, and the wound closed with horse-hair sutures. A collodion and gauze dressing is applied. The sutures may be removed on the fifth day, but great care must be exercised not to disturb in any way by manipulation the blood clot which has formed about the graft. The blood clot seems to favor osteogenesis.

When we get primary union there is no reaction of the tissues due to the presence of the bone graft; healing is usually complete in ten days.

If there are any signs of inflammation, even if the skin wound has healed promptly, the wound should be opened up. Unless the infection is quickly controlled the graft should be removed at once, for infection means death of the bone.

Value of the Periosteum.—Some widely divergent views in regard to the periosteum are held by those who have written upon this subject, but the prescribed limits of this paper prohibit my entering into a discussion of these views, and I must confine myself entirely to my own personal clinical observations and will demonstrate some of my results by means of photographs, casts, and skiagrams:

Fig. 15.—Bone transplanted without periosteum in contact only with nasal bones. Note growth at this point; 21 months after operation.

I have transplanted bone both with and without periosteum, and as my work in this field is, as far as I know, the first systematic effort made to introduce this method for correcting nasal deformities, my cases are of standing sufficiently long (4 years) to enable you to draw conclusions. Bone introduced into the soft parts, as into the nose, will give us a better idea of its individual characteristics than when it is used for filling in defects in the long bones, for in the latter situation it is being placed in its natural environment, where its own characteristics cannot but be confounded with those of neighboring tissues, namely, the periosteum and the bare ends of the injured bone.

All of my work has been upon the human subject, and while the advantages of the microscope have been necessarily precluded, the clinical course of the cases has been under constant observation, which is more to the point after all. My oldest case is of nearly four years standing and I have done in all twenty transplantations. The following observations are based upon this experience.

The autoplastic operation is preferable to any other. The rib is chosen for transplantation because it is conveniently located, it is suitable in size and shape and is abundantly supplied with nutrient foramina. Further, the removal of a piece causes the patient little or no inconvenience, and it is soon reproduced.

The results may be tabulated under the following heads:

(1) Cases where bone uncovered by periosteum has been anchored under the periosteum over the nasofrontal process. Primary union having been obtained, the bone is firmly united to the frontal bone, the graft appears larger at this point, and the growth of bone has extended down the graft for some distance. Also in those cases where the graft lay in intimate contact with the nasal bones, these having been denuded of periosteum, there is also a growth of bone at the point of contact. The portions of the graft furthest from the bone and periosteum contacts remain about the same in size as when the bone was transplanted.

In this class of cases the bone graft seems to have been acting in an osteoconductive and osteogenetic capacity. The transplant certainly has taken on active growth at points where it comes in contact with the living, periosteum-covered bone.

Running down the center of the transplant in these cases and in all of my cases of long standing there is seen a thin line of rarefaction. This I believe is a nutrient or medullary canal in the process of development. If the original graft was being absorbed it would seem that this would begin on the outside of the graft and not in its center.

(2) Bone grafts either covered by periosteum or bare, but accidentally separated from the living, periosteum-covered bone.

The graft appears to be osteoinductive and very likely osteogenetic. In one case now under observation the transplant is considerably larger than when it was introduced, the operation having been done two years and five months ago.

(3) Infected cases, where the transplant had to be removed. In two cases where the infection was controlled without the removal of the bone, this was gradually absorbed, and connective tissue deposited in its place. In these two cases the deformity is not as bad as it was originally.

(4) Cases in which periosteum-covered bone was successfully implanted (see Figs. 12, 13 and 14), the upper end being in contact with the frontal bone and covered by its periosteum. Here there has seemingly been no disturbance whatever in the vital processes of the transplant, for it has become firmly attached to the frontal bone and has increased in size. But in this as in other cases there is the same rarefied area running down the center of the transplant.

Now to recapitulate: (1) Bone transplants, whether covered with periosteum or not, when free in the tissues and having no connection with living, periosteum-covered bone, probably act in a bone inductive capacity, the osteoblasts contained in the transplant taking part in the process. It may be

Fig. 16.—Same as Fig. 15, two years and four months after operation.

that the original bone in these cases is absorbed.

(2) Bone transplants uncovered by periosteum, when connected with live, periosteum-covered bone, are osteoconductive and osteogenetic.

Fig. 17.—Bone transplanted without periosteum 1 year and 5 months after operation. Note growth of transplant where there are contacts with the living periosteum-covered bone.

(3) Periosteum-covered transplants are osteogenetic when they are in contact with live, periosteum-covered bone.

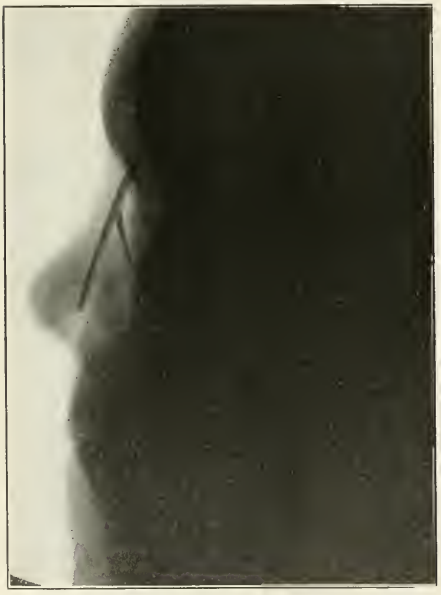

Fig. 18.—Showing dorsal fragment of transplanted bone supported by a pier formed by two other fragments.

I cannot, in view of the clinical evidence before me, subscribe to Macewen's proposition that the periosteum acts only as a limiting membrane and has no osteogenetic function. In my cases the influence of the periosteum as an osteogenetic factor is pronounced, and its absence is equally marked. This osteogenetic function is more marked the younger the patient. At the same time I will say that I have not found the periosteum necessary in correcting nasal deformities, but the transplants are in a more flourishing condition in those cases where I have preserved this membrane.

In conclusion I will say that I have found very satisfactory indeed this method of correcting a class of nasal deformities for which little or nothing has hitherto been done. And the excellent condition in which I now find some of my oldest cases has established my confidence in the permanency of the results obtained.

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## HYPOPHYSEAL DISEASE AS RELATED TO DIABETES INSIPIDUS;

### WITH REPORT OF TWO CASES.

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Diabetes Insipidus, the name applied to a long continued polyuria, has always been a most indefinite syndrome in its etiology, pathology, and treatment. The pathological findings at autopsy have been obviously secondary in character and the long list of remedial agents advanced, as always, bear witness to their comparative uselessness. The researches of Meyer pointed out some facts regarding the excretion of sodium chloride and the permeability of the kidney to secrete urine of a certain specific gravity, but the attempt to apply this work clinically to two of the cases reported below, resulted in comparative failure. Cushing, in his monograph, called attention to the frequency of polyuria in pituitary disease and it is apparent that the entire subject of diabetes insipidus must be recast, and that hypophyseal disturbance will be found the causal factor in many cases.

Experimentally, Schaffer found that the administration of posterior lobe extract produced polyuria and then Cushing and his coworkers in a long series of animal experimentation showed that posterior lobe manipulation caused diuresis and sometimes an extreme long-continued polyuria; that posterior lobe implants caused a polyuria that stopped on removal of implants; that clean-cut posterior lobe removal produced polyuria with greatest certainty. It was also demonstrated that diuresis could be produced by stimulation of the autonomic system of nerves; the nerve impulses of which pass from the medulla through the cord to the upper three thoracic nerves and thence by way of the cervical sympathetics to the hypophysis. This fact is the probable explanation of the so-called neurogenic or hysterical polyurias. The above investigators, in addition, report what seems to me a most significant fact that the most enduring polyurias occur when the hypophyseal stalk has been cut or obstructed, leaving the gland intact.

Clinically, it is observed that a large percentage of the cases of diabetes insipidus have shown basal brain lesions, like a gummatous meningitis in the middle fossa; that bitemporal hemianopsia and primary optic nerve atrophy have been frequent findings. The following cases reported by Reubens in a recent article are of interest: Kohler found affections of the infundibulum in 7 of his 22 cases of diabetes insipidus; Oppenheim in 36 patients

with basilar luetic meningitis observed polyuria in 12; Kruse in 34 cases of bitemporal hemianopsia observed diabetes insipidus in 7 cases; Oppenheim in 2 cerebral cases with double bitemporal hemianopsia and diabetes insipidus, found on autopsy a gummatous meningitis in the chiasmal region; Hagenback (1882) found a tubercle of the infundibulum in a girl who had thirst and polyuria; Rosenhaupt (1903) reported a case of diabetes insipidus in which there was a metastatic carcinoma of the hypophysis, and Simmond reported a case of gunshot wound of the hypophyseal neighborhood with diabetes insipidus following.

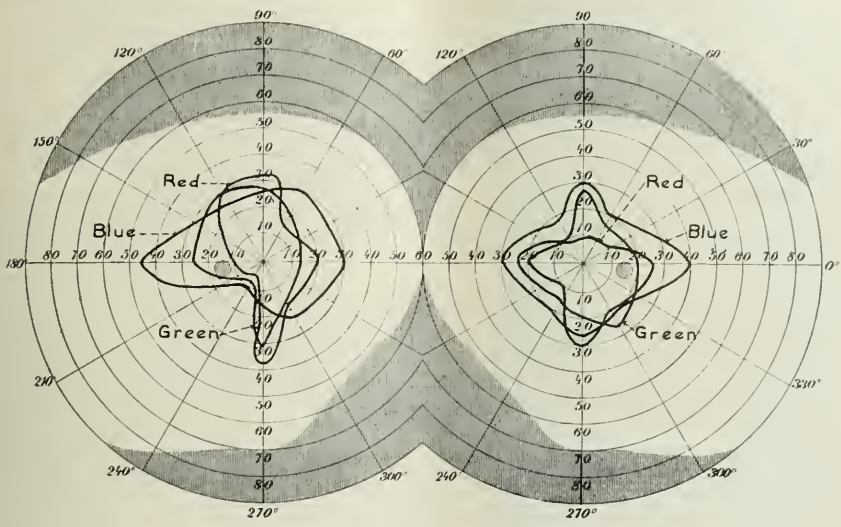


FIG. 1.—Visual fields in Case I. Note the constriction and the color interlacing

FIG. 2.—Radiogram of a skull in Case I, showing a very small sella (dotted outline) with heavy bone contour. (Radiologist, E. B. Cook.)

Cushing, in a paper, "Concerning Diabetes Insipidus and Polyurias of Hypophyseal Disease," cites E. Franks' patient, who received a bullet wound of the pituitary fossa with the subsequent development of a diabetes insipidus, adiposity, and other symptoms of hypopituitarism. He also quotes Simmonds of Hamburg, whose patient, after removal of a cancer of the breast, developed a severe polyuria and who found by autopsy a metastatic nodule that involved the posterior lobe and the hypophyseal stalk; the pars intermedia and the inferior lobe remaining free, and Simmonds thinks that the pars intermedia was activated to hyperfunction by the destructive process in the posterior lobe. Cushing relates a similar case with a severe polyuria in which autopsy revealed a metastatic growth of the thickened stalk of the pituitary body. A most interesting clinical case is cited by Cushing of a patient who developed an extreme polyuria as a result of a sellar decompression, a condition similar to that following hypophyseal manipulation in animals. Many authors have reported diabetes insipidus following cranial injuries which may occur when the pituitary fossa is not involved because the gland is the seat of extravasation.

The recital of this experimental and pathological evidence certainly links disturbances of the pituitary gland closely with the subject of dyspituitarism found in the textbooks under the discussion of diabetes insipidus. For example, Pepper in his "System of Medicine" (1886) gives the following symptoms as occurring: "Dryness of skin frequently noted which is said to mark the difference between polyuria and polydipsia, in the former the skin being dry, and in the latter moist, severe headache is of importance." Gerhardt, in "Modern Clinical Medicine," 1906, gives as symptoms of diabetes insipidus: "No sweating even in summer heat; temperature conspicuously low; enormously increased body weight; epilepsy and psychical disturbances often associated; some cases with emaciation and marasmus usually with mental changes."

Fenwick, in "Twentieth Century Practice of Medicine," says: "The temper is capricious, the bodily and physical strength impaired, the sexual powers are weakened, and the skin is hot and dry." Boyd, in his "Encyclopedia Medica," Vol. II, 1889, says:

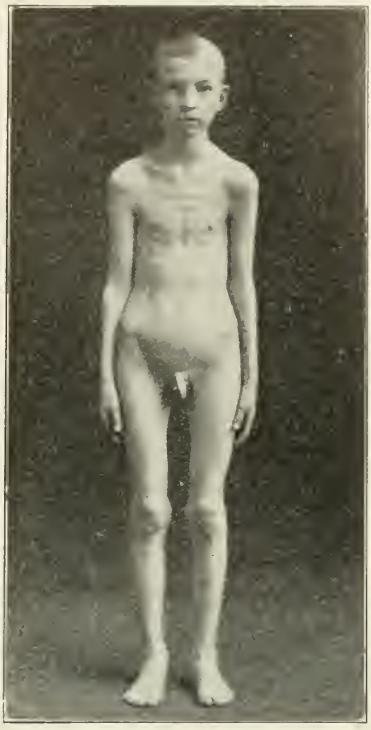

Fig. 3.—Case I; photograph of patient taken after marked improvement had taken place.

"Temperature is subnormal, the skin is dry, the nervous system is disturbed, amblyopia is common, and the sexual powers are enfeebled." There is a familiar sound about these symptoms to one who has read Cushing's cases of pituitary disease.

In 100 examples of hypophyseal disease studied by Cushing, in six a polyuria of sufficient severity existed to justify the diagnosis of diabetes insipidus. The following cases to be reported were considered and diagnosed diabetes insipidus by the author, and several others until they were studied from the point of view of pituitary disturbance.

Case I.—L. M., age 12 years. Dyspituitarism, with symptoms of diabetes insipidus, hypophyseal insufficiency and emaciation. Improvement followed anterior lobe feeding. There was nothing noteworthy in the family history or personal history except that he had severe electric burns of hands about 3 years ago. Present illness: In September, 1911, his mother first noticed increased and frequent urination. This condition continued, and in January, 1912, the patient had a voracious appetite, and is said to have gained considerably in weight. He also had some sleepiness and headaches at this time. In January, 1913, Dr. Doane referred him to the writer with the diagnosis of diabetes insipidus. He was put in the hospital for treatment. While there he had a subnormal temperature (average 97° F.), and voided from 8 to 9 quarts of urine a day. While in the hospital the urine decreased to 5 to 6 quarts a day. His further course was uneventful to January, 1913, when he became very somnolent, hardly answered questions, had a staggering gait, and developed some edema of the forehead. (Cushing has noted a similar condition in animals.) In March, 1913, the results of an examination were as follows: A fairly well nourished boy, weight 83 lbs., normal skeletal development. Heart and lungs normal and abdomen negative. Urine, 5 to 6 quarts in 24 hours. Sp. G. 1001 to 1003, very faint trace of albumin, no cellular elements. Systolic blood pressure, 110. Very drowsy and hardly answered questions, and did not hold head erect; shuffling gait; severe frontal headaches. Vomiting present. The skin was dry, the sexual organs were undeveloped. He complained of feeling cold. There was no hair in the axilla or on the abdomen and pubis, though there was abundant hair on the head. The crescents on the finger nails did not show. The cranial *x*-ray examination showed a very small sella with heavy bony contour, measuring 4 by 4 millimeters. The optic nerve showed no abnormality, but Dr. Doane reported some restriction of the visual fields.

Subsequent History: Pituitary feeding was commenced (2 to 5 grains) of the whole gland substance, at first with marked improvement, but later was discontinued because of vomiting and increased temperature, which were thought to be due to the gland feeding. In July, 1913, his condition was much more serious; he could not stand alone, was alternately very drowsy or very noisy, had lost weight (71 lbs.), become quite emaciated, and a paresis of the left arm, leg, and face appeared. At this date he had a convulsion which may have been an uncinate seizure, but this is doubtful. Because of the increasing sleepiness, headaches, vomiting, and paresis of one side, thinking some surgical procedure must be performed for the relief of the increased intracranial pressure, I sent him to Dr. Harvey Cushing's service at the Peter Bent Brigham Hospital, where a subtemporal decompression was performed in August. Later the whole gland feeding was given for two to three weeks without marked results, and then Dr. Cushing prescribed anterior lobe alone, which was followed by marked mental and physical benefit. On November 1 there were present slight headaches (with some bulging of the region of the decompression), slight photophobia, the weight was 64 pounds, and four quarts of urine were voided in 24 hours. Though far from a healthy boy there was a wonderful improvement over his past condition.

General Considerations: The headaches, dry skin, sexual infantilism, polyuria, polydipsia, and the small bony sella makes one sure of a disturbance of pituitary function. It is also probable that there is a glandular insufficiency and the result of

Fig. 4.—Radiogram of the skull in Case II, showing a sella with double contour. (Radiologist, L. J. Sanders.)

feeding suggests that the main trouble is in the anterior lobe. The polyuria is not greatly improved, as many times during the summer the total quantity of urine was not above four quarts. In posterior-lobe insufficiency obesity is the com-

mon finding and the presence of marked emaciation in this case probably is similar to the result of removing the anterior lobe in animals (cachexia hypophseopriva). The experiments of Lewis and Miller of feeding anterior lobe to animals without marked effect show that such feeding does not coincide with clinical results, and as they indicate such feeding "can scarcely be considered as analagous to the continuous secretion occurring in actual life." The conclusion of these authors that adiposity is "most probably due to the hyposecretion of the anterior lobe" is not substantiated by this case and by its marked improvement following anterior lobe feeding.

Case II.—An adult presenting symptoms of hypopituitarism with a menorrhea, obesity, and increased carbohydrate tolerance—having a very marked diabetes insipidus as the principal symptom. Mrs. M., aged 46 years. Her father and mother died of apoplexy, remainder of family well. One brother inclined to obesity, another brother very slender. She had always been well in her earlier life up to the age of 20 when she occurs when there has been considerable distention. She has headaches at present, but these are not to be compared with those of 20 years ago. Carbohydrate tolerance tested with 200 grams of levulose with no glycosuria resulting.

General Considerations: This patient presents amenorrhea, obesity, increased carbohydrate tolerance, somnolence, polyuria, and polydipsia, restricted visual fields, headache, and a sella that suggests a previous distention.

The first of these cases suggests anterior lobe insufficiency, while the second has the symptoms (obesity, increased carbohydrate tolerance, etc.) usually associated with posterior lobe insufficiency. A severe continued polyuria is common to both and at present no plausible explanation of this symptom is possible except that it is a frequent finding in dyspituitarism. Clinically, polyuria is associated with cases of deficient or diminished activity of the gland while experimentally, feeding posterior lobe extract produces diuresis; implants produce polyuria that ceases on removal of the implant. To

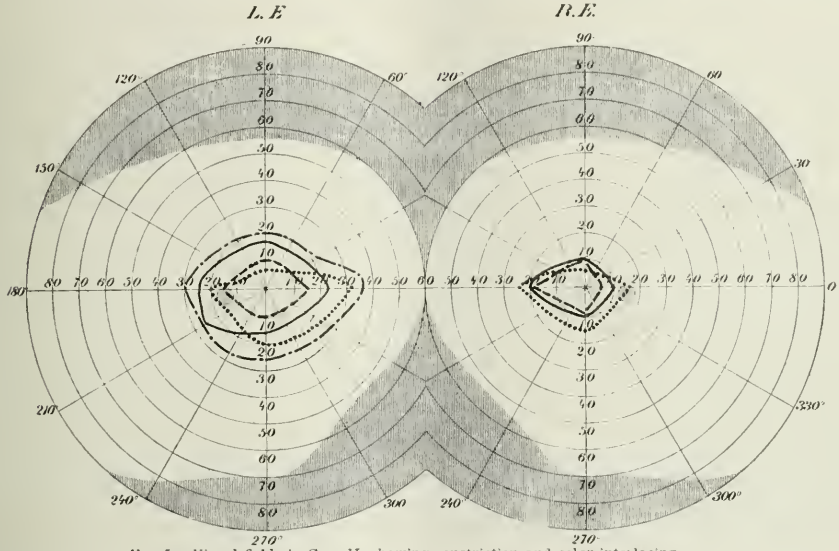


Fig. 5.—Visual fields in Case II, showing constriction and color interlacing.

noticed that the amount of urine began to be excessive and was followed by a period of 2 years, during which time there was no menstrual flow. At 23 years of age she married, and 3 years later a child was born, following which she began to gain weight rapidly. Her weight before marriage was 125 pounds, and within a year after the birth of her boy she weighed 200 pounds. Since that time she has continued to gain a little weight, her weight now being 240 pounds. Fifteen years ago she had very frequent and severe headaches. Seventeen years ago she had a "phantom pregnancy" with no menstrual periods for one year. Since then she has menstruated three to six times a year. She has a polyuria of 14 to 16 quarts a day, and has been told by many doctors that she has diabetes insipidus, but after trying many treatments without result she has abandoned all treatment. She is very drowsy, "can sleep at any time," there is polydipsia and polyuria, the skin is dry, and there is no hair on the body except very slightly on the vulva. She is sensitive to cold. Physical examination reveals no thoracic or abdominal abnormalities. Hemoglobin, 90 per cent.; smear, normal. Systolic blood pressure, 110. The ophthalmoscopic examination is negative, but the fields are much constricted with the interlacing of color fields (Barber). *X*-ray examination shows a sella measuring 9 mm. anteroposteriorly in depth, with a double contour that often add further to the confusion Cushing has shown that clean-cut posterior lobe removals produce diuresis and that hypophyseal manipulation often induces polyuria. No adequate explanation of its occurrence has as yet been found. We may safely say that polyuria is frequently a symptom of dyspituitarism, but we are ignorant as to the exact disturbance of glandular function responsible for its occurrence; that the result of Case I suggests that emaciation may be a symptom of anterior lobe insufficiency and that the experimental and clinical evidence indicates that many if not all cases of so-called diabetes insipidus are in reality cases of dyspituitarism.

219 Alexander Street.

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**The Contagiousness of Meningitis.**—C. Dapter concludes from his observations that meningococcic meningitis is a contagious disease, being preceded, accompanied, and followed by a meningococcus rhinopharyngitis. The latter is the real contagious or epidemic disease, which may or may not be accompanied by meningitis.—*La Press Médicale.*

# A CASE OF SCLERODERMA.

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THE following case report, dated October 7, 1913, is placed on record:

J. N., male, age 58, white; Nativity, Ireland; married. Family history: negative. Personal history: negative. Present history: Patient was in perfect health before and on Election Day, 1912. On that evening about 10 P.M. while watching the returns "hands and feet felt on fire." The patient took his hands from his pockets, removed his gloves, and noticed his hands were red and spotted with white patches. Two or three days later the hands had regained their usual appearance and remained so for about two or three weeks.

The patient then noticed the index and middle fingers of the right hand and the index middle and ring fingers of the left hand were gradually becoming affected with a stinging pain. This pain lasted two or three weeks during which time these fingers were gradually becoming a black color. Their discoloration increased for two or three months with a concomitant hardening and thickening of the skin. This skin loosened somewhat from the fingers and made a cast surrounding them. "It resembled celluloid." The edge of this blackened and hardened skin kept gradually scaling for the next month. The fingers were apparently well, and their normal function was preserved. The only abnormality complained of by the patient was a tenderness when the fingers were struck. This apparently normal condition after the fingers cleared up lasted about two weeks. The hands and feet gradually developed an edematous swelling during the next two months, after which a redness slowly appeared on the posterior aspect of the joints of the hands and feet. The patient has lost 29 pounds during the last ten months. His appetite has gradually failed so that at the present time there is little desire for food. The patient has been hoarse for the past five months, and for the last three months he has had a sharp pain of short duration whenever he swallowed solid food, liquid food or even his saliva. "It catches on both sides of the larynx," but only for a second. This condition has gradually become worse.

Physical examination: The larynx shows the cords on their outer edge to be red and thickened, giving the appearance of a band. The involvement is as follows: The skin of the face is thickened and has a mask-like appearance. It is smooth and shiny with an obliteration of the wrinkles. This is especially well shown at the location of the outer ends of the crow's feet about the eyes. The extent of the face involved is a symmetrical area extending 1½ inches below and to the outer side of the eyes. The process in this location has been going on for three months. Both ears are red. They burn when the patient sleeps on them

The entire circumference of the chest gives a slight intimation of thickening, but thickening is distinctly seen on the front of the chest above a line connecting the axillary folds. This area is smooth, thickened and has a pinkish color. Small dilated capillaries are scattered over this area. The circumference of the neck is slightly involved, but with little apparent thickening, and with no change of color. The parts most involved are the limbs, especially the forearms and hands; these are markedly atrophic, the other parts to a lesser

degree. These are symmetrically involved. The tips of the elbows show a slight redness, and thickening. The entire back of the hands is brawny and thickened. There is an especially bright red streak ½ inch broad that runs up the radiodorsal surfaces of the forearms for 5 inches, and an even more acutely red streak of the same width runs up the posterior ulner sides for 2 inches. The fingers are the most involved, and are quite incapacitated. They are smooth, brawny, thickened, contracted and held one-quarter closed, giving the appearance of a claw. They are so stiffened that the patient can move them only at the metacarpophalyngeal joints, and there but slightly. The thumbs are held quite straight with a very marked limitation of motion. The patient dresses with great difficulty. Passively, the fingers can be a little extended, and this with a crackling sensation. The patient on active motion of the neck at times notices the same crackling sensation. The fingers have been bent for the past four months (see illustrations). There is a slight reddish pink color over the dorsal surface of all the finger joints. The knees over the extensor surface show a slight redness but no marked thickening. Both feet are smooth and thick, the same condition extending 2 inches above the ankle joint. The color is a bluish red. There is but slight limitation of motion in the joints of the feet and ankles, but enough to make the patient walk lame. Atrophic changes are well marked in the hands, feet, and to a less extent in the face. The skin is dry, smooth, thinned and stretched over the underlying subcutaneous tissues. Examination of the urine is negative. The Wassermann reaction is negative.

Treatment: The patient has been under observation since July 17, 1913. He has continuously taken thyroid extract (protonuclein of Beebee, gr. v.) three times a day after meals. My colleague, Dr. Lange, who has followed the case, maintains there has been some softening of the skin under this treatment.

November 26, 1913. Since the original report of this case the patient died.

Ten days before his death the patient was troubled with his breathing and again had the same symptoms two or three days before his death. He complained of a shortness of breath as if he had hurried upstairs. On November 26, 1913, the patient was at work as usual.

He returned to his home, ate a good supper, and retired at 9 P.M. At midnight the patient walked into his son's room and said I want to be fanned. The breathing was quick and short. There was a wheezing as if breathing were a great effort. He said he could not breathe. The doctor who immediately responded to the call told me it was at once evident the patient would die, that there was a spasmodic contraction of all the chest muscles. He believed the cause of death was a tightening of the chest brought about by the scleroderma.

The doctor in attendance talked over the case with a well-known medical man who had previously seen the patient and the diagnosis of pulmonary edema was agreed upon for the death certificate. The heart beat was heard with the phonedoscope five minutes after the respiration ceased. The patient died at 12.30 A.M., about one-half hour after the begininng of his attack.

## THE DRUG-HABIT MENACE IN THE SOUTH.

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From the evidence offered by the State Hospital records it appears that there is a far higher percentage of drug habitués per capita in the South than in most of the Northern States. Moreover, in the Southern States drug habituation seems to be increasing rapidly in certain localities, whereas in many of the Northern States there appears to be an actual decline.

In 1912 the proportion of cases of drug psychoses admitted to the hospitals for the insane in New York State was only 1 to 386 of all other forms of aberration. During this same period the proportion in Georgia was 1 to 42; in North Carolina (Raleigh), 1 to 84; in the Eastern Hospital, Tenn., 1 to 74; in the Mississippi State Hospital (1911), 1 to 46; and in the Eastern Mississippi State Hospital, 1 to 23, during the same period. In other words the proportion of drug-takers admitted to the insane hospitals in the South was from five to fifteen times greater than in New York State.

One naturally assumes that the large negro population of the South is responsible for this striking difference in conditions. But this assumption is not sustained by the hospital records, at least as regards actual insanity. Thus in the Georgia State Hospital, where the proportion of negro patients to white is about three to four, there were only four cases of drug intoxication among the negroes in 1911, while the number of white patients was twenty-six. In 1912 the number of cases of this form of psychosis had risen to twenty-seven among the whites, while there were no cases among the negroes admitted. And a similar, although less striking, discrepancy is found in other hospitals where white and colored patients are admitted.

Apparently, then, the difference in race does not explain the relative difference in numbers of this form of psychosis. And yet there seems to be no question that drug-taking is practiced among the negroes to a far greater extent than among the white population, or that it has increased with alarming rapidity during the last four or five years.

The insane hospital records show that morphine is responsible for most of the committed cases of drug psychosis, while cocaine plays an insignificant and entirely subordinate part. Yet cocaine is the drug usually taken by the negro drug-taker—is, indeed, becoming a veritable curse to the colored race in certain regions. And when we turn from the hospital records to the records of the jails, work-houses, and prisons, we find ample explanation for the negro drug-taker's absence from the hospitals. He isn't in the hospital because he has stopped in the penal half-way house. In some places his numbers tax the capacity of these institutions.

Moreover, the authorities admit their inability to prevent the negro from getting his supply of cocaine, or even to determine where he gets it in most instances. They admit freely that there is an enormous underground traffic in the drug, and that any negro who can scrape together a few cents can get a supply whenever he wishes it. And of course this traffic is not confined to the negroes, but extends to the "poor whites" who occupy about the same social and intellectual plane.

In many of the towns and cities the bootblacks and newsboys act as common vendors—retailers, so to speak, who loyally refuse to reveal the sources of their supply even under most extreme pressure. They sell the commodity in the form of "snuff," a vile concoction composed of a small proportion of cocaine mixed with some white powder (such as Epsom salts) to give it bulk. "Ten cents a sniff" is the usual price for an individual "dose." But the more affluent purchaser who can raise the sum of twenty-five cents may get a good day's supply for that price, which is dispensed in small paper pill-boxes.

Once the negro has reached the stage of being a "dope taker"—and a very few experimental sniffs of the drug make him an habitué—he is a constant menace to his community until he is eliminated For his whole nature is changed for the worse by the habit. Sexual desires are increased and perverted, peaceful negroes become quarrelsome, and timid negroes develop a degree of "Dutch courage" that is sometimes almost incredible. A large proportion of the wholesale killings in the South during recent years have been the direct result of cocaine, and frequently the perpetrators of these crimes have been hitherto inoffensive, law-abiding negroes Moreover, the negro who has once formed the habit, seems absolutely beyond redemption. Imprisonment "cures" him temporarily; but when released he returns to the drug almost inevitably.

But perhaps the most interesting feature of the effects of cocainism, at least from a medical standpoint, is the fact that the drug renders the user immune to *shock* to an astonishing degree—a condition adumbrated by Crile in his classic experiments of 1897.* In the language of the police officer, "the cocaine nigger is sure hard to kill"—a fact that has been demonstrated so often that many of these officers in the South have increased the caliber of their guns for the express purpose of "stopping" the cocaine fiend when he runs amuck.

An experience of the Chief of Police, D. K. Lyerly, of Asheville, N. C., is illustrative. In attempting to arrest a hitherto peaceful negro who had become crazed by cocaine, Lyerly was forced to grapple with the man, who slashed him viciously with a long knife. In self-defence the officed drew his revolver, placed the muzzle over the negro's heart, and fired—"for I knew I had to kill him quick," the chief explained.

The revolver he used, be it understood, was not the short-cartridge, pocket weapon caried by most Northern policeman, but a heavy army model of .32-20 caliber—a cartridge which Lieut. Townsend Whelen, U. S. A., declares will kill any game in America. And yet this bullet did not even stagger the crazed negro, and neither did a second bullet

*This resistance to shock seems to verify clinically Dr. Crile's experimental observations made in 1897. In his "Cartwright Prize Essay for 1897" he summarizes one phase of his exhaustive investigations as follows: "In a series of experiments on cocaine administered hypodermically to prevent splanchnic shock, there is strong evidence as to its efficiency."

which pierced the biceps muscle and entered the thorax. So that the officer had finally to "finish the man with his club." The following day Mr. Lyerly exchanged his .32-20 for a .38 caliber army model, the weapon carried by the men of our army and navy. And a similar exchange has been made by many of the officers in the South who have had experience with the homicidal negro, both before and since the days of cocaine-taking.

Needless to say this immunity to shock, together with the fearlessness, hallucinations, and homicidal tendencies that cocaine engenders, makes the "fiend" an object of special dread. But the drug has still another effect that makes him peculiarly dangerous. Unlike the effects of whisky, cocaine seems to put the muscular and nervous system of the user temporarily in a state of tense stability, so as to improve, rather than interfere with, his marksmanship.

It seems to be an established fact that the abuse of ardent spirits interferes with good shooting. But such an example as that of the cocaine-crazed negro in Asheville who killed five men dead in their tracks with one shot for each, shooting at long range in some instances, demonstrates that cocaine does not impair eyesight or muscular coordination. I doubt if this feat in markmanship—actually killing, not merely wounding, five men with five shots—has been equalled in modern times. And undoubtedly the negro could not have accomplished it under the stimulus of any other known drug.

We should not, of course, draw too definite general conclusions from a single example. But there have been so many other instances in which the cocainized negro has exhibited deadly accuracy in shooting, such as the recent slaughter of nine persons at Harriston, Miss., and the shootings in Memphis, that there is no escaping the conclusion that cocaine, besides making the habitué homicidal, adds to his ability to carry out the homicidal intent.

The habit of cocaine-taking, while not entirely a novelty in the South, has developed into a veritable epidemic of alarming proportions only within the last few years. I was told by physicians and officers in many places that five years ago the "cocaine fiend" was practically unknown in their communities. A year or two later he had become a menace; and since that time the number of cocaine-takers has trebled and quadrupled in many places.

What is the cause of this sudden increase? And why does the negro and the poor white now take this hitherto little used, although long-known, stimulant?

For the purpose of trying to find a satisfactory answer to these questions, as well as to determine whether the drug-habits in the Southern States are really as common as the printed records indicate, I have recently taken an extended journey through certain regions of the South where these conditions seem to flourish. In this quest I visited State hospitals, county hospitals, jails, workhouses, and prisons, and interrogated patients, prisoners, physicians, and officers.

Everywhere I found evidence that the cocaine habit is increasing: there was not a single dissenting opinion. And since this universal belief is confirmed by police and hospital records, it may be accepted as a definitely established fact. I found also a unanimity of opinion, among those competent and in a position to judge, as to the cause of this appalling condition. A prisoner put the thing in a nutshell in answering my question as to why he began taking cocaine, when he said: "'Cause I couldn't git nothin' else, Boss."

Ever since the emancipation of the slaves the South has been confronted by a problem that does not exist in the North. This problem is the control of the negro—particularly the low-class negro. Since numerically the colored people represent from 30 to 60 per cent. of the population in these States (no Northern State has even 5 per cent.) it is evident that any race-problem that concerns the negro in the South is one of first magnitude.

Of course the colored man, like his white neighbors everywhere, is likely to commit lawless acts when unler the influence of strong liquors; and because of his inferior mental organization, sometimes perpetrates the most revolting crimes when intoxicated. And since the control of the sober negro offers a sufficiently difficult problem in communities where every other man is colored, it is naturally the earnest desire of the authorities to eliminate the added menace of the drunken negro. Moreover, since most of the Southern negroes are poor, illiterate, and shiftless, the controlling white men thought it would be a blessing to the colored man himself, as well as to the community at large, to put whisky out of his reach.

The simplest way to do this, it seemed, would be through the agency of prohibitive legislation. And so Georgia, Mississippi, North Carolina, Tennessee, South Carolina, and West Virginia, passed State-wide laws intended to abolish the saloon. These laws, of course, do not prevent the white man, or the well-to-do negro, from getting what liquor they wish, and, when they wish it, through legitimate channels. It is considerable trouble, to be sure, to write, send money, and receive packages by express; but the white men were ready to sacrifice this inconvenience if by doing so they could keep strong drink away from the shiftless and dangerous negro.

The task did not seem impossible, since active police work would close the saloons and dives. And by doing this they would (theoretically, at least) make it practically impossible for at least 25 per cent. of the total population to obtain whisky. For the number of negroes, and poor whites, who have sufficient intelligence, education, and money to send away for their liquor is extremely limited. And so these States entered upon a hoped-for Utopian period by abolishing the saloons—"the blessing of prohibitive legislation," as some enthusiasts called it. But the "blessing" was not to prove an unmixed one by any means, as subsequent events have proved.

For the negro, and the white man, quickly discovered that there were other substances besides alcohol that produced pleasant intoxicant effects—substances that are measured in fractions of grains instead of fractions of gallons. Morphine and cocaine offered the most alluring attractions, although there were certain soda-fountain beverages, and drug-store nostrums, that could be requisitioned in a pinch. But eventually cocaine completely outstripped its rivals in popularity, because the substance could be readily obtained, and because its effects were produced quickly and certainly by the simple process of sniffing into the nose.

To supply the demand for this drug a steadily increasing clandestine traffic was established, and flourishes despite the concerted efforts of Federal, State, and local authorities. In short, the South in trying to correct a bad condition, has created one

infinitely worse, and one absolutely beyond the power of the authorities to suppress or even control.

Laws aimed to suppress illicit liquor traffic frequently fail because public sentiment, and public officials, are not in sympathy with the attempt. But such is not the case with the cocaine traffic. Public officials to a man are eager to suppress it, not merely for sentimental reasons, or from a sense of duty, but from the most potent and compelling motive, *fear*—a matter of self-preservation. Yet in the face of this all-powerful incentive for its suppression, the traffic is steadily increasing.

It is usually difficult to put a finger upon the exact cause of any important economic condition—or disease. Nevertheless a mass of evidence all pointing in one direction warrants our drawing certain conclusions about economic conditions and diseases. And in the case of the increasing drug-habits among the negroes and poor whites in the South the mass of evidence indicates that there is a direct relationship between this condition and the present method of controlling the liquor traffic.

It is significant that hospital and police records both show that during the last five years, the period of active prohibitive legislation, drug-habits have increased enormously. And these records are supplemented by concurrent opinions of physicians and officials.

The drug-users themselves are practically a unit in declaring that they began taking the drug because it was more easily obtained than their accustomed beverages. In considering the value of such statements we must, of course, make allowance for the characteristic untruthfulness of the drug habitué. But it is inconceivable that they should all hit upon the same statement without the existence of a groundwork of truth for their assertions. It is improbable, also, that physicians and officials should have reached the same conclusion without adequate reason for their belief.

Moreover, it is most significant that in cities such as Raleigh, Asheville, and Knoxville, where open drinking places have been abolished, cocaine-taking is increasing at an alarming rate. In Knoxville as many as seven cocaine-using women have been haled to police headquarters in a single day. On the other hand in such a place as Memphis, with its 70,000 negroes, where no attempt is made to stop the sale of liquor, there has been only a moderate increase in the number of drug-takers.

The fact that addiction to cocaine is rare among the better classes of whites and negroes is also significant. The offenders are found mostly among the shiftless class of both races; but unfortunately most of the negroes belong to this class, and in some localities represent fully half the total population. The upper classes can, and do, supply themselves with liquor through the agency of the express companies, whose records are open to inspection, and show a traffic in "gallon packages" that beggars belief. But none of these thousands of packages reach the poorer classes, whose financial status cannot ride above the ten-cent "sniff," or the twenty-five-cent pill-box mixture.

It is significant, also, that many persons who formerly found their way into hospitals and jails as alcoholics, now return as drug habitués.

In short, there is no escaping the conclusion from the mass of available evidence, that the enforcement of prohibition has created a demand for, and produced a traffic in, habit-forming drugs among a dangerously large proportion of the lower classes in the South.

No one familiar with the horrors of the cocaine habit will question whether this substitution of the drug for alcohol is a change for the better. In the case of the habitual drunkard, of course, the substitution of the drug for alcohol is a change for the better. In the case of the habitual drunkard, of course, the substitution may be a good one; cocaine will kill him a little quicker. But it is a very different matter in the case of the ordinary temperate negro—the man who would take an occasional drink without ever becoming in any sense alcoholic. It is among this class that cocaine is working real havoc.

The negro does not appreciate that the penalty of taking a few sniffs of cocaine with convivial companions is very different from that of taking a few glasses of beer under the same circumstances. Like most normal white men, he can take liquor, or leave it alone, as he chooses; and unless he is tainted mentally he does not become an alcoholic. But it requires no mental taint to produce a cocaine fiend; and once the negro begins to dabble with the drug he is doomed. For there is no such thing as an "occasional" or "moderate" cocaine user. The line is very sharply drawn between the total abstainer and the "fiend," without any intermediate condition.

Rightfully, of course, the control of the cocaine habit, and conditions producing drug-habituation, belong to the domain of medicine just as surely as does the control and treatment of other forms of mental abnormalities or epidemics. But unfortunately some of the causes of cocainism are so hopelessly entangled with political issues that mere questions of what is right, or best, are completely subordinated. So that the physician must view with such complacency as he can the sight of a race being decimated by the abuse of a useful drug, until the tide of political contention has spent itself, or shifts to some other field of activity. The wisdom of this political policy is about on a par with that of calling in the surgeons to patch up the wounded after a battle, instead of averting the battle itself.

## BRAIN ABSCESS DUE TO THE BACILLUS COLI COMMUNIS.*

By E. P. BERNSTEIN, M.D.,

NEW YORK.

THE rarity of an abscess of the brain due to the *Bacillus coli communis* becomes evident when we peruse the literature of this subject. Its pyogenic properties in other organs is all too common, but as the causative factor of a pus focus within the cerebrum, no case has as yet been reported.

In a careful review of the American and German textbooks and monographs on this subject, no instance is quoted or reported of this nature. McFarland in his "Textbook upon the Pathogenic Bacteria" credits the *Bacillus coli communis* with causing suppuration in the intestines, appendix, kidney, bladder, urethra, bile ducts, gall-bladder, liver, uterus, peritoneum, heart, lungs, pleura, meninges, and tonsils, and also with causing a bacteriemia. This list is typical of that found in the other English and American bacteriologies.

The representative German book "Kolle and Was-

*From the Pathological Laboratory of Lebanon Hospital, New York City.

sermann" make no mention of this organism as occurring within the brain. They quote the colon bacillus as having been isolated as the cause of the following lesions: abscess of the skin, laparotomy wound infections, perirectal abscess, peritonitis, pyothorax, uterine inflammations, periurethral abscess, kidney abscess, pyelitis, perinephritic abscess, perivascular abscess, penitis, pyosalpinx, ovarian abscess, cystitis, inflammation of the bile ducts and gall-bladder, pneumonia, myelitis, meningitis, and septicemia, no mention being made of brain abscess.

Because of the above facts the following case should be placed on record:

Case.—A. M., Italian, 24 years old, was admitted to the Lebanon Hospital on January 22, 1912, in the service of Dr. Cowen. Six weeks before admission he had had a running ear, but this only persisted for a short time and then caused no further trouble. He entered the hospital complaining of pain in the chest, headaches, pain in the limbs, and sleeplessness. A few days before admission he had a chill followed by fever and profuse greenish expectoration. Examination revealed nothing but sibilant and sonorous rales over both lungs. His temperature during the first few days varied between 99° and 103°, pulse between 80 and 92, and respirations between 24 and 26. His blood pressure was 134. Leucocyte count showed 4,800, with a polynuclear predominance of 64 per cent. Upon the fifth day of his stay in the hospital his left ear began discharging a thick greenish pus and the patient complained of a decided increase in the severity of his headache. Three days later this discharge ceased, but the headaches persisted in their severity and the patient vomited. For the first time a slight tenderness of the left mastoid process was noted. During the next twenty-four hours the patient became stuporous and vomited again, and the following day, (January 31, 1912) died.

For the last five days his temperature had been steadily declining, reaching before death 97.6°, and the pulse progressively slowed to 58. Lumbar puncture ten hours before death gave 30 c.c. of clear fluid under high pressure, showing an absence of a fibrin net, a slight increase of albumin, a prompt reduction of Fehling's solution, and a sterile culture. Search for the tubercle bacillus was negative. Cell count of the fluid showed 79 per cent. polynuclear and 21 per cent. mononuclear elements. On this day the left pupil became larger than the right, while the Kernig and Babinski signs were positive on the left side. The report of the ophthalmologist (Dr. I. Heller) was as follows:—Left eye—Moderately dilated pupil, which does not react to light. Disc outlines are edematous and vessels markedly congested, the edema extending more below and to the right side. Center of disc clear and distinct; macular region shows nothing abnormal. Right eye—Pupil normal in size but reacts sluggishly to light. Outlines of disc distinctly hazy. Vessels markedly congested. Center of disc clear as is also the macula. Less swelling than on left side. A bacteriological examination of the pus from the ear showed a typical *Bacillus coli communis*.

Autopsy, January 31, 1912. Permission for head only. Skull and brain: Brain showed in its entirety the effects of extreme pressure—the fissures and convolutions being leveled. The ventricles are distended by an abnormal amount of clear fluid. Within the posterior part of the left temporosphenoidal lobe and separated from the cortical surface by a considerable layer of intact brain tissue, is lodged an abscess the size of a hen's egg. The pus is of a sanguinopurulent color and has a very foul odor. The petrous portion of the left temporal bone shows no caries on its cranial surface nor is the dura adherent to it. The tegmen tympani is grayish in color. When chiseled off the middle ear, the epitympanic space and the mastoid antrum were found filled with purulent material, of dense consistency and gritty feel. Only a fragment of an ossicle, the incus, was found. The remainder had been destroyed by caries. Aside from the uppermost cavity (the antrum) the remainder of the mastoid process consisted of unaffected cancellous tissue. Bacteriological examination of the pus from the abscess showed a pure culture of *Bacterium coli*.

The mode of conveyance of the germ must have been by way of the lymphatics. The possibility of a direct traumatic infection of the brain can be excluded. While we know that a brain abscess can develop many years after a cranial injury, yet in this case no history of such an injury could be obtained. Equally untenable is the supposition that the bacteria were conveyed by the blood stream, either as infected emboli or as a manifestation of a bacteriemic condition. So also the possibility of an antecedent infection in the antrum of Highmore, ethmoidal bone, or a purulent phlebitis of a cranial sinus, with or without a meningitis, are excluded by the autopsy findings.

Unquestionably a causative relationship exists between the colon infection in the middle ear and a similar infection in the cerebrum. The path of conveyance, however, is not so evident. Here we fail to find a thrombosis of the petrous sinus of the temporal bone, with its subsequent meningitis and brain abscess. We are therefore compelled to consider this a case of lymphatic transmission from the middle ear directly to the brain.

64 West Eighty-third Street.

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**Bazin's Disease.** Sir Frederic Eve reports the case of an unmarried woman aged 31 years in whom the trouble began as a hard swelling on the outer side of the left leg, which broke down and discharged. An ulcer formed, which gradually spread. When the author first saw her in March, 1913, there were two thin oval cicatrices on the outer side of the lower third of the left leg. At the lower and outer margin of these cicatrices was a rim composed of irregular pit-like ulcerations covered with flabby granulations. The general appearances were those of a serpiginous ulcer. There was also a very small ulcer on the inner side of the same leg. The patient appeared perfectly healthy, and a Wassermann reaction was negative. The ulcerated areas were excised and skin-grafts were applied. At the same time the affected part was exposd to the *x*-rays. As a result of this treatment complete healing took place. Later a few pit-like ulcers reappeared, but they healed after applications of pure carbolic acid and fomentations of 1 in 5,000 watery solution of biniodide of mercury, and the patient returned home. About three weeks subsequently the small ulcer on the inner side of the left leg broke down again, and a sore appeared on the right leg. Small areas of the margins of the scars on the outer side of the left leg also broke down. While in the hospital she has been treated by *x*-rays and has been kept in bed.—*Proceedings of the Royal Society of Medicine.*

**Suture of Wound of the Heart.**—At a recent meeting of the Surgical Society of Paris Lenormant reported the case of a man who had received a gunshot wound on the right side of the chest to the outer side of the mammary line. On account of the smallness and rapidity of the pulse a diagnosis was made of a penetrating wound of the heart. The author resected the first costal cartilage, then the fourth and fifth costal cartilages on the right side, and the right of the sternum. The wound in the pericardium was discovered, the latter was opened and emptied of clots, and a wound in the right ventricle of the heart was sutured. No search was made for the bullet nor for the spot of its egress from the heart. There was a perforation of the lung, which did not bleed, and which was let alone. The operative wound was closed without drainage. The patient made a perfect recovery.—*Gazette des Hôpitaux.*

**Acute Infective Hepatitis.**—Francesco Rodano states that this condition was first described as a complication of dysentery by Remlinger in 1900. The clinical picture closely simulates that of hepatic abscess, the differential diagnosis being revealed only on the operating table. The author reports a case of this condition in a girl aged twenty years. The temperature is remittent or intermittent, the liver is enormously enlarged, there is pain referred to this organ, and there is a leucocytosis with an excess of sudanophiles.—*Rivista Critica di Clinica Medica.*

MEDICAL RECORD.

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## THE COAGULATION OF BLOOD AND THE THYROID GLAND.

COMPARATIVELY little is known regarding the variations in the coagulation time of the blood in different morbid conditions. There is even no general agreement as to the normal coagulation time, some authorities placing it as low as two minutes and other equally competent observers assuming ten minutes as the interval that elapses before a drop of blood begins to clot. These differences of opinion are to be attributed partly to the diverse forms of apparatus used for the determination of coagulation time, partly to the differences of surrounding conditions such as atmospheric temperature and pressure, and partly to the personal equation of the investigator. The practical value of the determination of coagulation time has been most clearly perceived in hemorrhagic conditions in which this time is greatly prolonged. A shortened coagulation time which is sometimes observed in pneumonia is regarded of serious prognostic omen. In diseased conditions of the thyroid gland important changes in coagulation time have been observed. Kottmann and Lidsky pointed out a delayed and weakened coagulation in exophthalmic goiter, and a hastened and intensified coagulation in conditions of hypothyroidism. Kocher applied this knowledge in the differentiation between states of hyperthyroidism and states of hypothyroidism in patients suffering from goiter.

Inasmuch as it is frequently difficult to determine in a goitrous individual whether a condition of excessive thyroid function or one of diminished thyroid function exists, the above differential coagulation test, if valid, becomes one of eminent clinical importance, for upon this test may be based a rational surgical or medicinal treatment. This test has been subjected to a critical analysis by Julius Bauer and Marianne Bauer-Jokl, who employed for this purpose the abundant goitrous material of the Innsbruck clinic. They present the important results of their investigation in the *Zeitschrift für klinische Medizin*, Vol. 79, Nos. 1 and 2.

The apparatus which they employed, because of its simplicity and availability for routine clinical work, deserves more than passing mention. It is the instrument recently devised by Fuld. This consists of a metronome, to the pendulum of which there is attached a U-shaped glass tube. The drop of blood to be examined is allowed to fall into one of the arms of this tube and then by a rapid rotating motion imparted to the latter the blood is pushed into the horizontal portion. A small leaden ball is then introduced at the other end of the tube. The pendulum is at once set in motion, each swing corresponding to a second of time, and as long as the drop of blood remains fluid the leaden ball rolls along the bottom of the tube. But as soon as coagulation sets in, the motion of the ball stops. The number of excursions of the pendulum that have occurred until the leaden ball becomes stationary represent the coagulation time in seconds. The authors find that under normal conditions this time is two or three minutes.

By means of this apparatus the coagulation time of the blood was determined in a large number of cases of goiter, and was found to be increased in all of them, whatever may have been the actual functional condition of the thyroid. In conditions of hypothyroidism, as in cretins and cretinoids, the delay in coagulation is more pronounced than in the thyrotoxicoses. It is not possible to differentiate between hyper- and hypothyroidism by means of the determination of the coagulation time. A diminution of the clotting capacity of the blood occurs in most diverse alterations in the blood and glandular systems, in general neuropathic conditions, and in the so-called "status hypoplasticus." In all of these conditions a diminished coagulation power coincides very frequently with a lymphocytosis or mononucleosis and sometimes with an eosinophilia.

The authors observed in three cases following excision of a goiter and resection of the thymus, an improvement in the coagulating power of the blood. The administration of thyroid extract in doses that are not too large results in certain cases in an improvement in the clotting property. In a case of hemophilia associated with infantilism of thyroid origin, thyroid administration restored the practically vanishing power of coagulation. Before this treatment was instituted a drop of blood had not clotted at the end of fourteen hours, but after the administration of thyroid extract a specimen of blood clotted at the end of twelve minutes. The explanation of the greatly prolonged coagulation time that is observed in disturbances of the internal secretions and in the "status hypoplasticus" may possibly account also for the deficient coagulating power observed in hemophilia. The suggestion is made that the fundamental disturbance may lie in the enzymatic processes in the blood. These may also be at fault in the delayed coagulation that is present in nephritis, in various types of anemia, and in certain diseases of the liver.

The results obtained in the Innsbruck investigations are unquestionably of practical importance. They furnish a valid basis for the administration of thyroid extract in all conditions associated with a diminished coagulability of the blood.

## ANOMALOUS RENAL ARTERIES AND VEINS.

A REPORT on this subject of especial value and interest to the surgeon was made by Rupert (*Surg. Gyn. and Obst.* Nov., 1913), who examined 50 cadavers and found that 35, or 70 per cent., of the

number showed a unilateral or bilateral anomaly of the arteries or veins, or both. The kidneys were removed in the dissecting room under Rupert's personal supervision. There were 49 males and one female subject. Both kidneys were normally placed in every instance. No movable, pelvic, or horseshoe kidneys were found, nor was there congenital or post-operative absence of the kidney on one side. These kidneys, therefore, would presumably be found to conform to the textbook normal as regards blood supply. Rupert found upon careful dissection, however, unilateral or bilateral anomalies in the arterial supply in 34 cadavers, while in one other case there was an anomalous condition of the veins only. As Rupert quite properly remarks, most of the textbooks on anatomy make little if any reference to the anomalies of the renal blood vessels. In the last edition of Cunningham, for instance, we find nothing whatever in the main description of the kidney regarding anomalous blood vessels, and it is only upon turning to the section upon "Surface and Surgical Anatomy" that one finds the subject discussed. Here we find merely the following statement: "When the inferior pole of the kidney receives a special blood supply, either directly from the aorta, or from the renal artery, the abnormal vessel may, by passing either in front or behind the superior part of the ureter, cause the latter to be so kinked over the vessel as to cause a secondary hydronephrosis." Nothing whatever is said regarding anomalous veins. Rupert quotes W. A. N. Dorland as follows: "No abdominal arteries are so irregular in their distribution as those which supply the kidneys," and follows this with a quotation from Senator to the effect that "reduplication of one or both renal arteries is a rare condition * * * without significance." Another quotation of especial interest is one from W. J. Mayo, who reported that in "20 out of 27 cases of hydronephrosis operated upon by them anomalous blood vessels were present and the obstruction in each instance was where the blood vessels crossed the ureteropelvic juncture * * * the vessels passed to the lower pole of the kidney and varied from the size of a knitting needle to that of the radial." Another quotation is to the effect that anomalous vessels are found most often at the upper pole. In the face of these conflicting observations and statements, Rupert's findings have an added interest. Extra polar arteries had the following distribution: To the superior pole only, 17 cadavers—12 right, 7 left; to the inferior pole only, 9 cadavers—7 right, 2 left; to superior and inferior pole, same side, 8 cadavers—2 right, 6 left; superior and inferior, both sides, 0. In these 34 cadavers 44 kidneys had anomalous arteries—11 right, 13 left, 10 both sides. The veins did not share the frequency of anomalous distribution, since abnormal veins were found in but 9 cadavers, 11 kidneys being affected—7 right, 0 left, 2 both sides. Among the features of special cases should be noted that in one cadaver having an extra artery to each superior pole the arteries were of the axis type; that on the left side giving off three branches and that on the right two; while in another each superior axis artery gave off three branches. In one case a vein ran from the right renal vein to the transverse fissure of the liver; in another, a vein extended for about 2½ cm. from the left renal vein, where it bifurcated, one branch penetrating the substance of the second or third intervertebral disc, the other branch anastomosing with the lumbar veins. In two cases the spermatic veins emptied into the renal veins on both sides. Two specimens showed that one of the anomalous arteries, in each specimen, made one complete twist around the renal vein, or *vice versa*, and in each instance the artery was as large as the radial. This was an especially interesting condition since the renal plexus of nerves surrounds the artery, and a very slight twist would give all the symptoms of a Dietl's crisis without its being possible to demonstrate a movable kidney clinically. Rupert's conclusions, which are certainly justified, are as follows: "That anomalous renal vessels occur more frequently than is generally supposed; that anomalous veins are as important to consider as anomalous arteries; that while anomalous veins are not as frequent as anomalous arteries, and their presence increases the hazards of renal operations, especially in a nephrectomy; that on account of the thinness of their walls they give but little if any more resistance to traction than a small adhesion, and as pulsation is absent, an anomalous vein is difficult to differentiate from an adhesion unless it can be drawn into the field."

While it is probable that but rarely would so many anomalies be found in a series of one hundred kidneys examined in this way (45 per cent.), it is, nevertheless, astonishing that more stress is not laid upon the comparative frequency of abnormal vessels in the textbooks. Those who have done a great deal of kidney surgery have learned, often after a bitter experience, to be constantly on the watch for abnormalities in blood supply; but in his first nephrectomy the inexperienced man, who has been taught to regard these abnormalties as so rare and of so little consequence that their description is relegated to a foot-note, is as likely to have a case with anomalous arteries of the axis type at each pole as is the expert surgeon. The danger of uncontrolled hemorrhage in the former circumstance is obvious, and if death occurred it could be properly charged, in part at least, to faulty teaching.

## A NURSE PRACTICE LAW.

THE New York State Nurses' Association is endeavoring to standardize the education of the nurse. This movement was endorsed in October, 1913, by the New York State Federation of Women's Clubs at their annual meeting in Buffalo. It is to be recalled that the bill which was introduced into the New York State legislature last winter by Senator Seeley was bitterly and effectively opposed because the bill sought, by legislation, to limit the right to use the word nurse as a title to those who had been duly licensed. At present there is a law which protects the title, registered nurse, or the abbreviation, R. N. It is pointed out by the Nurses' Association that this

title in usage does not safeguard the public in its discrimination between the fitly trained and the unfit nurse; that the public is confused by the many terms which are in general use such as "certified," "trained," "graduate," "domestic" and "practical." At the instigation of the Nurses' Association of New York State practically the same bill will be introduced into the legislature now in session. In the pamphlet which the Association is circulating it is shown that it is necessary to use simply the word, nurse, in defining a practitioner of nursing just as it was found necessary to use simply the words physician, dentist, and veterinarian in the statutes relative to the professions of medicine, dentistry, and veterinary medicine. The majority of nurses are employed through registries which, very often, are commercial and, from a business standpoint, find it necessary to recommend and to obtain employment for any one, regardless of qualifications, who may have paid the fee for registering. Physicians and families do not always ask a nurse whether or not she is a graduate of a hospital. Sometimes the question is put in such a way that a nurse, who may have been only a probationer in a good hospital, may be able to answer truthfully that that is where she received her training, without disclosing the fact that she was only a probationer. Some physicians will oppose this bill because they frequently like to call in as nurses, women whom they know to be well qualified to care for some of their patients, although these women may not have had hospital training. Sometimes it is desirable to call in such women or men because they do not charge as much as regularly trained nurses. The Nurses' Association believes that the physicians should face this squarely and truthfully and should designate such nurses as attendants and should tell the families that they are well qualified to care for the patient in question but that they are not nurses in the sense that this word will be used if the bill becomes a law. One of the special objects of the proposed bill is the stoppage of the graduation of so-called nurses by institutions in no way connected with hospitals. The graduates of such schools and institutions will be prevented from using the title, "nurse," alone or with qualifying terms.

It is not intended that the proposed law shall be an instrument for prosecuting a mother for nursing her child, or a maid for nursing her mistress, or any one for nursing any one else so long as the title, "nurse," is not used professionally. The definition in the bill reads: "To practise as a nurse, within the meaning of this article, shall include the care of the sick or injured as a nurse or registered nurse." Under the provisions of the bill any one may nurse or care for the sick or injured without going contrary to the proposed statute so long as he or she does not call himself or herself a nurse. It would seem that the definition of the practice of nursing could have been written into the bill so as to make its meaning clearer and at the same time not bring out the opposition which it in all probability will. We would suggest the following definition: "To practise as a nurse, within the meaning of this article, is to give professional care to the sick or injured and to hold one's self out as having been taught, trained, or educated to give such care and to call one's self a nurse, with or without qualification." There should be an exemption clause for the nurses in the U. S. Services. For the most part the bill is carefully drawn and fixes only a safe and sane standard of education and practical training for the profession of nursing.

### The Citizen and the Public Health.

In these days the citizen of his own initiative, much more frequently than was formerly the case, takes an intelligent interest in matters concerning public health. He has come to realize the fact that his cooperation is required in order that the health of the community may be best conserved. He is now beginning to understand the inherent truth of the old adage that prevention is better than cure, and moreover, in many instances is willing to put his own shoulder to the wheel so that the most efficient preventive measures may be put into effect. Still the average citizen needs a considerable amount of spurring ere he can be brought to understand the essential importance of his cooperation in all public health questions. Therefore it is eminently fitting that his duty and responsibility in this direction should be impressed upon him as often and forcibly as possible. A. M. Stimson of the Public Health Service has done this, in Supplement No. 4 to the Public Health Reports. In this pamphlet he points out clearly, the duties of a citizen as an individual and as a member of the community at large and aptly remarks that if the nation as a whole only took as much interest in its health as it does in politics or baseball we should have cleaner politics and more time for baseball. John W. Trask, Assistant Surgeon General U. S. Public Health Service, in reprint No. 150 from the Public Health Reports, covers practically the same ground and urges upon each citizen of this country that it is a manifest duty he owes to himself, his family, and the entire community to pay attention to the way in which matters relating to the public health are managed. Great progress has been made in public health throughout the civilized world in recent years, and the results have been striking but it cannot be doubted that if each individual felt it to be his duty to concern himself in the question that the advance would be yet more remarkable.

## News of the Week.

**City Death Rate.**—A sudden rise in the death rate of New York City for the week ending January 24, broke the low mortality record of nearly a year. The rate for the week was 14.64 per thousand of population, representing a total of 1,567 deaths. For the corresponding week of last year it was 14.19 per thousand, with a total of 1,461 deaths. The greatest increase in the number of deaths as compared with previous weeks occurred in those due to organic heart disease, pulmonary tuberculosis, and acute respiratory diseases.

**For Cancer Research.**—The New York Homeopathic Medical College and Flower Hospital recently announced that it had received a gift of $25,000 from Dr. Lambert Suydam of this city, the

money to be used in research into the cure of cancer.

The New York Skin and Cancer Hospital has issued an appeal for 500 milligrams of radium, which it is suggested may either be given outright or loaned to the institution for a term of five years. The trustees of the hospital feel that since it is devoted exclusively to the treatment of cancer, it should be given an opportunity to make an exhaustive study of the therapeutic value of radium. If the substance is obtained it is proposed to begin a series of investigations, to extend over five years, at the end of which time the results will be announced. The radium will be used in the treatment of surface and benign growths, especially those of the face; after operations by the knife, in order to destroy any cancer cells remaining, and in deep-seated and malignant cases for the purpose of clinical study.

**Radium Control Bill.**—The plan for Government control of radium-bearing ores which may hereafter be found on the public domain and for the construction of a Government reduction plant is outlined in a bill prepared for introduction into Congress. It provides that all public lands of the United States on which radium-bearing ores are located shall be subject to exploration and occupation under the mining laws, on condition that the United States shall have the exclusive right to purchase part or all of the product of such lands to the amount of public need; it authorizes the Government to construct and operate plants for the extraction of radium as it may desire; it authorizes the Government, through the Secretary of the Interior, to buy radium-bearing ores mined from the public lands at prices to be fixed by the Government and based upon semi-annual investigations of the cost of production and reasonable profits to the miners; and it permits the Federal Government to buy radium from other sources than the United States and to sell the by-products of radium production in the Government plant and to dispose of the radium extracted there in such manner as will best subserve the public welfare. It is believed that the terms of the bill will satisfy all those interested in the questions.

**Warship Quarantined.**—The new battleship *Arkansas*, one of the largest in the United States navy, was quarantined last week in the Navy Yard at Brooklyn, N. Y., because of an epidemic of diphtheria and sore throat among the crew, numbering in all 1,000 men.

**Seaside Hospital Begun.**—The construction of the new Seaside Hospital at Telawanna Park, Rockaway, for the building and equipping of which the Association for Improving the Condition of the Poor raised a fund of $257,000 seven years ago, was begun last month. The fund has been held in trust since 1906, the association waiting for the city to accept its offer to construct and equip the institution, on condition that the city would provide a suitable site on the ocean front, and would assume the ownership and responsibility for the conduct and maintenance of the hospital. Not until last winter, when the city purchased the Seaside Park at Rockaway, was it able to comply with the terms of the gift. The institution, which will, it is hoped, be ready by May, 1915, will have accommodations for 150 children suffering from non-pulmonary tuberculosis. The entire plant will comprise a four-story structure fronting the ocean, and eight pavilions, each 138 by 142 feet, extending at right angles to this main building, the whole having a capacity of 1,000 beds, the cost being estimated at about $2,000,000. For the present the association will erect as its gift to the city, the administration building, two of the pavilions, and a power plant. The remainder of the institution as planned will be built as need arises and money becomes available.

**Smallpox at Niagara.**—One hundred and twenty-seven cases of smallpox were reported at Niagara Falls, N. Y., up to January 28, and the Canadian Department of Public Health has instructed its inspectors to prevent any resident of the city from boarding trains for Canada unless he is able to show a certificate of recent vaccination. The New York State Board of Health is urging the wholesale vaccination of the children in the public schools of the city.

**To Honor French Mother.**—President Poincaré of France is entertaining a proposal to decorate Mme. Théodore Amet of Paris, the mother of 22 children, all of whom are living, with the Cross of the Legion of Honor.

**Typhus Fever on Ellis Island.**—After having been landed on Ellis Island, a case of typhus fever was discovered among the steerage passengers on the steamship *Rochambeau* which arrived in New York from Havre on January 27. Another case developing among the passengers of the steamship *Belvedere* under observation on Hoffmann's Island, on January 31, made the seventh imported case of the fever which has been noted at Quarantine since January 7.

**Colonel Gorgas Confirmed.**—The United States Senate on January 30 confirmed the nomination of Col. William C. Gorgas as Surgeon-General of the United States Army.

**Centenarian in New Jersey.**—Mrs. Priscilla Inslee, said to have been the oldest woman in New Jersey, died at her home in New Brunswick on January 30, a few days after celebrating her 102d birthday.

**Medical School Dinner.**—Two hundred and fifty physicians attended the dinner of the faculty and directors of the New York Post-Graduate Medical School held at Delmonico's last week, and listened to appeals for the endowment of medical colleges in order that their teaching staffs might be enabled to devote all of their time to instruction and research. Among the speakers were Dr. J. F. McKernon, president of the school, and Dr. William H. Welch of the Johns Hopkins Medical School.

**Mt. Sinai Hospital.**—At the sixty-first annual meeting of the hospital, held on January 25, announcement was made of the gift of a plot of ground measuring 100 x 175 feet, on Fifth avenue and Ninety-ninth street, directly across the street from the hospital. This completes the site needed for the enlargement of the present plant. The building fund has already received subscriptions up to the sum of $1,000,000; it was hoped that an additional $500,000 would soon be subscribed.

Announcement was also made of the retirement from active work of Dr. Arpad G. Gerster, visiting surgeon for thirty-four years, and of Dr. Julius Rudisch, visiting physician for thirty-nine years. In recognition of their long services Dr. Gerster was presented with a silver tea service and Dr. Rudisch with a silver vase, and both were made consultants to the hospital.

**Dr. Christian R. Holmes** was installed as Dean of the Medical College of the University of Cincinnati, O., on January 16. Addresses were made

by President Dabney of the University and by Dr. William H. Welch of the Johns Hopkins Medical School.

**Farm for Convalescents.**—The Young Men's Christian Association of New York is planning to establish on a tract of ground owned by the association near Kingston, N. Y., a farm to which men recovering from illness and too weak to return to work, can be sent while convalescing.

**Conference on Race Betterment.**—At the meetings of the First National Conference on Race Betterment, which were held in Battle Creek, Mich., on January 8 to 12, 1914, 400 men and women were present, comprising the first representative group of scientific experts ever gathered in America for the purpose. The program constituted a widespread study of all phases of evident race degeneracy and the advocacy of many reforms, some of the suggested improvements being frequent medical examination of the well, outdoor life, biological habits of living, open-air schools and playgrounds, etc.

**Mesericordia Hospital.**—This institution has recently become a general hospital with a capacity of 400 beds. At a recent meeting of the medical board the following officers were elected: *President*, Dr. William Shannon; *Secretary*, Dr. Daniel J. Donovan.

**Lectures on Chiropody.**—The School of Chiropody of New York announces a series of lectures to be given at the school on Saturdays, commencing February 7, on the diagnosis and care of various disorders of the feet.

**German Surgical Congress.**—The Forty-third Congress of the German Society of Surgery will be held in Berlin from April 15 to 18, 1914, at the Königl. Hochschule für Musik, under the presidency of Prof. W. Müller of Rostock.

**French Medical Congress.**—The XIV Congrès français de Médecine, organized by the Association des Medécins de langue français, will be held in Brussels from September 30 to October 3, 1914, inclusive. The officers of the Congress are Professor Henrijean, president; Professor Bordet and Professor Vandervelde, vice-presidents; Professor René Verhoogen, secretary-general, and Dr. Godart-Danhieux, treasurer. The following questions will be discussed: (1) Syphilis of the cardiovascular system. (2) The lipoids. (3) The therapeutic value of artificial pneumothorax. (4) Vaccine therapy in general, and of cancer and typhoid fever in particular. The address of the secretary-general is 22, rue Joseph II, Brussels.

**Dr. George E. Brewer** was appointed by the Trustees of Columbia University on February 2 to be professor of surgery in the College of Physicians and Surgeons, in succession to Dr. Joseph A. Blake, resigned. Dr. Brewer, who was graduated from the Harvard Medical School in 1885, has been professor of clinical surgery in the College of Physicians and Surgeons since 1904. Dr. Brewer has also been appointed attending surgeon to the Presbyterian Hospital.

**Incorporate Jurisprudence Society.**—The American Association of Medical Jurisprudence of New York, which is devoted to the study and advancement of the science of medical jurisprudence, has recently been incorporated under the laws of New York State. The membership is limited to 200. Dr. Reynolds Webb Wilcox is president of the association.

**Medical Society Elections.**—New Haven (Conn.) Medical Association: Annual meeting on January 21. Officers elected: *President*, Dr. Willis H. Crowe; *Vice-Presidents*, Dr. Alfred G. Nadler, and Dr. F. B. Standish; *Secretary*, Dr. Charles E. Sanford; *Treasurer*, Dr. T. V. Hynes.

Hartford (Conn.) Medical Society: Annual meeting on January 5. Officers elected: *President*, Dr. Everett J. McKnight; *Vice-President*, Dr. Frederick T. Simpson; *Secretary*, Dr. Arthur H. Griswold; *Assistant Secretary*, Dr. Amos T. Harrington; *Treasurer*, Dr. Philip D. Bunce.

Washington County (R. I.) Medical Society: Annual meeting at Providence on January 8. Officers elected: *President*, Dr. Harold D. Kenyon, Westerly; *Vice-Presidents*, Dr. H. B. Potter, Wakefield, and Dr. Asa S. Briggs, Ashaway; *Secretary-Treasurer*, Dr. William A. Hillard, Westerly.

Center District-Merrimack County (N. H.) Medical Society: Annual meeting at Concord on January 13. Officers elected: *President*, Dr. C. E. Butterfield, Suncook; *Vice-President*, Dr. Russell Wilkins, Concord; *Secretary-Treasurer*, Dr. Pearl T. Haskell, Concord.

York County (Me.) Medical Society: Annual meeting at Biddeford on January 7. Officers elected: *President*, Dr. Joseph W. Gordon, Ogunquit; *Vive-President*, Dr. Joseph M. O'Connor, Biddeford; *Secretary*, Dr. Arthur L. Jones, Old Orchard; *Treasurer*, Dr. Charles F. Traynor, Biddeford.

Contra Costa County (Cal.) Medical Society: Annual meeting at Oakland on January 19. Officers elected: *President*, Dr. Ursa S. Abbott, Richmond; *Vice-President*, Dr. E. W. Merrithew, Martinez; *Secretary-Treasurer*, Dr. Dr. E. B. Fitzpatrick, Martinez.

**Obituary Notes.**—Dr. J. Harvey Dew of New York, a graduate of the University of Virginia, Department of Medicine, Charlottesville, in 1867, and a member of the American Medical Association, the Medical Society of the State of New York, the New York County Medical Society, the Academy of Medicine, and the Society of the Alumni of the City Hospital, died at his home on January 26, aged 70 years.

Dr. Edgar Doak Capps of Fort Worth, Tex., a graduate of the College of Physicians and Surgeons, New York, in 1891, one of the founders of the Fort Worth School of Medicine, and professor of diseases of the brain and nervous system in that institution, and a member of the Texas State Medical Society, died at his home suddenly, from heart disease, on December 19, aged 46 years.

Dr. Henry Lorenz Obetz of Detroit, Mich., a graduate of the Cleveland University of Medicine and Surgery, Cleveland, O., in 1874, formerly professor of surgery and dean of the Homeopathic Medical College, University of Michigan, an attending physician to Grace and St. Mary's Hospitals, Detroit, and a member of the American Medical Association, and the Michigan State and Wayne County Medical Societies, died at his home on December 20, aged 62 years.

Dr. W. M. Holladay of Hampden-Sidney, Va., a graduate of the Hospital College of Medicine, Louisville, Ky., in 1885, and a member of the Medical Society of Virginia, died at his home on December 20, aged 49 years.

Dr. Ephraim Magoon of St. Louis, Mo., whose back was broken by a fall at his home some weeks before, died at the Mullanphy Hospital on December 29, aged 71 years.

Dr. GEORGE F. FORBES of Worcester, Mass., a graduate of the Boston University School of Medicine, Boston, in 1874, died at his home after a short illness, from pneumonia, on January 3, aged 82 years.

Dr. MATTHEW W. SMITH of Brooklyn, N. Y., a graduate of the Bellevue Hospital Medical College, New York, in 1873, died at his home on January 8, aged 60 years.

Dr. JAMES ROY MCINTIRE of Carlisle, Ky., a graduate of the Southwestern Homeopathic Medical College and Hospital, Louisville, in 1902, died suddenly, at his home, on January 9, aged 32 years.

Dr. JOHN G. OOSTERBECK of Hysham, Mont., a graduate of the Rush Medical College, Chicago, in 1904, and formerly assistant physician at the Peoria State Hospital, Peoria, Ill., died in Chicago, on January 8, aged 37 years.

Dr. WILLIAM H. HANFORD of Brooklyn, N. Y., a graduate of the Cleveland University of Medicine and Surgery, Cleveland, O., in 1853, died at his home on January 19, aged 89 years.

Dr. RAYMOND W. WILSON of South Bethlehem, Pa., a graduate of the Medico-Chirurgical College of Philadelphia, died at his home from pneumonia, on January 17, aged 34 years.

Dr. ISAAC B. LOOS of Trenton, N. J., a graduate of the Jefferson Medical College, Philadelphia, in 1888, and a member of the American Medical Association, the Medical Society of New Jersey, and the Mercer County Medical Society, died at his home on January 13.

Dr. WILLIAM PENNY of Brooklyn, N. Y., a graduate of the University of Louisville, Medical Department, Ky., in 1872, died at his home from pneumonia on January 21, aged 83 years.

Dr. THOMAS PEDDIE of New York, a graduate of the Bellevue Hospital Medical College, New York, in 1875, and for many years a medical inspector of the New York Department of Health, died at his home on January 20.

Assistant Surgeon WILLIAM H. ULSH, retired, United States Navy, a graduate of the University of Pennsylvania, Department of Medicine, Philadelphia, in 1893, was instantly killed in an automobile accident near his home at Selinsgrove, Pa., on January 21, aged 43 years.

Dr. GEOFFREY R. BOURKE of New York, a licentiate of the Royal College of Surgeons of Ireland in 1869, and a member of the New York State and County Medical Societies, died at his country home at West Sayville, L. I., from pneumonia, on January 23.

Dr. CHARLES E. SMITH of Whitesboro, N. Y., a graduate of the Albany Medical College in 1858, and a member of the Medical Society of the State of New York and the Oneida County Medical Society, died at his home, from apoplexy, on January 25, aged 77 years.

Dr. JOHN A. STRATTON of Newman, Cal., a graduate of the University of Michigan, Department of Medicine and Surgery, Ann Arbor, in 1882, and a member of the Medical Society of the State of California and the Stanislaus County Medical Society, died at his home, after a long illness, on January 14, aged 56 years.

Dr. WILLIAM L. SMITH of Springfield, Mo., a graduate of the Kentucky School of Medicine, Louisville, in 1893, and a member of the Missouri State Medical Association and the Greene County Medical Society, died at his home, after a brief illness, from pneumonia, on January 20, aged 47 years.

## Correspondence.

### OUR LONDON LETTER.

(From Our Regular Correspondent.)

AEROPLANES FOR CONVEYING WOUNDED IN WARFARE—RECENT ADVANCES IN TROPICAL MEDICINE—TUBERCULOUS RHEUMATISM—MEMORIALS OF LISTER AND PAGET—OBITUARY.

LONDON, January 16, 1914.

THE use of aeroplanes to the Army Medical Service was discussed at the British United Service Institution on Wednesday afternoon. Lieut.-Col. J. F. Donegan, R.A.M.C., gave the lecture. He said an expert not long ago told him that airships were likely very soon to be used for the transport of troops on the field. In that case the lecturer had little doubt they would be available for the removal of the wounded who could sit up, considering their rapidity and independence of roads or bridges, and would not hamper or delay the movement of troops. Provided with the necessary stability they would be as useful in savage as other warfare. For scouting for wounded on the battlefield we did not at present realize their utility. His experience was that he had never found it difficult to locate wounded by day, but it was very much so by night. If aeroplanes proved useful at night they would have to be fitted with installations for wireless telegraphy and searchlights, but the rate at which they travel was likely to be misleading. Distances in miles were accurate enough for marching troops, but when it came to the question of the helpless and disabled even yards counted. After his lecture Colonel Donegan showed by lantern slides the working of an aero operating table.

Colonel Massey quoted M. Furman as to the practibility of building aeroplanes to transport four wounded men in a lying position and described experiments made at the recent French maneuvers with a flying corps to indicate to the ambulance corps where there were wounded. The brigadier general thought when aviation was practical for the army medical service field ambulances would have to be supplied with such aeroplanes as might be necessary. He doubted if an army in the field would allow a machine to fly over their position, as it might carry valuable information. Lieutenant-General Bethune, who had presided, considered Colonel Donegan had shown his proposal would be of great use in the cause of humanity. It would also clear away traffic which was in the way of the fighting troops. He urged, therefore, that aeroplanes of proper type should be supplied for both the medical and the fighting service.

"Recent Advances in Tropical Medicine" was the subject of a lecture at the Hunterian Society on Wednesday by Mr. James Cantlie. The claim was taken by Mr. William Ettlas, who mentioned the lecturer's reputation as a practical observer of the subject who had traveled all over Asia to study it since thirty years ago he gave up the position of surgeon to Charing Cross Hospital to go to Hong Kong, where he founded the school of medicine.

Mr. Cantlie said the starting point of the recent advances in tropical medicine was Sir Patrick Manson's discovery in Formosa that mosquitos were the carriers of the filaria which were the cause of malaria. His early experience in cholera research in Egypt as one of the party of twelve (sometimes called the twelve English apostles) who went there in 1884 without previous experience and

without microscopes. None of them caught cholera, although two or three of a German party who also went contracted the disease and one of them died. The bacillus had been shown to be carried by the flea. As regards plague, it was carried by the rat flea as had been proved from place to place, but the human flea carried it from man to man. Mr. Cantlie said the Book of Samuel contained a description of plague which shows that the writer knew it was spread by rats, but the world had forgotten it and so had to find it out again and learn once more that as usual the old Hebrew writer was correct. Tertian fever was the next disease mentioned by the lecturer, who said that 100 or 150 years ago almost everyone living on the banks of the Thames suffered from enlarged spleen and until the district was drained there was no place more infected with malaria. He declared the world was standing still as to prevention. England had got rid of malaria by drainage and other places should tackle the problem. Concerning trypanosome diseases Mr. Cantlie said the *Glossina morsitans* had now spread into Rhodesia; they were not at present pathogenic but nobody knew when they might become so; their present harmlessness might be due to their not yet having met with a carrier.

Asking why women hated every kind of vermin Mr. Cantlie said it was not because they were ferocious but because right back to the time of Moses vermin carried diseases. In reference to pellagra he said that five or six years ago it was practically unknown in the United States, but now there were some 50,000 cases. It had also appeared as a new disease in England and might become a serious problem. In conclusion he urged that much more should be done to give full effect to the discoveries already made.

Rheumatic symptoms are so frequently observed in the course of various chronic diseases, especially those of infective origin, as to excite little attention, though in some they have been used to differentiate a variety, *e.g.* gonorrhea. In France they distinguish tuberculous rheumatism, but here the phrase is not common. An old practitioner now retired says that in his student days tuberculous glands in the neck were called scrofulous or strumous and not more indicative of tubercle or phthisis than some other signs of general ill health which were grouped under the name of scrofula or struma. He remembers being instructed by his family's practitioner soon after he had begun to study for the profession as to this affection, the two words being synonymous, and he was told among other things that almost all diseases presented modifications in patients of a strumous constitution, that word being used as freely as tuberculous now is; scrofulous or strumous rheumatism was at that time no unusual phrase. What then are the relations, if any, now recognized between rheumatism and tuberculosis?

At a recent meeting of the Royal Society of Medicine a paper was read which may help to answer this question. The author was Dr. Nathan Raw of Liverpool Infirmary and he related a case which he considered an illustration of what French writers call tuberculous rheumatism and which is the only one he has met with in over 6,000 cases of pulmonary tuberculosis, although it is common, he says, to see cases of tuberculous arthritis attacking one or perhaps more joints, he regards it as "most rare to meet with a multiple arthritis of the smaller joints in the hands, fingers, wrists, and ankles in the course of tuberculosis." Many may perhaps think that 1 in 6,000 might very well pass as accidental. But you may be interested in a few points of the case which is related in full in the *Lancet* of the 3d inst. A girl of 13 had tuberculous glands, slowly progressive and painful, and general health failing, loss of weight. Breaking down five years later the glands were opened and contents evacuated—removal being impossible on account of adhesions. A month after operation painless, rapid effusion into right wrist, a week later into left also and soon after swelling of all metacarpophalangeal joints. Little pain, temperature 102° night and 99° morning for ten days. Salicylates no effect. Fluid aspirated from wrist, no bacilli found, injected into a guinea pig which developed general tuberculosis in four weeks. Cultures from its spleen developed growth corresponding to bovine tubercle. The rabbit similarly affected but less severely. Cultures from the neck glands of the patient also produced bovine tuberculosis in a guinea pig and a rabbit.

Dr. Raw began tuberculin treatment in very small doses T. R. (human), gradually increasing, with good effects. Examination of the joint fluid revealed excess of lymphocytes which, as he observes, is in favor of tuberculosis as opposed to polymorphonuclear leucocytosis which occurs in true rheumatism. His case and two others he saw (one in Washington, one in Berlin) all followed neck gland affections, which he thinks almost always caused by bovine bacillus, while pulmonary tuberculosis is mostly due to human bacillus. So bovine seems more likely than human bacillus to find its way into the blood and the joints.

The memorial tablet to Lord Lister at Kings College was unveiled on the 14th inst. by Lord Rayleigh, who gave an address in which he spoke of his personal appreciation of one he regarded as among the greatest scientists.

The centenary of the birth of Sir James Paget was celebrated on Sunday last at Great Yarmouth, his birthplace, with great enthusiasm. One of his sons, who is now Bishop of Stepney, preached the sermon in the parish church. He mentioned that his father in early life had to contend with extreme poverty and in later life had several attacks of pneumonia. Interesting relics were presented by the family to the Corporation of Yarmouth.

Dr. John Meredith, J.P., M.O.H., died on the 10th inst. in his 82d year, at Wellington, in Somerset, where he had practised for about fifty years. In earlier life he had been in the Indian medical service. He contributed on malaria to the *Indian Medical Gazette*, 1867-73.

Dr. Cuthbert Clibborn, J.P., medical inspector of the Irish L. G. B. for about seventeen years, has died at the age of 67. He graduated in arts and medicine in Dublin in 1869.

Dr. J. C. Ferguson, who had filled various appointments in Belfast, including the physiciancy of the Women's and Children's Hospital, while talking to a colleague on the 6th inst., suddenly fell dead, to the grief of many.

Dr. John Gorman of Bangor also met with a death which may be termed sudden on the morning of December 27. Feeling not very well when getting up he said he would take another hour's rest, and when called, as he had arranged, was found to be dead.

## OUR PARIS LETTER.

(From Our Regular Correspondent.)

FRENCH CONGRESS OF UROLOGY—PERICYSTITIS—PROSTATECTOMY—CHRONIC SPERMATOCYSTITIS—A NEW ANTIGONOCOCCIC VACCINE—LUMBAR EXPLORATION IN RENAL TUBERCULOSIS — RADIOGRAPHY IN RENAL LITHIASIS—RICHET AND THE NOBEL PRIZE IN MEDICINE—OBITUARIES: LUCAS-CHAMPIONNIÈRE, JABOULAY, LEDOUBLE.

PARIS, January 1, 1914.

THE French Congress of Urology recently held its sessions. The subject of pericystitis was presented in a paper by Aversencq of Toulouse, who classified pericystitis anatomically into (1) extracystitis or suppuration in the space of Retzius or prevesical space formed in front of the prevesicopelvic fold of peritoneum; and (2) pericystitis proper, which develops behind the latter fold in the cellular tissue surrounding the bladder. Infection may give rise to the different forms of inflammation that are found in the cellular tissue of other parts of the body. The different stages of inflammation found in both types of pericystitis are as follows: serous, scleroadipose, multiple minute abscess formation, extensive circumscribed abscess, and diffuse phlegmon. Of frequent occurrence are the cases of scleroadipose pericystitis localized at the terminal portion of the ureters and around the seminal vesicles, the remains of a prostatitis or of a more or less latent vesiculitis.

The pathogenic cause is either within or without the bladder. In the acute cases the extravesical origin is the more frequent, such factors as appendicitis and disease of the female adnexa being operative. It is otherwise with the chronic type of pericystitis which is usually the sequence of prostatitis, vesical calculus, or infections complicating a stricture. With this recognition of the origin of pericystitis diagnosis is facilitated and the treatment is guided. The treatment should first of all be directed against the cause. Pericystitis is frequently revealed at autopsy or at operation. The forms of extracystitis more easily accessible justify a methodical surgical intervention apart from the treatment of the cause, namely, hypogastric section with or without perineal or vaginal counter-drainage.

In the discussion P. Legueu referred to the difficulty of diagnosis of certain forms of pericystitis which, particularly if they occur low down, may simulate malignant disease. Bazy stated that certain cases of partial pericystitis may be accompanied by intense painful manifestations, and may give rise to phleboliths which form false calculi of the ureters. P. Pousson of Bordeaux pointed out the dangers of the scleroadipose type of pericystitis: it is one of the causes of fistula-formation after cystotomy, and transforms the bladder into an inert reservoir.

Prostatectomy was the subject of a number of interesting communications. Pauchet referred to the good results he had obtained in prostatics with renal insufficiency, in placing the patient upon an exclusively fruit diet and in performing the operation in two stages. Carlier likewise favored the two-stage operation in cases of infection of the bladder. Marion has obtained good results in cases of rebellious prostatitis by means of suprapubic prostatectomy. The operation is relatively simple inasmuch as each lobe is removed separately.

In chronic spermatocystitis Georges Luys has obtained the best results by means of catheterism and dilatation of the ejaculatory ducts. These are frequently strictured and therefore massage is ineffectual. Catheterism with minute flexible stilettes is simple and without danger if performed with the aid of the Luys urethroscope, provided that one has carried out a preliminary treatment of the verumontanum, the "mirror of the seminal vesicles," which always shares in their infection. The procedure of catheterism provides an efficient treatment for a condition which is frequently neglected and is always dangerous. Thevenot of Lyons perceives the danger of the vesiculitis that occurs in the course of hypertrophy of the prostate. The vesiculitis makes the prostate more adherent and less easily enucleated. It also increases the risks of hemorrhage and of postoperative infection.

A new antigonococcic vaccine was described by Nicolle of Tunis. This vaccine has the advantage over other preparations in causing neither a local nor a general reaction. The results obtained have been particularly encouraging in the general complications such as ophthalmia and rheumatism. It is too early to decide as to the results obtained in the urethritis itself, or in its urinary complications.

In renal tuberculosis if catheterization of the ureters is impossible, Carlier of Lille prefers to catheterization following suprapubic cystotomy exploration on both sides through the lumbar region. Legueu likewise does not resort to suprapubic catheterization because of the bad effects of general anesthesia upon the renal function. It may be added that in many of the cases lumbar exploration is not necessary if the direct vision cystoscope of Luys is employed. This enables one to catheterize the ureters even in cases of severe cystitis and when the capacity of the bladder is greatly reduced.

Radiography cannot be regarded as an infallible procedure in all cases of renal lithiasis. J. Belot mentions cases in which the $x$-rays have not revealed the presence of calculi, which were not sufficiently opaque for the $x$-rays or which had the same opacity as the surrounding media. Radiography of vesical calculi has likewise given uncertain results. Arcelin of Lyons finds that about 50 per cent. of vesical calculi are not detected in radiographic examination. This method of investigation is of value only in special cases as in diverticular calculi.

Professor Charles Richet, who received the Nobel Prize in Medicine, fully merited this distinction, which crowns a career of scientific endeavor. The learned world rejoices in the honor paid to the great French physiologist.

The death of Lucas-Championnière removed one of the pioneers of modern surgery who was among the first to put into practice the teachings of Lister. His ability was unquestioned. His writings on hernia, on trephining, and on amputations alone were sufficient to place him among the highest rank of surgeons. He was a pioneer in the field of kinetotherapy. He pointed out the danger in immobilizing injured joints, and the advantage of early passive motion and massage in lesions in and about the joints. An honorary surgeon of the Hôtel Dieu, a member of the Academy of Medicine, and an officer of the Legion of Honor, Championnière died in the zenith of his activity, in the midst of apparent health.

The death of Professor Jaboulay of Lyons, occurring on the day following that of Poncet, was

the result of a railway accident at Melun. One of the best of French surgeons, Jaboulay was rated for his remarkable sangfroid and daring. With an independence of mind that closely bordered on barbarity Jaboulay rarely took part in medical congresses or reunions. His name is associated with the operations of exothyropexy, of excision of the sympathetic in exophthalmic goiter, and of vascular anastomoses. During recent years Jaboulay devoted his attention mostly to cancer.

An accident was also the cause of death of Professor F. A. Ledouble of Tours. His life had been devoted to the study and teaching of anatomy. Like that other great anatomist, Farsbeuf, Ledouble modestly retired from the main current of medical activities. His preference was for the study of anomalies. He showed their importance in pathology. He was the author of the proposition which has really acquired the force of an axiom: organs that are malformed are predisposed to disease. His researches and writings dealt successively with the variations and anomalies of the genital apparatus, of the nervous system, of the cranium, the bones of the face, of the hair, and of the spinal column. He also published medico-literary studies on Rabelais and upon Bossuet as anatomist and physiologist.

## OUR LETTER FROM THE PHILIPPINES.

(From Our Regular Correspondent.)

### THE PLAGUE CAMPAIGN IN MANILA—POOR PHYSICAL CONDITION OF PHILIPPINE LABORERS—EMETINE IN DYSENTERY—LEPROSY IN BILIBID PRISON—SPORADIC CHOLERA—HYGIENE OF TOBACCO FACTORIES.

MANILA, P. I., December 22, 1913.

THE regular monthly meeting of the Manila Medical Society was held at 8:30 P. M., December 1, at the College of Medicine and Surgery. The first paper, entitled "The Recent Plague Campaign in Manila," by Doctor Thomas W. Jackson, gave a brief history of the plague outbreak which began in Manila in June, 1912, and the last case of which occurred on September 20, 1913. He expressed himself as being a firm believer in the possibility of reducing the number of rats; in other words, he thought that anti-rat measures effectively carried out had a decided effect in reducing the number of rats in spite of the allegations that the rat breeding soon replaced them and that the number of rats in a city was very much governed by the amount of food supply available. On account of the success of the measures against plague he stated that the observations with regard to seasonal flea breeding and humidity and rainfall had very little value. He also stated that the experience had in Java with rats nesting in bamboo and these nests being frequently associated with plague in human beings was also confirmed in Manila. During the campaign he mentioned that over 10,000 tons of refuse and filth had been removed from the sections in which plague had occurred. Over 2,000 houses were rat-proofed. Multiple house infections practically never occurred, with one or two exceptions in which rat-proofing measures were not promptly carried out.

The next paper, entitled "Some Observations on the Examination of Filipino Laborers for the Hawaiian Sugar Plantations" was read by Doctor A. M. Saleeby. He reported that over 10,000 laborers had been examined and of this number only 64 per cent. were passed. The larger number of rejections, about 26 per cent., were due to beriberi. The second cause was that of heart disease. He also reported nineteen cases of backward dislocation of the elbow joint. These, he concluded, were caused by improper manipulation during childbirth. In the discussion which followed, Dr. Heiser stated that the large number of heart cases reported coincided very closely with the results which were obtained in the examination of masters, mates, pilots, etc., in the Philippine Marine Service and that the percentage of rejections from this cause is very much higher in the Philippines than in the United States.

The next paper was entitled "Experience With Emetine Hydrochloride and Ipecac in the Treatment of Dysentery at the Philippine General Hospital," by Dr. David Willetts. He supported his statement by saying that in all 133 cases had been treated and of this number ipecac had proven more efficacious than emetine hydrochloride and that the use of neosalvarsan had proven very satisfactory in eliminating the ameba from the intestinal tract. The emetine hydrochloride proved most successful in promptly relieving the clinical symptoms of dysentery, but the ipecac and the neosalvarsan were more successful in finally freeing the intestines of ameba.

From time to time cases of leprosy have occurred in Bilibid Prison. It may, therefore, be of interest to record the dates that the prisoners entered Bilibid and the dates upon which leprosy was first recognized in such prisoners. In all, there have been three. The first one entered the prison on June 15, 1903, and did not show any symptoms of leprosy until January, 1911. In the meantime, however, he had been detailed from June, 1907, to July, 1907, on public works, where he might have been exposed to leprosy. He was also an inmate of the Iwahig Penal Farm Colony, where exposure to leprosy was possible, from February, 1909, until January, 1911. The second case was admitted in April, 1904, and was detailed on public works at Camp Overton, in Mindanao, in April, 1905. In September, 1905, he escaped, but was captured two weeks later. In July, 1906, he was returned to Bilibid. In September, 1908, he was detailed on public works on the Island of Corregidor, but returned to Bilibid during May, 1910. During July, 1911, a definite diagnosis of leprosy was made and he was transferred to the Leper Hospital. The third case was admitted in March, 1911, was constantly in Bilibid Prison, and showed unmistakable evidences of the disease on November 5, 1913, and was transferred to the San Lazaro Hospital on that date. From the foregoing it will be apparent that the first two cases could have contracted the infection outside of Bilibid Prison and that the last case occurred within the generally recognized incubation period of the disease.

Sporadic cases of cholera still continue to occur in Manila. Most of them are found among the deaths which are attributed to other causes, but upon careful bacteriological examinations being made cholera vibrios are discovered. On December 18th five cases were reported from Calivo, in Capiz Province, and shortly afterward several cases were reported from Banga and New Washington, both of which are towns in the same province not far from Calivo. Deaths suspicious of cholera have been occurring in the Island of Penay for the past two months. The original case could not be traced to any outside source.

After considerable opposition from the tobacco

factories, an ordinance which provides for the proper sanitation and cleanliness of such factories was passed by the Municipal Board of Manila. Heretofore, the laws and regulations for factories which exported cigars were fairly satisfactory, but there was no adequate provision for those which made only product for domestic consumption. With this new ordinance, however, all factories are brought under the regulations and a great improvement will no doubt take place.

## Progress of Medical Science.

### Boston Medical and Surgical Journal.

*January* 23, 1914.

1. Mortality of Hereditary Syphilis. A. Post.
2. A Case of Myatonia Congenita. J. W. Courtney and H. H. Eaton.
3. The Suspicion of Malignancy. H. Lilienthal.
4. Corynebacterium Hodgkini in Lymphatic Leucemia and Hodgkin's Disease. A. E. Steele.
5. The Condition of the Vasomotor Center in Pneumonia. W. T. Porter and L. H. Newburgh.
6. A Study of Cancer. S. W. Little.

**1. Mortality of Hereditary Syphilis.**—A. Post says there is a tendency to disregard syphilis in this country. It is supposed to be a disease of older countries, and rare in this; it is thought to be confined to those who go to seek it and to have no interest for those whose lives are blameless. If one accepts the death returns of the country as final, one may well say that the fatalities from syphilis are negligible. The author proceeds to show that this belief is not founded on facts, and gives the experience of those in charge of the Dermatological Clinic of the Boston Dispensary to emphasize this point. Futher attention is drawn to the failure to give a census of syphilitics, although attempts have been made to approximately learn the amount of disease in the country. The figures fall between 15 and 20 per cent. It is then from its numbers of no inconsiderable importance, but the failure to rightly report syphilis means an addition in the report of something else. It falsifies the report. Syphilis is an infectious disease, conveyed by the most innocent kiss or even careless handling. Probably at least one-half of the syphilis in the world is innocently acquired, and even the sinners are our brethren. The desire to attach disgrace to all victims of the disease leads to concealment and difficulty in study.

**3. The Suspicion of Malignancy.**—H. Lilienthal learned the following interesting facts from a study of 2,000 histories in his case books: (1) There were 86 cases of malignancy or 4.3 per cent. Investigations in five large New York hospitals showed Dr. Lilienthal that in 2,000 consecutive surgical ward patients there had been: In Mount Sinai Hospital, 84 cases of malignancy, or 4.2 per cent. In St. Luke's Hospital, 82 cases of malignancy, or 4.1 per cent. In Presbyterian Hospital, in 2,345 cases in 1912, 127 cases of malignancy, or 5.4 per cent. In Roosevelt Hospital, 2,000 patients, 129 cases of malignancy, or 6.4 per cent. In New York Hospital, 200 patients, 34 cases of malignancy, or 1.7 per cent. Now, counting all these groups of approximately 2,000 cases together we have in 12,345 patients 542 instances of cancer, or 4.39 per cent., which means that one in every 22 surgical patients had cancer. (2) Of his own 86 patients 65 had never been operated upon and may be called new cases; (3) of the 65, 10 were sarcomata, 55 carcinomata; (4) of the 65, 35 were in men, 30 in women. Questions regarding the promptness or tardiness of surgical consultation elicited this information. (5) It was discovered that after the first discovery of a tumor, or after the first suspicious symptoms, the men had waited on the average 12.2 months before consulting the surgeon, the women 11.9 months. Now it is known that very few persons discover or suspect the presence of cancer until the symptoms are very pronounced, or until there is a tumor of considerable size; also, that such a tumor, with or without symptoms, had probably been in existence for say six months before it was discovered. So that it may be assumed that cancer patients do not come to the operating table until at least a year and a half after the onset of the malignant disease.

### New York Medical Journal.

*January* 24, 1914.

1. Chronic Intestinal Stasis Surgically Considered. W. S Bainbridge.
2. Chronic Intestinal Stasis. A. J. Quimby.
3. Chronic Intestinal Stasis. W. Van Valzah Hayes.
4. Acute Pancreatitis. J. F. Erdmann.
5. Insanity Occurring in Latent Bright's Disease. G. W McCaskey.
6. Abdomen Strengthening. S. Lewis.
7. Studies in Treatment of Fractures Near the Elbow. A. O Wilensky.
8. Gas Oxygen Anesthesia. A. H. Miller.
9. Treatment of Disease in the Aged. A. Orenstein.

**5. Insanity in Latent Bright's Disease.**—G. W. McCaskey notes that the etiological relationship of Bright's disease to insanity is undoubtedly merely incidental, and not in any sense specific. Nevertheless, the occasional incidence of insanity in the course of latent Bright's disease acting probably as an immediate cause is a clinical fact demanding careful recognition. Three cases of this kind are reported. McCaskey's purpose in reporting these cases is to emphasize the importance of a most thorough investigation of renal conditions in all cases of insanity, especially in those fulminant types in which the cyclonic character of the psychosis is liable to make examination very difficult and to distract attention from a proper study of somatic conditions. It will be readily seen that the deleterious influence of the retention of waste products associated with Bright's disease would make the chemical recognition of these conditions of the utmost importance from every point of view in practically every type of insanity.

**6. Abdomen Strengthening.**—S. Lewis says that it has been often pointed out that much of man's structure is better adapted to a quadruped than to a biped. While most of us would not care to retrograde in these matters, we recognize that many, probably half at least, of our illnesses are due to sedentary habits and erect posture. Because of the latter, weak structures are overworked, strong ones weaken from disuse, organs sag, intestinal and other tubes kink, dependent veins overdistend, toxins are generated. The work of Sir Arbuthnot Lane is most illuminating in this regard. Lewis recommends methods for toning and strengthening the abdomen, divided into active or gymnastic and passive or manual. The apparatus to be used is described and a prescription is given detailing the various exercises to be employed.

**9. Treatment of Disease in the Aged.**—A. Orenstein lays down a regimen of hygiene and diet for the treatment of disease in the aged. It is pointed out that the aged require less food of all kinds, because they utilize less. Overfeeding, or rather a normal adult's ration, overtaxes their digestive powers and floods the blood with effete products which the kidneys and other emunctories cannot handle. Drinking water should be encouraged and baths, which should be taken regularly, should be neither hot nor cold, of short duration, and preferably in the evening when they conduce to a good night's sleep. Fresh air and exercise are indispensable. Clothing should be light, warm, loose, and of woolen material. The feet should be well protected. Cathar-

tics are the only class of drugs which are administered to the aged in larger doses than to middle-aged adults, but not with proportionate safety. General weakness is the complaint common to all. Since we have no specific against physiological old age we must adapt our treatment to each individual. Cod liver oil in dram doses is beneficial to some. Strychnine does good by stimulating digestive processes as well as the circulation. Alcohol in the form of whiskey may be given in small doses to stimulate the appetite. To conclude, the treatment of disease in senility should be conservative and without drastic changes in the *modus vivendi*.

The Journal of the American Medical Association.

*January* 24, 1914.

1. Infantile Paralysis. R. W. Lovett.
2. Treatment of the Pneumonias. R. N. Willson.
3. Recovery in Pneumonia. L. Hektoen.
4. Cholecithiasis. W. G. Mallory.
5. Urethral Cysts. A. J. Underhill.
6. The Small Hospital. J. A. Hornsby.
7. The General Hospital. E. F. Stevens.
8. Contagious Disease Hospitals. J. A. Lammoreaux.
9. Hospital Architecture. R. E. Schmidt.
10. Sulphuric Ether Lavage. G. De Tarnowsky.
11. Azoturia. A. Bassler.
12. Pellagra. G. M. Niles.
13. Plague in Porto Rico. S. B. Grubbe.
14. Chestnut Toxemia. I. C. Merrill.
15. Syphilis. E. B. Krambhaar and C. Montgomery.
16. The Call of the Child. F. Bradley.
17. Precipitation Reactions in Syphilis. P. K. Olitsky and M. P. Olmstead.
18. Liberation of Formaldehyde. P. J. Hanzlik.
19. Bladder Resection. G. Kolischer.
20. Brass Poisoning. C. A. Pfender.

**3. Recovery in Pneumonia.**—L. Hektoen, from a study of the mechanism of recovery in pneumonia with special reference to the crisis, in which he reviews the recent literature on the subject reaches the following conclusions: The cure of pneumonia results from the destruction of the pneumococci in the lungs and in the blood. This is accomplished mainly by phagocytosis, probably to some extent also by extracellular processes. The predominating general defensive reactions in pneumonia are leucocytosis and the production of antibodies for pneumococci, especially opsonins, and these appear to be specific for the group to which the infecting pneumococcus belongs. In rapidly fatal cases the defensive reactions are inadequate to destroy the pneumococci, which persist and multiply in the lungs and in the blood. In favorable cases the pneumococci are destroyed more or less rapidly when the antipneumococcal reactions reach a certain height. It may be assumed that lysis results when the destruction takes place more gradually. Crisis is the effect of prompt destruction. In both cases, but demonstrated more clearly in crisis, there is an excess of free antibodies in the blood.

**10. Sulphuric Ether Lavage.**—G. De Tarnowsky, in reporting thirty cases treated by the Souligoux-Morestin method of sulphuric ether lavage of the peritoneal cavity says that his attention was called to the method during a recent visit to Paris, where it is used in five hospitals as a routine measure in all laparotomies. He began using it in his abdominal operations in the latter part of August, 1913, in both private and charity cases with uniformly gratifying results. He describes the technique as follows: After removal of pathological tissue free pus is carefully wiped out; then ether is freely poured into the abdomen and is allowed to come into contact with all of the viscera in a case of general peritonitis. The viscera are literally washed in ether, hence the term "lavage." As much as a quart of ether has been used. After having remained in contact with the abdominal organs for from two to five minutes, it is mopped out by means of gauze sponges, and the abdomen is closed with one small drain. In circumscribed peritonitis the pus cavity, having been wiped out, is filled with ether and the abdomen is closed without drainage. In pelvic peritonitis, ether soaked sponges are applied to all involved surfaces, and then two ounces of ether are poured into Douglas' pouch and the abdomen is closed without drainage. The immediate effect of ether thus applied is to cause a momentary capillary contraction, followed by hyperemia of the viscera. There is a moderate formation of carbon dioxide in the abdomen, evinced by a bubbling sound and the escape of bubbles from the surface of the ether. Ether is slowly absorbed by the serosa; this is proved by the fact that no change in the anesthesia of the patient has been reported. De Tarnowsky's thirty cases included three cases of gangrenous appendicitis with general peritonitis, four cases of localized abdominal peritonitis, two of pelvic peritonitis, and one of acute cholecystitis with adhesions, in which the bactericidal action was very apparent. The remaining cases were not acutely septic. In 75 per cent. the postoperative pain and restlessness were lessened and were not increased in the remaining 25 per cent. He is convinced that when this method is used there is less pain than is ordinarily encountered and there was no mortality in this service.

**12. Pellagra.**—G. M. Niles admits that the etiology and pathology of pellagra are still obscure, but is of the opinion that the disease is more manageable than it is sometimes considered to be and gives the details of his method of treatment. Hygienic measures are the same as those employed in other exhaustive diseases, with two exceptions. The first is that alcoholic beverages given in any amount seem to be highly detrimental and the other is that sunlight should be avoided as the actinic rays appear to have an especially irritating effect, which is most marked in early spring. As to diet he prohibits corn bread and corn products unless he knows that they are perfectly fresh and that the corn has undergone no heating. Until the "zeist" theory is completely disproved we owe to our patients this precaution. With regard to other dietetic measures it must be kept in mind that the disease is not primarily localized in the gastrointestinal tract, but is a centralized irritation, plus the effect of toxins eliminated through that tract. The early diarrhea is mainly of central origin and to some extent compensatory, and, therefore, does not call for a very limited regimen. Woody vegetables and foods yielding a large residue in the bowel are mechanically contraindicated and should be replaced by other nourishing foods. The flesh proteins are especially well borne. Sweet milk is valuable when it agrees with the patient, but advising immoderate amounts without determining the digestive ability is bad practice. During the whole course of pellagra the patient should be nourished to the limit of assimilation and will generally bear and care for more aliment than when the stomach is similarly irritated as the effect of other disorders. He administers hypodermically iron arsenite and sodium cacodylate on alternate days for about two weeks in small doses. After the acute symptoms seem to be controlled he gives two injections weekly for several months. Sometimes when the patient is anemic he uses iron preparations instead. Internally he employs a combination of saturated solution of potassium iodide and Fowler's solution in proportion of five of the first and three of the second, beginning with five drops in water, three times a day, gradually increasing a drop a day until arsenical symptoms appear. If gastric or intestinal intolerance occurs the proportion of Fowler's solution is lessened. The diarrhea is controlled by bismuth, betanaphthol, etc., and if severe by tannigen or opium; kerosene oil enemas have also been found useful. For the infrequent constipation, the milder cathartics only should be used. The details of the local lesions are given. He

does not favor the employment of salvarsan. Hydrotherapy has proved beneficial in many cases, and Niles holds that it should be resorted to in some form, in almost every case. The value of keeping up the spirits of patients and of controlling the pellagraphobia which embarrasses the treatment is emphasized. He thinks that by suitable suggestion the nerve degeneration can be to some extent repaired. His experience has taught him that the prognosis should be guarded in four classes of cases: in persons over fifty years of age; in alcoholics; in persons who change their treatment from one method to another. If, however, the patient is under fifty, will adhere to a fixed line of treatment, and faithfully cooperate with the physician a permanent cure can be expected in the majority of cases.

### The Lancet.

*January* 17, 1914.

1. Progress of Life Assurance Medicine During the Past Thirty Years. R. H. Fox.
2. The Value of the Cardiac Sign in Cancer. W. Gordon.
3. The Early Diagnosis and Treatment of Ruptured Intestine. V. Z. Cope.
4. The Question of "Concubitancy" in Cousin Marriage. M. Yearsley.
5. Recurrent Intussusception. G. G. Turner.
6. Extrauterine Pregnancy. D. Duff.
7. Schistosomiasis Japonica. H. White.
8. Acute Leucemia Simulating Caries of the Spine. H. D. Rolleston.
9. The Rational Treatment of Incipient Insanity. R. Armstrong-Jones.

**3. Early Diagnosis and Treatment of Ruptured Intestine.**—V. Z. Cope points out the fact that while traumatic rupture of the intestine without any wound of the abdominal wall is not frequent it is sufficiently common to call for some definiteness as to the surest guides for early diagnosis and the best methods of treatment. Providing there be no lesion in the chest and that renal trauma is excluded he would submit that it would be advisable to open the abdomen on the suspicion of ruptured intestine if the following conditions be present: 1. When severe abdominal pain persists for more than about six hours after an injury, if the pain be accompanied by either (*a*) vomiting, especially bilious vomiting; or (*b*) a pulse gradually rising from the normal; or (*c*) persistent local rigidity tending to extend; or (*d*) deep local tenderness with shallow respiration; and 2. When abdominal pain is absent or only slight, but the pulse rises steadily hour by hour and the patient is very restless or listless. When marked diminution of the liver dullness occurs with any of the above symptoms, or if there be signs of free fluid in the abdomen, the indications for operation would be imperative. Since the memorable case of Croft in 1889 the recognized treatment of ruptured intestine has been by operation. After describing the technique of the operation Cope says the main points of differences between surgeons are the toilet of the peritoneum. The questions at issue are: 1. Should general or local irrigation be adopted or should dry sponging or even no cleansing of the peritoneum be attempted? 2. Should drainage be adopted? The conclusions gathered from a consideration of these methods are: That irrigation with saline solution is inadvisable in cases operated on early, and that with late cases the matter is not of much consequence; and 2, that drainage is possibly the safest plan. Notes of two cases of successful operation for traumatic subcutaneous rupture of the jejunum are given.

**5. Recurrent Intussusception.**—G. G. Turner reports a case of intussusception which recurred three times and was operated upon three times with a successful result. He records another case in which there were evidently a recurrence which underwent "spontaneous reduction." Discussing the question of how the recurrence of intussusception is to be prevented, Turner says that if for any reason recurrence is especially feared, or if it has actually occurred, what can be done? He fancies that to be of much service it would be necessary to fix the bowel to the abdominal wall after separating the parietal peritoneum. If there is any gross pathological condition in the lower ileum not easily removable, then he would be disposed to make a lateral anastamosis. Taking all the circumstances into consideration he does not think it is necessary to take any special means to anticipate recurrence, except, of course, the removal of any causative factor, such as an inverted Meckel's diverticulum. In the rare cases in which the condition recurs it is always amenable to early diagnosis and operation.

### Berliner klinische Wochenschrift.

*January* 12, 1914.

**Injuries of Aviators.**—Marx points especially to the forensic aspect of such injuries, which involve both flyers and the public. The author has performed autopsies on two dead flyers. One had fallen as a result of collision in the air. In another case the surmise was that the aeroplane had not been properly constructed. Men who fall from whatever height should present the same appearance, independently of the spot where the fall began. But victims of falls from airships and aeroplanes may sometimes present some added injury, for the airship may have been on fire at the time, and those who fall from a great height on the water have injuries due to submersion added to those due to striking the water. Injuries resulting from aeroplane falls show great uniformity. These comprise fractures of the skull and spine, which, as a rule, cause death instantly. A broken neck or fractured base is occasionally seen. Two persons, man and woman, in the same aeroplane, fell together. The man lived fourteen hours, unconscious. Some of the cervical vertebra had been fractured. The woman was not even stunned and her mind was clear when she reached the hospital. She presented externally a skinned nose, contused left eye, and an extravasation of blood in the right thigh. She was discharged entirely cured in a month. The distance of the fall was but six meters. A man who fell twenty meters died from a forward dislocation of the atlas compressing the cord. Captain J., a Swiss aviator, who fell to his death, showed no external injuries, but those beneath the skin, including fractures, hemorrhages, etc., were extremely numerous. It appears that falling with the machine and being hurled from it, or the turning over of the machine as it strikes, is responsible for such injuries as fractures of the arm and collarbone. Since the station was established at Johannisthal, there have been 130 accidents, but only twelve deaths; naturally many of the injuries were of the severest type.

**Theory of Scarlet Fever.**—Cederberg states that von Pirquet's reaction has taught us that measles, variola, varicella, and rubeola are allergic in nature, at least when compared with scarlatina, which thus far has not been shown to belong under this head. The author believes that the rash of scarlatina may be allergic, but that it is very different with the so-called post-scarlatinal lesions, concerning which opinions may vary greatly. Primary scarlatina, aside from the question of allergie, represents a pure toxemia. Is it then possible that the secondary scarlatina involves an attempt at curbing the first by antitoxins? Does their seriousness mean that the counterpoison may be too intense or on the contrary, unable to neutralize fully the original toxins? Do they represent an autoreinfection? The doctrine of streptococcus superinfection is practically ignored by the writer. The author is forced by exclusion to conclude that the primary intoxication lib-

erates antibodies very freely just at the critical point of the disease. It is, of course, at this juncture that the antibodies appear *en masse* and appear very brusquely. If there are germs in the blood, as there must be (despite the statement that the first symptoms represent a pure toxemia), it is possible that they at once seek to leave the blood, and chiefly by the kidneys. To sum up the author believes that scarlatina is due to a certain germ, which, aside from causing toxemia, does no apparent harm, escaping by the kidneys. But the toxin forms some antibody which renders the blood at once uninhabitable, so that the germs rush *en masse* into the tissues, but chiefly to the kidneys, where in large quantities they produce nephritis. They also cause bone and joint and ear lesions.

### Münchener medizinische Wochenschrift.

*December* 30, 1913.

**On Shoulder Pain in Pleurisy.**—Gerhardt states that but little attention has ever been paid to this symptom, while the abdominal pain from the same affection has been freely studied. The author, after commenting on Mackenzie's finds, gives his own experience. He has seen isolated shoulder pains in four cases. Two were examples of lower lobe pneumonia with pleural irritation, a third of chronic dry pleurisy, while the fourth was dry pleurisy following infarct in a lower lobe. All the patients complained also of diaphragmatic pains. In three of the four cases pressure over the phrenic nerve was felt distinctly. The shoulder pain was felt most acutely in the parts which lie laterally and to the rear of the joint. The skin over these portions was sensitive to pressure. Movement increased the shoulder pains, and in two cases the first diagnosis was rheumatic arthritis. In all four cases there was a pleuritic friction sound over the deepest portion of the lower lobe. The material illustrates the sympathy between the shoulder joint and the lower lobe of the lung. This also leads to the relation of the lower lobes and the diaphragm and to the participation of the phrenic nerve. In diaphragmatic pleurisy, pain in the neck and shoulder sometimes occurs. It thus seems reasonable to connect isolated shoulder pain with diaphragmatic pleurisy, by means of the sensory fibers of the phrenic. A similar explanation might hold true for the visceral abdominal pains of pleurisy. An alleged acute rheumatic arthritis in the shoulder should naturally suggest the necessity of excluding pleurisy.

**Critique of Electrical "Antifat" Cures.**—Rochinhold mentions in particular the methods of Bergonié, Nagelschmidt and Schnée. The former is chiefly discussed, as the last two have only modified Bergonié's technique, and the author has had no personal experience with them. His conclusions are as follows: In Bergonization we have a contrivance for passive muscular motion which may be added to or replace entirely active muscular motion. It is of service when associated with proper diet. Like active exercise it produces free perspiration and melts off the fat, while albumin is gained. It is best not to regard the process as one for physical reduction but for muscular development in the various asthenic conditions, and incidentally the heart.

**Filariasis of the Eye.**—Raubenbusch of Buenos Aires describes a case of this parasitism without a single comment. The patient himself had made the diagnosis without difficulty as the living parasite could be seen in the conjunctiva, near the inner canthus. The author was for referring the patient to a specialist but received the answer that if the worm was not promptly removed it would soon enter the eye, from which it had emerged. This same parasite seemed to have made its way throughout most of the body before reaching the right eye. The author cocainized the eye, made an incision, and drew out the parasite which lived for a time in warm saline solution. When the patient and specimen were shown to the Argentine Medical Society no member present had ever seen or heard of the particular species of parasite (*Filaria loa*) in that part of the world.

### Deutsche medizinische Wochenschrift.

*January* 1, 1914.

**Diabetes and Surgical Affections.**—Karewski concludes as follows: Everyone who comes to a clinic for operation, must be thoroughly examined for diabetes. Every form of the latter affection requires careful consideration from the standpoint of the internist, both during and after operation. Neither the mild forms of diabetes, nor preparative treatment protects one from coma after surgical intervention, and if anything make the prognosis worse. The wounds heal under strict asepsis in any form of diabetes without disturbance. But with wound infection the disease runs a malignant course and increases the dangers of this disease of metabolism. Every operative intervention which is suitable for life saving or restores the capacity for labor, is not only permissible, but represents a demand; but any superfluous bloody intervention should be omitted.

**Behring's Latest Serotherapy of Diphtheria.**—Hahn and Sommer relate the latest steps in the production of a perfect serotherapy of diphtheria. The toxin-antitoxin mixture, injected subcutaneously and intramuscularly, while it leads to a most active production of protective antibodies, is found to be not yet adapted to practical medicine, because the absence of local or general reaction give us no chance to fix a standard of dosage. But when injected intracutaneously a strong local reaction results accompanied by a slight general reaction which gives us an idea of the extent to which the defensive bodies have been increased. In five epidemics and one endemic 633 children were fully immunized without harm. Of this number but two contracted the disease during the epidemic—one in an abortive form, and the other without bacillary finds. A few cases appeared later, running an abortive course. We learn therefore that a protective inoculation can last to a certainty only some ten days.

**Twilight State and Subsequent Amnesia After Slight Concussion of the Brain.**—Meyer describes a most interesting case, summing up as follows: Female, 31, had murdered her four children by drowning. She was apparently sane but her ancestry was very poor. Put to intelligence tests she was subnormal—there was a certain grade of debility. Her married life had been very unhappy and on account of the disposition of her husband, and the increasingly bad prospect for the future, it was thought possible that she killed her children out of love for them. This motive is regarded as quite normal under certain circumstances, it being held that a woman of normal mind may be so wrought up as to commit evil with the best of motives. Before the deed was committed, the woman had sustained from her husband some 20 blows on the head. She was laid up on one occasion with vomiting, vertigo, etc., and no doubt a slight concussion resulted. The immediate effects of the crime and of her future caused not the least disturbance in her mind. On the other hand there was amnesia in regard to the murder and also of a trip taken to her parents' home as a result of the same. That this behavior could be regarded as a "twilight state" with an impulse to murder, in the epileptic sense, was the opinion of the author.

## Insurance Medicine.

**Prognosis of Heart Affections from the Life Insurance Aspect.**—Dr. James MacKenzie says that in the examination of individuals for life insurance, he was the means of rejecting a number because of some heart affection, who have been able to follow their ordinary occupations for many years and who have never suffered from any form of heart failure. This experience led him to seek the reasons why some individuals with certain characteristic phenomena drifted and died, while others seemed little the worse. In his investigations of the subject, it was always necessary to seek the associated phenomena and to note what bearing the cause of the abnormal sign has upon the efficiency of the heart, does it indicate heart failure or foreshadow the occurrence? Heart failure is the inability of the heart to maintain a circulation so efficient that it can meet the strain a healthy, vigorous life demands and is an expression of an exhausted heart muscle. The heart forces may be considered as composed of two kinds—a rest force, strong enough to maintain an efficient circulation when the body is at rest, and a reserve force, brought into action when the body or any part of it is called into activity. The amount of reserve force varies in different individuals, making the standard peculiar to the individual. Heart failure sets in by a limitation of the cardiac response to effort in the first instance, and later, the limitation becomes more and more restricted, until the rest force is encroached upon and dropsy or dyspnea appears. The first evidence of heart failure is entirely subjective and gradually increasing until physical signs appear. The presence of any sign revealed by physical examination, however abnormal it may seem, is of no serious significance as long as it is the only sign present, or as long as there is no limitation of the reserve force of the heart. MacKenzie considers this statement of very great importance in the prognosis of heart affections, especially with regard to life insurance.

Among the most common manifestations of the heart which are to be regarded as abnormal are the irregularities, yet perfectly normal hearts may be frequently irregular in rhythm. The inability to distinguish the grave forms from those which are normal and not serious has led to the assumption that all irregularities are of evil import. There are certain irregularities, such as the youthful type and the extra-systole, present so frequently in healthy people and occasioning no signs of heart failure, that they should never be considered as impairing the prospect of the individual, when they are the only manifestation. If present with other signs, then the prognosis should be based on the other signs, not on the irregularity. Other irregularities, such as auricular fibrillation, heart-block, pulsus alternans, etc., should arouse an inquiry as to how far their cause has embarrassed the heart muscle as they are always the outcome of an actual heart lesion, and are accompanied by other evidences of cardiac disease. It is, therefore, upon the associated evidences that the decision must be made. Murmurs are the second important group of heart affections. With reference to life insurance work, MacKenzie divides them into two great groups: those of no significance, and those whose significance has to be considered and weighed. In the first group are embraced all those which are termed functional, and those in which there is a doubt whether they are functional or not. They are supposed to originate according to their mechanism, as mitral, tricuspid, etc. From the life insurance aspect, when these murmurs are the only phenomena present, they are not to be regarded, or when associated with a harmless type of irregularity, they occasion no concern; but when associated with a limitation of the reserve force, as a weakened heart muscle, the decision should be based on the cause of this inefficiency, which is either a lesion of the muscle or an affection which has impaired the muscle. In the second group are placed all the organic murmurs, and here a variety of conditions is to be found. These should be studied as to whether the causative process is stationary or progressive, and the amount of embarrassment caused the heart muscle. Murmurs indicate a diseased condition of the valves, and usually the process is not quiescent. In cases of heart failure with murmurs, the muscle lesion is the causative agent and not the regurgitation, as supposed by the upholders of the back pressure theory. The point to be considered for prognosis is the appreciation of the condition of the heart muscle, which can be learned only by a full knowledge of how the heart responds to effort. Exhaustion of the reserve force, in a healthy or diseased heart, is always accompanied by sensations of distress, and the premature occurrence of these signs indicates the limitation of the heart muscle. Breathlessness is the most common sign and the one least considered on the ordinary insurance blank. The knowledge obtained in recent years with reference to the irregularities constitutes almost a revolution, and greatly increases their diagnostic and prognostic significances.—Life Assurance Medical Officers Association.

**Chronic Myopia a Disease in the Sense of the Imperial Insurance Law.**—One of the German courts having decided that short sight is an abnormal condition of the body, if the degree is great enough to demand artificial sharpening of the vision—thereby making the summoning of medical aid necessary—there can be no doubt that myopia constitutes a "disease" in the sense of the Law of Sickness-Insurance. If, however, we take account of another passage in the said law, the risk is expressly commanded to wear glasses as a minor requirement. Now in mild degrees of short sight the risk at most invokes the aid of a physician for the time being, the service ending with the prescription for glasses, and the question of earning capacity is usually left as before. But when short sightedness of such a high degree is involved, that further recourse to lenses no longer aids vision, and the earning capacity either fails outright or becomes limited, the question of operation may come up. In such a case we count upon a chronic disease state, which places the subject under the charge of the sick-benefit society. In the matter of invalid revenue it was established that with short and weak sight which continues to develop until such a degree is reached that the earning capacity is estimated at about 25 per cent. the risk must be estimated as incapable of earning in the sense of the Invalid Insurance Law. Aside from short sight the patient's eyes were found normal. Hence it is established that the complainant is both ill and without earning capacity in the sense of the Sick-Insurance Law.—*Zeitschrift für Versicherungsmedizin*, August, 1913.

# Book Reviews.

CASE HISTORIES IN PEDIATRICS. A Collection of Histories of Actual Patients Selected to Illustrate the Diagnosis, Prognosis, and Treatment of the Diseases of Infancy and Childhood, with an Introductory Section on the Normal Development and Physical Examination of Infants and Children. By JOHN LOVETT MORSE, A.M., M.D., Associate Professor of Pediatrics, Harvard Medical School; Associate Visiting Physician at the Infants' Hospital, and at the Children's Hospital, Boston. Second Edition. Price, $5.50. Boston: W. M. Leonard, 1913.

THERE can be no question that the teaching of a subject by means of concrete case histories has distinct advantages over the generalized descriptions of disease. The first edition of this book was greeted as an interesting and lucid exposition of this method in the teaching of pediatrics. In its second edition the book has grown considerably from 341 to 639 pages, and from a discussion of 100 to one of 200 case histories. The later edition covers the entire field of pediatrics and includes a full and detailed chapter on the normal development and physical examination of children. Apart from the vividness and emphasis upon important points which are associated with the concrete discussion of an actual case as recorded in the author's notes, one may point out the full consideration given to the subjects of diagnosis and prognosis, and the ample and detailed discussion of the treatment. No vague generalities are here given. The actual and minute directions in the treatment of each case are set down as they would be given to the parent in the sick room or to the nurse in the hospital ward. The book is fully illustrated with excellent photographic reproductions of actual cases. The type is large, and the paper and binding are of excellent quality. This book should be invaluable to the undergraduate and postgraduate students in pediatrics.

KLINISCHE BEITRÄGE: BEITRÄGE ZUR KLINIK DER INFEKTIONSKRANKHEITEN UND ZUR IMMUNITÄTSFORSCHUNG (MIT AUSSCHLUSS DER TUBERCULOSE). Herausgegeben von Professor Dr. L. BRAUER, Ärztlichem Direktor des Allgemeinen Krankenhauses Hamburg-Eppendorf. Redaktion: für die Originale: Dr. H. SCHOTTMÜLLER (klinischer und bakteriologischer Teil), Dr. H. MUCH (immunitätswissenschaftlicher Teil), beide am Allgemeinen Krankenhaus Hamburg-Eppendorf; für die Ergebnisse: Professor Dr. H. LÜDKE in Würzburg. II Band, I. Heft. Price, 20 marks per volume. Würzburg, Verlag von Curt Kabitzsch, 1913.

THE following articles are comprised in this number: "The Etiology of Poliomyelitis with Special Reference to the Rhenish-Westphalian Epidemic of 1909," by Deusseu; "The Etiology of Suppurative Disease of the Female Adnexa," by Schottmüller and Barfurth; "The Treatment and Nature of Diphtheritic Paralysis," by Römer and Viereck; "Experiences with Krauss' Typhoid Serum," by Gaupp; "Comments on the Article by Carl Römer, 'On Bacteriemia in Abortions and its Clinical and Theoretical Significance,'" by Sachs; "A Reply to the Foregoing Comments," by Römer; "Comments on the Latter Reply," by Sachs, and "Conclusion," by Römer. This number contains also the following collective reviews: "The Rôle of the Bloodvessels in Acute and Chronic Infectious Diseases," by Stadler, and "The Methods in the Preparation and Cultivation of Spirochetes," by Sowade.

CUNNINGHAM'S TEXTBOOK OF ANATOMY. Edited by ARTHUR ROBINSON, M.D., F.R.C.S.E., Professor of Anatomy, University of Edinburgh. Fourth Edition, Enlarged and Rewritten. Illustrated by 1,124 Figures from Original Drawings, 637 of which are Printed in Colors, and Two Plates. Price, cloth, $6.50 net; half morocco, $7.50 net. New York: William Wood & Company, 1913.

CUNNINGHAM'S textbook of anatomy first appeared in 1902 and received almost immediate recognition as a master work on this subject. The rapidity with which it was first recommended and then required in so many of the leading medical schools of the English speaking world was remarkable and could be explained only on the ground of superior excellence as a teaching instrument. Since then the book has enjoyed an ever-increasing popularity, has been kept well abreast of the times by three careful revisions, and now, in its fourth edition, may be considered unquestionably one of the best if not *the* best textbook of anatomy extant. Owing to the deaths of Professors Cunningham, Birmingham, and A. H. Young, changes in the authorship of several of the sections have been rendered necessary. Every section has been revised, some have been partially and others completely rewritten, while the work has been embellished with many new illustrations, more than half of which are in colors. Prof. Arthur Robinson, the editor of the present edition, is Cunningham's successor as professor of anatomy at the University of Edinburgh, and is eminently qualified to carry out the ideals of his distinguished predecessor.

Contrary to a rather firmly established custom, the usual introductory section on histology has been omitted in this work. This seems a step in the right direction since the subject is so large that it can be treated only in the most cursory and unsatisfactory manner in the few pages usually allowed for this purpose. Here the initial section is upon embryology, a subject which deserves the first place in a book devoted to the study of anatomy. This has been contributed by Robinson and embodies the results of the latest researches along this line; furthermore, the description of the development of the human embryo is unusually clear, and made still more so by the employment of more than 100 illustrations, many of which are printed in several colors. Robinson has also revised and partially rewritten the section on the vascular system. Osteology is written by Prof. Arthur Thompson. One of the features which attract the reviewer's attention in this section is the employment of varicolored illustrations to show the method of ossification, the epiphyses, some of the different divisions and processes of certain bones and articulations with other bones. The value of this innovation is particularly evident when one studies the skull as a whole, the part taken even by the elusive sphenoid being shown with remarkable clearness, in both its external and internal aspects. Other sections and their authors are: The Articulations, Prof. David Hepburn; The Muscular System and Peripheral Nervous System, Prof. A. Melville Paterson; Central Nervous System, Prof. G. Elliot Smith; Organs of Sense and the Integument, Prof. Robert Howden; Respiratory System, Prof. Richard J. A. Berry; Digestive System, Prof. David Waterston; Urinogenital System, Prof. A. Francis Dixon; Ductless Glands, Prof. A. Campbell Geddes; Surface and Surgical Anatomy, Harold J. Stiles. It is impossible to devote the space necessary for even brief mention of important points in these sections.

After a quite extensive study of the book the reviewer is impressed with two facts: first, the descriptions are remarkably clear and concise, and this seems to be true no matter what part of the book one refers to; second, the illustrations *illustrate*. In elaboration of this dictum we may say that while there is a profusion of illustrations, it is hard to find one that does not add materially to the correct understanding of the subject under discussion. Furthermore, by the use of many colors in a large part of the illustrations, results have been obtained as to perspective and in showing the relations of adjacent parts to each other which are little short of marvelous. The Basle nomenclature is used throughout the book, but in an unobtrusive manner, the old as well as the new terminology being given. Consequently those who learned only the old names for arteries, muscles, nerves, etc., will have but little if any difficulty in reading this text. It is hard to see where any room has been left for improvement in future editions.

PYORRHEA ALVEOLARIS. By FRIEDRICH HECKER, B.Sc., D.D.S., A.M., M.D., Member of the Academy of Science of St. Louis, Mo.; Consultant at Bell Memorial Hospital of the School of Medicine, University of Kansas, Rosedale, Kan.; Consultant at St. Margaret's Hospital, Kansas City, Kan. Illustrated; price $2.00. St. Louis: C. V. Mosby Company, 1913.

THIS book presents a lucid account of the present-day knowledge of pyorrhea alveolaris. The author regards this disease as the result of constitutional and local exciting causes. The latter lower the vital resistance of the alveolar process, the gum, and the peridental membrane. Nine different varieties of pyorrhea alveolaris are differentiated. The vaccine treatment is described in full, including the technique of the examination of blood smears, the incubation and examination of bacteria, and the preparation of vaccines. The book is, therefore, eminently practical. Its literary garb may, however, be improved upon.

# Society Reports.

## THE PRACTITIONERS' SOCIETY OF NEW YORK.

*Two Hundred and Fifty-eighth Regular Meeting, Held Dec. 5, 1913.*

THE PRESIDENT, DR. WALTER B. JAMES, IN THE CHAIR.

**Treatment of Retrodisplacements of the Uterus.**—Dr. WILLIAM M. POLK read this paper (see page 231).

Dr. BRYANT said he had been much interested in the details of the operation. He did not claim special knowledge, but it seemed to him that the anatomical conditions were very satisfactory. He would like to congratulate Dr. Polk. He hoped the methods would prove as faithful to the trust as they had done in other procedures related thereto.

Dr. GIBNEY asked Dr. Polk if the retroversion of which he spoke was thought to be a common cause of backache in women. He probably knew that with many of the profession the cases of irritability and nervousness were referred to retroverted uterus and menstrual disturbances. These cases went from one doctor to another. If they came under his care he might send them on to a gynecologist to see if the uterus was misplaced or the ophthalmologist to see if refraction was wrong. The rectologist also treated them as sometimes the trouble was supposed to lie in the rectum. He wondered how the question of backache could be settled.

Dr. KNAPP asked if retroversion was associated with general enteroptosis and if it had any connection with the question of child bearing. Many women, those who had a very long narrow chest and a rather protuberant lower abdomen, as in some young girls and unmarried women, seemed to be inclined to retroversion. In the cases of marked enteroptosis that one saw with misplaced stomach and pelvic organs, the lesser curvature of the stomach below the umbilicus, would not that form a factor in the production of a retroversion? Would procedure directed toward relieving the enteroptosis not also relieve the retroversion?

Dr. CONNER asked why the peritoneal cover should be considered a structure that had any textile strength and why it helped to maintain the position of the uterus. He had supposed that it was elastic and had no strength at all.

Dr. ABBE asked what suture material was used.

Dr. POLK said in reply to Dr. Gibney that so far as retroversion was concerned, any congested condition of the uterus, acute or chronic, would give symptoms of backache. When retroversion was present and the uterus was sensitive you would always find backache. It was a sort of general symptom which accompanied congested uterus, no matter what the position. In reply to Dr. Knapp he said that he was not sure that enteroptosis produced retroversion, but there was reason to believe that the condition was caused by intrapelvic pressure. This was, of course, to a certain extent relieved by proper support of the abdomen, just above the pubis; in other words a pendulous abdomen was conducive to the condition of retroversion, and at any rate prevented its relief. With proper abdominal support the position of the uterus was better maintained. There had always been a certain amount of difference of opinion as to the line of pressure that bears on the pelvis from the abdomen, but there was no difference as to what we knew of the sustaining effect of the respiratory movements of the abdomen in the normal abdominal cavity. The movements of respiration undoubtedly had some influence in the position of the organ; when everything was relaxed these movements were lost and we found we were at sea as regarded the right or wrong of the forces determining the position of the organ. In reply to Dr. Conner he said that the peritoneum by itself would offer very inefficient resistance, but when sufficiently backed up it had a considerable degree of resistance, just as, for instance, if you left the sac of a hernia and repaired the muscular structures, you could not be sure of the result. Replying to Dr. Abbe, Dr. Polk said he had been using kangaroo tendon. He thought a lasting material was necessary. Dr. Polk said he had two different cases to report which were sufficient to indicate the advantages claimed for the procedure mentioned in his paper. One was that of a woman who had had retroversion of the uterus for many years. She desired to become pregnant. The uterus had not been treated by pessary because she could not take the necessary time for treatment. The operation just mentioned was performed and this brought the uterus into proper position. Later the woman became pregnant, and she passed through her pregnancy and after parturition she returned for examination. The uterus was still in good position, at a date six months afterwards. The second case was that of a woman who had had many children. This operation was done and the result was wholly satisfactory. The point was that the structures to support the uterus and correct this difficulty should be properly chosen. Attempts had been made by the profession ten or fifteen years ago which were not entirely satisfactory. With the addition of the plication of the structures of the peritoneum lying near the uterus it seemed advantages were afforded. Of course this procedure was open to objections that could be made to others, namely, it did not meet all the difficulties of the situation. But it did strike more fundamentally at the difficulties of the situation. It tried to restore the normal structures upon which the position of the uterus depended. Peritoneal displacements of the pelvic floor might be classed with the herniæ; this was an old story. It seemed to him that the peritoneum should be cared for in the same way as in the treatment of any ordinary hernia, inguinal or femoral. It could be reached in the same way along the lines suggested, so as to lift up the portion of the peritoneal sac implicated in the backward and downward displacements of the uterus. Retroversion was the first step of a prolapse. If you were able to lift up the peritoneal surface of the pelvic floor you were striking at the threatened prolapse. Then if you could shorten up the basic structures that held up the uterus, the lower lines of the broad ligament and posterior attachment of the uterus, you were bringing into play the normal supports. Correct the difficulty at its root and it went further than procedures looking toward the unnatural suspension of the organ.

**Osteitis Fibrosa of the Hip.**—Dr. GIBNEY reported a case recently admitted to the Ruptured and Crippled Hospital, which on first examination appeared to be a sarcoma. On further study, however, the case seemed to be almost identical with one described by Dr. Freiburg of Cincinnati, in a paper on certain lesions related to bone cysts. The result of operation in this case had been, comparatively speaking, a good one. Dr. Gibney had meant to have the boy at the meeting, but the preceding Tuesday he had done an exploratory operation on the boy's hip and had taken a piece of bone out to overcome the deformity. The boy had been placed in plaster from his hip to his toes, so that the patient could not be shown, but would be later. Dr. Whitbeck had, by invitation, brought a patient to supplement this case. Dr. Gibney's patient was shown to Dr. Coley who said the *x*-ray picture suggested sarcoma, but the history was against the diagnosis of sarcoma and, after exposure at operation he said it did not look at all like a sarcoma. In Dr. Gibney's opinion it was a case of osteitis fibrosa. Dr. Whitbeck's case would bear on the subject, although the *x*-ray showed it to be more cystic than Dr. Gibney's. The patient was a boy of 11 years, admitted Nov. 13, who gave a history of 9 years' duration, under treatment all the time, but never before having had to use a crutch. In the hospital they found deformities of adduction and a rotation outward; the position in the third stage. A few days ago he had made an incision over the mass which was an osteitis fibrosa. The adductors were divided and by bringing the edges of the whole together he got a good position. He followed the procedure of Dr. Freiburg as his case corresponded so closely and he had got a very good result. Von Recklinghausen had described this type of case in 1891 and stated that it was a metaplasm rather than a neoplasm.

Dr. CONNER said he would like to ask about the nature of the case; he did not know just what was to be understood by the term metaplasm.

Dr. GIBNEY, replying to Dr. Conner, said it meant replacement by tissue of the same embryological nature. This tissue replaced normal bone tissues by metamorphosis; these changes made the normal bone look very much like bone cysts. Subperiosteal cysts were often benign. He had seen many called sarcoma and treated as such. This case had gone on eight or nine years; Dr. Whitbeck's had gone for four or five. The cases were painless and shortening of the leg was the only symptom. Sometimes the head and neck of the trochanter major and minor were involved or part of the shaft. One of Freiburg's cases occurred in the

tibia; one in the shaft of the femur. These were reported a year ago before the Chicago Medical Society. In Murphy's last volume of clinics he described one that looked like hip disease without the pain. The patient was not lame at all until the adductor became shortened. Dr. Gibney did a cuneiform osteotomy over the deformity as was done by Freiburg with good result. The patient would be shown at the next meeting, with the *x*-ray pictures before and after. Dr. Jefferies, the pathologist to the hospital, had just reported as follows: "The tissue sent by Dr. Gibney shows bone and cartilage both of which exhibit inflammatory changes, the etiology of which does not appear. No neoplasm was observed on section cut. One bit is a portion of perichondrium showing acute inflammation."

Dr. WHITBECK said that the *x*-ray of this case showed a remarkable resemblance to the case presented by Dr. Gibney. The patient, a girl of 14 years, came to the orthopoedic clinic at Bellevue last summer. Her history was that 5 years ago she fell and struck her hip on the left side; there was some pain for about a week but no more trouble until about 20 months ago when she began to limp, the leg becoming shorter; there was no fresh injury at the beginning of the limp and no pain or discomfort. She went to a large orthopoedic hospital a year ago and a spica was applied which she wore for a week. This was taken off at home and she had worn no appliance since. Six months ago the patient fell again, striking the same hip; there was some pain and soreness about the hip; she was admitted to one of the large hospitals and put in bed with extension; she was then transferred to the Island for four months whence she went home, the symptoms having disappeared. There was no pain or discomfort but the shortening and limp continued. She was brought to Dr. Whitbeck last summer because of the limp which was very noticeable when she walked. At the time when patient was first seen by Dr. Gibney, two months previously, there was slight flexion and adduction. Over the left trochanter was a large mass which fitted into the fist, not tender, not movable, and very hard. The motions in the joint were moderately limited, especially abduction and full extension. Dr. Gibney supposed that she had either an old fracture or an old tuberculous healed lesion. The patient had a very great enlargement of the neck of the femur, possibly an old fracture; below that a nodular mass; but it was hard to say whether the deformity was a fracture of 5 years ago or 6 or 8 months ago. Dr. Whitbeck had supposed the case to be sarcoma, but it resembled so closely Dr. Gibney's case that, on examination of that case under exploratory operation, he was inclined to think this case also was an osteitis fibrosa. The girl had gone to Bellevue Hospital for exploratory operation, but it was refused. At present the patient had no symptoms and walked to school; she had not lost weight; was in perfectly good health; the leg showed an inch and a half shortening; the limitation of motion was only moderate.

**Sarcoma of the Clavicle.**—Dr. GIBNEY showed this case. The patient came into the hospital on Dec. 16, 1912, with a tumor involving the inner half of the right clavicle, of three weeks' duration. It had grown very rapidly and was regarded as a sarcoma. The operation by Dr. Coley, who operated at once without waiting for a microscopical confirmation of the diagnosis, consisted of total excision of the clavicle and removal of the tumor. The specimen was a periosteal sarcoma of the class called small, round-celled sarcoma. The boy remained in hospital one week after the removal. It began again to enlarge. Dr. Coley gave toxins and it responded promptly and was apparently cured. The patient was shown before the New York Surgical Society in April. He returned in June with the tumor growing again in the pectoral region and neck, having attained the present proportions, but it did not respond to the toxins or the *x*-ray, except that the growth was held in check, but showed little decrease in size, and he suggested bringing the patient to let Dr. Abbe see if the case was a suitable one for radium. Both Dr. Coley and Dr. Darling thought that the toxins and *x*-ray should be continued, but gave little hope that a cure could be effected. Dr. Coley considered the case inoperable.

Dr. DARLING said that when the patient came to him about a month ago the tumor was the present size. He was given the usual *x*-ray treatment 3 times a week for 4 weeks; during that time it got no larger. By examination it seemed that the sulci were a little deeper and that there was a little more room under the jaw. The cough and the breathing embarrassment became better. Since the use of the toxins the *x*-ray treatment had not been kept up. The tumor had not grown for two months. The *x*-ray treatment was given 3 times a week over a period of 6 weeks, filtered through 3 mm. of aluminum. The erythema dosage was not measured.

Dr. ABBE said this seemed to be a challenge. He did not know whether radium would produce an effect but it would not surprise him. He had known it affect cases of round-celled sarcomata. One enormous one of the mediastinum was checked wherever radium was used, but the case was too massive for a cure to be expected. He was now treating one of the head, a large one, cup-sized, on the top of the skull; it seemed hopeless. The *x*-ray showed perforation of the bone. Much bone tissue was involved. The woman submitted to leveling the lump in the skull to the dura. It was found to have perforated the bone on all sides. He curetted it out and curetted the base of the dura, laid back the flaps and made a heavy application of radium, (Gamma radiated by distance filtration). The woman went home three weeks later in good condition, the wound in the head nearly healed and looking in good shape. The character of the healing was extraordinary considering the infiltration of the bone. The mediastinal tumor he had watched for three years and the boy died this summer. One rib was removed where the tumor had fungated out on both sides of it and the radium plunged deep in the chest. He controlled this mass for a year, but after a year it started again to enlarge. He then gave all the reduction he could, but it was unapproachable. He believed round-celled masses ought to yield. The boy's case presented by Dr. Gibney was external and a very nice example in which to see what effect radium had upon it. It would take a good deal of time and a good deal of radium and a good deal of thought to know how to handle it. As the toxins had failed it might be a fair chance to try this new agent, working in cell structure of this type.

Dr. EWING said that he had been much interested in the structure of this and other similar tumors of bone, which belonged in a definite group of undifferentiated round-celled sarcoma. The origin of these tumors was quite obscure. They probably did not arise from marrow cells and were quite different clinically from any known type of myeloma. He had an impression that they must originate from embryonal cell groups, either superfluous cells that should have gone to form bone or from aberrant cells, as from thyroid, adrenal, or even enamel organ. The prognosis was very unfavorable and he feared that Dr. Abbe had accepted a difficult challenge. These tumors often produced general metastases. The cells did not resemble those of the ordinary hypernephroma.

Dr. BLAKE said it was interesting to note that recurrence was not taking place in the clavicle. The metaplasia of cells could occur before the cells became bony.

**Extensive Wound of the Abdominal Parietes.**—Dr. POLK gave a brief report upon a case shown before the Practitioners' Society six years ago. Subsequent examination has shown that the conditions then attained have been maintained. The case was one of a gun shot wound of the abdomen. All of the left lateral surface of the abdominal wall and the deeper portions down to the intestines were blown off, including the upper crest of the ilium and also the spinous processes in the lower portion of the lumbar region. This accident occurred 9 years ago. The conditions reported to this Society had been thoroughly maintained, so that the man's abdominal surfaces had kept in place and he had been able to live the life of an ordinary normal individual. The great difficulty at the time of operation was to find peritoneal covering for the intestine. The surface to be covered was the region lying between the lower ribs on the left side and the crest of the ilium on the same side and from the outer border of the rectus muscle back to the spinal column. An outer cover was obtained by transplanting the skin and subcutaneous fat adjoining chiefly from below to prevent adhesions between such an unprotected surface as the intestine then presented, and this cover of fat and skin, a peritoneal cover had to be found. The omentum was brought over and stitched into place and served the purpose well. It had proved a successful procedure, and the man was in excellent condition.

Dr. BRANNAN said that he remembered perfectly well seeing the man at the meeting, of whom Dr. Polk spoke. It was a wonderful operation and he was de-

lighted to hear the patient had continued to do so well.

Dr. GIBNEY confirmed Dr. Polk's statement of the excellent condition of the case reported. He was convinced that the patient could give him a good beating at golf.

**Papilloma of the Larynx.**—Dr. ABBE presented this case which he had previously shown a year or two before when there was a complete aphonia. The patient was now perfectly well. She had lost her voice both for singing and speaking, but after one or two months it came back. There was a very large papillomatous mass. Dr. Culbert took it out. It recurred. An application of radium of 30 minutes had effected the cure in eight weeks. The vocal cords showed a perfectly normal condition. Radium did not affect the normal structures and the papillomatous growth yielded readily to it. A second case was that of a woman who had lost her voice and had difficulty in breathing. One or two half hour treatments cured her. The larynx was absolutely clean, no sign of tissue, though the anterior half was a little atrophic and the voice was still husky. He had seen three cases lately and treated for the first time today the third patient to be shown that night. The man worked in the post office and had had an aphenia for five years. He had papillomata of both vocal cords. He had 30 minutes treatment of 100 milligrams which was the correct dose. In two months' time he would be shown. In 8 weeks the vocal cords ought to be clear. These cases were the despair of laryngologists. They reappeared if cut out. Dr. Stickle, a laryngologist of good standing, had treated this man, cutting out the growth and making an absolutely clean excision, but it had reappeared.

Dr. MILLER asked if there were any local reaction.

Dr. BLAKE asked if radium was effective in ordinary papillomata of the hand and if papillomata were contagious.

Dr. EWING said he did not think there was adequate ground for assuming the contagiousness of papillomata of larynx or bladder. In these cases the whole mucosa was predisposed to warty outgrowths and subjected to the same factors of irritation. When a papilloma developed at one point, it was very apt to develop *de novo* at another, especially at points of contact with the original tumor where irritation was intensified. The most active forms of laryngeal papilloma in children might spontaneously regress, if let alone, especially at puberty.

Dr. ABBE said it was a case of extension from one cord creeping round the commissure to the other. Proximity would suggest the reason for both cords being involved. In cases of papillomata on the soles of the feet which had been very painful, they had disappeared with one application of radium. The difference between normal structures' resistance to radium and the resistance of hypertrophic structures was here clearly shown. In the vocal cords the normal structures were never injured. The resistance was perhaps 20 times as great in normal structures. In reply to Dr. Miller he said that there was no local reaction. He had left 100 mm. for half an hour and there was no edema. Replying to Dr. Blake he said that radium was effective against papillomata anywhere on the body,—in the throat or on the tongue. He had had many cases of papillomata of the tongue that looked cancerous and were brought to him as cancer. In some cases the roof of the mouth was covered and they had yielded to one-half or one hour's treatment.

**Vesical Calculus.**—Dr. BANGS presented this case. In 1911 a man, aged 73 years, came to him with the usual symptoms of enlarged prostate and with an infected bladder. In June of 1911, after some preliminary treatment of the bladder to reduce the degree of infection, he performed a suprapubic prostatectomy, and the relief which was given lasted nearly a year. Then symptoms of dysuria with a small amount of retained urine became prominent. Urethrocystoscopy revealed a cicatricial fold of mucous membrane posterior to the internal meatus. This was divided by means of a perineal incision, and was followed by great relief. He then disappeared from view until April of this year, when he appeared with symptoms of stone in the bladder, but he refused to have any examination made. He told Dr. Bangs that he had meandered from one doctor to another and had been to a surgeon who said that he had stone in the bladder. He had been taken into a sanatorium, kept one and a half hours under ether, and when he returned to consciousness, was told that there was no stone in his bladder. The patient said that he bled very freely for a day or two after the examination, and was in bed with fever, painful urination and malaise for nearly two weeks afterwards. He had been compelled to wear a rubber urinal constantly and urination took place every few moments with great pain. He came to see me in September and a diagnosis of stone in the bladder was very easily made. After a few days' preliminary treatment in a sanatorium, litholapexy was performed, removing a stone of about the size of a hen's egg. The first grasping of the stone was a little difficult, but after that no particular difficulty was experienced. Cystoscopy was resorted to three times during the operation, and after the bladder was apparently emptied, the cystoscope revealed a diverticulum in the right lateral wall of the bladder. In this two stones were embedded, one apparently about the size of a hazelnut. The beak of a small lithotrite was insinuated into the semilunar mouth of this diverticulum, and the blades being gently separated, the stones were picked out and dropped into the base of the bladder, the larger one being crushed and both pumped out in the usual manner. On the fourth day, the patient went home and has been receiving occasional treatment for the chronic condition of his bladder, and now holds his urine sometimes six hours.

Dr. BRANNAN asked if the stone had formed after Dr. Bangs had first seen the patient.

Dr. BLAKE asked if the lithotrite was introduced by the aid of the cystoscope.

Dr. BANGS, replying to Dr. Brannan, said it must have formed during 1912, after the operation on the cicatricial fold, because there was no stone in the bladder at that time. From his history it must have begun to form some time in 1912. Replying to Dr. Blake he said no; the cystoscope was used first. The diverticulum and the stones in it were accurately located, and then the lithotrite was carefully introduced, and used as just described.

## NEW YORK ACADEMY OF MEDICINE.

### SECTION ON SURGERY.

*Stated Meeting, Held December* 5, 1913.

DR. LUCIUS W. HOTCHKISS IN THE CHAIR.

**Laryngectomy Combined with Gastrostomy.**—Dr. FRANZ J. A. TOREK presented this communication. He said that the feeding of a patient who had been subjected to an extensive laryngectomy, especially if complicated by a partial resection of the pharynx, was attended by difficulties and dangers. If a permanent tube was introduced through the nose into the esophagus, its constant presence not only caused the patient much inconvenience, but also interfered with the healing of the wound through the fact that the tube, which could not be kept aseptic, rested against the suture in the pharynx. This suture became infected and gave away, and not rarely necrosis resulted. The infection spread downward, and the tracheal stump which had been sutured to the skin might separate from it here and there. It might then happen that even after the patient had successfully rallied from the operation as such, he would aspirate secretions and succumb to a pneumonia. If, on the other hand, the stomach tube was introduced every time the patient was fed, the conditions were, if anything, still worse, for the introduction of the tube, which would be done, at least occasionally, by the nurses, might easily result in perforation of the suture line. Dr. Torek had experienced such a case in which the tube had been pushed through the suture line of the pharynx, and the accident was not noticed until the fluid food which was poured into the tube ran through the dressings into the patient's lap. In the case here presented he had overcome these difficulties in a very simple way. When the laryngectomy had been completed, he performed a gastrostomy according to Witzel's method in order to administer the food through the gastric fistula. The case was a far-advanced one, in which not only the whole pharynx and epiglottis had to be removed, but also the anterior wall of the pharynx had to be resected to the extent of 3 or 4 cm. and a portion of the base of the tongue likewise had to be excised. Under these circumstances the conditions for suturing the pharynx were, of course, very unfavorable. Nevertheless, although on the sixth day the presence of mucus in the wound gave proof that a portion of the wound had given away, the after treatment, particularly as regarded the change of dressings, was so simple that the difference between

this case and former ones was marked. The healing of the wound progressed without any disturbance. The pharynx fistula closed after four and one-half weeks, and the patient could again swallow both fluid and solid food. At the same time the gastrostomy tube was removed, and the gastric fistula closed promptly, without leaking a drop. The addition of a gastrostomy to an extirpation of the larynx did not add very materially to the severity of the operation; for the laryngectomy was done, as he had always performed it, under local anesthesia. In such advanced cases the severe dyspnea forbade operating under general anesthesia, unless one had chosen to perform a preliminary tracheotomy. This, however, one would prefer to avoid in the interests of asepsis. For local anesthesia, Dr. Torek used a one-half per cent. solution of novain with suprarenin, deep injections being made to anesthetize the trachea and larynx and superficial ones for the overlying soft parts. The deep injections were four in number on each side. The first, which was to block the superior laryngeal nerve, was made between the hyoid bone and thyroid cartilage into the thyrohyoid membrane two centimeters from the median line. The incisure of the larynx served as a guide to the median line. The other three injections were made at points further down to reach the posterior part of the larynx and trachea. For these a curved needle was of advantage. One of these was made behind the crycoid cartilage, another below the isthmus, and the lower one in the region of the jugular notch. At least five cc. of the solution was injected at each side, the injection beginning at the deepest spot and being continued, as the needle was drawn forward. The superficial injections were made corresponding to the lines of incision. Dr. Torek said he employed a "T-shaped" incision. The operation itself was made according to Gluck's well-known method, with transverse division of the trachea and suture of the tracheal stump to the skin in the jugulum. When the laryngectomy had been completed, the patient, who now breathed again with perfect ease, could readily take an inhalation narcosis through the tracheal opening for his gastrostomy. Of course, it was also possible to perform the gastrostomy under local anesthesia. This little addition to the technique of laryngectomy would be of good service in many difficult and extensive cases.

Dr. ROBERT T. MORRIS said that in cases in which a part of the esophagus had to be excised and a permanent gastrostomy fistula was desirable, a very good method consisted in turning down two ribbons of skin from the chest wall, suturing them to the stomach, and then dropping the stomach. These ribbons of skin gave epithelial lining face to face, and made a permanent gastric fistula, with little tendency to leakage, because of its angulation at the costal margin.

**Disappearance of Recurrent Mammary Carcinoma after Removal of the Ovaries.**—Dr. FRANZ TOREK said that the remarkable changes, described by Beatson, which the removal of the ovaries brought about in mammary cancer, amounting at times to complete disappearance of the new growth, had also been observed by other surgeons, and about ten years ago the author reported a series of seven cases of his own. As a rule, the improvement, though striking, was but temporary; but in a few cases cures had been claimed. The case presented differed from the others in the fact that, when the ovaries were removed, the patient was not suffering from mammary carcinoma but from recurrent nodes in the skin and subcutaneous connective tissue that had appeared in the neighborhood of the site of an operation for carcinoma of the breast performed about four and a half years previously. The patient was 57 years of age and was operated upon by Dr. Torek for carcinoma of the breast more than five years ago. The large area of skin transplantation visible now gave proof that the excision of skin was very extensive and that we had to deal with an advanced case. A scar extending up into the neck furthermore showed that the cervical glands were removed at the same time. The patient returned to the German Hospital in March, 1913, suffering from fibromyoma of the uterus, and she was placed on the gynecological division in the service of Dr. Gustave Seeligmann. On being examined she called attention to the fact that she had observed a number of nodes growing near the site of the former operation. The case was shown to Dr. Torek and there was seen the well-known characteristic picture of recurrent nodes, some of them larger than a finger tip rather close to the old scar, some smaller ones farther away. The larger ones were slightly reddened, the smaller ones had not changed color. At least a dozen of these were counted. The question came up whether, in the presence of these metastases, it was worth while to operate upon the fibromyoma. On the basis of his former experience with Beatson's operation he expressed himself in favor of it. A panhysterectomy with removal of both ovaries was performed by Dr. Seeligmann, after which the patient made an uninterrupted recovery and left the hospital. We saw nothing more of her until December 3rd, about eight and one-half months after the operation, when a member of the house staff who had seen her, referred her to him. Not a trace of the nodes could be found; they had completely disappeared. In his series of cases formerly reported there was improvement in every one; in one of them the growth disappeared almost completely. The tumors, however, began to grow again after the lapse of six or seven months, sometimes sooner, in every case except one. In that case the tumor which had been firmly fixed to the chest wall became so loose that he performed the radical breast operation about two months after the removal of the ovaries. He saw that patient as late as fifteen months after the operation without any signs of a recurrence that he could detect. She was then suffering from severe headaches, and a few months later he heard that she had died suddenly. He was unable to say whether she died from a metastasis within the skull or from some entirely different ailment. It was possible, therefore, that there was one cured case among his former series. The effect of castration upon mammary carcinoma had always been ascribed to some peculiar relation between the ovaries and the milk glands. The carcinomatous nodes were in the skin and subcutaneous tissue and had not appeared until more than four years after the breast had been removed. It had also been claimed by some that Beatson's operation was most likely to do good in women who were still in their menstrual life. In his former series, however, the best result, the almost complete temporary disappearance of the tumor, occurred in a woman who had passed the menopause. In this respect the present case stood in a rather unique position, for, although she was 57 years old, she menstruated regularly up to the time when her ovaries and uterus were removed. It seemed that the operation of castration in these cases should not be entirely relegated to the heap of therapeutic rubbish where most of them have placed it, but should be remembered in cases where they were unable to do anything better.

**Antiseptics versus Germicides.**—Dr. ROBERT T. MORRIS read this paper and made the point that bacteria and body cells while simple morphologically, were highly organized chemically, and in the course of evolution had come to be peers of each other in questions of warfare. A balance of nature was maintained between bacteria and body cells of higher organisms under normal circumstances. In cases of a wound this balance was temporarily lost and the surgeon was called to give help. When he employed germicides it was essential to remember that any agent capable of injuring the protoplasm of bacteria was capable at the same time of injuring the protoplasm of body cells and of their agents the phagocytes. Antiseptics which were not germicides and which did not injure protoplasm of either organism were for the most part preferable. He said that at the present time an immense amount of damage was done by some surgeons, by nurses and house-staffs of hospitals, and by the laity in general when they employed for wound treatment such germicides as bichloride of mercury, carbolic acid, peroxide of hydrogen, and iodine in cases in which the body cells of the individual would do more effective work when not paralyzed by the injury to their protoplasm. There was a place for the employment of germicides, and this required knowledge and skill on the part of the surgeon. Chinosol had a much greater antiseptic power than bichloride of mercury in the same strength of solution, but was not a germicide. We had been deeply imbued with the ideas of the third era in surgery—the pathological era—in which it was considered essential to destroy bacteria and their products. We were now passing into the fourth era of surgery—the physiological era—in which the fundamental idea was to turn the patient over to himself, to give him home rule in the simplest way which would suffice.

**General Anesthesia by the Ether-Oil Method (per Rectum).**—Dr. JOSEPH E. LUMBARD read this paper. He recalled that Pirogoff in 1847 introduced the method by

which vapor was pumped into the rectum by a hand pump or foot pump. In 1884 Dr. Bull and Dr. Weir of this city tried the method with very discouraging results, namely colicky pains in the intestines, rectal irritation, sloughing, and fatal hemorrhage of the bowel. The method again came before the medical profession in 1904, when Dr. Lehy and Dr. Cunningham of Boston reported about 100 cases in which a modified technique had been used, consisting of preparation of the patient and warming of the vapor. Even with this advance they were not able to avoid the bad results that had attended the use of this method. The new oil-ether method was worked out by Dr. Gwathmey of this city. The ether and oil were mixed, usually in the proportion of one part of oil to three parts of ether; this made an oily solution which prevented colicky pains and irritation of the bowel. The technique was very essential. The bowels must be very empty. They used catharsis and cleansing enemata, but not soapsuds, as the soap would form an emulsion with the oil which would greatly interfere with the action of the ether. A hypodermic of morphine and atropine should be given at least one-half hour before the introduction of the anesthetic solution. In large muscular men and those addicted to alcohol the speaker used hyoscyamine with the morphine and atropine. Dr. Gwathmey used chloretone to anesthetize the bowel before introducing the ether-oil solution. Dr. Lumbard had used chloretone and novocain solution, but did not see the advantage in doing so and had discontinued it. When practical the patient should stand with the catheter in the rectum to completely empty the bowel. He should then be placed on the left side with the knees well drawn up and a small male rubber catheter should be introduced into the rectum. A funnel should be attached to the catheter and the anesthetic solution introduced. The nurse should pinch the catheter so that it would take about five minutes for the solution to run into the rectum. The funnel might then be removed and the catheter clamped and left *in situ*. The patient should be kept very quiet, there being no talking and no handling of the patient until he was well under. It was better that the patient should be in bed. The average amount used was 60 c.c. of olive oil and 180 c.c. of ether. The ether might be detected on the patient's breath in three to ten minutes. The sleeping was followed by a state of anesthesia in ten to twenty minutes. The exciting stage was seldom seen and when present was very slight. The respirations and pulse were more normal with this method than with any other. The eye reflexes and mouth muscles might be active and still the patient be sufficiently relaxed, even for a long abdominal operation. The rectum and part of the large intestine might be slightly distended. In case the patient was too far under the anesthetic, a portion of the solution was withdrawn from the rectum. When not under, more might be added or the rectal anesthesia might be supplemented with a little gas or drop ether. After the operation a rectal tube should be introduced and the remaining anesthetic solution removed. After the bowel had been thoroughly drained two ounces of olive oil were put into the rectum to prevent any possible irritation. The recovery was, generally speaking, apparently prolonged. The waking excitement stage, usually seen in inhalation ether anesthesia, appeared to be absent in the ether-oil rectal method. The anesthesia blended so nicely with the normal sleeping state that it was difficult to tell where one ended and the other began. Dr. Lumbard had used this method in 30 cases, including hysterectomies, gastroenterostomies, goiters, Lane's plating operations, hernias, intestinal obstruction and appendectomies, psoas abscess, removal of bone in esophagus, suspension of the uterus, hypospadias, oophorectomy, appendicitis, cleft palate, cholecystitis, etc. The disadvantages of the method were that it required considerable time to prepare the rectum and for the preliminary hynodermic medication, the uncertainty of the length of the anesthetic stage, and the prolonged sleep. The prolonged sleep might be a distinct advantage to the patient, but the relatives did not always think so. The method had distinct advantages in head and neck operations; there was no mucous secretion about the air passages and respiration and pulse were normal nearly, and it did away with a mask that might be unclean. At present the method was only in the experimental stage, but it was safe to extend its use in selected cases. It was well worth trying in head and neck operations.

Dr. MORRIS said that after hearing the papers of Dr. Gwathmey and of Dr. Crile a few days ago he arranged a series of eight cases at a clinic at the Post-Graduate Hospital. In two of these the Gwathmey method was employed in detail, in two others the Crile method was followed in detail, and in the remaining cases older methods of anesthesia were employed. Notes were made in a comparative way upon the behavior of these patients. The cases in which oil-ether anesthesia had been employed by rectum, according to the Gwathmey method were one of ovarian cyst and one of acute appendicitis. Dr. Morris was particularly struck by the complete relaxation of the abdominal wall in these two cases, which was quite remarkable, the abdominal wall becoming entirely relaxed while the head reflexes of the patients were still quite active. It was his opinion that the method would prove to be extremely valuable after its various phases had been worked out fully and we have come to learn its limitations and objectionable features.

## SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

*Twenty-sixth Annual Session, Held at Atlanta, Georgia, December 16, 17, and 18, 1913.*

THE PRESIDENT, DR. JOHN YOUNG BROWN, ST. LOUIS, MISSOURI, IN THE CHAIR.

(*Continued from page 222.*)

**Surgery of the Ileocecal Coil.**—Dr. FRANCIS REDER of St. Louis, Mo., maintained that the most important feature for successful surgery of the intestinal tract was an early diagnosis. The great danger following a successful resection of the ileocecal coil with immediate restitution of the canal lay in the secondary changes which had taken place in the intestinal walls, induced by the disease for which the operation was undertaken. The complete atony of the bowel so often present activated various infective processes generated by the pent-up bacteria. Whenever the virulent contents of the bowel became stagnant at the site of suture, the suture frequently yielded and a peritonitis usually incompatible with life resulted. One of Dr. Reder's cases bore the gravest aspect, developed a fecal fistula on the fifth day after operation and recovered. This happy termination occurred after a patient had died by the ideal method on the ninth day following the operation. It demonstrated to him the fact that a vent became almost a necessary adjunct to this operative procedure. Having had two recoveries with the ideal operative measure that proved in no way more severe than a simple appendectomy, he at no time had underestimated the choice of an operation for the resection of the ileocecal coil. In his last two cases he had successfully employed a technique that carried with it the feature of an artificial anus, but in a modified form. The advantage of this technique was a vent that would not require risky operative measures for its successful closure. An incision was made through the outer edge of the right rectus muscle. Ablation of the tumor and the removal of the mesenteric glands were carried out. The division of the ascending colon and the ileum was an important feature. Inasmuch as cecal growths usually embodied considerable of the ascending colon, the hepatic flexure might not be far distant. It was of some advantage to make resection of the colon at or beyond the hepatic flexure. The division of the ileum should be such as to give the bowel the necessary latitude to be brought without tension in contact with the colon, near the point of resection. At least six inches of the ileum should be sacrificed. The end of the colon was closed with suture in the accepted manner. The end of the ileum was closed temporarily with a basting stitch so as to avoid spilling any of its infective contents while the operation was in progress. A lateral anastomosis with an opening not less than three inches was performed. With a suture conveniently placed through the serosa of the bowel, the end of the resected colon was secured to the abdominal wall as far laterally as could be done to leave tension upon the line of anastomosis and possibly anticipate any future displacement of the gut. After the anastomosis was completed the free end of the ileum was drawn out of the abdomen, was sutured to the parietal peritoneum of the wound into its uppermost corner away from any viscus that might be liable to get caught at the point of fixation, and the abdominal wound was closed. If a more advantageous implantation of the ileal end could be made through a small secondary abdominal incision, this should be done, and the primary

incision closed completely. Of the ileocecal resections there had been three deaths following the ideal method, and one in which an artificial anus was made. There had been two recoveries from the ideal method, one following an artificial anus, and two by his method. One patient developed a fecal fistula five days after operation.

**Cyst of the Appendix.**—Dr. Rudolph Matas of New Orleans reported and exhibited with lantern slides a specimen of a rare, retroperitoneal, multilocular, retrocecal cyst of the appendix veriformis of large size, weighing 1,582 gms. (over 52.7 oz.) which contained a gelatinous, coagulable, myxoid fluid of variable color and consistency. It measured 47.5 cm. in circumference (18¾ inches) around its longest diameter; 17½ cm. in breadth (7 inches), 10 cm. in thickness (4 in.), with a perimeter of 56 cm. (22 inches). It was in no sense a retention cyst or hydrops, as the appendix was quite distinct and separate, though intimately attached to the mass. Its origin was doubtful and obscure. It was evidently a connective tissue sac with multiple compartments lined with endothelium. Probably an outgrowth of some embryologic relic connected with the mesentery; possibly a development of an original lymphangioma cavernosum of the mesentery. The mass had been removed from a young man, aged 25 years, who had recovered uneventfully after the intervention.

**Treatment of Trigeminal Neuralgia by Deep Intraneural Injections for Anesthetic and Therapeutic Purposes.**—Dr. Rudolph Matas of New Orleans considered the subject from the double point of view: (1) Analgesia of the territory sensitized by the trigeminus for purely surgical purposes; (2) analgesia of the trigeminus for the relief of neuralgia. He recalled his early pioneer efforts as far back as 1889, when working with regional anesthesia, he succeeded in anesthetizing the second division of the fifth nerve at both foramina rotunda by injecting the trunk of the nerve at its exit from the foramen, and obtained sufficient anesthesia to permit of a complete excision of both upper maxillæ for an extensive carcinoma of the upper jaw and palate. Both upper maxillæ were exercised at the same sitting. Prior to that time he had performed several operations on the jaws by reaching the nerve trunk at the foramen rotundum through the inframalar route which has since been associated with his name, and is practically the route subsequently adopted by Schlosser for the introduction of alcohol into the nerve at its exit from the foramen. But in this particular instance he injected the nerve at the foramen rotundum through the orbit by the route of the sphenomaxillary fissures, filling the sphenopalatine fossa with a cocaine solution so as to obtain a complete anesthesia of the second division and Meckel's ganglion with all its branches. This was the route that by a mistaken impression was credited to Payr and which Härtel had recently extolled as the most direct and satisfactory way of reaching the foramen ovale. He also resorted to the lateral inframalar route, to reach the foramen ovale and thus controlled, by the two methods, the area supplied by the second and third divisions. The results obtained in several cases of resection of the lower jaw for malignant diseases were exhibited in lantern slides. The results in all these cases were quite satisfactory from the analgesic and operative point of view. Since the introduction of intraneural injections of osmic acid by Neuber, and especially of alcohol by Schlosser in 1907, he had devoted special attention to the technique of injecting the nerve trunks for the relief of tic douloureux. More recently, however, he had gone a step further by attacking the Gasserian ganglion itself. He reviewed the various routes advocated by Schlosser, Oswal, Wright, Levy and Boudouin, Sicard, Taptas, Braun, Offerhaus, and Härtel, and especially his experience in the last method which he had practised considerably during the past year with his assistant, Dr. U. Maes, who, by a large and constant practice on the cadaver had acquired unusual expertness in this rather difficult procedure. He concluded that in the hands of an expert, careful, and experienced surgeon, the anesthesia of the trunks of the trigeminus at the basal foramina, more particularly the second and third divisions, and the Gasserian ganglion itself, was a perfectly feasible and practical procedure which could render decided service in the surgery of the face. It would also permit of a satisfactory, safe, and certain relief of trigeminal neuralgia, especially when the exact localization of the nerve or the ganglion was determined by obtaining a complete and demonstrable anesthesia with novocain-adrenalin, before the alcohol injection was made. The injection of the ganglion through the foramen ovale by the Härtel route was not free from fallacies and dangers, but taken as a whole, it constituted a decided advance in the regional anesthesia of the face.

**Cholecystectomy vs. Cholecystostomy, and a Method of Overcoming the Special Risks Attending Common-Duct Operations.**—Dr. George W. Crile of Cleveland, O., drew the following conclusions from the evidence presented in his own cases: (1) Considering all the consequences of infection, cholecystectomy in the type of cases indicated showed a morbidity and a mortality lower than cholecystostomy. In these cases the clinical results of cholecystectomy were good; while in unsuitable cases cholecystostomy was followed by recurrent cholecystitis. (2) He had seen no adverse effects from cholecystectomy, provided that the division was made at the beginning of the cystic duct; that no gall-bladder tissue was left, and that the division did not at all encroach on the common duct. This technique could be readily carried out. (3) If acute infection was present then in most cases cholecystostomy should be first performed, followed, if required, by a later cholecystectomy. (4) If the gall-bladder and the cystic duct were approximately normal, then the gall-bladder was left, cholecystostomy being the operation of choice. If the gall-bladder was thick, contained much scar tissue, was shrunken, showed chronic infection of the musculature, was much impaired, if the cystic duct was partially or completely strictured, or if a stone was impacted in the duct, then cholecystectomy was made. (5) All gall-bladder operations, and especially common duct operations, might be performed with a minimum of post-operative shock and discomfort by thorough nerve blocking with novocain and quinine and urea hydrochloride by sharp dissection and gentle manipulation. (6) The principal causes of the higher mortality in common duct operations were the damage done to the nerve supply of the liver, and the loss of bile salts. The sharp knife dissection and the clean cut ample incision into the common duct, with the consequent minimum nerve injury, the immediate closure in suitable cases of common duct by suture will immensely improve the morbidity and the mortality following this operation. (7) The mortality rate in the 656 records studied for the purposes of this paper was 6 2/5 per cent. This rate, as well as the post-operative morbidity would be decreased with the application of the technical procedure described herein.

**Infraction of the Second Metatarsal Bone—A Typical Injury.**—Dr. Albert H. Freiberg of Cincinnati reported six cases in which the patients presented themselves because of pain at the metatarso phalangeal joint of the second toe. In these cases the *x*-ray examination showed that there had been an infraction of the distal end of the second metatarsal bone. In three of the cases there were loose bodies at the joint and in two of these cases they had to be removed in order to give relief. No case was seen less than four weeks after the injury, and in two cases there was no recollection of the injury. The trauma was always a slight one, occurring at tennis in three of the cases and consisting merely of a false step. These cases had probably often failed of recognition because of the similarity of the symptoms with those of the so-called "anterior flat foot." Aside from the röntgenogram, the diagnostic features were the traumatic origin, thickening, and marked tenderness of the second metatarso phalangeal joint and grating on passive movement if loose bodies were present. The treatment was purely mechanical save when loose bodies indicated arthrotomy for their removal either because of their size or number. In one case permanent relief without operation resulted even though a loose body 2 mm. in diameter was present. Not a little interest attached to the mechanism which took place by this injury to the foot. Under normal circumstances the second metatarsal bone was slightly longer than the first. In the presence of a diminished power of toe flexion and especially of the great toe, it was apparent that forcible impact of the ball of the foot against the ground not sufficiently guarded by the flexor power of the toes would cause the distal end of the second metatarsal to bear the brunt of the blow. It seemed likely that we had here the explanation of the mechanism of this injury.

**The Open Treatment of Fractures.**— Dr. George A. Hendon of Louisville, Ky., stated the indications for the use of the plate were as follows: (1) In fractures that could not be reduced by ordinary manipulations. Such situations developed frequently in impacted fractures and in fractures where one fragment was very much shorter than the other and overriding existed. (2) Fractures that were difficult to maintain in reduction, as in those where a process of bone was broken off.

For example, a condyle of the humerus or the olecranon, and cases where the muscular attachment was so strong and the lines of force so directed as to pull the fragments apart, as in the femur. (3) Delayed union. (4) Where good cosmetic effects were especially desirable, as in the clavicle or forearm of young women. (5) In fractures communicating with a joint wherein imperfect alignment or overproduction of callus was likely to seriously interfere with function. The mortality in his own work comprised one death which occurred twenty-four hours after the operation, but which could fairly have been attributed to associated injuries. J. B. Roberts collected and reported nine deaths following operations. Blake did not record a death in one hundred and six operations. Bartlett recorded two deaths in eighty cases. Darrach in one hundred and four cases reported had no record of death. He felt assured, therefore, that the mortality of the operation *per se* was a negligible quantity, especially if the operation was resorted to in the recent period after the fracture and performed under the proper restrictions.

**Fracture of the Neck of the Femur.**— Dr. JAMES E. MOORE of Minneapolis, Minn., stated that the fact that bony union after fracture of the neck of the femur could be secured had been demonstrated repeatedly, but had not yet been accepted by the profession. The fact that fracture of the neck of the femur frequently occurred in children had not been generally recognized. The indications in treatment of fracture of the neck of the femur were the same as in other fractures, viz., to bring the fragments into apposition and hold them there. The method advocated in this paper secured this opposition where the old methods failed. Whether the theory of the newer treatments was correct or not was immaterial, because the fact was that they produced the desired results. Older methods failed to control the shorter fragments; the new methods succeeded. The principle of the new method was that by adding a side pull to Buck's extension the resultant of the two pulls was a pull outward in the long axis of the neck of the femur. This rendered the capsule of the joint taut, and brought the floating short fragment into contact with the longer one. This side pull was brought to bear upon the inner side of the upper end of the thigh by means of weight and pulley, the amount of weight being about one-third of that at the foot of the bed. In a child a healthy joint might be fixed almost indefinitely without danger of ankylosis, but in an adult ankylosis was a real danger following fixation. In the modern treatment the knee could be flexed and the patient allowed to sit up in bed without interfering with the position of the fragments. In all the writer's experience with the old methods he had but one case in which the result was approximately satisfactory. After the new method all but two had been satisfactory; in one of those the patient developed rheumatism, and the other lacked the power to produce osteoblasts. A satisfactory result was secured in one patient sixty-six years of age, when the treatment was not applied until four weeks after the accident. The surgeon who refused to accept the testimony of those who had tried this method was doing himself and his patrons an injustice. When non-union occurred because of faulty treatment there was still hope for the patient through operation, but it was useless to operate upon patients who had no bone producing power. Whitman's method of extreme abduction and retention by plaster-of-Paris would secure bony union, and was undoubtedly the best method for the treatment of children, but it was neither as comfortable nor as convenient as the "anatomic" method for adults.

**Open Operation for the Proper Fixation and Repair of Fractures with Lantern Slide Demonstration.**—Dr. FRANK MARTIN of Baltimore, Md., stated that due credit should be given to Mr. Lane for the enormous advance he had made in this domain of surgery. His contributions should be regarded as epoch-making in the treatment of skeleton injuries. His fixation device for correction of skeleton deformities was the best we had at the present day. His views were that every known method should be made use of for the correction of fractures without operation, and only in failures to get good results after every good method had been tried were we justified in employing the open operation. If failure had occurred and there was faulty position, then we should correct the skeleton injury whatever it was by open operation except in Colles' fracture and fractures in young children, which injuries should be corrected by careful knowledge of reduction methods and the proper application of splints. Open fractures should be cleansed and operated upon as soon after their occurrence as possible. The use of the plate gave infinitely better results and more speedy convalescence without the accompanying stiffening of the adjacent joints. It was distinctly a major operation and should only be done by an experienced surgeon. The four chief indications for the open operation were as follows: (1) If, after repeated attempts, if necessary, the bone could not be placed in apposition or could not be maintained in apposition, the open operation should be resorted to. (2) If, after reduction of fractures of long bones, no crepitus could be elicited, you should be suspicious of interposed soft parts and resort to the operation in order to prevent a delayed nonunion which produced an unnecessary long period of convalescence. (3) All open fractures as a rule should be cleansed, fixed, and if necessary drained. (4) All cases of delayed non-union and all cases of vicious union should be subjected to immediate operation; no efforts at reduction without operation should be employed.

(*To be continued.*)

# State Medical Licensing Boards.

## STATE BOARD EXAMINATION QUESTIONS.

STATE BOARD OF MEDICAL EXAMINERS FOR THE STATE OF TEXAS.

*Austin, June 24-26, 1913.*

(*Concluded from page 184.*)

### SURGERY.

1. What are the symptoms of air embolism? Give treatment. In what region are surgical operations most liable to be followed by this condition?
2. Give the symptoms of simple, compound, and compound comminuted fracture, and treatment of each condition of tibia and fibula.
3. Give symptoms of patient indicating tracheotomy; then intubation, and describe fully each operation.
4. Diagnose an infective exudate of the pericardial sac, beyond controversy, and state how you are going to relieve this condition.
5. Differentiate tuberculous and syphilitic synovitis.
6. Give structural changes that induce, symptoms of, and describe in detail, Bassini's operation for strangulated, oblique inguinal hernia.
7. Differentiate concussion, compression, and congestion of the brain.
8. Give differential diagnosis of pelvic peritonitis and impaction of feces.
9. Give signs and symptoms of cervical rib, and state how cervical rib produces signs and symptoms.
10. How should a dissecting wound and attendant blood poisoning be treated? What is rational treatment of suppurative abscess from its initial symptoms? Give symptoms and treatment of psoas abscess, and state with what condition it may be confused.

### HYGIENE.

1. What are the preventable diseases by which the average human life could be prolonged?
2. How would you disinfect a room after occupancy by a patient with an infectious disease?
3. What methods do you adopt to prevent infection during labor, and what instructions do you give for the care of the mother and child during the lying-in period?
4. What are the parasitic diseases that may be caused by meat insufficiently cooked?
5. What are the principal pathogenic bacteria found in milk?
6. How would you test milk for impurities? for adulterants?
7. What is the difference in appearance between healthy and spoiled meat?
8. Give five reasons from a hygienic standpoint why the fly should be swatted.
9. In what ways is meat adulterated or "doctored."
10. What amount of floor-space should be allowed in a school-room for each child? Give proper height of ceilings of school-rooms, and what should be least window area in proportion to size of window.

### MEDICAL JURISPRUDENCE.

1. For medicolegal purposes "mortuary law" is classified into four divisions; name them.

2. What do you understand by the term "suggillation"; give its medicolegal significance; describe a post-mortem in a medicolegal case.

3. Give methods employed in the identification of blood stains and examination of blood; differentiate between human and animal blood.

4. Give four common causes of death from wounds; differentiate between punctured and penetrating wounds inflicted before and after death.

5. Differentiate post-mortem findings of carbonic-acid gas and sulphureted hydrogen gas.

6. Name seven forms of medicolegal pregnancy; give medicolegal importance of the uterus in the dead.

7. Give conditions or grounds warranting "justifiable abortion"; give the necessary safeguards to be observed, so as not to be held responsible for assault and criminal abortion.

8. In the consideration of insanity and its relations to the law, give the two important questions to be determined; give distinction between intellectual and moral insanity.

9. Give four classifications or divisions of monomania and define each.

10. As applied to life insurance, what is meant by "material concealment?" Give relations of suicide to life insurance.

## ANSWERS.

### SURGERY.

1. *Air embolism* is characterized by a sudden, hissing noise as the air enters a vein; there are dyspnea, syncope, and collapse. *Treatment* consists of immediate pressure on the part; the head should be lowered, the vein must be picked up and ligated; afterward artificial respiration and stimulation may be necessary. It most frequently occurs in surgical operations in the neck or axilla.

2. In a *simple fracture*, there is history of the injury, disability, deformity, pain, false point of motion, and possibly crepitus; in *compound* fracture, in addition to the above there is an open wound leading down to the site of fracture; in *comminuted* fracture, the bone or bones are broken into small pieces. Constitutional effects (due to hemorrhage, shock, sepsis, or other complications) may follow. *Treatment of simple* fracture: First of all, prevent it from becoming compound, then reduce it, coapt the edges of the broken bone, immobilize the parts, and attend to the general condition of the patient. In *compound* fractures: Give an anesthetic, thoroughly asepticize the parts, stop the hemorrhage, remove loose fragments of bone, fix the bones, drain, and immobilize; the wound wants careful antiseptic treatment. The leg must be flexed on the thigh to aid in reducing the fracture, and it may be necessary to cut the tendo Achillis. Splints will be necessary.

3. Tracheotomy. *Indications:* Obstruction to the respiration (diphtheria, foreign bodies or stenosis, edema of the glottis, laryngeal paralysis, tumors) and as a preliminary to some other operations. *The operation:* "The patient is placed on the back with a narrow pillow under the neck. Chloroform or cocaine can be used as anesthetics. An incision, one and a half inches long, is made downward from the cricoid cartilage, keeping strictly in the mid-line. The incision is deepened till the tracheal rings and isthmus are exposed. Enlarged veins give trouble during this stage if there is dyspnea. A director-hood is thrust into the trachea, and the point of a knife is slid along the groove to open the trachea from below upward. The patient is allowed to cough for a few minutes while the wound is kept open with dilating forceps; then the tube is tied in." (*Aids to Surgery.*)

Intubation. *Indications:* Diphtheria, stenosis of larynx, and edema of the glottis. *The operation:* "The child is wrapped in a blanket to control the arms and legs, and is held upright by a nurse seated in a chair, while an assistant holds the head upon the nurse's left shoulder and prevents the mouth gag from slipping. A long piece of silk is passed through the small opening in the upper part of the tube, the tube is fastened to the introducer, and the silk looped around the little finger. The left index finger is passed into the throat, and lifts the epiglottis while the tube is passed along it into the glottis. The left index finger is then made to press upon the head of the tube which is released by pulling the trigger on the introducer, which is then withdrawn. When one is assured that the tube is in the right place and that the symptoms are relieved, the silk loop may be cut and withdrawn while the finger is again made to press down on the tube. If the tube is coughed up, it is too small and the next larger size should be introduced. In cases of diphtheria the membrane may be pushed before the tube and cause asphyxia, which, if not immediately relieved by expulsion of the membrane after the tube has been pulled out by the string, will demand tracheotomy, hence instruments for this operation should always be at hand. The patient speaks in a whisper, and is apt to inhale food during deglutition, hence feeding should be *per rectum* or by nasal tube, although some advise feeding with the head lower than the body, or the giving of semi-solids, which will more easily pass over the glottis. The tube remains in place several days, and is then removed with the child in the same position as for introduction, by passing the left index finger down to the tube and slipping the point of the extractor into its opening, the tube being engaged by pressing the spring on the shank of the extractor." (Stewart's *Manual of Surgery.*)

4. An aspirator is passed into the pericardial sac, being introduced in the fifth intercostal space quite close to the sternum and thrust backward and inward; the fluid withdrawn will be found to contain pus. The condition is relieved by drainage following aspiration.

5. "*Syphilitic synovitis* may occur in the early secondary period, when effusion is slight, if present at all, and the condition merely gives rise to slight pain. Diagnosis is only arrived at by the recognition of other signs of secondary syphilis. A different type of syphilitic synovitis occurs late in the disease, gives rise to but little pain, but causes a diffuse swelling of the synovial membrane, which in one or two places may have the doughy feeling of a softening gumma. The condition may occur in the congenital as well as in the acquired form of syphilis, so that evidences of congenital syphilis, such as peg-teeth or interstitial keratitis, should be looked for, as well as the circular scars of the characteristic tongue of the acquired variety."

"*Tuberculous synovitis* is practically confined to the earlier years of life, but a tuberculous synovitis of advanced years does occur, and in these cases the wrist-joint is that most often affected. The leading features in the disease are swelling of the joint (the swelling being due to a thickening of the synovial membrane, which feels tough and elastic to the touch), deformity, and wasting of the muscles. Pain is often an early symptom, and it may be referred along the course of the connections of the nerves supplying the joint, as in the well-known instance of pain felt in the knee-joint in hip-joint disease. The pains may not be severe except on movement, but if erosion of the cartilages of the joint occur, characteristic 'starting pains'—*i.e.* pains occurring at night just as the patient is dropping off to sleep—may be complained of." (*Aids to Surgical Diagnosis.*)

6. *Symptoms of strangulated hernia: General.*—"Severe pain comes on suddenly after some effort, at first referred to the umbilicus, and subsequently to the site of the hernia. This is accompanied by some shock. The pulse is weak, and, though slow at first, becomes rapid; the skin is cold and clammy; vomiting occurs, and soon becomes frequent and fecal-smelling. Constipation is complete, though both feces and flatus may be passed at first from the lower bowel. The patient generally becomes exhausted from the vomiting and inability to take food. When gangrene occurs the temperature becomes subnormal, the pulse very rapid and weak, and the patient dies of toxemia from the general peritonitis which follows gangrene. *Local.*—A tumor forms at one of the hernial sites; or more often the patient has been the subject of a hernia, which he now finds to be irreducible, tense, tender, and without impulse on coughing. If allowed to persist the sac and coverings become gangrenous."

*Treatment* is taxis or operation. "Operative treatment should be undertaken at once when gentle taxis has failed. An incision is made over the sac, which is then opened. There is usually fluid in the sac, so there is no danger of wounding the gut. The fluid is washed away, then the cause of strangulation is made out, and a hernia knife guided up to it by a finger or broad hernia director. The constriction is nicked in one or two places and the gut is drawn down so that the site of strangulation may be examined. Omentum is ligatured and removed. According to the condition of the intestine the further treatment differs. (1) If the gut, though black, has not lost its polish, it is reduced by gently compressing it to remove the edema. (2) If gangrene is suspected, the strangulated portions must be resected, and end-to-end union established. (3) If the gut is undoubtedly gangrenous, one of two methods must be adopted: (*a*) If the patient is profoundly collapsed and will not bear a prolonged operation, an artificial anus is established by dividing the constriction outside the sac, so as not to open the peritoneal

cavity. The loop of bowel is then opened to give free exit to the feces. Most of the cases which have to be treated in this way are so bad before treatment is commenced that a fatal termination must be expected. (*b*) If the patient can possibly stand it, immediate resection gives the best chance, and with Murphy's button or a bobbin much time can be saved. A radical cure is advisable after the strangulation has been relieved, unless the patient's condition contraindicates it. Liquid food is given at the end of twenty-four hours, and the bowels need not be disturbed for five or six days, when castor oil may be given." (*Aids to Surgery.*)

7.

| CONCUSSION OF THE BRAIN. | COMPRESSION OF THE BRAIN. |
|---|---|
| Unconsciousness is incomplete; patient can be made to answer, though it may be briefly, and in simple words. | Complete unconsciousness; may scream into patient's ear at the top of the voice, but will receive no answer. |
| Special senses, though greatly blunted, are not abolished. | Special senses entirely suspended. |
| Power of movement not destroyed; if the position of a limb be changed the patient will resist or bring it immediately into the original position. | Complete or partial paralysis; in most cases hemiplegia. |
| Respiration is quiet and feeble. | Respiration full and noisy. |
| Pulse feeble, frequent, and intermittent. | Pulse full and slow, and sometimes laboring. |
| The stomach sickens and rejects its contents. | The stomach is insensible to any impression; no nausea or vomiting. |
| The feces may be discharged incontinently, as may also the urine, though not usually. | Bowels are torpid, and the bladder incapable of emptying itself, though the urine may escape by overflow. |
| Deglutition little impaired. | Deglutition difficult or impossible. |
| Pupils variable, though generally contracted; the eyelids somewhat open. | Pupils variable, though generally much dilated, and the eyelids closed. |
| Temperature of the body less than natural. | Temperature almost natural, a little below the normal standard. |

(From Treves' *Manual of Surgery.*)

*Congestion of the brain* is characterized by severe throbbing headache, fever, noises in the ears, full pulse, flushed face, great mental excitement, and sometimes coma.

8. In *fecal impaction,* there is a history of long continued and increasing constipation, feeling of languor and depression, anorexia; the abdomen becomes distended gradually, and the symptoms develop slowly; pain comes on gradually, and later becomes continuous; there is usually a tumor in sigmoid flexure or cecum, it is doughy and firm; constipation is absolute.

In *peritonitis,* the pain is severe and comes on suddenly, there is some fever, tenderness is pronounced, the abdomen is firm and rigid, and no tumor can be felt.

9. A *cervical rib* may not give any signs or symptoms; when such are present they are due to pressure on brachial plexus or some blood-vessel. It may cause subclavian aneurysm, neuritis, or gangrene of hand. There may be pain, weakness of the arm, trophic disturbances, or obliteration of the pulse. The *x*-rays confirm the diagnosis.

10. "When a wound is inflicted while dissecting, wash it under a strong stream of water, squeeze, and suck it to make the blood run, lay it open if it be a puncture, paint it with pure carbolic acid, and dress it with iodoform and hot antiseptic fomentations. Trouble, of course, may follow; often it is only local and a small abscess forms. It should be treated by hot antiseptic fomentations and early incision. Occasionally lymphangitis arises, adjacent glands inflame, and constitutional symptoms arise. It is rarely that true septicemia or pyemia arises unless the wound was inflicted while making a post-mortem upon a person dead of septicemia or while operating on a septic focus. If glands enlarge and soften it may be necessary to remove them surgically."—(De Costa's *Surgery.*)

In the early stages of an abscess, when suppuration is doubtful, treat as if it were an acute inflammation. When pus is evidently present, incise freely, open secondary loculi, swab out the pus, do not curette, irrigate with antiseptics and drain.

*Symptoms of psoas abscess:* "There may be none, old unsuspected psoas abscess being often found at the autopsy. Early symptoms depend upon irritation of the lumbar nerve roots—namely, sciatica, cruralgia, or neuralgia of the anterior crural. Aching across the hip and back and the base of the sacrum; cramp, and at times paralysis. Inability to extend the thigh. Children merely complain of a pain down the thigh, and always carry it flexed. Deep pressure in the abdomen, along the semilunar line, reveals a vertical, sausage-shaped, tender, fluctuating, elastic tumor (mistaken for loaded bowels, but which does not roll from under the fingers). It may or may not reach Poupart's ligament and may be accompanied by a tumor of similar character in the iliac fossa. The abscess may run its course without any subjective symptoms, the extra abdominal tumor first attracting attention. When extra abdominal the usual physical signs show it to be abscess; and the impulse on coughing that it has intraabdominal connection; combined pressure above Poupart's ligament and over the tumor in, e. g. the thigh, reveals fluctuation. Psoas abscess is most likely to be overlooked when symptoms of spinal or sacroiliac disease are not coexistent."—(Heath's *Dictionary of Surgery.*)

*Psoas abscess may be confused with:* Loaded intestine, hernia, bubo, and abscess near or connected with the vermiform appendix.

HYGIENE.

1. *Preventable diseases:* Anthrax, cerebrospinal meningitis, cholera, diphtheria, erysipelas, gonorrhea, hydrophobia, influenza, leprosy, malaria, measles, mumps, plague, pneumonia, scarlet fever, smallpox, syphilis, tetanus, tuberculosis, typhoid, typhus, yellow fever, hook-worm disease.

2. To *fumigate by sulphur dioxide:* For each 1,000 cubic feet of space, three pounds of sulphur are burned, care being taken to prevent accidents. In all cases all apertures and crevices of the room should be closed, all closets, drawers, or other receptacles opened; and after the fumigation the room should be well ventilated and thoroughly cleansed with a solution of corrosive sublimate.

3. The majority of puerperal infections are traceable to the insertion of pathogenic germs by the examining finger or hand of the physician, who in the course of his daily work may have touched the dried sputum of diphtheria, the desquamated skin of scarlet fever, suppurating wounds, erysipelatous surfaces, and other virulent infectious material. Even if the examining hand is protected by a sterile glove, pathogenic bacteria may be carried into the vagina from the vulva, if there is a faulty technique in making the examination. The hands of the nurse or other attendants may be the agents that deposit bacteria in the vagina or upon the vulvar orifice. The implements used in and about the parturient canal, an atmosphere laden with dust or vitiated by foul unhygienic conditions, and the water used to wash and douche the patient may carry disease germs to the parturient woman and may introduce them into the genital canal. The bed clothing, the personal clothing, the mattress, the vulvar pads, the material used to cleanse the vulva (rags, sponges, cotton, cloths), may each and all be sources of infection. Putrescible material retained within the genital canal (especially within the uterine cavity) attracts the innumerable and ubiquitous saprophytes and their spores, with which the purest atmosphere swarms. The development of these bodies in a situation most favorable to their growth and active propagation may easily result in a toxemia, if not in actual invasion of the body by pathogenic germs. Coitus in the last weeks of pregnancy is said to be a source of infection of the genitalia in exceptional cases, by carrying pathogenic bacteria into the vagina. Finally, a certain proportion of cases may be traced to autoinfection—that it, to pathogenic germs resident in the body, and not introduced from without during or after labor." (Hirst's *Obstetrics.*)

Infection during labor is prevented by the strictest personal asepsis, by careful cleansing of the external genitals of the patient, and by infrequency of vaginal examinations.

*Care of mother during puerperium: "During the first week* the patient keeps the bed, but after the first few hours she has considerable license. She may assume the sitting or half sitting posture to take her meals and to nurse the baby, and, if necessary, for evacuation of the bladder and rectum. She should assume the lateroprone posture both right and left, several times a day, and lie upon her abdomen for at least an hour daily. Frequent change of position favors uterine drainage and massages the uterine supports. *During the second week* she has greater liberty, while the greater part of her time is spent on the bed or lounge. She may sit up for her meals, to urinate, and for bowel movements, and she should spend at least half an hour, twice daily, in abdominal and leg exercises to keep up her muscular tone. *The third week*—

She may be moved to a chair for a part of the day, having the liberty of the room. After sitting up for any length of time she should be instructed to take the genupectoral position before lying down. Prescribed exercises for the legs and abdominal muscles are to be taken daily. *The fourth week*—If all goes well, she may leave the room and have the benefits of air and sun. Physical exercises should be continued. The duration of the lying-in period and the degree of freedom to be given the patient after the second week must, however, depend on the character and amount of the lochia, the general progress of her convalescence, and the rate of the uterine involution." (Polak's *Obstetrics.*)

*Care of infant:* "After the cord has been ligated and cut, the eyes should be cleansed with a saturated solution of boric acid, after which, if there is any vaginal discharge from the mother, 1 or 2 drops of a 1 per cent. solution of silver nitrate should be instilled in each eye. The mouth should also be gently cleansed, for which may be used a soft cloth and boiled water. The vernix caseosa should be removed by means of some oily substance. The baby should be bathed in water at 100° F., carefully dried, and the cord dusted with some antiseptic powder. Sponging should be practised for 10 days, after which a full tub-bath at 98° F. should be given daily for 6 months. The temperature may then be reduced to 95° F., and at the end of a year to 90° F. The binder and clothing should be woolen. If the infant's extremities are blue or cold, external heat should be applied. The diapers should be made of flannel, and dusting powders should be used to prevent chafing." (*Pocket Cyclopedia.*)

4. *Parasitic diseases caused by meat insufficiently cooked:* Tapeworm, trichiniasis, echinococcus disease.

5. *The principal pathogenic bacteria found in milk, are:* Staphylococcus pyogenes, bacillus coli communis, bacillus of symptomatic anthrax, bacillus of malignant edema, bacillus typhosus, bacillus of cholera, the bacillus of diphtheria, and bacillus of tuberculosis.

6. *Milk should be tested as to:* Specific gravity, total solids, fat, total ash, quality of the ash, and presence of foreign matter.

7. *Characters of good meat:* "Meat when good and fresh should have a marbled appearance, due to streaks of fat between the bundles of muscle fibers. The color should be bright and not too dark, and the surface of the meat should be glossy and not dull. Beef is always darker than mutton, veal, or pork—chiefly for the reason that sheep, calves, and pigs are bled more freely than oxen at the time of killing. The older the animal, the darker and tougher is the flesh. The connective tissue should be glistening and firm. The diaphragm should be firm, and the abdominal and thoracic parietes should show no evidence of adhesions or standing. The pleura should be intact. The bone-marrow should be set and be light red; the spleen, kidneys, and liver should be regular, of a good red, and without variations in color. Good meat is firm and elastic, and does not pit or crackle on pressure. It is juicy, but not wet; and the juice which adheres to the fingers should be of a bright red color. The fat is hard and dry, but feels greasy. The kidneys, spleen, and liver are firm. All lymphatic glands should be firm. The smell of sound meat is well known and characteristic. In order to test this more efficiently, the meat should be pierced with a clean knife or skewer in the direction of the bone, and the implement smelt immediately upon its withdrawal. Good meat gives an acid reaction with litmus paper. Good meat, when dried upon a water bath, does not lose more than 75 per cent. by weight."

*Characters of bad meat:* "Meat that is bad is often soft and watery, some parts are harder than others, and there may be emphysematous crackling. The fat may be liquid or soft, highly colored or even hemorrhagic. A deep dark purple color is seen in meat when the animal has died without being bled, or when some pulmonary congestion or acute septicemia has affected the animal. The lymphatic glands in bad meat may be enlarged, congested, hemorrhagic, caseating, or calcified. The pleura, peritoneum, or viscera may show evidence of disease such as tuberculosis. Pus may be present between the muscle fibers. The carcass may show signs of emaciation. The odor may be that of putrefaction, and the meat may be alkaline in reaction. In advanced putrefaction the meat may become a greenish tint." (Parkes and Nankivell's *Science of Hygiene.*)

8. *Five hygienic reasons for the destruction of flies:* (1) The prevention of diseases which may be conveyed by flies; (2) the reduction of discomfort and annoyance; (3) the protection of articles of food; (4) the saving of many lives which are now needlessly sacrificed; (5) it makes for cleanliness.

9. *Meat adulteration may consist in:* "(1) Addition of foreign substances reducing, lowering, or injuring the quality of the food. (2) Partial or entire substitution of an inferior substance. (3) Extraction of some of the valuable substance from the meat. (4) Coloring, coating, or otherwise changing the appearance of the food, whereby poor quality is concealed, or it is made to look better than it is. (5) Addition of some foreign substance to 'preserve' it." (Price's *Epitome of Hygiene.*)

10. Each child should have thirty square feet of floor space. The height of the ceiling should be about 12 feet. The window area should be not less than one-fourth of the floor space.

MEDICAL JURISPRUDENCE.

1. *Mortuary law is classified:* (1) The last sickness; (2) the disposal of the dead body; (3) the exhumation of dead bodies, and (4) the determination of the cause of death.

2. *Suggillation* is the name given to the presence of purplish spots found on the most dependent parts of the body after death. *Significance:* It depends partly on the cause of death and is found inside the body as well as on the skin, and must not be mistaken for congestion or for the result of violence. It is a sign of death. The *details of a post-mortem examination* must be sought in a good text book on Pathology or Medical Jurisprudence; a description would take more room than is at our disposal.

3. *The methods employed for the identification of blood-stains* are: Chemical test for blood, spectroscopic analysis of blood, microscopic analysis of blood. The *differentiation between human and animal blood* is based on the size and shape of the red blood corpuscles. When the corpuscles are similar to the human corpuscles, the diagnosis is very difficult.

4. *Four causes of death from wounds:* Shock, hemorrhage, pressure, and injury to a vital organ.

*Punctured and penetrating wounds inflicted during life.* "In the living, signs of hemorrhage from the surface and into the edges of the wound will be found; and if life exists sufficiently long after its infliction, the process of repair may be noted."

*Punctured and penetrating wounds inflicted after death:* "In the dead, the absence of hemorrhage and all signs of repair are the same as in other classes of wounds. In a general way, wounds inflicted ten to twelve hours after death may usually easily be recognized, largely by the absence of hemorrhage and by the absence of signs of repair. Wounds inflicted twelve to fifteen hours before death are easily recognized on account of the presence of these conditions together with those caused by muscular contraction. The line, however, is not so distinct between a wound occurring at the time of death and one which was made within a few moments following it." (Dwight's *Medical Jurisprudence*).

5. *In carbonic acid gas,* the post mortem will show signs of asphyxia, and congestion of the various organs; rigor mortis lasts for a long time.

*In sulphuretted hydrogen gas,* the post mortem will show the blood very fluid and dark; and the odor of sulphuretted hydrogen will be present.

6. *Seven medico-legal forms of pregnancy:* (1) Precocious pregnancy; (2) late pregnancy; (3) false pregnancy; (4) feigned pregnancy; (5) unconscious pregnancy; (6) concealed pregnancy; and (7) pregnancy in the dead.

The uterus is the last organ in the body to be destroyed by putrefaction, and so is available for a considerable time to determine the question of pregnancy.

7. *Conditions warranting the induction of abortion:* (1) Certain pelvic deformities; (2) placenta prævia; (3) pernicious anemia; (4) toxemia of pregnancy; (5) habitual death of the fetus toward the end of pregnancy; (6) hydatiform mole; (7) habitually large fetal head.

The physician should call in consultation some specialist or other physician in good standing, and secure the consent of the woman or of her husband or guardian.

8. *The two important questions* are those of civil responsibility and criminal responsibility.

*Intellectual insanity:* "This term means those forms which are characterized by delusions and hallucinations, and which are or may be considered as forms of disease."

*Moral insanity:* "By moral insanity is meant a condition of mind, whether due to accident, disease, or lack of development, associated with a blunting of the moral perceptions, and an inability, in a rational or normal way, to judge on questions of right and wrong." (Dwight's *Jurisprudence.*)

9. *Four classes of monomania:* (1) *Pyromania,* a morbid propensity to set fire to buildings or objects; (2) *Kleptomania,* a morbid propensity to steal; (3) *Dipsomania,* a morbid desire to partake of alcoholic liquors; (4)

(4) *Suicidal mania*, an unaccountable desire to commit suicide.

10. *Material concealment* is the concealment of something which might have modified the terms of the contract or caused the refusal of a contract if such concealment had not existed.

*Relation of suicide to life insurance:* If the insurance has been taken out with the intention of committing suicide and so securing the money for family or friends, the company need not pay; but if the suicide is committed a long time after the issuance of the policy, and it cannot be proved that the insurer intended to defraud the company, the policy will probably be held good and the company will have to pay.

## Books Received.

*The* MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

DIE THERAPIE AN DEN BONNER UNIVERSITÄTSKLINIKEN. Herausgegeben von Prof. Dr. RUDOLF FINKELNBURG. Paper; 614 pages; price 10.60 marks. A. Marcus and E. Webers, Bonn.

MODERNE RADIUM- UND THORIUMTHERAPIE. By Dr. med. ADOLF BICKEL. Paper; price 1 mark; 40 pages. August Hirschwald, Berlin.

OPERATIVE SURGERY. By JOHN J. MCGRATH, M.D. Fourth Revised and Enlarged Edition. Illustrated; cloth; 838 pages; price, $6.00 net. F. A. Davis Company, Philadelphia.

REPORT RELATING TO THE REGISTRATION OF BIRTHS, MARRIAGES AND DEATHS in the Province of Ontario for the Year Ending December 31, 1912. (Being the 43rd Annual Report.) Paper. L. K. Cameron, Toronto.

A TEXT-BOOK OF HISTOLOGY. By F. R. BAILEY, A.M., M.D. Fourth Revised Edition; illustrated; price $3.50 net; cloth; 644 pages. William Wood & Company.

L'ENSEIGNEMENT MÉDICAL À PARIS. 1913-1914. Paper; price 50 centimes; illustrated; 208 pages. Publié par *La Presse Médicale*, Paris.

TRANSACTIONS OF THE AMERICAN SURGICAL ASSOCIATION. Volume 31; cloth; illustrated; 623 pages. William J. Dornan, Philadelphia.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES. Proceedings of the Twenty-third Annual Meeting, held at Chicago, February 26, 1913. Paper; 75 pages.

HOW ANDY MISSED BEING A CRIPPLE. By DOUGLAS C. MCMURTRIE. Paper; illustrated; 15 pages. New York, 1914.

DEPARTMENT OF HEALTH OF THE CITY OF NEW YORK. The Subsequent History of Patients Discharged from Tuberculosis Sanatoria. An Investigation Carried on by the Council of Jewish Women. Paper; 47 pages. Press of Clarence S. Nathan, New York.

ULCER OF THE STOMACH. By CHARLES BOLTON, M.D., D.Sc., F.R.C.P. Cloth; price $4.20 net; illustrated; 396 pages. Longmans, Green & Company, London.

HUMAN ENERGY. By ALBERT ABRAMS, A.M., M.D., LL.D. Paper; illustrated; 53 pages. San Francisco.

TRANSACTIONS OF THE THIRTY-FIFTH ANNUAL MEETING OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION, held at Washington, D. C., May 5, 6, and 7, 1913. Cloth; 323 pages; illustrated. Published by the Association, New York.

GENITOURINARY DISEASES AND SYPHILIS. By EDGAR G. BALLENGER, M.D., assisted by OMAR F. ELDER, M.D. Second Edition Revised. 527 pages; price $5.00 net; illustrated; cloth. E. W. Allen & Company, Atlanta, Ga.

E. MERCK'S ANNUAL REPORT of Recent Advances in Pharmaceutical Chemistry and Therapeutics. Paper; 524 pages. E. Merck, Chemical Works, Darmstadt.

THE PRACTITIONER'S PRACTICAL PRESCRIBER. By D. M. MACDONALD. Cloth; price $1.50; 198 pages. Oxford University Press, New York City.

THE ELEMENTS OF BANDAGING AND THE TREATMENT OF FRACTURES AND DISLOCATIONS. By WILLIAM RANKIN, M.A., M.B., Ch.B. Illustrated; cloth; price $1.50; 116 pages. Oxford University Press, New York.

HYGIENE AND PUBLIC HEALTH. By LOUIS C. PARKES, M.D., D.P.H., and HENRY R. KENWOOD, M.B., F.R.S., D.P.H. Fifth Edition, with illustrations; cloth; price $3.50 net; 736 pages. P. Blakiston's Son & Company, Philadelphia.

## Therapeutic Hints.

**Treatment of Nervous Palpitation.**—Ortner employs in this condition as well as in all cases of neurasthenia associated with cardiac distress, the following:

℞ Iron and quinine citrate, 45 grains.
Strychnine sulphate, 1 grain.
Fluid extract of kola,
Sodium glycerophosphate, āā 6 drams.
Syrup of orange, 7 ounces.

The first four ingredients are dissolved slowly with the aid of heat in the syrup of orange. The dose of this mixture is one teaspoonful three times a day after meals.

**A Snuff for Acute Rhinitis.**—Lieven prescribes the following powder to be used as a snuff for the relief of acute rhinitis:

℞ Magnesium carbonate,
Sodium bicarbonate, āā 2 grams.
Menthol, 0.05 gram.
Phenolphthalein tetraiodide.
Milk sugar, āā 2.5 grams.

**Intensification of Action of Novocain by Means of Potassium Sulphate.**—H. Braun states that Kochmann and Hoffmann have discovered that the anesthetic influence of novocain is greatly increased by the addition of potassium sulphate to the solution of the above substance. Just enough potassium sulphate is added to make a 4 per cent. solution.—*Zentralblatt für Chirurgie.*

**Caffeine as a Heart Stimulant.**—Ortner regards caffeine as a more efficient substitute for digitalis than is either strophanthus, sparteine, or convallaria. He states that in physiological doses caffeine strengthens the heart muscle, expands the coronary vessels, increases the peripheral arterial pressure, quickens the pulse at first and then slows it, and increases diuresis by direct stimulation of the renal epithelium. It is the best substitute for digitalis if the blood pressure is low—never if it is high—and its use is particularly advisable if marked alterations in the heart muscle contraindicate digitalis. It has an effect in the last stage of cardiac insufficiency when all other heart stimulants are useless.

Caffeine is best given in one of its loose double compounds, as caffeine-sodium benzoate, caffeine-sodium cinnamylate, and caffeine-sodium salicylate. As a heart stimulant the dose of any one of these is 10 to 15 grains daily. The following prescription is recommended:

℞ Caffeine-sodium benzoate,
or salicylate ..... 3 grams
Distilled water .....130 grams
Jamaica rum..... 20 grams

Of this solution 1 tablespoonful should be given 3 times a day.

A solution of caffeine is preferable to a powder, as caffeine in the solid form causes in many individuals discomfort or pain in the stomach, nausea, and vomiting.

Caffeine may be administered together with digitalis, as in the following:

℞ Infusion of digitalis.....180 grams
Caffeine-sodium benzoate. 1 gram
Simple syrup..... 15 grams

The dose of this mixture is 1 tablespoonful 3 times a day.

Braun has shown in experiments on animals that caffeine counterbalances the tendency of digitalis to contract the coronary vessels of the heart.

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## Original Articles.

### SOME REMARKS CONCERNING CHRONIC DIARRHEA AND CONSTIPATION.

BY ADOLF SCHMIDT, M.D.,

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OUR conception of chronic intestinal troubles, including those accompanied by diarrhea and those accompanied by constipation, has changed very much during the past ten years. Formerly the two words, "diarrhea" and "obstipation," often indeed mere words, were taken from the anamnesis and were not based upon the evidence of inspection. They filled out the whole symptomatology of the condition; now we try to put in their place as accurate observations as possible regarding the quantity and composition of the feces, their consistency, the frequency of the defecation, etc. Surely one may ascribe the progress of our knowledge in this branch of internal medicine mostly to the careful examination of the feces connected with the use of a uniform test diet, which becomes more and more common in practice. Besides rectoscopy and even to a greater degree the radioscopy of the bowels have contributed a good deal to this branch of medicine.

First, regarding chronic diarrhea, until a short time ago there were only two groups, into which all cases were divided: Chronic enteritis and nervous diarrhea. Nowadays these two provinces are considerably limited in favor of a new group, which may be named "chronic intestinal dyspepsia" or "dystrypsia" (Hemmeter). Within this group we may distinguish several divisions as : (1) The independent intestinal or gastrointestinal dyspepsias, which originate in the gastrointestinal tube itself; (2) the dypsepsias dependant upon the liver or gall bladder, the pancreas, the mesenteric lymph glands or the intestinal vessels; (3) the dyspepsias following the establishment of parasites in the intestines; (4) the dyspepsias connected with troubles of the ductless glands; (5) the anaphylactic intestinal disorders.

But before entering into the details of these different states we must preface some words about their relation to catarrhal or inflammatory diseases of the intestines. We speak of a catarrh if the feces always contain any inflammatory product of the mucous membrane, such as exudated serum, mucus, blood, and pus. In the conditions spoken of chiefly liquid exudation and mucus are in question. As for the mucus, sometimes very small flakes of it, which can scarcely be found with the naked eye, are to be seen in the ground up fecal matter, but these are quite sufficient for the diagnosis of a mild inflammation. Liquid exudation is the principal part of all fluid stools, for there is no reason to sustain the old-fashioned opinion that unabsorbed water of the food passes through the entire intestines. A liquid consistency of the stool without mucus, blood, or pus indicates the mildest degree of irritation of the intestinal walls. Now, in the first place, it must be noticed that all forms of intestinal dyspepsia favor the development of secondary inflammation of the mucous membrane, according to the constant presence of unabsorbed food remaining, with which they are accompanied, and to the consequent growth of bacteria of putrefaction. These catarrhs are sometimes of slow development or appear periodically and disappear early if the patient takes care of his diet; they are seldom severe, do not cause fever, and mostly involve the whole surface of the small and large intestines. On this account, and even more so, on account of the fact that after their disappearance the genuine digestive disorders remain, these catarrhs may be distinguished from the primary inflammations.

The primary inflammations have mostly an infectious or toxic origin. They suddenly set in with fever and severe disturbance of the general health. The dejections are mixed with larger quantities of inflammatory products: mucus, blood, pus, and liquid exudation. Occasionally septic blood infection occurs. The colon is much more involved than the small intestine, even separate parts of it, for instance the sigmoid flexure, may be affected alone. If the small intestine is involved in the process, it gives rise to secondary dyspepsia, which differs from the primary one in a remarkable point; it disturbs at once the absorption of all kinds of food. The course of primary inflammations is as acute as their beginning; seldom they turn into a chronic state and then become dangerous, as, for example, the severe or suppurative form of colitis.

Let us now turn back to the different dyspepsias and the periodical catarrhs occasionally originating from them. The group of independent dyspepsias is almost entirely occupied by the so-called gastrogenous dyspepsia, which is caused by disturbances of gastric digestion and represents not only the most frequent, but also the most important form. Achylia of the stomach is the first under premises to be considered; then follow atony, ptosis, hyperacidity, and other disorders. Though one cannot in this article discuss the different theories of their pathogenesis, it may be said they are all based on the insufficient digestion of the food passing through the pylorus and on the development of the bacteria of putrefaction in the duodenum and the upper part of the ileum. As a rule the gastrogenous dyspepsia begins slowly, remissions and exacerbations occurring from time to time. Except for the abnormal condition of the stool, which is not always liquid, but is perhaps of pulpy consistency and a penetrant odor and which is perhaps produced only once a day, the patients do not complain of pains or other discomfort. They therefore defer a

rational cure as long as possible. But finally the increasing loss of weight or the growing anemic condition demands treatment.

The connection of anemia just mentioned with chronic intestinal dyspepsia has been greatly discussed in the past few years. It is not only a question of secondary anemia, such as accompanies chronic diseases of the lungs, kidneys, and other internal organs, but is even a question of pernicious anemias. It was Hunter, who twenty-five years ago, spoke of the intestinal origin of pernicious anemia, which he supposed to be caused by a specific infection with hemolytic bacteria. Though this suggestion of his could not be proved, a number of facts have since been found which make probable a causal connection between the dyspepsias under discussion and idiopathic anemia. Faber first pointed out that in not less than eleven per cent. of all cases of gastric achylia pernicious anemia is present and in more than eleven per cent. simple anemia with the hemoglobin below fifty per cent is present. As the achylia generally precedes the development of anemia often by a very long period of time—five or ten years or even more—one is justified in concluding that the complication begins as a simple anemia, slowly turning into the disastrous form. My own observations have taught me that Faber's figures considerably increase, if one collects only such cases of achylia as are connected with chronic intestinal troubles, and that such troubles can be found in one-third of all cases of pernicious anemia, for the beginning of the anemia goes up and down with the intensity of dyspepsia and with the general health, but later it becomes progressive and then it cannot be controlled even by a most careful treatment of the intestinal disease. This is not surprising inasmuch as there is more than one factor responsible for the transformation of a simple into a pernicious anemia, namely, the individual constitution, the exhaustion of the bone marrow by chronic irritation, the accumulation of the toxic agent in the spleen, etc. The chronic, but not specific inflammation and degeneration of the mucous membrane in the stomach and intestines leads to a constant absorption of small quantities of hemolytic lipoids, which dissolve the blood cells in the portal venous system.

The treatment of gastrogenous dyspepsia is based on the diet, which cannot be delineated in a few rules. Besides some self-evident rules, such as the most careful mastication of all kinds of food and the avoidance of raw or unsufficiently cooked meat and vegetables, spices, strong alcoholic, sparkling drinks, etc., the composition of the dishes only depends solely upon the condition of the feces, which ought to be examined at least every other day. They alone, not theoretical considerations, can tell one if more carbohydrates (farinaceous or milk food) or more protein (meat, eggs, gelatine) have to be ordered, how much of each has to be taken, etc. Sometimes a sudden changing of the whole regimé proves very useful. Probably the bacterial flora of the intestines cannot so quickly adapt itself to the new conditions. As it is impossible here to go into details, I must restrict myself to these few remarks, emphasizing that a well prepared and reasonably composed diet is the very best medicine with which to combat the disease. Next, if necessary, hydrochloric acid or preparations of pancreas and lavage of the stomach with physiological salt solution or with salicylic acid solution (1:1000) are often indicated, or the duodenal tube may be applied for the purpose of washing out the duodenum or introducing oxygen into it. Hydropathic procedures, such as compresses, douches, also massage, and electricity may extend the scope of the treatment. The drinking of the waters at Carlsbad, Kissingen or Homburg is to be recommended only at the time of remission, if the general behavior is relatively good and the stool is nondiarrheic.

As to the treatment of the other forms of intestinal dyspepsia, it differs only in some subordinate points from the schedule just sketched. In the so-called intestinal fermentation, a singular disease, which is not even frequent, but is rather of theoretical interest, depending on a weakened digestion of cellulose. All kinds of carbohydrates, except a small quantity of sugar, must be avoided for some days, and are afterward, little by little, added again to the diet, until the individual limit of its complete digestion is reached. In secondary dyspepsias following liver or pancreatic troubles, Graves's or Addison's disease, infection with intestinal parasites, etc., we have to treat not only the dyspepsia, but also the original disorder.

Before leaving the subject of chronic diarrheas, one may briefly discuss the chronic mucous, or as it is often called, membranous colitis, a singular state of diarrhea alternating with constipation. The cause and nature of this condition are not yet quite clear, though they have been much discussed in the last twenty years. My own opinion is that a considerable part of this condition arises from unreasonably breaking the original constipation or simple light colitis with irritating enemas, whereas another part starts from or is maintained by diseases of the female organs, and of the kidneys and bladder, by anomalies in the situation of the large intestine by adhesions, chronic appendicitis, etc. On the other hand I cannot agree with the suggestion, especially made by French authors, of a causal connection between arthritism, intestinal gravel, and mucous colitis. I myself have never seen real intestinal gravel appearing in the dejections of these patients, and though I will not deny its existence at all, I cannot help supposing that often the so-called stone cells of pears, which conglomerate and become as hard as sand, and also perhaps the false gallstones (coagulated lime soaps) have been mistaken for real gravel. Of course the etiology of mucous colitis is not always the same, but it always closely depends on nervous conditions, which are often so striking that we might be allowed to speak of it as a manifestation of general nervousness.

The treatment of chronic mucous colitis by means of diet and medicines is only of little value, and the same must be said about cures with mineral water drinking in Plombières, Vichy, Marienbad, Homburg and other bathing places. The use of stringent enemas is rather dangerous. The best results are produced by means of a cautious massage of the bowels, combined with faradization and moderate hydrotherapeutical measures and the use of compresses of mud, etc. Even if massage gives rise to additional pains in the beginning, it should not be stopped, for there is no danger of its causing peritonitis if the presence of chronic appendicitis has been excluded by careful examination.

Chronic mucous colitis must be wholly separated from chronic suppurative or ulcerative colitis, a not frequent but a dangerous disease probably of infectious origin. Out of ten cases of my own observation and about twenty other cases gathered from the literature, only thirty per cent. of the patients recov-

ered, while twenty per cent. died and the rest fell into a chronic disease which made them unable to attend to business or social affairs. Internal treatment consists in systematically applying enemas of disinfectant or stringent remedies, but as this method succeeds only in a small percentage of cases surgical intervention has to be taken into consideration. However, the results of the latter are not certain enough for a general recommendation.

Turning now to the subject of constipation, it is readily apparent how this chapter formerly neglected in medical science, has, by the progress of radioscopy and by chemical investigations of the feces, grown to one of great practical and theoretical interest. Two facts may here be emphasized: First, as proved by myself and my pupils, putrefaction of the fecal matter within the bowels is not, as commonly believed, increased in constipation, but on the contrary, is decreased, and the cause is an exaggerated digestion of the food on account of the cellulose being better dissolved by these patients than by others. The second refers to the varieties of peristalsis revealed by the *x*-rays. From these the authors have derived several types: the ascending type of Hierlin, the hypokinetic type which corresponds to the atonic form of constipation, the hyperkinetic type which corresponds to the spastic form, the hyperdyskinetic type, and lastly the dyschezic type of Hertz. The question which to-day is in the center of discussion is this: Does the retarded movement of the large intestine depend on a primary trouble of peristalsis or must it be regarded as a secondary symptom depending on the composition of the feces? Though the advocates of the latter theory, to whom I myself belong, are to-day in the minority, I cannot declare myself convinced by the facts brought about by the radiologists. We must not forget that radioscopy of the colon makes visible only the retarded movements, but does not explain them. If we rely on the analogous troubles of the stomach, we have learned that almost all functional disorders of gastric peristalsis take their origin from quantitative or qualitative changes in the contents. Primary decrease in the gastric mobility occurs certainly very seldom, even in atonic ptosis, which only favors its development. Why should the colon show other conditions? Why should we here be content with stating that there exists a disturbed peristalsis and not ask for its causes, which at least in the atonic forms are caused by a deficiency of irritation of the wall by the intestinal contents.

But it will not be wise to go too far into theoretical questions. It will be more useful to discuss the practical phases of this subject. Although the just mentioned types of fecal retention in the colon are not sufficient to enable one to distinguish so many varieties of constipation, one form must be considered apart, because its features and treatment differ from the other more common forms; I mean the dyschezia, by which name Hertz understands the impossibility of defecation. The patients affected with it have a normal digestion; their feces are of quite a normal consistence and composition; they reach the rectum within the normal time, but they cannot be evacuated. Sometimes certain mechanical obstacles, as scars, folds, spasm of the sphincters, or weakness of the perineal and bowel muscles, are to be charged, but in other cases there is nothing to be found out and we have to rely on a higher level of defecation reflexes, analogous to the retarded peristalsis of the upper parts of the colon.

On the other hand we are no longer entitled to differentiate atonic and spastic constipation, because almost all forms of constipation go along with intercurrent spasm. Only those cases may be excepted, in which tonic spasm of a single intestinal loop gives rise not only to stopping of the bowels but even to symptoms of ileus—from this we may derive some indications for the treatment of constipation. Although it is often said that one should not give a prescription before carefully studying each single case, one cannot always get a clear conception of it without at least once emptying the bowels. The following is the procedure I have adopted in this class of cases:

First, forbid the patient to take any more purgative and put him on a common mixed diet. If after the last defecation 36 to 48 hours have elapsed, examine the rectum with the finger. If it is entirely filled with large quantities of feces and no obstacle is to be made out, we have to deal with a case of functional dyschezia, which has to be treated by enemas. If the rectum is free, or only small residues of fecal matter are present, order the patient to take twice a day a suppository of a fair amount of extract of belladonna, and to lie down or at least to rest several hours during the day. If he complains of colicky pains, hot compresses must be applied. Now we wait several days without troubling about the complaints of irritability, headache, unclear brain, inability of thinking, etc., which are often made by neurasthenic patients. Only once a day the rectum is again examined. If the feces reach the rectum but are not expelled, the case is to be regarded as a combination of functional obstipation with functional dyschezia. More often, I dare say in the majority of cases, the stool comes by itself in this period of waiting, the mass being in no way hard or thick, but weak or pressed into small cylinders as a sign of spastic complication.

Different from this, the patient afflicted with the atonic form of constipation, if not neurasthenic, often does in no way feel uncomfortable during four, six and eight days or more, though the feces have not yet passed into the rectum. If we now administer a large enema or give a purgative, the patient has a stool consisting of big hard balls, which are generally free from mucus and do not exhibit signs of progressive decomposition.

Of course there are mixed forms depending on the fact that only a very few cases are free from interfering spasms. As to the details of the single case the rectoscopy and radioscopy sometimes were interesting peculiarities.

As regards the treatment spoken of it may be inferred from the above facts that the combination of a mild laxative with the application of small quantities of atropine is in most cases the very best kind of medication. But drugs being not the ideal treatment of constipation we try to dispense with them. The best way to reach this result is indicated by the different branches of physiotherapy which are indicated in all conditions except the mere spastic forms.

It will not be necessary to enumerate all the methods applicable, but I cannot omit mentioning that according to my experience massage is by far the most efficient of them. It should be performed in the beginning by the physician himself. Drinking mineral water in Carlsbad, Kissingen and Marienbad, which is often efficacious during the stay in the place itself, may later on turn out to act in a contrary manner inasmuch as too large doses of

the mineral water have been taken and physiotherapeutical methods have not been combined with them. The purpose of the cure is to increase the stimulus for peristalsis, resulting from the intestinal contents, only to such a degree is is necessary to set free the reflex. By this method and by improving the circulation of blood in the bowels with massage, little by little the balance of innervation, which has been lost, must be restored. Even in the same way the dietetic treatment has to be directed.

One may be surprised that I have not yet spoken of the constipation-diet which for the most patients and also for a large number of physicians is the main point of the whole question. Though I should not hesitate to order the so-called constipation-diet —consisting of vegetables, nuts, fruits, brown bread, and other cellulose-holding substances—in cases showing no spasms I am not convinced of its use, because it generally has already been tried in vain by the patients themselves before calling for our help. It can easily be demonstrated that the power of digesting cellulose is increased in these cases to an astonishing extent. Thus nuts, the peel of apples, pears, and even the chitin-structure of mushrooms, which commonly is indigestible, do not reappear in the stool. This fact must be considered as a constitutionaal factor, not as a pathological one, but as a physiological one. It is the one extreme of the various gift of digesting cellulose, the other being realized in the inclination to intestinal fermentation mentioned above. It is owing to this fact that the intestinal contents of the patients suffering from atonic constipation are digested to such a degree as to leave only small and non-putrefying feces. There is no reason therefore to change the common mixed food. If we will enlarge the quantity of the feces and give them a more pulpy consistence we must rely on such subtances, which in no way can be dissolved and retain their soft consistency while passing the intestines, whether these substances are prepared of liquid paraffine, agar-agar, or similar material. In all cases, where spasms are present, a weak non-irritating food, free from cellulose, should be given.

As to the enemas, the condition in which they are indicated is dyschezia. Of course, if the stool lies in the rectum and cannot be forced out, it is nonsense to give a laxative or a massage of the abdomen. Here enemas of non-irritating substances may be regularly applied every second day without scruple. They work only by mechanically distending the rectum. Besides enemas should be ordered only for the purpose of emptying periodically the colon in primary atonic constipation. In the same manner there act single doses of purgatives, which should not be entirely banished from the treatment. General relaxation of the body often has a good influence not only in removing neurasthenic complications, but also in strengthening the activity of the intestines. Moreover the patients have to be taught to notice the least call for defecation. Although I do not belong to the fanatics of suggestive treatment, I highly esteem the value of instruction and education in all patients suffering from functional constipation.

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**Disinfection of the Hands with Iodine.**—M. H. Billet asserts that washing the hands and forearms with a solution of iodine in 2,000 parts of alcohol yields a perfect asepsis without the necessity of any previous scrubbing with soap and water. This procedure may be frequently repeated without giving rise to any irritation of the skin.—*Gazette des Hôpitaux.*

## STIFF AND PAINFUL SHOULDERS.

By H. W. MARSHALL, M.D.,

BOSTON, MASS.

THIS paper includes a short summary of the ideas of several different writers concerning the nature of stiff and painful shoulders, and a review of many details of surgical and orthopedic methods of treatment. It deals also with certain important medical features encountered in the understanding and treatment of these conditions that are abbreviated in most articles. First will be presented compilations of familiar surgical and orthopedic points of view.

A number of surgeons, both orthopedic and general ones, have studied shoulders in the last decade and one of the first names to come to mind is that of Dr. E. A. Codman of Boston, because of his papers upon subdeltoid or subacromial bursitis. In Philadelphia Dr. T. Turner Thomas has described lesions of the capsule of the shoulder joint as causes of stiff and painful shoulders. In Germany Küster has written about subacromial bursitis, while Painter and Baer in the United States have discussed the operative side of the same subject.

Goldthwait of Boston has laid emphasis upon peculiarities of scapulæ as causes of shoulder and back pains, notably flexions at their superior angles, and variations in their coracoid processes. He has pointed out effects resulting sometimes from relaxed muscles in round or stoop shoulder, that the subcoracoid bursa and brachial plexus are likely to be unduly pressed upon in these conditions, giving rise to what is often considered neuritis and rheumatic affections.

In addition to these pathological states just mentioned there remain to be considered infections of the shoulder joint itself—tuberculous, influenzal, gonorrheal arthritis, and allied inflammations; paralysis of the circumflex nerve; tenosynovitis of the biceps tendon; rupture of the supraspinatus tendon; fractures of the humerus; muscular rheumatism; gout; osteoarthritis, atrophic arthritis, and pathological conditions in the region of the vertebral column. All these affections may be causes either of pain or limitation of motion in the arm or shoulder, so that precise diagnosis becomes a matter of considerable difficulty often, or an impossibility at times.

Codman begins one of his papers with the statement that subdeltoid bursitis is by far the most common lesion of the shoulder joint. It has been his experience that more patients seek hospital treatment for lesions involving the subdeltoid, or subacromial bursa, as he prefers to call it, than for all other lesions of the shoulder joint, including tuberculosis and fractures, added together. He believes in those clinics, in which these statements regarding the frequency of bursal lesions are apparently not true, it will be found that these cases are passing unrecognized under diagnosis of brachial neuritis, periarthritis, fibrous ankylosis, gout, rheumatism, and other vague terms. His experience is based upon notes covering more than one hundred cases up to the year 1911; and he has operated upon some of them, demonstrating a thickening of the wall of the bursal sac and the existence of adhesions within it. He believes also that rupture of the supraspinatus tendon frequently is a cause for these symptoms of pain and disability, and reports cases of complete rupture of this ten-

don with successful restoration of function by operation from suturing the separated ends. Finally he has examined dissecting room material, and has demonstrated the not infrequent occurrence of adhesions in the subdeltoid bursæ of cadavers. Furthermore, in examining tendons of supraspinati muscles in dissecting room material he finds evidences of their rupture. In a normal subject the thickness of the tendon of the supraspinatus is uniform when felt between the thumb and forefinger; and where lesions have occurred either through rupture, or from atrophy due to old hypertrophic arthritis, the tendon will be found thin or torn from its attachment. He says he has never found rupture of other rotators in dissecting room subjects unless the adjoining part of the supraspinatus was also torn. And he has found in only two or three instances lesions of the other short rotators of the humerus.

From Codman's work there is no doubt of the frequent existence of subdeltoid bursitis, and the investigations of Painter, Baer, and Küster confirm the most of Codman's observations. At present the points about which questions arise are matters of diagnosis in non-operative cases, and the relative frequency of this lesion as compared with others producing similar symptoms. According to Codman the subacromial bursa is a thin walled closed sac, measuring 2½ inches or more in diameter, attached to the top of the greater tuberosity of the humerus. The office of this bursal sac is to prevent friction between this prominence and the overlying muscular and bony parts. From its attachment at the greater tuberosity, the bursal sac is reflected over the tendon of the supraspinatus and continues up under the acromion and coracoacromial ligament; and then is reflected backward again upon the under side of the acromial process and over the under surface of the deltoid muscle where the latter forms the prominence of the shoulder at the head of the humerus. Finally it returns to its attachment at the tuberosity of the head upon the bony part of the humeral neck. The subcoracoid bursa is between the coracobrachialis and subscapularis, and frequently is a prolongation of the subdeltoid anteriorly, but may be entirely separated, and then it is about the size of a half dollar.

Codman emphasizes the following symptoms and physical signs as occurring at times among the three types of subdeltoid bursitis which he describes. Tenderness localized on the point of the shoulder just below the acromion process and at the outer side of the bicipital groove. Disappearance of this tender point when the arm is abducted in cases which are without adhesions and in which there is not too acute muscle spasm. Limitation of motion of the arm in voluntary abduction or external rotation of humerus upon the scapula in acute and adherent types. He states that approximately ten degrees of motion can often be obtained in rotating the humerus upon the scapula without moving the latter, and that this range of motion is present in cases of subdeltoid bursitis. Pain referred to the point of the shoulder, the insertion of the deltoid, or down the outer side of the arm even to the hand, especially in acute and adherent types. Transitory acute pains, occurring upon abducting and lowering the arm again, when motions are not limited in chronic types without adhesions. He believes the painful catch comes when the tuberosity passes under the acromial process and when the thickened bursal wall is likely to be pinched. There may be irregular catchy movements from roughness of the bursal walls not unlike villous arthritis in other joints. Forward bending of the trunk with the patient in standing posture, until the fingers touch the toes, is possible sometimes in subdeltoid bursitis, he has observed, because gravity then moves the humerus upon the scapula without muscular contraction and therefore does so without pain. This test helps to differentiate between muscle spasm and adhesions in the bursa.

He states that abduction of the arm is impossible when it is hanging at the side, if the supraspinatus tendon is injured. In this position the insertion and origin of the deltoid are so placed that its contraction only forces the head of the humerus upward against the acromion. The supraspinatus first must abduct the arm a little to permit the deltoid to raise the arm, so that the insertion of the deltoid swings out away from the straight line passing through its origin and insertion, and the fulcrum of the lever at the head of the humerus. Atrophy of the spinati is looked for in all cases, and flaccidity of the deltoid on attempted contraction in circumflex paralysis. The *x*-ray may show changes in the bursa when calcification or great thickening has occurred.

Causes of bursitis Codman classifies under traumatic ones which constitute the largest group; infections such as tuberculosis, gonorrhea, and grippe; those cases following fixation of the shoulder after fractures and breast operations, and idiopathic cases.

He divides subacromial bursitis into three clinical groups: (1) Acute or spasmodic type; (2) subacute or adherent type; (3) chronic or nonadherent type.

Thomas deals with stiff and painful shoulders in a different way in the *American Journal of the Medical Sciences*. In his preliminary explanation he defines the one feature that characterizes the cases which he has chosen for discussion as a more or less marked limitation of abduction and rotation in the shoulder joint, never complete, but usually crippling and very persistent. He says in early stages there is always acute pain about the joint, often radiating to the arm, sometimes to the forearm, or even to the hand. There is loss of power in the muscles of the shoulder and arm not readily accounted for entirely by the pain on motion. Indeed, in the later stages there may be little or no pain, although even then usually there will be pain if the restricted motion is forced. When the pain in the shoulder has disappeared, it is frequently found to radiate down the arm, often about the insertion of the deltoid. Scapulohumeral limitation of movement is always present in some degree.

Thomas's conclusions and results are based upon fourteen cases, and also upon experiments with cadavers. He thinks the conditions are due to injuries to the capsule of the shoulder joint upon its axillary side. He points out that in falls and wrenches of the shoulder there is not direct violence usually at the prominent outer aspect, because the individual throws out the arm to break the fall, and in consequence the shock is caught by the abducted upper arm. The resultant strain, he believes, is put mainly upon the axillary part of the capsule. He thinks there are sprains of the joint without actual dislocation, and also cites cases in which very slight causes have produced unrecognized subcoracoid dislocations. One patient dislocated her shoulder while raising her arms above her head in the act of

stretching, and by having the rocking chair in which she was sitting tip suddenly backward. There was considerable pain afterward, but not enough to call a physician. Another patient could not think of any injury, but after an *x*-ray had shown a dislocation she recalled having moved heavy furniture. A third patient fell down two steps, but did not observe that the accident was followed by any decided increase of pain in the shoulder. She previously had suffered from rheumatism, and subsequently was treated for writer's cramps and neuritis before the dislocation was discovered.

Thomas thinks in all cases like this, resulting from greater or smaller injuries, that the torn or injured capsule contracts in healing and limits motion, and that this tendency is increased by allowing the arm to hang naturally at the side in a position of relaxation which favors contracture. He experimented with cadavers, abducted their arms and produced subcoracoid dislocations. He noted that the joint capsule in the axilla was always the first thing to give way, and that considerably more force was needed to actually dislocate it and keep it dislocated. He believes tears in the capsule occur, and that in dislocations at times there may be spontaneous immediate reductions. In abducting the arm under ether in one instance there was a tearing sound such as Codman attributes to breaking adhesions, and in this instance an immediate axillary dislocation occurred. Finally, as most conclusive evidence, he says these same symptoms of contracted capsule have been duplicated in eight patients who have had their joints purposely contracted by operation for recurrent dislocations of the shoulder. Thomas objects to the theory that adhesions in the bursa adone are torn when something is felt to give way with the alarming violence Codman describes, so that one thinks of fracture of the humerus or rupture of the internal lateral ligament of the elbow.

Codman replies to Thomas in a later paper and says: "While I believe that Dr. Thomas's point is well taken, and the lesion he describes accounts for the condition in the minority of the cases, I cannot believe that it is the essential condition in the majority." Codman states that rupture of the supraspinatus tendon also is apt to occur during forced abduction, as he has found by operation after injuries, and in two operations performed for long standing irreducible subcoracoid dislocations.

To the writer of the present paper it seems that both are partly right, and that in severe traumata both sides of the joint are liable to be injured by the thrust of the abducted arm as it breaks the fall. Upon the upper side, the supraspinatus is likely to be pulled from its attachments and injured, as Codman has shown, while simultaneously upon the opposite side of the joint the capsule is likely to be stretched or torn, as there can be no doubt in actual dislocations, and also perhaps in lesser injuries, as Thomas thinks. It seems unwise to place the responsibility too exclusively upon either one of these two involved structures. Furthermore, as the capsule of the shoulder joint is generally found to be a delicate structure, and it is known the joint depends for its strength mainly upon encircling muscles, it seems likely that adhesions in a thickened bursa may be similar in resistance at times to contracted joint capsules.

Goldthwait has studied *variations in forms of scapulæ*, and has associated certain pains about the shoulder, arm, neck, and upper back with their peculiarities. He has shown that in many instances there are forward flexions of superior angles, and that the underlying ribs become irritated in the resultant scraping actions upon them. Abduction of the arm upon the scapula in these cases is free up to the horizontal position, then from this point onward, after humero-scapular motion is complete and both bones move together in rotation of the upper extremity to a vertical extended position, there may be painful sensations referred to the back of the neck, region of the trapezius, and between the scapulæ. These pains will not be confused generally with those due to subdeltoid bursitis, however, because of the free abduction and different localization of the pain. To Goldthwait we are indebted also for recognition of the causes of shoulder pain and stiffness in persons with stoop shoulders. He has pointed to the fact that, when shoulder muscles relax and the weight of the arm sags it downward together with the scapula and clavicle, that the sternoclavicular joint acts as a pivot about which the mass swings. There is in consequence some forward shifting, as well as a direct downward sagging; and the relations between the humerus and coracoid process of the scapula are altered a trifle, the two approaching each other and the interposed subcoracoid bursa as a result becomes more easily pinched. Some individuals possess much longer coracoid processes than others, as Goldthwait has observed, and inflammations of the subcoracoid bursa in these persons are very likely to occur when in addition there also is a stooping attitude. He believes on account of the position of this bursa, and its almost constant use in motions of the shoulder, that it is undoubtedly more often inflamed or affected by violence than any of the other bursæ about the shoulder joint. Codman believes subdeltoid inflammation is most common.

The symptoms and physical signs of subcoracoid bursitis according to Goldthwait are as follows:— during the acute stage of inflammation there will be pain and sensitiveness, with limitation of motion, and there may be entire disappearance of symptoms as inflammation subsides. If adhesions form they may simply limit the motion. Pain is referred to the region of the deltoid or down the arm or along the course of the ulnar nerve, much the same as in subdeltoid bursal affections. Occasionally the whole arm and hand are painful, and associated with this there may be disturbances of circulation, the whole condition appearing like a neuritis. Tenderness may exist just external to the coracoid process. Limitations of arm motions are especially in rotation, both inward and outward. If adhesions have formed there may be practically no rotation in either direction; yet considerable antero-posterior motion of the arm may exist, Golthwait says, about the coracoid process as a center. The humerus accommodates itself to this fixed point and moves in and out of the glenoid cavity until limited by the capsule and bony structures. There may be partial retention of abduction because in this motion there may not be very marked changes in relations taking place between the coracoid process and lesser tuberosity of the humerus.

*Brachial neuralgia* is a condition which has to be differentiated from other lesions, and its diagnosis often is very unsatisfactory. Thomas believes that in injuries to the shoulder there may be extravasation of blood sometimes into the axilla and between

the muscles, which, organizing, may contract about nerves and produce the persistent and variable symptoms often seen. Goldthwait thinks some cases of stoop shoulder with neuritis show the effects of pressure of the head of the humerus upon the brachial plexus beneath. He says the whole axilla shifts a little, and that the relaxed muscles allow the humerus to lie against the nerves beneath. In thin persons especially he believes the posterior branch of the plexus, the ulnar nerve, is likely to get pinched against the second rib, while in fat individuals the pain is more generalized. Codman calls attention to inflammatory septic conditions of the axillary tissues that may lead to contractions of connective tissue about the nerves with resultant brachial neuralgia.

*Inflammations of the shoulder joint* due to infections are relatively rare when compared with other articulations. An acute inflammation in the shoulder, developing without trauma, and following some infection like grippe or urethritis, often can be identified by the history of the case. Insidiously developing lesions should make one suspicious of tuberculosis, although tubercular arthritis of the shoulder joint occurs in only a few per cent. of all cases of articular tuberculosis. The diagnosis generally is not made until the *x*-rays show characteristic bone lesions. Tuberculin reaction may be tried in these obscure instances. Obviously the limitation of motion in tuberculous or infectious arthritis may simulate the limitations seen in bursal inflammations, and there are no very clear differentiating symptoms. Pain on motion and tenderness about the joint are present in lesions of the shoulder joint itself. Codman believes that when no rotation whatever of the humerus on the scapula exists the lesion is within the joint capsule. Pain in the joint transmitted along the humerus by pressure upward on the elbow in such cases also is considered indicative of shoulder joint disease. Practically, the diagnosis often is not made early in these cases, as they give generally some history of slight trauma at least; and are likely to be considered bursal inflammations or traumatic injuries. One such case of tubercular arthritis was manipulated under ether, the patient having a history of a fall from a bicycle. The *x*-ray was negative at the time, but a few months later exhibited characteristic changes of joint tuberculosis.

*Fractures of the tuberosity, and of the anatomical and surgical neck of the humerus.*—These may be confused with bursal inflammations. There may be a tender spot at the prominence of the shoulder, but *x*-rays differentiate them. Such fractures according to Codman nearly always show ecchymosis and swelling down the inner side of the arm. Traumatic bursitis is frequently a late complication of such fractures but at the first examination the bursa may appear normal. Painter has called attention to calcareous deposits in the subdeltoid bursa that may be confused with fractured tuberosity in *x*-ray appearance, and he also states that a thickened bursal sac may cast a shadow of density equal to some calcified bursæ.

*Tenosynovitis of the tendon of the long head of the biceps.*—That inflammation in the tendon sheath occurs occasionally cannot be disputed, as the tendon has been found slightly reddened locally in one instance at least in which the sheath was opened. Its proximity to the subcoracoid and subacromial bursæ make its diagnosis unsatisfactory. Codman calls attention to the fact that rotation of the humerus leads to more extensive slipping of this tendon in its sheath than moderate antero-posterior flexion and extension; and he considers the presence of ten degrees of rotation is much against the presence of inflammation of the sheath. Accurate localization of tenderness over the tendon is about the only sign by which diagnosis can be made. "Glass arm" in base ball players very likely may be due to inflammation in this serous sheath as well as in adjacent bursæ.

*Acromioclavicular arthritis* may be associated with pains in the shoulder when the arm is moved. Localized tenderness at the articulation, and thickening sometimes about the joint fixes the diagnosis.

*Arthritis deformans.*—Osteoarthritis and atrophic arthritis may occur in the shoulder. When the scapula is ankylosed to the humerus and both move together, and there are evidences of the disease in other joints there is no difficulty in diagnosis, but in beginning stages and in absence of involvement of other joints, the diagnosis cannot be made with any certainty. Bony hypertrophic changes as seen in *x*-ray, if of marked degree, fix the diagnosis upon osteoarthritis, but additional infections or toxemic types, it should be recalled, frequently complicate osteoarthritis and are causes of symptoms which are attributed to the former usually under these circumstances.

*Chronic rheumatism* will be discussed under conceptions of stiff and painful shoulders from the standpoint of the medical internist.

*Circumflex nerve paralysis* may occur, according to Oppenheim, after falls and injuries, from compression of the nerve with crutches, and from infections. He states there is a form of lead paralysis limited to the deltoid. Diabetic neuritis also may involve the circumflex nerve alone. Such patients cannot abduct their arms, or at least the supraspinatus can do so only with great difficulty. Examination may show degenerative signs in the deltoid muscle, and there may be disorders of sensation. Codman finds this paralysis relatively quite rare, and recognizes it if present, by the absence of the contraction of the fibers of the deltoid when efforts are made to raise the arm. In atrophied, non-paralyzed deltoids, the muscle can be felt to contract even though motion is not accomplished.

The various ideas which have been reviewed may be summarized by saying that some shoulder troubles present enough data to permit accurate diagnosis, while frequently others, it must be admitted, cannot be differentiated. When there is limitation of motion in abduction and external rotation and the subdeltoid bursa is obviously tender or fluctuant or shows a lesion in *x*-ray examination there is no uncertainty about the nature of the lesion. If there is loss of internal and external rotation of the arm and this is accompanied by stoop shoulders or occupations which roll the shoulder in, and there is tenderness limited to the subcoracoid bursa, there is no doubt as to localization in the subcoracoid bursa. With definite history of subcoracoid dislocation followed by partial disability presumably some of the symptoms may come from the torn capsule. If narrowly limited to the course of the biceps tendon then inflammation of its sheath is a rational diagnosis, while pain further back in the region of the trapezius, associated with scapula crepitus, will fix the cause in abnormalities of the shoulder blade. Neuritis,

muscular rheumatism, gouty and toxemic states are the conditions which confuse the picture, also the combined lesions of capsule, bursæ, and axillary tissues; and in these cases exact unquestionable diagnoses are impossibilities.

In the writings of all the men who have been mentioned the mechanics, surgery and pathology of shoulder troubles have been the main themes. Toxemias, neuritis, idiopathic causes have been mentioned, but they have been relegated to the background, and demonstrable lesions have been dwelt upon at length. It is possible and correct, however, to consider these same traumatic, developmental, postural and pathological types from another entirely distinct standpoint, as representing the results of chemical properties of the blood and the responses of the tissues to chemical and physical stimuli. Everyone who receives a blow, or who falls with abducted arm, does not develop shoulder stiffness although the trauma may be more severe than that received in some cases which have been cited. And certainly chemical and physical properties of the blood are as important as, although apparently more obscure than, anatomical and mechanical considerations. Stiff and painful shoulders will be dealt with briefly from a medical standpoint, therefore; and, as will be shown, it is justifiable to lay emphasis equally upon remote intangible causes. Let readers stop and consider whether it is true or not that orthopedists and surgeons commonly omit exhaustive discussions of medical features, or upon the other hand whether medical internists spend relatively little time upon orthopedic and surgical diseases. And in consequence are not medical treatments of surgical troubles more or less neglected by all? Overwhelming amounts of chemical and bacteriological investigation into specific biochemical reactions of the blood are in progress at present, and these are casting their influence even now over practical clinical work. But apart from foreign bacterial substances and abnormal products from diseased organs, the blood, viewed simply as a soil upon which all tissues grow, also is becoming recognized as a factor of very great moment in all diseases.

Lack of good red blood is an exceedingly important although an obscure cause of stiff and painful shoulders. When it is of otherwise good quality there may be harmful bacteria, or their products, in it which produce their harmful effects upon synovial linings and bursæ, or upon the bones and muscles. When it is impoverished and of inferior quality, but without active bacterial toxins as in adolescence, and mild autointoxications, there are seen drooping round shoulders, loss of muscle tone, and faulty development changes in some of the bones. These are caused directly by simple quantitative variations and abnormalities among the normal vascular constituents. Upon past qualities of the blood, namely, upon absence of foreign irritants and presence for long periods of time of most favorable vascular proportions of normal substances, depend the vital resistances of the various tissues, including the shoulders. If tissues have had good soil to grow upon previously, and are in robust states at the time, they will withstand successfully the accidental falls and blows they encounter. On the other hand, if they have been struggling for a long period to thrive on a barren soil laden with excesses of useless waste products like urates, intestinal bacterial waste substances, or occasional small quantities of active bacterial toxins, they succumb to injuries; and also at other times idiopathically give out with development of rheumatic, neuritic, and arthritic symptoms. It seems utter folly to pass over these vascular states with their variable obscure manifestations, for upon them depend so often the failures of perfectly executed surgical operations, and delays in convalescence from the troubles under discussion.

Blood pressures; relations between renal and cutaneous excretions to digestion and diets; respiratory functions; efficiencies of defensive functions against foci of infection, etc., are matters which orthopedists as well as surgeons and internists must regulate precisely in order to avoid having their best efforts undermined at times by constantly fluctuating blood currents. These are problems of pathological physiology and chemistry, and can be controlled perhaps roughly, but relatively improved often in practice greatly by simple understanding and *application* of a few principles.

These difficulties orthopedists and surgeons have especially to guard against, and there is much truth in an illustration of Dr. Ansel G. Cook of Hartford, Conn., who says, that "in order to fit shoes successfully one must be able to think of 418 different things at the same time. If one thinks of only 417 things and forgets the 418th, and it happens to be the most important (which it usually is), the other things go for nothing and the shoes are a failure." In order to introduce the subject of medical treatments for orthopedic troubles the present ways of treating stiff shoulders will be reviewed briefly.

*Treatments for subdeltoid bursitis* will be reviewed upon the basis of Codman's paper which contains detailed records of twenty-six cases. As these were selected by him as representatives of their special types they illustrate the points to be mentioned best of any data at hand. He thought it advisable in his article to omit descriptions of some uneventful successful acute cases and to include all unfavorable results. He reports two traumatic acute types of few days' duration treated simply by rest with supports and occasional gentle exercises. In both instances recovery followed in two weeks. Twelve cases were of the more severe adherent kind, ranging from six weeks to eight months in duration, averaging four to five months. Two of these were gradually and gently stretched by repeated trials without ether, and recovery resulted in periods respectively of five and twelve months. One adherent case recovered in one year with no treatment except ordinary use of the arm.

The remaining nine were manipulated under an anesthetic to break adhesions, and then were fixed with the arm abducted. In these nine forcibly manipulated ones recovery occurred in three to twelve months, averaging four or five months, the same as those subjected to gradual stretching. One of the nine died six weeks after manipulation with symptoms suggesting thrombosis due to rupture of the axillary vein at operation. Three of the nine, however, showed almost immediate improvement, either in diminution of pain or in increase in motion.

Incision of the bursa was made in seven of the twenty-six cases. Adhesions were either broken under direct observation, or were excised. One of these patients with incision and breaking of adhesions, showed great immediate improvement and completely recovered in six months, a second could use the arm in three weeks and completely recovered in six months, and the third recovered in four months. These results do not differ greatly from the four- or

five-month averages seen in the previously mentioned ones of Codman's series.

Cases diagnosed as due to irregularity in the surface of the bursa, and in which no operation was done, were three of the twenty-six. These all gave subsequent histories of irregular attacks of pain and one of them afterwards became adherent. One of the twenty-six had irregularity of motions without much limitation, and a small spicule of bone was found protruding through the tendon of the supraspinatus. The symptoms were relieved almost immediately after it was clipped off at operation. Two of the twenty-six showed cysts at operation at the base of the bursa, and relief after removal was immediate and permanent.

Codman comments upon the various treatments as follows: In the acute cases the indications are to avoid adhesions and to increase the comfort of the patient. For comfort morphine, phenacetine, bromides, aspirin, etc., are used. For physiological rest of the muscles, the patient may be seated with a table at his side and the abducted arm laid upon a pillow on the latter. At night the patient may lie on his back with abducted arm, and the arm laid upon a pillow which is arranged along its length. A sling may be used cautiously during the day when moving about, but occasionally the arm should be taken out and allowed to swing at the side. A Velpeau bandage should never be used for more than a day or two. Counter irritants are regarded with distrust, but massage applied at non-tender parts about the shoulder are of advantage. In adherent cases treated by rupture of adhesions under an anesthetic there are two objections, namely that normal joint structures may tear more easily than dense bursal adhesions. Codman believes that he has ruptured the supraspinatus muscle in this way at least once. The brachial plexus and axillary vein also are in danger.

The second objection is the reformation of adhesions, and Baer has found that repeated manipulations under ether, as first advised by Putman in 1882, are very trying to patients. Many a patient, he believes, has been brought to the verge of a nervous breakdown by the constant pain which persistent passive motions necessitate. Codman formerly put up his cases in an abduction splint, but now has abandoned this method in favor of Painter's and Baer's way of letting the arm hang at the side. Baer states there are certain cases where the bursa has been transformed by repeated manipulations into fibrous tissue of such thickness that it cannot pass under the coracoacromial ligament. Painter calls attention to the fact that ether has to be given whether operation or manipulation is attempted, and the risk of incision is only the risk of superficial sepsis. The operation is not a long one if the bursa is dissected out, convalescence is much shorter after the open method, and he believes functional results are considerably better than after manipulations.

In his comments upon his own operative cases Codman says that although the records do not show any striking differences from the non-operative ones, yet it is his impression that the former suffered less and obtained actual function sooner, although complete recovery took place in practically the same time as non-operative ones.

Painter thinks manipulations under an anesthetic, followed by frequent passive motions and massage, should be attempted first in all cases which have lasted less than six months. After a longer period than six months he believes operative measures constitute the best course, and cites the cases of two physicians who were able to return to their practices within three weeks of operation.

Cases of subdeltoid bursitis due to irregularity in the surface of the bursa present a very variable prognosis. Many persist for years with periods of exacerbations of symptoms, crepitus, or jerky motions of the shoulder. Some finally subside, and some become eventually acute or adherent, and then require appropriate treatments.

For home treatment in the gradual stretching of adhesions Codman suggests the following five simple directions: (1) While sitting at home keep the elbow raised on the arm of a chair or table as much as possible. (2) Mark the day of the month on the wall as high as possible with the lame arm each day, trying to increase the height from day to day. (3) Stand for five minutes each day with elbow resting on the mantelpiece and feet placed far away, so as to bring the weight of the body partly upon the affected shoulder. (4) Massage and kneading of shoulder muscles daily. (5) Rotation of the arm with cane or broom handle by grasping one end of the stick in the hand of the affected shoulder. If the cane rests in the hollow of the elbow and extends backward, as the forearm is bent at a right angle, any gentle pressure or pull against the posterior end of the stick will tend to rotate the arm outward about the fulcrum of the lever at the outer condyle of the humerus.

*Treatments of lacerated and strained joint capsules:* Thomas says: "If I were treating an ambitious young man who insisted upon attending to his business I would dispense early with fixed abduction, bind the arm at the side, and support the wrist in a sling from the neck. I would remove the dressing daily, and as soon as the pain would permit begin gentle massage and passive motions, gradually increasing the force until the length of the injured portion of the capsule, and therefore the motion, had been increased to the normal. If the patient were a highly nervous and sensitive woman I would advise her to remain in bed, and would then adopt some measure for keeping the arm in full or nearly full abduction. This would permit healing of the injured portion of the capsule at nearly its normal length. If an obtuse angled splint is employed, this may be removed daily, when gentle massage and passive movements could be carried out. At the end of two weeks, or at most three, the arm may be lowered to the side of the body gradually." If the patient will not remain in bed, and is a man, some method of abduction by splint or plaster cast is employed. Thomas quotes Kuster of Germany as applying a plaster cast with arm at the side for eight to fourteen days, and then beginning careful passive movements and baths.

*Treatments for flexed scapulæ, and subcoracoid bursitis:* Goldthwait tries to prevent development of flexed scapulæ in patients of fifteen years or less by means of spring back braces supplemented by exercises for development of trunk and scapular muscles. Readjustments of clothing are made so that undue strain is not placed upon the tip of the shoulders but more upon the base of the neck. Bracing the shoulders back in adults increases the symptoms, and cases of short duration can be temporarily relieved by strapping the shoulder forward, in which position the friction upon the ribs is minimized. Obstinate cases are treated by him by removal of

a part of the superior angle of the scapula. In bursitis limited to the subcoracoid region, strapping the shoulder upward and backward may pull the humerus away from the coracoid process sufficiently to relieve symptoms, provided adhesions do not exist. Adhesions may be broken after a preliminary rest if they are accompanied by acute inflammatory symptoms. The rest allows subsidence of the latter. In describing the details of the manipulation Goldthwait says whether in the subacromial or subcoracoid bursa, either or both, the manipulation is similar.

The arm should first be flexed and extended in the antero-posterior plane as much as possible and should then be raised from the side, one hand grasping the elbow, the other holding the shoulder so that the scapula does not move. After a right angle with the body has been reached the arm should be carried higher and should at the same time rotate outward until when it is vertical it is outwardly rotated to the full, normal amount. After full motion has been obtained in either of these bursal conditions the shoulder should be held fully extended so that the scapula rests upon the ribs at the back, and this can be accomplished best by adhesive plaster strapping. Quiet for a day or two is encouraged with local heat applied in any form. Afterwards the patient is allowed to go about with shoulder held back in good position. Excision of the bursa is advised in obstinate cases. He also states that the end of the coracoid process should be removed when it is noticeably abnormally elongated and after other treatments have failed.

*Other treatments:* Brachial neuritis from pressure of the humerus in stoop shoulders is treated by pulling the sagging arm up and backward, and when accompanied by flexed scapulæ removal of the superior angle of the latter is indicated if the corrected position starts another train of symptoms referable to the angle. Neuritis will be considered further under medical treatments.

Treatment of tuberculous arthritis of the shoulder joint consists in immobilization as soon as the diagnosis is positive, sacrificing motion in the joint afterward if necessary to an attempt to hold the bacterial invasion in check by complete freedom from mechanical irritation, and by attention to personal hygiene. Treatment of circumflex nerve paralysis will not be discussed. Acute infectious arthritis of the shoulder joint of influenzal and other bacterial origins is treated by rest during acute stages, with occasional gentle passive motions and massage as soon as subsidence of pains permits in order to avoid adhesions. Shoulder joint inflammations with adhesions are liable to be confused often with adherent bursal cases, as experience has shown, and moreover the bursæ are very commonly simultaneously involved in these cases. Choice of treatments lies between gradual stretching or in forcible manipulations under ether, or rarely in operations. In one case of mistaken diagnosis in which both shoulder joints were affected, one was manipulated under ether for subacromial bursitis, and there was recovery of both in one year, but the untreated shoulder became normal before the manipulated one.

In view of data like this it seems that vaccine treatments should be tried carefully when definite histories of infections exist.

*Discussion of medical treatments for shoulder cases:* Turning finally to pharmaceutical and internal medical treatments, one is impressed with the stress laid upon mechanical and surgical details in the various opinions which have been mentioned, and the secondary place alloted to pharmacology and internal medicine. In a general way the different writers have mentioned regulation of diets and eliminative functions, general tonic and hygienic measures, and presumably they each recognize the importance of these matters. However, there seems to be a real danger that readers generally will overlook the important influence of internal medical treatments from the preponderance of mechanical and anatomical considerations, and that a tendency will grow toward making treatments more and more mechanical. Therefore to emphasize hygienic features let attention again be turned to the twenty-four chronic or subacute cases recorded by Codman. His records are so unusually complete that it is possible to observe among them that there are seven with debility, anemia, and run down states; that only ten healthy individuals had histories of very definite severe traumata; while thirteen cases were without pronounced injuries and with insidious or abrupt onsets as seen in infections and metabolic disturbances of other joints.

Of these thirteen non-traumatic cases one occurred in adolescence; one had a history of a felon; one had had grippe previously; one presented a hypertrophic spicule; one was a heavy plethoric individual; one had a rheumatic history; one apparently was an occupational affair due to repeated slight frictions; one had had "gastric fever," nephritis, etc.; two were insidious without obvious infections or traumata and the patients were in apparently good health at the time of onset. Analysis further is not very profitable because much depends upon the definition of recovery, whether complete motion, or complete cessation of pain, or both, or whether arms which are simply useful and functionating normally in ordinary activities are meant by this term. These statistics show very conclusively, however, that traumata and mechanical features are not any more important than vascular causes, only ten of the twenty-four occurring as the results of decided traumata in these severe types. Debility, anemia, infections, poor physical development, rheumatic tendencies, plethoric states, hypertrophic processes, etc., attest the equal importance of vascular peculiarities and causes.

*If more than half of all severe cases of subdeltoid bursitis are due to non-mechanical origins then success in restoring normal functions depends as much or more upon removing non-mechanical defects as in correcting of gross pathological and attitudinal abnormalities.* This idea is substantiated by repeated mechanical manipulations which have been tried to relieve conditions, that have increased irritations instead, and have resulted in prolonged convalescence in certain instances. The idea is borne out also by spontaneous subsidence of symptoms in many patients who have not received any purposeful surgical or orthopedic treatment. Fortunately pathological abnormalities often are corrected by physiological processes of repair in the tissues themselves; and also by normal healthy tendencies of individuals toward spontaneous restoration of favorable vascular states.

The great importance of skillful regulations of personal hygienic measures, therefore, should be realized by surgeons and orthopedists. And ways of modifying vascular conditions quickly and accurately should be used by them as well as by internists, although surgical interference may be the one

thing needed and lacking in occasional instances. It is possible to apply simple effective principles of treatment often, which have been established by prolonged complicated studies in internal medicine, chemistry, biology, and bacteriology; and without having to repeat or understand necessarily in each case the details of complicated special clinical and laboratory tests upon which such principles are based.

Diet, for example, is recognized by everyone to influence health profoundly; and quantities, qualities, and frequencies of taking of food and water are of great moment. It is possible to find right amounts, kinds, and times for individual cases, however, without knowledge of caloric requirements, or theories of digestive processes. Turning back once more to Codman's cases, among the thirteen of nontraumatic origin one was a large, vigorous looking, nervous, rheumatic physician of sixty-two years; another was a small, wiry, poorly developed woman of thirty-eight; a third was a debilitated, anemic, flabby old woman in a desperate condition of nervous exhaustion; a fourth was a tall, overgrown girl of fifteen years, with unusually loose, limber joints and in general good health; another was a thin, nervous, tobacco-soaked Italian cigar maker; another a well-developed, healthy-looking woman, and so on. Quantities of food best adapted to these various individuals' personal needs are variable amounts, and do not have to be determined according to their heat values, or grams per kilo of body weight. They can be estimated safely from observations upon the individual's stature and physical development, from changes in weight from time to time, from appearance and disappearance of digestive symptoms, and other simple observations. If the patient is large and heavy, has a vigorous appetite, and is putting on weight, it is proper to cut down the diet from the amount that is being taken. The right amount to be omitted soon can be found by a few repeated trials. If the person is small and thin with very good appetite, presumably the absorptive functions of the digestive tract, or the ability of the body tissues for taking up food from the blood is below normal, and diets therefore should not be lessened. Digestive organs and body tissues may be stimulated instead in rational ways and diets may be experimentally increased.

If there are good development and good weight, with failing appetite, and tired-out condition, then diets are diminished rather than increased, because with increases there will be mainly increase in intestinal bacterial fermentative and putrefactive processes. These are likely to produce further arthritic, rheumatic, and neuritic symptoms from mild autointoxications. When a patient's history reveals the fact that very large meals are eaten regularly, alternating with smaller ones, it is an easy matter to readjust them, substituting uniform and moderate ones in place of large ones. Or if there are gross irregularities in the intervals at which food is taken, these peculiarities need no special knowledge for their correction beyond knowledge of the mere fact of their existence. Likewise the advantages of very low diets occasionally for a day or so, alternating with moderate quantities can be learned only by trial and should be experimented with cautiously.

In determining appropriate combinations and qualities among articles of food it is possible to diminish slowly, and experimentally, amounts of meat, fish, eggs, and other nitrogenous sorts. Substitutions of carbohydrates for a part of the meat, with observations subsequently upon effects produced upon patients' general feelings and strengths and variations in weight, are easy to carry out and often are efficient in improving the individuals' conditions.

Symptoms arising from too large proportions of carbohydrates in the diets, shown by increase in gastric distress, fermentations, eructations, etc., are simple guides to further modifications until suitable proportions can be discovered. Much can be done without repeated analyses of gastric contents, or without other laboratory tests.

It is to be understood, however, that all careful tests and precise observations are of vital importance for progress in internal medicine, yet that they need not be employed always in every orthopedic case in order to restore health. And it seems better for orthopedists and surgeons to carry on effective medical measures simply and symptomatically rather than omit them entirely as the tendency is to do.

Regulation of eliminative functions of the intestines includes various methods of mechanically aiding peristalsis by exercise, increasing the volumes of intestinal contents by inert substances like agar, mechanically rinsing out the colon regularly and thus preventing harmful absorptions from it, and by pharmaceutical means producing a flow of fluids from body tissues into the lumen of the intestinal canal, or through direct irritative effects of drugs upon the mucosal walls of the intestine itself. All of these familiar purgative treatments will not be entered into in detail, but insistence that they shall be remembered is emphasized, and the fact again is pointed to that they are neglected frequently by surgeons and orthopedists in treating diseases of the extremities.

Regulations of kidney eliminations are perhaps as important as regulations of functions of the alimentary tract, but they cannot be fully discussed. Estimation of functional powers and ordinary activities of kidneys can be made roughly from the volume and specific gravity of the urine; and changes in amounts of water drank and food taken should be prescribed from these simple observations in addition to the diet indications revealed by gastroenteric symptoms and signs.

It is well for orthopedists and surgeons to remember that urine examinations for albumin and sugar help to show the existence, or absence, of renal disease; but that they do not measure renal capacities. Quantities of urea, uric acid, and indican in the urine are of more importance in furnishing data for regulating nitrogenous foods of the diet. Small quantities of waste products in the urine from tissue metabolism we are now learning may be associated with excessively large amounts of the same substances in circulation at times; and that these variations are due to kidney defects of which the ordinary urine analyses show nothing.

Comparisons of quantities of special excreted products with quantities of food taken are not accurate enough to show the slow accumulations and fluctuations taking place in the blood stream. Quantitative blood determinations alone satisfactorily settle this very important point, and these at present are clinical impossibilities except in a few very special instances. Knowledge of the possible existence of such abnormal vascular concentrations and how they develop, permits their recti-

fication, however, without direct proof of their existence sometimes, through watching changes in symptoms following appropriate changes in diet; inducing increased eliminations from the bowel, and from regulations in kidney functions. Variations in blood pressures modify renal functions and digestive capacities also to very important degrees; and because they do alter vascular proportions in this way from time to time, they ought to be always considered in shoulder cases.

When there are low blood pressures and anemias, as are so often seen in adolescence and in mild intestinal autointoxications, then strychnine or some other general stimulant combined with iron is especially indicated. Arsenic and quinine are other drugs that long use in the past has justified as general tonics in these conditions.

These are well-known facts that can be readily lost sight of in too exclusive interest in ether manipulations, operations, and the surgical healing of wounds; but medical procedures, let it be recalled, account for half the successes and failures.

The only causes imaginable for the drooping shoulders, relaxed muscles, and stretched ligaments associated with adolescence and mild autointoxications of adults, apart from effects of gravity, are peculiarities of the blood. These peculiarities show themselves in the same anemias mentioned as occuring in persons who are growing rapidly; and in sallow skins, low blood pressures and mild secondary anemias of intestinal toxemias.

Stoop shoulders require corrections of vascular defects, or there is spontaneous recovery in time without treatment, before normal conditions can be regained; and these circulatory defects deserve attention exactly as much as orthopedic supports and braces in the purposeful practice of medicine.

The only causes imaginable likewise for many instances of neuritis and muscular rheumatism are in peculiarities of the blood. Severe lesions of nerves are well known, and their causes are recognized to be due at times to vascular origins in alcoholic neuritis, lead palsy, and diabetic neuritis. But apart from these graver conditions, it seems that many shifting so-called rheumatic pains are simply responses of the nervous system—nerve cells or peripheral nerves—to slight irritations of an inferior quality of blood. It is known that slight rheumatic and neuralgic manifestations occur in debilitated and plethoric states similarly as gouty and arthritic symptoms do; but the chemical nature of the irritating substance, or substances, is unknown.

Perhaps the same constituents which produce irritations in synovial membranes and periarticular connective tissues also affect the nerves and muscles, or it may be proved sometime in the future that the latter symptoms are due to acidosis, or suboxidations, or some other special processes now unknown. Many physicians are sceptical about the existence of muscular rheumatisms and neuritis of obscure origin, and try to make definite pathological lesions to explain all of these cases. But it seems to the writer, while this effort at more definite diagnosis is a step in the right direction, that there is a possibility of assuming unwarranted precision, and of extending the importance of gross lesions beyond their real limits. There are chemical causes which are of equal or greater importance although they cannot be as easily demonstrated.

Practising physicians do not usually examine patients thoroughly for the tender spots that exist in muscles and along the course of nerves, and it is only in massage and osteopathic treatments that the frequency of these lesions is well appreciated. Physicians therefore generally are sceptical about these demonstrable effects of faulty blood conditions; and the writer has been very doubtful himself about such areas of tenderness until he has had them demonstrated in patients after having personally overlooked them.

Small localized tender lumps in the trapezius muscle that were resistant, as though they were due to muscle spasm, could be felt in individuals complaining of indefinite rheumatic shoulder pains. These could be softened by massage. Around the cervical vertebræ, at the level of some of the nerves which go to form the brachial plexus in other patients, there were localized spots upon which very slight pressures caused sharp shooting pains down the arm. Such patients say they are gradually relieved of their arm symptoms by massage, and by passive motions of the cervical vertebræ, with gentle rhythmical longitudinal stretchings and rotations of the neck.

It should be realized that presumably the spine is subject to lesions as well as all other living joints or bursæ; and when considering shoulder pains it is advisable to remember in some instances that causes of symptoms can be far back around the spine.

It is difficult to say what such mechanical stretchings and gentle manipulations of the neck do. They probably mean that the vertebræ are pulled apart just a little, with very slight sliding movements in the articular processes of the vertebræ. Perhaps there is, as a result, some slight influence upon intervertebral foramina which transmit nerves, arteries, and veins. It is conceivable that congestions and slight pressures at these narrow foramina may be altered and relieved sometimes; and certainly something must account for the shooting pains down the arms when the localized sensitive spots are touched.

These sharp pains are surely evidences that nerves are unusually sensitive, and it seems as justifiable to think abnormalities among the complex conditions about the vertebræ exist as causes of arm pains occasionally, as to believe that neuritis always comes from irritations lower down in the brachial plexus; or that stiff shoulders are caused only by bursal lesions. Masseurs and osteopathic physicians claim that these painful areas and lumps are very common, and that patients sometimes can be soon relieved from these relatively mild troubles by mechanical treatments.

Finally have to be mentioned physical therapeutic methods other than massage, that are used in treatments of shoulder conditions. Baths, electricity, hot and cold applications and bakings are the principal kinds, and it seems true that their efficiencies can be demonstrated here as for other localities of the body. There can be no doubt about the general stimulating effects of tonic baths; but frequently they are used in debilitated states when rest is indicated instead of stimulation; and they produce ill effects rather than good ones. But during stages of convalescence, and in some patients who have not already reached the limits of their vitality, they produce important beneficial influences and are very powerful general tonics in addition to the usual tonic drugs. Rheumatic and neuritic types of shoulder pains respond especially well to carefully regulated hydrotherapeutic measures; but ex-

pectation that acute inflammations or adhesions will promptly disappear under such treatment of course is unreasonable.

Local applications of heat and cold as wet packs are subject to same limitations as other physical measures. Baking is a benefit if it is not carried to the extremity of fatiguing the tissues, and it is more effective when the latter are recovering from their struggle with unfavorable conditions. High frequency electrical treatments will often stop instantaneously slight rheumatic and neuralgic sensations, and therefore ought to be classed among the useful physical therapeutic agents.

Summarizing the treatments for shoulder troubles, it may be said that medical features should be given attention in every instance. Sometimes physiological defects in blood and tissues correct themselves without supervision, but with medical care the course of the trouble should be shortened.

Supportive orthopedic measures should be considered also in every instance, for sometimes the changes taking place as a result of mechanical injuries, as well as irritations and pullings upon weakened tissues by movements and by weight of the arm, delay recovery.

Surgical interference is indicated as a general rule in subdeltoid bursal cases after six months, and ether manipulation earlier in adherent bursae. Some cases may continue for several years unless there is surgical interference, and this may be the one thing which is lacking in treatments of severe types.

Internal medical therapeutic measures in severe shoulder lesions, roughly speaking, are just as important as the more pretentious easily understood orthopedic, surgical, and physical therapeutic ones, and should be employed in addition to the others, even in traumatic cases.

Any of the chemical, physical, physiological, anatomical, surgical, mechanical, or pathological factors may be causes of delay in recovery; and therefore it is apparent all should be considered carefully in every case of painful or stiff shoulders.

In order to increase the total number of patients relieved there must be continual care observed to avoid losing, through diminished understanding of situations as a whole, all that is gained from increased efficiencies of special treatments. Increasing lack of general understanding is the natural accompaniment of extreme specialism; and this deficiency ought to be avoided, if progress is to be made, by frequent comprehensive short reviews of the principal ideas which are held and the usual methods of treatment that are in use, as has been attempted in this paper.

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# METABOLISM AND VITALITY.*

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It is the purpose of this paper to consider some pathologic, therapeutic, and hygienic aspects of the metabolic and heat-regulating processes of the body.

The subject may be introduced by a consideration of the question of vitiated air and ventilation. For a long time the view has been prevalent that the harmfulness of air contaminated by the accumulation of the gaseous products of respiration is due to a toxic action of such products. The substances responsible for the toxic effects have been supposed to be those of nitrogenous character and carbon dioxide. The latter especially, from the prominent part it plays in respiration and the facility of its estimation, is taken as an index if not the cause of the harmfulness of the air, and its amount forms the mathematical basis of schemes of ventilation. The amount of carbon dioxide in pure country air is about 3 parts in 10,000; air becomes perceptibly foul when this amount is more than doubled; and ventilation, it is held, should be so conducted as to keep the carbon-dioxide content of the air below 10 parts per 10,000.

The diminution of oxygen in breathed air is too small to produce any material ill effects, and may be dismissed from consideration as a cause of any trouble.

Experimental investigation has entirely failed to substantiate the toxicity theory of vitiated air. Aside from carbon dioxide, repeated attempts have completely failed to disclose the presence of any toxic principle in expired air. And with respect to carbon dioxide it has been found that many times the amount of this gas that is ordinarily regarded as unsafe can be present in the inspired air, under proper physical conditions, without causing any inconvenience or harm. Thus, in Benedict and Milner's experiments, subjects experienced no inconvenience from a prolonged stay (up to nine days) in the respiration chamber breathing air containing in 10,000 parts an average of 85 parts of carbon dioxide (28 times the normal), the maximum for three-hour periods being 231 parts (or 77 times the normal); these amounts were 9 to 23 times the maximum considered allowable in proper ventilation. Vitiated air has a characteristic foul odor; but it is evident that this odor is due to harmless substances, or to substances present in amounts far too small to produce any harmful effects.

Under these circumstances it seems obvious that

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the current views as to the cause of the harmfulness of contaminated air must undergo revision. Of the harmfulness of such air there can be no question; it is attested as well by everyday experience as by such tragic examples as the Black Hole of Calcutta. If this noxiousness is not of toxic origin, what is its cause? The indications are that it is due, not to chemical, but to physical causes, namely, interference with the escape of heat from the body.

If the heat generated by body oxidation had no means of dissipation it would be retained and the temperature of the body would quickly rise to a point incompatible with life. Fifty-eight calories are sufficient to raise the temperature of a medium-sized individual 1° C. (1.8° F.). Were there no heat loss, the body temperature of such a person would in three hours' time rise to 43° C. (109° F.). The imperative necessity to life, health, and comfort of constant and adequate escape of heat from the body can be realized from these considerations.

There are two main avenues of discharge of heat from the body: by conduction and radiation, and by vaporization of water.

When the temperature of the surrounding atmosphere is less than that of the body, heat is given off from the latter by radiation and conduction. The greater the difference of temperature the more rapid and vigorous is the escape of heat. Motion of the air facilitates the convection away of heat, and cold baths effect an active abstraction of it.

The large amount of water given off in the form of vapor in the perspiration and expired air also carries away a large amount of heat, as the vaporization of water involves the absorption of considerable heat in latent form. Each gram of water converted into vapor represents the absorption of 0.592 calory of heat. It should be noted that the sensible perspiration does not carry away heat in this way, but only the aqueous vapor. Loss of body heat by this channel is promoted by conditions which favor vaporization of water, such as a low degree of humidity of the atmosphere, an elevated temperature, and motion of the air.

Certain conditions of the atmosphere may hinder or even entirely prevent the escape of heat from the body. When the temperature of the air becomes the same as that of the body there can be no discharge of heat by radiation-conduction; and when the atmosphere is saturated with watery vapor the vaporization of more water is prevented or greatly interfered with. Hence, increase of the temperature and increase of the humidity of the atmosphere both interfere with dissipation of body heat. When either condition exists alone, the margin afforded by the other may suffice amply for heat escape and body comfort. Thus, dry air at high temperature, or damp air at low temperature, allow for proper dissipation of heat. When, however, atmospheric heat and humidity exist together, all the avenues of heat loss are blocked and heat must necessarily accumulate in the body, with resulting discomfort, harm, and danger. It is these factors that cause the discomfort of hot weather and produce such pathological conditions as sunstroke.

Whenever the presence of people in a confined space causes contamination of the inclosed air by waste respiratory products, the temperature and humidity of the air are both likewise increased; and as shown by a number of investigators, it is apparently the interference with the elimination of body heat so brought about that is responsible for the ill effects of vitiated air, rather than any toxic action of the waste products. In the experiments of Benedict and Milner, cited above, the temperature of the air was maintained at 20° C. (68° F.) and the humidity averaged 67 per cent.; under these conditions, allowing for ample heat discharge from the body, an enormous increase of carbon dioxide in the inspired air caused no inconvenience or discomfort whatever. The primary essential in ventilation is therefore the control and reduction of the temperature and humidity of the air.

Many examples are afforded in the treatment of disease conditions in which the promotion of the elimination of body heat is a prominent factor, although we perhaps do not appreciate this action so distinctly as we might. Cold bathing in fever is a powerful means of abstracting heat from the fevered organism. The favorable results of removal of patients and invalids from cities in the heated term into the country or climatic resorts are probably mainly due to improvement in the conditions for heat elimination brought about by the lesser heat and humidity of the latter. The fresh-air treatment of tuberculosis and other conditions probably owes its efficacy to similar causes. The motion of open air greatly increases the abstraction of body heat, both by radiation-conduction and by evaporation; and this is an important factor in outdoor treatment. All the attempts at explanation of the benefits of the fresh-air treatment on chemical grounds have been unsatisfactory and inconclusive; the differences in content of oxygen, carbon dioxide, impurities, etc., do not suffice to explain the differences in therapeutic action. The physical differences affecting heat elimination afford a much more plausible explanation.

The pathological conditions induced by insufficient heat elimination would *per se* form an important subject for consideration that has not yet been adequately elucidated. The promotion of heat elimination does not, however, merely avert these conditions, but has an additional profound effect on metabolism that doubtless yields further beneficial results. The abstraction of heat necessitates oxidation to replace the heat so lost. Conditions and procedures that promote heat-discharge increase and stimulate body oxidation and metabolism. This has been abundantly shown by experimental research, and is attested by the familiar experience of the heightened appetite produced by exposure to cold, wind, and cool bathing.

In the strictest sense, oxidation is life. All vital energy and activity come from the combustion of organic material. That flame is the flame of life. The more material we oxidize the greater is our activity and vitality, the more we live. It would therefore appear that the stimulation of oxidation or metabolism has an energizing influence on the organism, and is important to the conservation of health and the cure of disease.

In general, body oxidation may be stimulated in either an active or a passive way. Muscular action has by far the greatest share in producing body oxidation, and the beneficial effects of exercise are probably largely due to the stimulation of metabolism thereby effected. Voluntary muscular activity is not, however, available in the case of ill patients; and under these circumstances other means (passive) are necessary to promote metabolism. Means available to this end are such as increase abstraction of body heat, with a resulting

increase of oxidation to replace the heat thus lost; a considerable influence on metabolism can be thus exerted. It is a reasonable supposition that the value of the open-air treatment, of exposure to cool, dry, moving air, of cool baths, etc., results both from the primary increase of heat discharge and from the secondary stimulation of metabolism thereby effected.

The debilitating effects of inactive, sedentary, indoor life are a familiar exemplification of the consequences of a low regimen of oxidation and heat elimination. Vigor and health are associated with active metabolism and free heat dissipation. The breezes that play about us literally fan the flame of life; stuffy rooms stifle that flame. The factors that vitalize the well ought also to operate to energize the ill.

These considerations may have some bearings on certain mooted questions as to dietetic standards. There are numerous adherents to the doctrine that dietetic standards should be reduced to the lowest point compatible with the maintenance of efficiency. It is, however, by no means "self-evident," as they put it, that the lowering of metabolism to the minimum is productive of the greatest benefit to the organism. On the contrary, there is ground for the belief that the greatest benefit comes from a reasonable augmentation of metabolism. It may be possible to exist on an energy equivalent of 1,500 calories a day; but the individual who lives on a scale of 3,000 calories, doubling the oxidation, gets twice as much action and vitality out of life. These considerations in my judgment warrant generous dietetic and caloric standards.

The necessity for ample heat elimination is especially urgent during muscular activity, as a large excess of heat must at such times be discharged. The discomfort of labor in hot and humid weather or situations exemplifies this. Exertion should therefore be minimized under such circumstances, and workmen necessarily exposed to heat or confined in close quarters, as furnacemen, stokers, etc., should be afforded free draft of air and every other available means for removing body heat. Living rooms in winter are usually overheated, and this condition should engage physicians' attention and advice more than it now does.

Climatic conditions suitable for therapeutic purposes are in many cases impossible of attainment on account of prohibitive expense or non-transportability of very ill patients. Meteorologic conditions at best are fortuitous and uncertain. If atmospheric and other conditions influencing the elimination of heat could be artificially regulated and controlled, at a practicable cost, our therapeutic resources would be immensely augmented. There would be four factors involved in such control, namely, clothing, motion of the air, temperature of the air, and humidity of the air.

Clothing is entirely under control. Reduction of clothing facilitates the escape of heat from the body by both radiation and evaporation, and some beneficial effect is obtainable in this way.

Motion of the air can also to a large extent be obtained and maintained at will, as by means of fans if natural breezes or means of ventilation fail. Air movement is an important adjuvant to the removal of heat by both conduction and vaporization, and is alone in many cases sufficient to afford needed relief.

The control of atmospheric temperature is practised on a large scale in the warming of our houses and buildings in cold weather. The opposite procedure, the artificial cooling of air or rooms, is successfully and extensively employed, at some expense, in refrigeration plants, and has been practised to a very limited extent in hotels, ships, and hospitals. This is accomplished by the use of cold currents in coils in the rooms or in the entering air supply.

Control of atmospheric humidity is practicable to a certain extent. The relative humidity of air varies with its temperature, without any change in the absolute amount of watery vapor present; the same air which at a high temperature is relatively dry, when cooled to its dew point becomes saturated with moisture. The factor of physiological importance, such as the effect on the respiratory mucous membranes, or on heat elimination, is the relative humidity of the air and not its absolute water content. The moisture of the air can be easily increased by providing for the evaporation of water placed in open receptacles in warm situations. The opposite procedure, the removal of moisture from the atmosphere, is a more difficult and expensive matter. It can be accomplished in connection with a refrigerating system by cooling the air current to a temperature below that at which it is to be delivered into the rooms, and condensing out the surplus moisture at that minimum temperature; the subsequent partial warming of the air gives it a humidity less than saturation.

An expedient for cooling rooms that can be easily extemporized wherever electricity is available has been devised by Dr. W. J. Manning of this city. (*Journal of the American Medical Association*, June 4, 1910, LIV, 1848.) This consists in directing a current of air from an electric fan against a suspended cloth kept saturated with water; the evaporation of water brought about in this way effects a considerable lowering of the temperature of the room.

Another cooling arrangement, a cool bed for infants, has been devised by Dr. Alfred F. Hess of New York (*Archives of Pediatrics*, May, 1912). This consists of a bed partially surrounded by a tank of ice and ice water, which effects a lowering of temperature of 7° to 10°.

The employment in hot weather of rooms in hospitals with artificially cooled and dried air supply, which could probably be effected at a cost not prohibitive, ought to be of great benefit in many cases of disease. Such refrigerated rooms or wards would doubtless be of service in the treatment of fever cases; and it is possible that benefit not anticipated might be realized by treating such cases at low temperatures, lower than have yet been available. The atmospheric conditions would be under control, and those yielding the best results could be maintained. The method also seems highly promising for the treatment of sick children in hot weather; the beneficial results of removal of such patients to cool country resorts are well known, and it is probable that equally good or even better results would be obtainable in cooled rooms in city hospitals. If refrigerated wards were available in cities in the heated season, critical cases could be at once placed in them, and it is likely that many lives could be saved in that way. The method has been employed only to a very limited extent in hospital practice, as in the Boston Floating Hospital for Children, where the results are said to have been excellent; and it would seem to be a most promising one for investigation and general introduction.

# BACTERIEMIA, INFECTIONS, AND BRIGHT'S DISEASE.

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Dr. Richard Bright in 1827 described a form of kidney disease characterized by the presence of albumin in the urine. Since that time much knowledge has accumulated, and with this knowledge many classifications have been made according to symptomatology and findings, such as acute and chronic nephritis, chronic interstitial, parenchymatous, etc., together with many subdivisions, according to the different symptoms and débris found. The so-called degenerations are also classified according to symptoms and findings, such as amyloid, wax, etc.

Heretofore no good opinion has been expressed as to the cause of nephritis, most authors and students along these lines have expressed an opinion that the cause was degenerative, nutritive, nervous, cardiac, vascular, etc. More recently intoxications, and toxemias, from different causes, have been advanced as the cause of nephritis.

By gaining exact knowledge of the pathology of such conditions bacteriology has cleared up many obscure diseases. Many diseases have been robbed of their mystery by the use of culture media and microscopes, and many more are on the verge of losing their mysteries. Recent investigations carried on in blood cultural work has proved the presence of bacteriemias of different characters, and along the same line of investigations it is shown in what manner these bacteriemias may occur.

The convincing work of Adami on intestinal stasis, bacteriemias, and sub- or latent infections has shown the celerity with which the colon bacillus and other bacteria can pass through the intestinal wall, under certain conditions; for instance, simple distention of the gut causing a mechanical paralysis or stasis, thereby allowing the migration of the colon bacillus and other bacteria into the surrounding tissue, and finally into the circulating blood, there to produce an active bacteriemia, or not, depending on the resistance or immunity of the subject.

In the light of recent work done by myself one must always conclude that an infection preceded by a bacteriemia is the essence of these different conditions, known under the general term of Bright's disease, or nephritis, except possibly the true degenerations, and these also may be traced back to an original infection.

Acute nephritis, such as follows frequently the acute infectious diseases, differs little from the so-called Bright's disease. In acute nephritis there appears more débris in the urine, in the form of a greater variety of casts in addition to the blood, pus, and kidney cells. As this condition becomes subacute the excessive débris decreases, and as the conditions becomes chronic this débris almost entirely disappears, leaving albumin and casts as factors in classifying the different forms of the degenerative types of the conditions known as Bright's disease.

In a recent issue of the *Journal of the American Medical Association* a symposium on Bright's disease by prominent men was printed, but the subject of infection as a causative factor in the development of the affection was not mentioned. Nearly all the writers were agreed that some form of toxemia was the cause of this ailment. Many thought it was an autointoxication or fermentation, or some other form of intestinal toxemia.

In accordance with investigations covering a period of four years the writer is convinced that most, if not all, the forms of nephritis known as Bright's disease, are preceded by a true infection, and may occur as sharply acute, mild, or of an insidious beginning. The latter may produce no marked symptoms and may only be found to be present accidentally, as in the examination of life insurance or other routine examinations.

Intestinal fermentation and intoxication seem to be responsible for blood-pressure changes only, and this condition is not associated with kidney disturbances of this character, except mechanically, as in other organs. Confirming this, we see many cases of high blood pressure unassociated with kidney complications of any kind; conversely, cases observed (one in particular) had an albuminuria of long standing with the sphygmomanometer registering a subnormal pressure.

These facts would lead one to believe that fermentations, intoxications, or toxemias are not associated with the acute or chronic forms of nephritis, but instead are responsible for high blood pressure conditions only. It is true one may find both infection and intoxication present in an attack of nephritis with high blood pressure, but the infection is the cause of the nephritis and the intoxication of the high blood pressure. Intestinal fermentation may be responsible mechanically, in the beginning, for a later infection of the kidney by causing a distention and intestinal stasis, allowing the migration of bacteria. This same fermentation with distention and stasis may cause a toxemia later with blood pressure changes. The distinction drawn from the foregoing facts is that all forms of nephritis are originally infectious and all true blood pressure changes are from toxemias.

The only true elimination of the waste matter of the blood stream occurs in the kidney cells, and these organs are so constructed that in their function there is present more likelihood of infection at this point than at any other during a blood stream infection.

In a former article entitled "The Sequelæ of Scarlet Fever," printed in the *Denver Medical Times* of July, 1909, attention was called to the infectious character of acute nephritis, often following scarlet fever. This complication has been prevented since that time by applying prophylactic treatment, directed in accordance with the findings in such cases. Not only is the intestinal tract responsible for these original attacks of nephritis, but other infectious diseases, such as tonsillar, pharyngeal, laryngeal, and other ulcers, also abscesses, many of which, or possibly all of this class, are of streptococcic origin. The pneumococcus and allied bacteria are often responsible. The staphylococci are not found to play any great part in bacteriemias or this class of infections, as they are usually confined to infections of the outer surfaces of the body.

A few case histories, briefly described, will apply to confirm the contentions made here that all cases of acute, chronic, and degenerative forms of renal disease are originally infectious diseases.

Case I.—P. H. Age nine years. Following an attack of ulcerated throat (not unlikely of scarlatinal origin), had an acute intestinal fermentation with distention producing a mechanical paralysis or stasis of the bowels, followed by complete suppression of urine and acute nephritis, with a most severe edema of all the tissues of the body. Acting as con-

sultant at this time, treatment was advised directed solely toward the intestinal complication, after the urine showed the infectious character of nephritis. This patient had an immediate, uneventful recovery.

Case II.—D. G. Age 11 years. Sister of P. H. Contracted scarletina two years later from an infected milk supply. This was also a veiled type, except for the ulcerated throat. Diagnosis was arrived at through the source of infection. Shortly after the diagnosis was made a mild or beginning nephritis was noted. Treatment directed toward the intestinal complication was sufficient to promote prompt recovery.

Case III.—Dr. B. Age 40 years. Had severe lordosis (hunch back) was treated for varying tubercular troubles for the last two years. Examinations and tests were negative to tuberculosis. Blood culture showed colon bacillus free in the circulating blood (a bacteriemia). Serial Roentgen ray examinations showed many changes in the intestinal tract indicating the source of the bacteriemia. Albumin and colon bacillus found in the urine. This patient later consulted a Cleveland, Ohio, surgeon for operative interference, but was told to go home, as he was about to die from tuberculosis. He died later from meningeal irritation or uremia, which caused many and severe convulsions. The cause was no doubt due to meningeal infection, or a severe type of nephritis by the colon bacillus.

Case IV.—R. M. Age 17 years. Elicited history of throat ulcer. He was treated successively after that for typhoid fever, spotted fever and tuberculosis. Examination eliminated tuberculosis. The sputum was positive to a streptococcus only, as was the urine also. Blood culture was negative, but this was a late case and the infection became localized, as was determined by the occurrence of a large empyematous sack in the pleura, which was drained. The urine contained all kinds of renal débris, *i. e.* kidney, blood, pus, and round epithelial cells. Casts were present in a great variety. Albumin registered five per cent. The draining of the pus sack and caring for the digestive disturbances was sufficient to promote rapid recovery.

Case V.—J. H. H., Jr. Age 16 years. Patient was of fine physique and excellent family history. Personal history of beginning of illness obscure. Three years ago, after an evening spent in the gymnasium in rather violent exercises, he was seized with a severe pain over right kidney (probably due to blood clot), followed by a hematuria, lasting about three weeks. During the past three years several attacks of severe hematuria have occurred, each attack apparently growing more severe in character and duration. After each attack there was present quite a severe anemia, but this condition improved before the next attack. The attacks were brought on, for the most part, by exposures to sudden temperature changes. Up to this time the urine had not been examined between attacks, or during any time after cessation of the hematuria. The patient came under observation during the last attack of hematuria. A systematic plan of examinations was instituted, as it seemed necessary to arrive at a diagnosis through a process of elimination. Physical examination revealed a beginning heart lesion, *i. e.* a noncompensating heart with a mitral regurgitation (probably an endocarditis from a former bacteriemia). Catheterized urine was heavily loaded with blood and gave a mixed growth on culture of the colon bacillus and staphlococcus. An *x*-ray was made which eliminated the possibility of a kidney stone or large tumor. Cystocopic examination revealed no cystic lesion. Catheterization of the ureters revealed both kidneys bleeding; this also eliminated a possible renal verax. On culture the segregated urine grew pure colonies of the colon bacillus, thereby arriving at a diagnosis of a subacute nephritis, with acute exacerbations of a purely infectious character. Treatment administered in accordance with the diagnosis controlled the bleeding. After the urine was clear the percentage of albumin was found to be 40. The specimen contained much débris, such as casts and cells of various kinds. Treatment directed toward the infection and also the evident intestinal complication brought the percentage of albumin down to 8 when last seen. About this time a temporary impairment of the circulation appeared in the form of a mild anasarca. Consultation was asked for at this time and granted. The consultant gave a bad prognosis and upon the advice of others (not professional) the parents took the young man to Excelsior Springs, Missouri. At this place a specialist was consulted, and, after a thorough examination(?), pronounced the ailment to be a "pure case of Bright's disease." The unfortunate part of this case is that the specialist, ignoring the case history and findings, is still treating this fine young man for Bright's disease and the patient is still suffering relapses, after being sent home each time as cured. It is the opinion of thinking professional men that the excessive water drinking at the average watering places only tends to overload the defective kidneys and make their burden the harder to bear.

The original work done and the actual cases cited above are sufficient to give birth to the opinion that the foregoing observations and deductions are based on, at least, circumstantial evidence.

*Conclusions.*—The transition of an acute nephritis to a chronic form is simply a clearing up of an inflammatory process, leaving an injured kidney with a beginning degeneration or Bright's disease.

If the urine was segregated in every case of Bright's disease and placed on culture media one might expect to find colonies of the different pathogenic bacteria.

The origin of Bright's disease is a true infection.

The toxemias are not the cause of Bright's disease.

Toxemias or autointoxications are responsible for blood pressure changes only.

More work is necessary along these lines by the profession to prove the above contentions, so that treatment can be administered accordingly, and which, of necessity, would vary greatly from the set treatment now in vogue for Bright's disease, as it is now understood.

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## FURTHER OBSERVATIONS ON THE USE OF THE HIGH FREQUENCY SPARK FOR THE RELIEF OF PROSTATIC OBSTRUCTION IN SELECTED CASES.*

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In the August number of the *New York State Medical Journal*, I gave the report of fourteen cases of vesical obstruction, where relief was obtained from the destruction of tissue by direct applications of the high frequency spark. These cases included obstructions from a hard fibrous prostatic ring; prostatic nodules left after perineal operations; median bar obstructions; a small median lobe, and diffuse carcinoma of the prostate and vesical wall.

To this list of cases I can add four more cases of benign obstruction, and the same number of malignant cases, all treated in the same manner. I shall to-night report only the benign obstructions, as four of the eight cases of carcinoma are still under treatment and I wish to make further observations, before drawing conclusions.

I can say, however, that in all of the cases of malignancy the disease has been advanced, has been inoperable, and the patients have beeen greatly benefited, the vesical orifice freed, pain relieved, absorption lessened, and life made more endurable.

The cases of benign prostatic obstruction which are suitable for this method of treatment are as follows:

1. Small fibrous prostates, which form a hard ring about the vesical neck, not only constricting the internal urethral orifice, but interfering with the function of the internal vesical sphincter muscle.

*Read before the Genitourinary Section of the New York Academy of Medicine, Oct. 15, 1913.

| Patient | Age | Chief Complaint | General Physical Examination | Rectal Examination | Frequency | Stream | Type of Obstruction | Residual Ozs | Bladder |
|---|---|---|---|---|---|---|---|---|---|
| 1. J.M. | 41 | Hesitancy. Frequency. Burning urination. Loss of sexual power. | Negative. | Prostrate slightly enlarged throughout. Smooth. Firm. | Diurnal q 2h Nocturnal q 2h. | Poor force. | Median, posterior. | 3 | Normal. |
| 2. F.A. | 60 | Frequency. Burning. Inability to void. Persistent suprapubic fistula. | Suprapubic fistula following cystotomy for vesical calculus. | Moderate enlargement of prostrate. Firm. Smooth. | Diurnal q 1h. Nocturnal leaks from suprapubic fistula. | Urine comes in drops. | Collar of prostate from which project numerous small lobes. | 2 | Contracted cystitis. Trabeculations Marked. Many diverticula. |
| 3. V.A. | 67 | Difficulty in starting the stream. | Negative. | No enlargement of prostate. | Diurnal q 3h. Nocturnal q 4h. | Poor force. | Median, posterior. | 10 | Beginning trabeculation. No cystitis. |
| 4. J.C. | 66 | Difficulty in starting the stream. Frequency. | Diabetes. Urine contains 4% sugar. | Large lateral prostatic lobes. Smooth. Firm. | Diurnal q 1h. Nocturnal 8 times. | Poor force. | Median, posterior and lateral lobes. | 6 | Well marked trabeculation. No cystitis. Many diverticula. |
| 5. E.T. | 74 | Frequency. Dribbling. | Negative. | Moderate general enlargement of prostate. Smooth. Firm. | Diurnal q 1½ hrs. Nocturnal three times. | Intermittent. Poor force. | Median posterior with nodules of prostate surrounding the vesical neck. | 3 | Well marked trabeculation. Slight cystitis. |
| 6. J.M | 66 | Difficulty in starting stream. Retention one month ago (January 15, 1913.) | Dementia. Physical condition good. | Moderate general enlargement of prostate. Smooth. Firm. | q 1h. nocturnal and diurnal. | Dribbles. | Posterior elevation or bar. | 2 | Slight trabeculation. |
| 7. J.H. | 45 | Difficulty in voiding. Burning Frequency. Under treatment for 8 years. | Negative. | Prostate not enlarged. Smooth. Hard. | q 2h. nocturnal and diurnal. | Fair. | Posterior elevation or bar. | 2 | Normal. |
| 8. J.W. | 66 | Difficulty in voiding. Burning. Frequency. | Scar from perineal operation. | Lateral lobes of prostate removed by perineal route. | q 2h. nocturnal and diurnal. | Poor force. Dribbles. | Collar of prostatic nodules surrounding the vesical neck. | 10 | Marked cystitis. Trabeculation. Diverticula. |
| 9. B.K. | 65 | Frequency. Partial incontinence. | Negative. | Prostate not enlarged. | Diurnal q 1h. Nocturnal 3 times. | Poor force. Dribbles. | Collar of hard fibrous prostatic tissue about the vesical neck. | None | Moderate trabeculation. Slit in prostatic collar from perineal incision. |
| 10. F.D. | 74 | Complete retention. | Negative. Scar from perineal operation. | Lateral lobes removed. No lobes felt. | Retention. | Uses catheter. | Collar of prostatic nodules about vesical neck. | 16 | Marked trabeculation. Many diverticula. Atony. |
| 11. E.H. | 68 | Complete retention. | Negative. Scar from perineal operation. | Lateral lobes removed. No prostate felt. | Retention. | Uses catheter. | Collar of prostatic nodules about vesical neck. | 20 | Marked trabeculation. Many diverticula. Atony. |
| 12. S.P. | 57 | Frequency. Difficulty in voiding. | Negative. | General enlargement. Smooth. Firm. | q 2h. nocturnal and diurnal. | Poor force. | Median, posterior. | 4 | Normal. |
| 13. J.B. | 56 | Frequency. Burning. | Negative. Scar from former operation. | No prostate felt. Lateral lobes removed. | Diurnal and nocturnal q 1h. | Poor force. | Collar of prostatic nodules about vesical neck. Slight notch posteriorly. | 6 | Slight trabeculation. |
| 14. W.S. | 67 | Complete retention. | Uraemia following hernia operation. | Entire prostate enlarged and hard. | Retention. | Catheter. | General marked enlargement. | 40 | Marked trabeculation. Diverticula. Cystitis. |

2. Elevations of the median portion of the gland in the form of a bar, an elevation of the trigone, or more or less distinct median lobe, without general enlargement of the prostate.

3. Irregular prostatic lobes, narrowing the vesical outlet, or nodules of prostate left after incomplete prostatectomy.

4. Enlargement of the prostate of whatever size and form, where open operation is refused or contraindicated by the condition of the patient.

The method consists in the destruction of prostatic tissue, by direct contact with the high frequency spark, the current being applied by means of an insulated wire (usually No. 5, steel) introduced into the bladder through the cystoscope, in the same manner as originally employed by Beer, in the destruction of vesical papillomata.

Previous to the introduction of the cystoscope, the mucous membrane of the bladder and urethra is rendered anesthetic by the instillation of a solution of 4 per cent. novocain, in 1 to 16,000 adrenalin, which is allowed to remain in the bladder for one-half hour.

The cystoscope that I have found most satisfactory for this work is the No. 18 F. indirect, close vision instrument, made by Wappler, and called by him "The 1911 Model." This cystoscope is of a comfortable size, gives a good field, is easy to manipulate, and renders work at close range possible, so that it can be used in the urethra as well as about the vesical neck. The irrigating cocks are convenient. I have had no trouble with short circuiting, even with the high frequency and cystoscopic currents both turned on.

The wire introduced through this instrument, is by means of the deflector, held tightly against the tissue to be destroyed, and the current turned on. The strength of current varies with the amount of tissue to be destroyed. As a rule a 1-10 inch spark in the muffler is sufficient, and the spark should be tested before using the current in the bladder. The wire is usually allowed to lie in position until the bubbles cease to form. This usually requires about one minute, and is a long enough application for one area. The destruction of tissue for this length of time, with the current stated, extends about ¼ inch below the surface.

As many applications should be made as the patient can take, without causing severe pain or too deep destruction of tissue. The application of the

| First Application | Number of Applications | Total Application, Minutes | Last Application | Reaction | Hemorrhage | Last Examination | Condition at Last Examination |
|---|---|---|---|---|---|---|---|
| Apr. 3, '12 | 3 | 6½ | Apr.12, '12 | None. | None. | Sep. 15, '13 | Good stream. Slight hesitancy. No residual Definite wide furrow through posterior prostatic elevation. Sexual power slightly improved. |
| Nov. 12, '12 | 6 | 14½ | Jan. 22, '13 | None. | None. | Sep. 15, '13 | Voids freely. Good stream. Fistula closed for 8 months. Often does not void at night; q 6h. during the day. Vesical orifice smooth. |
| Jan. 24, '13 | 3 | 5 | Feb.19, '13 | None. | None. | Sep. 15, '13 | No frequency. Normal urinary function. No residual. Wide furrow through posterior obstructing lobe. |
| Nov. 12, '12 | 2 | 6 | Nov. 19,'12 | None. | None. | Sep. 29, '13 | Empties bladder. Often does not void for 6 hours. Good stream Wide furrow through median posterior lobe. |
| Feb. 1, '13 | 5 | 13 | Mar.15, '13 | Nerve shock at the one treatment. Patient very nervous. | Few drops of blood at the third treatment. | Jun. 24, '13 | Empties bladder. Voids once at night; q 3h. during the day. Stream has better force. Seldom dribbles. Nodules have not returned. No median obstruction. |
| Jan. 22, '13 | 3 | 11 | Jan.30, '13 | None. | None. | Feb. 28, '13 | Empties bladder. Voids q 4h. during the day, twice at night. Wide furrow through median bar. |
| Feb. 21, '13 | 3 | 10 | Mar. 10,'13 | None. | None. | Aug. 27,'13 | Normal fuoction. No residual. No median bar obstruction. |
| Oct. 20, '12 | 2 | 8 | Nov. 8,'12 | Moderate amt. of pain. | None. | Sep. 29, '13 | Normal function. Empties bladder. No return of nodules about vesical neck. |
| Apr. 15, '13 | 3 | 9 | May 21,'13 | None. | None. | Oct. 1, '13 | Better stream. No residual. No incontinence. Wide furrow through posterior aspect of prostatic cellar. |
| Mar. 2, '13 | 3 | 9 | May 21,'13 | None. | None. | Sep. 15, '13 | Reports using the catheter once a day only. Residual 8 ounces. No discomfort. Voids freely. |
| June 12, '13 | 1 | 4 | ..... | None. | None. | Sep. 26, '13 | Uses catheter once a day. Voids freely. Residual 6 ounces. No return of posterior obstruction nodules. |
| Nov. 20, '13 | 4 | 10 | Sep. 19, '13 | None. | None. | Sep. 29, '13 | Voids freely. 1 ounce residual. High frequency applied to median obstruction. Narrow furrow through median bar. |
| Sep. 13, '13 | 3 | 9 | Sep. 26, '13 | Pain and burning after third treatment. | None. | Sep. 30, '13 | Voids better. Residual 2 ounces. Less frequency. Posterior nodule one-half destroyed. |
| July 2, '13 | 3 | 9 | Aug. 6, '13 | Temperature after each treatment. | None. | Sep. 29, '13 | Patient voids. Residual 6 oz. Bladder in fairly healthy condition. Very little discomfort. Deep furrow through median obstruction. |

spark causes the feeling of being pricked with needles. Pain is often absent and seldom acute, and disappears as soon as the current is turned off. With the application of the current, the insulation burns off the wire, necessitating the withdrawal of the wire after each application, cutting it off flush with the insulation and reintroducing. The field fills with bubbles, requiring the injection of an ounce or more of fluid through the side cock, which clears the field at once. Bleeding is almost never seen, if manipulations are carefully executed.

It is better to have several sessions, even eight or ten, destroying a little tissue each time, giving the patient very little pain, no after irritation, no bleeding, and not incapacitating him, rather than to make each treatment too extensive, thus giving rise to the above disagreeable features.

Immediately following the application, if the wire is withdrawn, one sees a distinct excavation, with ragged, grayish walls. This gray tissue comes away in small shreds and flakes, a little at a time, and does not leave an ulcerated surface. When the dead tissue has entirely passed off, an apparently smooth, healthy surface is seen; a depression in place of the former elevation. I have seen no infection in these areas. It requires about ten days for all the tissue from a single burning to come away. The treatments should be repeated until the obstructing tissue has been destroyed, the intervals varying in each individual case. It has not been necessary in any of the cases to confine the patients to bed after the applications, but occasional bladder irrigations are desirable.

This method, it seems to me, has every advantage over the operations, such as: open incision and stretching of the vesical neck; the cautery operations of Bottini, Goldschmidt, and Chetwood, and the intraurethral punch operation of Young.

The advantages are, that the cause of the obstruction is removed, under the eye, without pain, reaction, infection, loss of function, hemorrhage, or incapacitating the patient. There is no ulcerated surface left, hence no cause for cicatrization.

The cases given in this chart are:—

1. Small fibrous prostate, constricting the vesical orifice. One case: The patient had been operated by perineal incision and stretching of the vesical neck, with very little relief and partial incontinence since the operation. This patient has been greatly relieved, since the partial destruction of the

prostatic collar, in the ease of voiding, loss of frequency, and better control.

2. Median prostatic elevations or prostatic bars. Two cases: The symptoms have been relieved and both patients empty the bladder.

3. Small median lobe, without general prostatic enlargement. Three cases: Relief of symptoms. No residual.

4. Moderate general adenoma. One case: This was a suitable case for prostatectomy, which the patient refused. The symptoms have been diminished and the residual eliminated.

5. Moderate general adenoma. One case: This patient had diabetes and was not considered a good operative risk. This patient's symptoms have disappeared. He has no residual.

6. Very large general adenoma. One case: The patient has a severe grade of nephritis, and was not a justifiable risk for radical operation. He has been greatly relieved by the applications of the high frequency spark, and is still under treatment.

7. Collar of prostatic nodules, surrounding the vesical orifice, causing obstruction. Four cases: In all of these cases the lateral lobes had been removed through the perineum, without relief of symptoms. One of these patients was subsequently operated by the intraurethral punch method of Young, following which the amount of the residual increased from four to six ounces, and none of the symptoms were relieved. With three treatments with the high frequency spark, the residual has been reduced to two ounces and now to one ounce, the patient has no frequency, and a good stream. Two of these patients had atonic bladders, with many large diverticula. The residual in these cases has been reduced in amount, and the necessity of catheterization made less frequent. In the fourth case the residual has been eliminated.

8. One more case of irregular prostatic outgrowths has been entirely relieved.

*Summary.*—1. The cases of small, fibrous prostates, median bar elevations, and small lobe obstructions, without general enlargements, have been symptomatically cured.

2. The cases of obstruction from a collar of prostatic nodules, without lateral lobes, have been completely relieved where the tone of the bladder was fair, and improved even where the bladder wall was atonic.

3. Cases of general adenoma, where open operation was contraindicated, were greatly improved.

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## THE UPPER RESPIRATORY MUCOUS MEMBRANES AS EMUNCTORIES.

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When one contemplates the remarkable success that has of late years attended the researches into biochemistry and into the functions of the cell in assimilation, secretion and excretion, and how efficiently this knowledge has been applied in the treatment of metabolic disturbances in various portions of the body, it is astonishing that we are so tardy about adapting this knowledge to some of the common pathological conditions met with in the upper respiratory regions. Textbooks as well as treatises in journals continue to devote much space to descriptions of polysyllabic-named bacteria that are found in the mucus taken from a moist nostril. Truly, we have become "bug-mad." Like the mythological Wodan, who sacrificed one eye that he might see the better with the other, we are become monocular in our perpetual search for the germ that "walketh about, seeking whom he may devour."

Ignoring for the nonce the enemies that assail our gateways from without, let us scrutinize some of the influences from within that induce a pernicious effect upon the upper respiratory passages. Primarily there come to our mind the severe irritations of nose, throat and mouth which are encountered during the course of the exanthematous diseases. In measles an acute rhinitis is recognized as one of the incursive symptoms. Koplik's spots in the mouth are pathognomonic. In scarlet fever the exanthem extends to the nose and throat, and sometimes there is a diphtheroid condition of these organs during the disease. In roetheln, as Forchheimer first indicated, one sometimes meets with a delicate, small-spotted, rose-colored exanthem on the soft-palate and pharynx previous to the appearance of the eruption on the skin. The severe inroads which scurvy makes on the buccal mucous membrane precede any other manifestation except the characteristic languor. Diphtheria locates its detestable pseudo membrane in the throat and nose. During the course of acute leucemia notable forms of stomatitis are observed, sometimes progressing to necrosis. These instances, known to every practitioner, are merely cited to show that certain specific poisons, whose precise nature need not concern us in this discussion, evince a predilection to display their primary eruption through the upper respiratory mucous membranes.

Apparently, according to our present state of knowledge, it may be assumed that epithelium exercises a selective action upon substances which are conveyed by the blood-current. When a cell takes up from the blood-current any material, that material becomes an element in the metabolism of such cell. Certain substances which circulate in the blood produce a markedly irritating effect on the cells whose function it is to excrete these respective substances. The bowels, kidneys, skin and lungs chiefly are engaged in disposing of the waste products of metabolism. Sometimes, however, for obscure reasons, one or several of these emunctories become unable to cope with the poisonous excreta, and the function must be performed vicariously. A sudden chilling of the cutaneous surface may suppress transpiration and thereby precipitate a severe coryza. When so patent an etiology does not exist, one might assume that for biochemical reasons the skin and other excretory organs were incompetent to expel certain materials, and these, circulating through the arterioles of the upper respiratory mucous membranes, might thus find more adaptable affinities in the group of epithelial cells there located.

The behavior of some nasal mucous membranes after ingestion of the iodides is universally recognized. The administration of infusion of dulcamara results in copious hydrorrhea from the nose. Belladonna causes a dryness of the pharyngeal mucous membrane. Blennostasine produces rarefaction of the nose and throat. The anesthetic effect on the pharynx resultant from prolonged use of the bromides is well known. This familiar pharmacological lore is only supplemented to the preceding pathological data for the purpose of reiterating and emphasizing that certain substances have

a penchant for exerting notable effects upon the mucous membranes of the nose, mouth and throat, or one or all of them.

In view of the foregoing confirmed knowledge it would not be chimerical to assume that certain autogenous poisons, such as result from intestinal putrefaction and absorption, might be a common cause of excretory irritation in the upper air-passages. Contemporary internists are giving extensive attention to the intestinal fermentative and putrefactive processes and their effects upon the circulatory apparatus. To discuss the biochemistry of these ferments would transcend the province of this paper, and would encroach on a domain which is being skilfully explored by competent investigators. Dwelling on this phase but superficially, one might review that skatol, indol, phenol, and other end products of intestinal putrefaction enter the blood and lymph streams. Many of the familiar migraines and headaches are resultant forms of the disturbances created by these poisons. It is irrelevant to our thesis whether these irritants exert their noxious effects centrally, thus producing derangement of the innervation and consequent stasis, or whether they exert their afflictive outbursts directly, metaphorically assaulting their host at the moment of their separation from his hospitality. It is principally desired to set up the postulate that the mucous membranes of the upper respiratory passages are eliminative organs for substances resulting from metabolism, which substances circulate in the blood or lymph-currents, or both, in a manner akin to similar processes taking place during the course of certain diseases and after the ingestion of various pharmaceutical substances. Applying this postulation to the exasperating array of patients suffering with so-called chronic rhinitis who "make the rounds" without deriving more than temporary relief, it might not be amiss to transiently consider the local treatment a secondary element, and concentrate our efforts on the segregation of the "vera causa."

The "colds in the head" following dietetic and bibulous indiscretions are familiar instances of misnomers. Supplementary to this hypothesis comes the suggestion that we, while not altogether ignoring, should at least cease to concentrate our attention on the interior of the nose of patients who are sufferers from hay-fever and allied disorders. The fact that such persons, having no demonstrable anatomical nasal abnormality, on migrating to a salubrious zone, are promptly relieved of their distressing symptoms, has tended to fortify us in the belief that the etiology of their ailment is simply extraneous. Yet it is conceivable that such persons perennially excrete, intranasally, polymorphic substances, which, in the flowering season, unite chemically with certain pollens then extant, thereby forming a product inherently irritating to the mucous membrane on and in which such chemical reaction is taking place.

There is here a broad field for original investigation, and any medical Alexander who is weeping because there are no further worlds to conquer may forthwith dry his tears. A decade hence "eliminative treatment," as still in vogue, will be ridiculed as we now scoff at Baunscheidtismus. Metchnikoff has pointed the way, and many of his disciples are plodding along numerous, divergent paths. Among the promising agents are some of the laboratory products based upon salicylic acid. Theoretically one can conceive of chemicals or enzymes that would retard or even prevent objectionable intestinal fermentation without coincidentally impairing the physiological digestive and eliminative functions. The arrival of this desideratum will mark an era in the therapeutics of rhinology.

Highland Building.

## DERMATOSES DUE TO TOXEMIA.

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Just as in the acute infectious diseases, as measles, scarlet fever, typhoid fever, etc., there are cutaneous manifestations, so certain forms of autotoxemia have skin lesions; in fact, it is a question whether or not the skin manifestations are not the prominent symptoms of this class of diseases. Thus we have a number of diseases which are classed as toxic and which have cutaneous lesions. These lesions are of great importance, and often prove the etiology of the disease. We find that certain forms of eczema, especially in childhood, are due to an autotoxemia. We also find that many cases of urticaria are due to the same cause.

Eczema, while not entirely due to a toxic condition, is greatly aggravated by anything which tends to disturb the digestion; thus a dyspepsia or a gastrointestinal irritation cannot alone cause an eczema, but will greatly aggravate an already existing one. Probably the toxins act upon the nerve endings in the skin and cause these disturbances. We see in children a certain form of eczema which is entirely cured by administering calomel or any purge to clear the intestinal tract. We find that children thus affected are those who do not, or rarely ever vomit, and, if by any chance vomiting occurs, such children have their cutaneous lesions disappear without any medication at all. Is not this a proof that it is due to a toxemia? Should, however, these children not vomit spontaneously, a simple calomel or any other purge, and cutting down the amount of and the number of feedings, frequently suffices to cure them. Too much stress cannot be laid on the fact that these children, as a rule, do not vomit. We have repeatedly seen in dispensary practice that children with well-marked facial eczema get entirely well under this simple form of treatment. Does not this bear out the statement that these eczemas are due to the toxins? Urticaria, all admit, is frequently caused by intestinal disturbances. Here evidently something ingested brings on a toxic condition, and we have the reflex symptoms on the skin.

The wheals, at first small, are irritated by scratching, grow larger, and cause the patient a great deal of discomfort. Many of these cases are promptly arrested by a thorough purge. Is not this the case of urticaria caused by shellfish?

We see such cases quite frequently in the summer. Why some patients will get ptomaine poisoning while others get an urticaria, we do not know. We know, however, that this occurs. In a family eating the same kind of food, one will get a bad attack of the hives, while another will get ptomaine poisoning, and as both conditions are relieved by thorough purging does it not prove that the skin manifestation is the direct result of the toxins?

Not only is this true of shellfish—in which a decomposition could be accused to be the cause—but it is also true of many other kinds of food, such as

berries, particularly the strawberry, of cheese, bologna sausage, etc.

Another cutaneous eruption caused by toxemia is acne. We know we are now treading on dangerous ground; but who has not seen a case of acne aggravated by coffee? Overeating, eating indigestible food, overindulgence in alcohol, smoking, etc., are quoted as etiological factors in acne. Why should a person with normal skin be able to ingest these articles of food, while those affected with or having a tendency toward acne are not able to do so? Is not a toxemia responsible for it? Why is it that these patients break out anew when they partake of ice cream, which is certainly easy of digestion? Is it not due to the toxins formed by such food and which shows itself as a reflex symptom on the skin?

Rosacea is certainly aggravated by taking tea, alcohol, etc., and is greatly aggravated by gastro-intestinal disturbances and dyspepsia.

In this connection we might add that in many other diseases toxemia keeps up or aggravates the original lesions. Thus Bulkley believes that meat is responsible for aggravating an existing psoriasis. Lichen planus certainly yields more readily to a vegetable diet. Why should this be so? We do not know. We believe that such foodstuffs are easily digested, do not cause any irritation, and that no toxins, to cause continued irritation, are formed. Why is it that certain drugs act badly on certain people? Why should the iodide cause acne in some, and the bromides, quinine, etc., cause dermatoses? Is it because a toxic condition toward such drugs is responsible for this? In certain constitutional diseases we have accompanying cutaneous lesions: thus in rheumatism we have the purpura, the erythema nodosa, etc.

We see from the foregoing that while these diseases are classed as dermatoses they are really reflex symptoms of a condition originating within the organism, and we have come to the conclusion that while not all, the majority are only reflex symptoms of toxemia.

310 Convent Ave.

## Medicolegal Notes.

**Employment of Physicians by Injured Man's Employer.**—In an action for professional services rendered to an employee on the defendant's ranch it appeared that the employee had his leg broken by a horse falling on it. After temporary treatment the defendant decided to send the injured man to a certain sanatorium, and sent him there in charge of another employee with a letter addressed to doctors in the vicinity of the sanatorium. There he was treated by Drs. Lumpkin and Thomas, who charged $110 for their services, which was shown to be a reasonable charge. The only question was whether the plaintiffs were employed by the defendant. He testified that his letter, which had been lost, was addressed to Drs. Walker and Johnston. Dr. Walker, who assisted in the operation, testified that it was addressed to Drs. Walker, Johnston, or Thomas. It was held that the jury were justified in finding that the plaintiff's messenger requested Lumpkin and Thomas to treat the case, and that the court did not err in submitting the question of whether the messenger was acting within the apparent scope of his authority. The defendant testified that before the injured man was discharged from treatment the defendant informed the plaintiffs that he would not pay them, as he had not employed them, and he requested the court to charge the jury that they could not allow the plaintiffs anything after such denial of liability. Had they quit the case it would, under the statement of the defendant then made, have amounted to an admission that they were never in his employment. The jury having found that the plaintiffs were employed to treat the case, it was held that that employment continued while the case demanded their services or until they were discharged by the defendant. Judgment for the plaintiff was affirmed.—Gray v. Lumpkin & Thomas, Texas Civil Appeals, 159 S. W. 880.

**Minor Child—Necessity for Parent's or Guardian's Consent to Anesthetic and Operation.**—A child of eleven years of age was taken by her adult sister to a surgeon, who, without the knowledge of the child's parents, who could easily have been communicated with, permitted the surgeon to anesthetize the child for the removal of adenoids. There was no emergency, and the life of the child was not dependent upon the operation. During its performance the child died. In an action for the death it was held that the child had no authority to consent to the performance of the operation on its own behalf. The sister's authority depended on whether the parents' authority had been delegated to her. In the absence of any evidence to that effect, the performance of the operation by the surgeon was unlawful, so as to warrant recovery for the death of the child, independent of the question of negligence in the performance of the operation. The law, said the court, as enunciated by the few courts which have passed thereon, is not as clear and satisfactory as it should be in cases of this character, but it seems to be reasonably established that a physician is liable for operating upon a patient unless he obtains the consent of the patient, if competent, and if not, of some one who under the circumstances would be legally authorized to give the requisite consent. Of course consent may be presumed from circumstances, without direct proof, but there must be consent in every case, except in an emergency when to delay to obtain consent would endanger the life or health of the patient. A child of tender years being incapable of legally consenting to the administration of an anesthetic and a surgical operation, consent must be obtained from the person clothed with authority to consent by the law, which would be the parent or guardian, in case there be such person. Under the circumstances of the present case, the sister, whether adult or otherwise, would have no more authority by virtue of such relationship than would any other person, and it was fundamental error upon the part of the court to instruct the jury that the presence of the elder sister, as a matter of law, justified the physicians in performing the operation. The parents were easily accessible by telephone or telegraph, and there was no emergency. The question of consent of the parents was held to be one of fact which should have been submitted to the jury. Judgment for the defendants was reversed and the cause remanded.—Rishworth v. Moss, Texas Civil Appeals, 159 S. W. 122.

**Degree of Skill and Care Required.**—In an action for malpractice the trial court instructed the jury: "If the defendant, at any stage of the treatment of the plaintiff, or at any time during his employment, failed to do what physicians and surgeons usually and generally in this locality would have done in the treatment of her, and because of such failure there was an unfavorable result, then the defendant would be liable to the plaintiff for the damages occasioned by such failure." The instruction was held to be faulty in that it made the standard of treatment that of the locality alone in which the defendant was practising, whereas the true standard is that of all similar localities. But the error was no more prejudicial to the defendant than to the plaintiff. Judgment for the plaintiff was reversed because of the trial court's erroneous refusal, on the ground of want of power, to exercise its discretion to grant a new trial for improper and inflammatory argument of the plaintiff's counsel.—Cranford v. O'Shea, Washington Supreme Court, 134 Pac. 486.

**Malpractice—Tort or Contract—Limitation of Action.**—A complaint alleged that the plaintiff employed the defendant to set, adjust, care for, and heal a dislocated hip joint from which the plaintiff was then suffering; that the defendant undertook to set, adjust, care for, and heal said joint; that the defendant negligently and unskilfully conducted himself in the treatment of said injury, whereby the ligaments and muscles surrounding said joint became inflamed, weakened, and diseased, so as to make the plaintiff a cripple for life. The complaint was held to state a cause of action, and the action, being one based on breach of contract, fell within the six-year limitation applicable to actions upon contracts.—Finch v. Bursheim, Minnesota Supreme Court, 142 N. W. 143.

# MEDICAL RECORD.

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## DIABETES INSIPIDUS.

FOR a long time diabetes insipidus was a sort of medical curiosity and though Willis recognized a non-saccharine form of diabetes as long ago as 1674 it is only recently that attempts to solve the problem of its causation have met with any distinct success. Professor Erich Meyer has recently published* an excellent résumé of the work that has been done on this condition. Examination into the inevitable association of polydipsia with polyuria has revealed the fact that the causes of diabetes insipidus, so-called, can be divided into two groups, one in which the polydipsia is primary and the polyuria merely the effect of the increased ingestion of fluids, the other, which may be called the true diabetes insipidus, being a primary polyuria with polydipsia resulting from the dehydration of the blood.

The differentiation of these two types is attended with marked difficulties, and since in many of the patients there is marked psychic disturbance one exasperated investigator announced the conclusion "omnis diabeticus mendax." It was thought at first that in a primary polydipsia there would be a dilution of the blood while in the primary polyuria the blood would become more concentrated. Investigation showed that the ingestion of large quantities of fluid caused on the contrary a concentration of the blood. This apparently paradoxical effect is explained by the fact that when the water intake is markedly increased the output of sodium chloride is increased along with that of water. In order to maintain the constant salt content of the blood, therefore, the latter must continue to be concentrated until enough salt can be absorbed from the tissues to restore the normal conditions.

More progress has been made by obtaining accurate and complete histories of the patients and subjecting them to painstaking observation. In this way it has been noted that primary polydipsia is usually associated with certain psychic anomalies, such as hysteria and paranoia, phobias, etc. The patient has certain insane ideas, and as a result of them is led to drink large quantities of water. These patients may be classed as cases of false diabetes insipidus, and it is sometimes possible to bring about a cure in them by the application of the methods of psychotherapy.

Primary polyuria seems to be closely associated with an abnormal stimulation of the kidneys by the central nervous system without the presence of any psychic disturbances. Claude Bernard showed that injury to the floor of the fourth ventricle in animals resulted in a polyuria. This injury causes a stimulation of the sympathetic, and the polyuria takes place in thirsting animals. It can be prevented by section of the splanchnic nerve. So in the genuine diabetes insipidus Forschbach and Weber have concluded that the kidney excretes a large quantity of water because of abnormal stimulation which is possibly distributed through the sympathetic system.

The primary polyurias have been divided into the idiopathic, and those due to disturbances in the central nervous system. The latter are due to cerebrospinal lues chiefly, but may be associated with hydrocephalus, brain tumor, disturbances in development, or affections of the hypophysis. So far as the idiopathic variety is concerned, it can only be said that in them there has been a failure to demonstrate the primary condition, and it is probable that with better facilities and more knowledge this group will in time be abolished. Whatever the cause, this abnormal stimulation of the kidney seems in time to bring about a weakening of its ability to concentrate the urine. This led at one time to the statement that no patient who could be forced to excrete a urine of a high specific gravity suffered from diabetes insipidus. This disturbance has, however, been shown not to be absolute. Almost all of these patients can be influenced so as to excrete a concentrated urine, and will do so sometimes when suffering with a fever. The administration of theophylline will sometimes bring about the same result.

The effect of this increase in the water metabolism has been found to be very slight. There is no such thing as a "water heart" which corresponds to the beer heart, and the latter is probably due to the alcohol and extractives in the beer. There is no increase in the blood pressure, no cachexia develops, and there is no alteration of the salt or nitrogenous metabolism. The diabète azoturique of the French is associated with and probably due to the polyphagia.

The course, prognosis, and treatment of this condition will naturally depend upon the etiological factor in any instance. Feilchenfeld, Leick, and Stein have recommended injections of 1/12 to 1/6 grain of strychnine nitrate, while the experimental results obtained with theophylline, and other diuretics of that class would be sufficient warrant for their trial. The gradual diminution which has taken place in the idiopathic group, however, should stimulate the observer to a thorough search for the cause which will probably be found; but the differential diagnosis is not easy and this, coupled with the comparative rarity of the condition, will probably delay the solution of the problem for a long time to come.

*Über den gegenwärtigen Stand der Pathologie und Therapie des Diabetes insipidus. Von Professor Dr. Erich Meyer, Vorstand der medizinischen Universitäts-Poliklinik Strassburg i. E. Price M. 1.50. Halle a. S.: Carl Marhold, 1914.

## WORK OF THE BUREAU OF HEALTH FOR THE PHILIPPINES.

THE report concerning health conditions in the Philippines, issued recently, shows that steady progress has been made in freeing those islands from the diseases which are the bane of all tropical countries. The report is, in a high degree, a strong argument for leaving the control in the hands of the Americans instead of turning it over to the Filipinos, and signifies the triumph of the existing plan of organization devised and carried out by the extremely capable Director of Health, Dr. Victor G. Heiser, and his efficient coworkers. Health conditions throughout the island during the fiscal year, July 1, 1912, to June 31, 1913, have been excellent. No serious epidemic of disease occurred, with the exception of isolated cases of plague in the city of Manila. It is pointed out, however, in the report, that even better results would have been obtained had more money been available. On the other hand, owing to the aid received from practically every branch of the Government in promoting health work, money has been made to go much further in attaining successful results than would have been the case elsewhere.

That good health is, to a very considerable extent, a purchasable commodity has been proved on several occasions in the Philippines. Thus, for example, the installation of artesian wells produced a definite reduction in the death rate and a great improvement in the sick rate in communities in which such water was used. The regular use of quinine among the inmates of the Iwahig Penal Colony clearly demonstrated the prophylactic value of this remedy, for, in spite of the fact that malaria of the most severe type is present on all sides and causes a heavy death rate, yet the inmates of the colony are as healthy as the people of New York. The elimination of intestinal parasites among a given thousand inhabitants produces a marked improvement in general health. In Manila, despite the constant importation of smallpox, from which disease formerly hundreds died annually during the period under review, there has not been a single death from this disease, because the population is kept thoroughly vaccinated. Referring to the milk supply of Manila, it is stated that the constant efforts of the Bureau of Health have not been successful in greatly improving the quality of fresh milk. Fortunately the last Legislature made an appropriation to the Society for the Protection of Infants for the construction of a building for housing the milk-sterilizing outfit which was presented by Mr. Nathan Straus, through the efforts of the Bureau, and as soon as this becomes available it is proposed to require that all milk in the city of Manila be pasteurized before it is sold or offered for sale.

Interesting experiments as to the menace of pigs in the transmission of certain diseases were made during the year. The conclusions reached were that experiments made to determine whether or not hogs might be carriers of the cholera vibrio and dysentery bacillus met with negative results. Dr. E. L. Walker, the acting chief of the biological laboratory, has reported that it is possible to distinguish between pathogenic amebas and the ordinary water ameba and that this latter form is harmless to man. Notwithstanding this finding, in order to be on the safe side the only course to pursue is to use only water that has been boiled, distilled, or otherwise made safe; not to use low-growing garden vegetables in a raw state; and to insist upon cleanliness of the hands of those who are engaged in the preparation of food.

The question of beriberi and its prevention is naturally dealt with somewhat exhaustively, for with the possible exception of the plague it has been responsible for more deaths in the Orient than any one disease. Moreover, beriberi has been the means of rendering many thousands chronic invalids, and as it more often attacks the strong, it bulks large from the economic standpoint. According to the report this terrible disease may be entirely prevented in the Philippine Islands without increasing the cost of living. By simply substituting unpolished rice for white rice, there is every reason to believe that its complete disappearance can be effected.

It was mentioned in the last annual report that at Peñaranda, Nueva Ecija Province, among a population of 8,410 there had been found forty-three cases of goiter and that the water supply was under suspicion. District Health Officer Fernandez was instructed to make a careful investigation and, if possible, to make some experiments along the lines of those made by Dr. Robert McCarrison and reported some time ago in the *Lancet*. Dr. Fernandez has made a preliminary report in which he states that the use of artesian wells has now become quite general in Peñaranda and that he has been unable to find any new cases of goiter during the past year. Insanity in the Philippines is comparatively rare, statistics seeming to show that it is six times more prevalent in the United States than in the islands, but provision for the insane is very inadequate.

With regard to the treatment of leprosy, and as the result of numerous experiments made by the Bureau with the chaulmoogra-oil method of treatment the report states that so far the outcome has not been such as to warrant the belief that a specific for leprosy has been found. Still, it is thought that, if adequate funds were available for the opening of a laboratory for the study of this treatment and an attached hospital provided for making accurate observations, at least a way has been indicated which might eventually lead to success. Malarial fever still exacts a heavy death toll in Manila, statistics showing that in round numbers 25,000 deaths occur annually from this disease.

Plague has been fairly prevalent in certain parts of the Islands and in Iloilo owing to the absence of rat plague and to the fact that the disease yielded readily to isolation and disinfection, it has been suspected that its origin may have been due to bedbugs. Typhoid fever was widely prevalent in the Philippines in the period covered by the report. Yaws was treated with almost invariable success by salvarsan.

The entire report supplies convincing proof, if such proof were required, of the energy, wisdom, and skill evinced by the members of the Bureau of Health of the Philippine Islands and provides an instructive commentary on the action of those who would for political purposes displace a Bureau of which the organization has been built up to bring about results so strikingly successful. It is a matter which certainly leads one to question seriously whether, in any event, politics should be allowed to enter into and prejudice affairs which directly concern the health of a population. *Salus populi suprema lex* is a motto which should stand forever.

## PERIODS OF STRESS IN HUMAN DEVELOPMENT.

In the Section of Stomatology, International Congress of Medicine, held in London, last July, a paper on periods of stress in human development was read by Dr. Eugene S. Talbot of Chicago (*Medical Press and Circular*, December 17, 1913). The speaker pointed out that the embyronic history of man as well as the lower vertebrates is essentially the same as that of the invertebrates. The differentiation lies in the development of some structures and the sacrifice of others for the benefit of the organism as a whole. In the process of development from the primitive cell, periods occur in which unfavorable influences act so as to occasion a stress or struggle. If the stress falls on one organ local changes may result in arrested or excessive development, that is in the degeneration of the particular organ. Three kinds of unfavorable influences affect the organism or its parts, the mechanic, toxic, and nutritive.

Struggle for existence on the part of the different organs and systems is most ardent during periods of evolution and involution. For instance, a check or an excess of growth of the higher organs of the nervous system frequently results in impairment of the mental faculties to the extent that any of the degenerations may occur. In these cases the brain remains in the stage characteristic of the common simian ancestor, or the higher faculties may attain only the development of primitive races in whom emotional control and ethical ideas are insufficient to meet the exigencies of civilized states. The power of passing through the fetal periods of stress depends upon the condition of the fetal organs at the time of these periods stress, partly on inherited factors and partly on maternal conditions.

During the entire developmental life of man extending over the first thirty years, there are marked changes in the nervous system and associated organs. There is constant demand on the powers of nutrition. The first period of stress is infancy. The second period involves a series of changes which occupies the time from six months to two years after birth. The second dentition, beginning with the sixth year, forms the third period of stress. The fourth period is ushered in by puberty, and finally the climacteric period, marked in women about the fifth decade, and the failure of the sexual powers in man, coming somewhat later, necessitate readjustments of metabolism of great importance to all organs, and note the fifth period of stress. The last period is that of decadence and senility. The author emphasizes the importance of periods of stress in the development of the human fetus, laying much emphasis on the fact that the greatest care and protection as well as careful study should be given to parent and child so that degenerative influences may not lessen the chances of survival or aid in furthering the degenerative tendencies of the human race.

## A Unique Case of Pluriglandular Insufficiency.

At a recent session of the Charité Hospital, Berlin, Maase presented a genuine case of this condition with autopsy finds (*Berliner klinische Wochenschrift*, January 19, 1914). The patient was a Russian girl aged twenty-four, of epileptic and diabetic ancestry. She had been normal in every way up to the age of eighteen years, when she developed ophthalmoplegia. When approximately twenty years old she developed a sort of myxedematous state, attended by suppression of the menses. A physician found glycosuria, and a positive Wassermann reaction. Later the author discovered a spinal curvature. The progress of the case suggested myxedema to the exclusion of other affections. At the same time there was a shrinkage in the body measurements represented by various deformities. The bone condition developed some resemblance to osteomalacia. Death occurred unexpectedly from erysipelas, thereby giving an opportunity for autopsy. Radiography had shown a normal sella turcica, but the hypophysis, normal in size, was adherent to the bone, and of firm consistence. Thymus remains were quite abundant, while the thyroid was abnormally small in both lobes. The pancreas was small, consisting largely of fat and connective tissue. The adrenals were normal to the naked eye. The ovaries were abnormally small and showed no Graafian follicles. The bones were very much thinned and brittle. The liver was fatty. The other organs were normal save for the heart which exhibited the changes to be expected after death from erysipelas. The author explains his case on the assumption that the condition of the thyroid was responsible for myxedema and possibly for certain psychic manifestations, but beyond that he could not go, save perhaps to hold the abnormal pancreas responsible for the diabetes. The adrenal bodies alone of all the endocrinous glands were normal, so that the case may be termed subtotal. In no other similar case reported has there been glycosuria.

## News of the Week.

**Oldest Indian Dead.**—White Eagle, chief of the Ponca tribe, and said to be the oldest Indian in the United States, died at his home in Ponca City, Okla., on February 5, aged 111 years.

**Bavaria in Radium Market.**—The Bavarian Parliament on February 5 appropriated the sum of $150,000 for the purchase of radium with which to treat the poor suffering with cancer.

**Physicians Win in Russia.**—All restrictions on the length of sojourn to be permitted in Russia to Jewish physicians who desire to attend the Twelfth International Ophthalmological Congress in St. Petersburg this summer have been removed by order of the Russian Minister of the Interior. The members of the congress, without exception,

have been assured unrestricted admission and unlimited sojourn within the boundaries of the empire. The congress will convene on July 28 and remain in session until August 2.

**State Health Board Appointments.**—Dr. H. M. Biggs, the new State Commissioner of Health of New York, has appointed Dr. Augustus B. Wadsworth of New York to be Director of the Division of Laboratories and Research, and Dr. Henry L. K. Shaw of Albany to be Director of the Division of Child Hygiene of the State Department of Health.

**Harvey Society.**—Prof. J. J. R. Macleod of Western Reserve University, Cleveland, O., will lecture on February 14 at 8.30 o'clock before the Harvey Society at the Academy of Medicine, New York, on "Recent Work on the Physiological Pathology of Glycosuria."

**Gifts to Charities.**—By the will of the late Jane S. Echternach of Philadelphia bequests are made as follows: Women's Southern Homeopathic Hospital, $19,000; St. Luke's Homeopathic Hospital, $14,000; Women's Homeopathic Association of Philadelphia, $5,600; Philadelphia Home for Incurables, $5,000; Children's Seashore House, Atlantic City, $5,000; Germantown Hospital, $2,800; Wills Eye Hospital, $2,800; Hahnemann College and Hospital, $2,800; Pennsylvania Epileptic Hospital and Colony Farm, $2,800 and Free Hospital for Consumptives, $2,800.

By the will of the late Anna T. Jeanes of Philadelphia, the sum of $2,000,000 is set aside for the establishment of a hospital as a memorial to the testator. The money was originally devised to Swarthmore College on condition that athletic sports be abolished in that institution, but the gift was declined, and the money has reverted to the Yearly Meeting of Friends, to which $200,000 had originally been bequeathed for the founding of a hospital. Dr. James Tyson is one of the incorporators of the projected hospital.

The New York Post-Graduate Medical School and Hospital receives a bequest of $1,000 by the will of the late Miss Emily Chamberlain of this city.

By the will of the late Lord Strathcona, the sum of $25,000 is left to the Right Hon. John Burns, for the purpose of maintaining a home for lepers in the United Kingdom, but none of this is to be expended for other lepers who may come into the kingdom; $50,000 is given to the maintenance of the Leanchoil Cottage Hospital, Forres, as from Lady Strathcona and the Queen Alexandra Home and Hospital for Incurables, the North London or Paralytic Hospital, the London University College Hospital, and the Middlesex Hospital receive $10,000 each.

**Matteawan Overcrowded.**—The capacity of the Matteawan State Hospital for the Criminal Insane has recently been so greatly overtaxed that the superintendent is considering the advisability of refusing to accept any more persons from New York County, which sends a large proportion of the patients. There are at present eight hundred inmates in the hospital, the largest number in the history of the institution.

**Abolish Board of Food and Drug Inspection.**—In the interest of efficiency and economy, the Board of Food and Drug Inspection of the Department of Agriculture has been abolished by Secretary Houston, and the appeals which formerly went before the board will in future be submitted to Dr. Carl Alsberg, the successor of Dr. Wiley. Dr. Alsberg will be assisted by Dr. R. L. Emerson of Boston. Under this plan the enforcement of the pure food law will be virtually in the hands of one man. The country will be divided into three inspection districts with Washington, Chicago, and San Francisco as the respective headquarters. This concentration of the authority of enforcement was one of the things for which Dr. Wiley contended.

**Friedmann Cure Banned Again.**—The Board of Health of New York City, which is now composed of Health Commissioner Goldwater, Police Commissioner McKay, and Health Officer O'Connell, has approved the action of the former board in refusing to permit the use of the Friedmann turtle bacillus culture in this city. Application was recently made by Dr. Hans Karfunkel, a physician of Berlin, for permission to introduce something which he claims is a modification of the Friedmann remedy, but the board denied the application. The United States Treasury Department has recently denied the statement that the Piorkowski Laboratories of Berlin, Germany, have been licensed by the department for the importation and sale in this country of "turtle tuberculin." On the contrary, such a license, when applied for, was, after an inspection of the establishment, specifically refused.

**Grading of Nurses.**—The Committee on the Grading and Classification of Nurses appointed by the American Hospital Association, desiring to bring the subject to the attention of medical men, has prepared the following list of questions which it submits with the request that answers thereto be sent to Dr. Renwick Ross, Buffalo General Hospital, Buffalo, N. Y., before April 15. (1) In your opinion is it possible to meet the nursing needs of the average community in city, town, and country in the United States and Canada with graduate nurse service alone? (2) If in your opinion only graduate service should be used, will you kindly present an outline of a practical comprehensive program for supplying graduate service to all classes needing continuous nursing? (3) If more than one grade of nurse is a necessity, will you please state how many grades you consider necessary? How would you classify nurses so as to include in your classification all who nurse for hire? (4) Will you kindly suggest a substitute term for the grade B or "certified nurse" as recommended by the committee on grading of last year, if you consider that some better term should be used to designate nurses trained in special hospitals or hospitals unable to give a full training. Please state whether or not you are satisfied with the distinctive terms recommended by the committee of last year. Give briefly your reasons if not satisfied. (5) If several grades seem to be necessary, how and where should the several grades be trained? (6) In view of the fact that many tuberculosis hospitals find it impossible to secure sufficient graduate nurses to care for their patients, what measures would you suggest for meeting the nursing needs in such institutions? (7) If training is given in a tuberculosis hospital, how long should the course be and how would you classify those completing such a course? (8) In view of the fact that there is a constant and pressing demand for maternity nurses in homes of moderate means, what measures that are practicable for the average com-

munity would you suggest for meeting this need? How classify such nurses? (9) What constructive recommendations would you make with a view to improving on the plans presented by the committee on the grading of nurses in the report submitted to the Association at the Boston convention, a copy of which was mailed to each member? (10) Will you kindly suggest to the committee of this year any feasible plans which occur to you for improving the quality of home nursing now being received by those who cannot afford graduate nurses?

**Women Internes Urged.**—The question of appointing women physicians as internes at the Metropolitan Hospital, Blackwell's Island, N. Y., is under consideration by the Commissioner of Charities. At present, examination for these positions are open to men only, and the medical board of the hospital recently passed a resolution requesting that the privilege be extended to women. It is felt that a year's hospital training will soon be required of every graduate of a medical school before a license to practise medicine is issued, and that opportunities for training should be afforded to the many women now entering the profession.

**Expense of Alien Insane.**—In a special message to the Legislature, Governor Glynn of New York recently called attention to the great cost of caring for the alien insane in New York State. He believes that the Federal Government should relieve the State of this burden. There are now about 9,241 aliens in the insane asylums of New York, and the cost of caring for these for ten years, the average length of confinement, is estimated at $25,000,000.

**To Bar Sale of Drugs.**—The Senate and Assembly Committee on Health of the New York Legislature has under consideration a bill requiring stringent regulations for the sale of opium, morphine, and all their derivative salts, including heroin, and all other habit-forming drugs. A bill to prevent the sale of tablets of bichloride of mercury except on a physician's prescription has also been introduced into the Legislature.

Following their conviction for selling heroin to boys in New York City three men were sentenced in the Court of Special Sessions on February 3, to serve six months each in the penitentiary, while a fourth man was sentenced to serve one year.

**Central Council of Public Health.**—A new organization having for its aim to serve as a clearing house for all ideas for the improvement of health conditions in New York City, to obtain and disseminate information toward this end, and to coordinate the work of the different institutions doing public health work and prevent duplication of their efforts, was formed at a meeting of representatives of many private organizations at the Academy of Medicine on February 4. The organization is to be known as the Health Federation of the City of New York, and its advisory body, the membership of which is to be limited to fifteen, as the Central Council of Public Health. The members of this council so far announced are: Dr. John H. Huddleston, Chairman; Bailey B. Burritt, Acting General Director of the Association for Improving the Condition of the Poor; Dr. Charles Loomis Dana, Chairman of the Public Health, Hospital, and Budget Committee of the New York Academy of Medicine, and of the Public Health Committee of the City Club; Homer Folks, Miss Pauline Goldmark of the Governing Board of the Consumers' League, James Jenkins, Jr.; Dr. Edward L. Keyes, Jr.; Dr. Philip Van Ingen, Medical Advisor of the New York Milk Committee; Miss Lillian D. Wald, Chairman of the Committee on Public Health of the Settlements; Prof. C.-E. A. Winslow, and Dr. E. H. Lewinski-Corwin, Executive Secretary.

**Ehrlich on Radium.**—Prof Paul Ehrlich of Frankfort, who has recently been spending his vacation in Paris, is quoted in the newspapers as having said: "I am convinced that the next ten years will see immense progress in the treatment of contagious diseases by radium and the *x*-rays, which are still imperfectly investigated. Perhaps cancer will be conquered. The new discoveries will be along the lines of chemicoradiotherapy. Vaccines and prophylactic serums, it seems to me, have yielded all that there is to be obtained from them."

**Smallpox in Pennsylvania.**—Ninety cases of smallpox have developed at Northeast, a town of 2,000 inhabitants in Erie County, Pa., and as a result fifty-five houses have been quarantined and all the inhabitants of the township in which Northeast is situated have been quarantined.

**Investigate Health Department.**—The Bureau of Municipal Research of New York has recently issued a criticism of the methods of the City Department of Health in handling cases of typhoid fever and in making investigations of milk. It is charged that the epidemic on the east side of the city last fall could have been prevented had the lessons of the epidemic of 1911 been properly applied. The bureau submitted detailed reports of its findings and recommendations to Dr. Goldwater on his assumption of the duties of Health Commissioner on February 1.

**Christian Scientists Held.**—Following the death of a nineteen-months-old child in New York recently, two Christian Science "healers" who had treated him were held for criminal negligence by the Coroner's jury. The child died from diphtheria.

**Self-Laudation Rebuked.**—At a meeting of the Medical Society of the County of New York last week, a report of an investigation made by the Comitia minora at the request of the Board of Censors, was read. In it attention was called to "the rapidly increasing number of publications in the lay press concerning the professional activities of many prominent members of the society," which were described as "self-laudation rather than public health education." While admitting the right of the public to receive information on the progress of medical science, the report stated that what was printed "should be the substantial truth, and not the possibly immature ideas of an enthusiast, who may awaken false hopes, and by the unsuccessful outcome of his efforts lower the confidence of the public in the profession." At the close of the reading of the report, the Society unanimously adopted resolutions requesting that its members when giving information to the lay press do so in an impersonal manner, and in strict conformity with the well-known principles of medical ethics.

**Rural Death Rate High.**—The New York State Grange at its recent convention in Poughkeepsie recommended the establishment of a division of rural hygiene in the New York State Department of Health. This action was taken following a

report from the health committee in which it was pointed out that while the death rate in New York City has been only 13.7 per 1,000 of population, that in the country districts and small towns has been 15.4 per 1,000.

**Sex Hygiene Topic Barred.**—The school authorities of Montclair, N. J., have issued orders forbidding the teachings of sex hygiene in the public schools. The teachers are also forbidden to lend or to offer to lend books on this subject to their pupils.

**O'Loughlin Memorial.**—An emergency ward in St. Vincent's Hospital, New York, containing seventeen beds and a treatment room, will be dedicated on February 16 to the memory of Dr. W. F. N. O'Loughlin, the surgeon of the *Titanic*. Dr. O'Loughlin was well known at the hospital.

**To Force Pasteurization.**—In spite of strong protests and requests for delay, Commissioner Goldwater has determined to enforce the order of the Board of Health adopted several months ago, regarding the pasteurization of all grades of milk except the certified and guaranteed. All dealers who do not conform with the order will be called to show cause before the Board of Health on February 16.

**International Society of Surgery.**—The Fourth Congress of the International Society of Surgery will be held in New York from April 13 to 16, 1914, under the presidency of Professor Depage of Brussels. The meeting will be held in the ball room of the Hotel Astor, and it is expected that President Wilson will welcome the congress. Details of the program may be obtained from the American secretary of the congress, Dr. J. P. Hoguet, 40 East Forty-first street, New York.

**To Honor Dr. Daniel.**—The Alumnæ of the Out-Practice Department of the New York Infirmary for Women and Children will give a dinner at the McAlpin Hotel, at 7:30 o'clock on the evening of February 16, in honor of Dr. Annie S. Daniel. The speakers will be representative of the various fields of Dr. Daniel's activities, and it is hoped that on this occasion there may be gathered together many men and women who have been associated with her. The treasurer of the dinner is Dr. Ethel D. Brown of 26 Gramercy Park, New York.

**Obituary Notes.**—Dr. Edward G. Day of New York, a graduate of the College of Physicians and Surgeons, New York, in 1888, died at his home on February 3.

Dr. Thomas Richard Garlington of Rome, Ga., a graduate of the Jefferson Medical College, Philadelphia, in 1890, and a member of the Medical Association of Georgia and the Floyd County Medical Society, died at his home, after a long illness, on January 18, aged 54 years.

Dr. James L. Reilly of Chicago, Ill., a graduate of the Northwestern University Medical College, Chicago, in 1889, and a member of the American Medical Association and the Illinois State and Chicago Medical Societies, died at the Mercy Hospital, Chicago, from pneumonia, on January 15, aged 53 years.

Dr. William T. Ramsey of Cambridge, O., a graduate of the George Washington University Department of Medicine, Washington, in 1871, died at his home, after a long illness, on January 19, aged 66 years.

Dr. Robert G. Hassard of Thomaston, Conn., a graduate of the Yale University Medical Department, New Haven, in 1862, and a member of the Connecticut State and Litchfield County Medical Societies, died recently at his home, aged 71 years.

Dr. John Avery of Greenville, Mich., a graduate of the Cleveland Homeopathic Medical College, Cleveland, O., in 1850, a veteran of the Civil War, for two terms a member of Congress, and a member of the Michigan State and Montcalm County Medical Societies, died at his home from paralysis, on January 1, aged 90 years.

Dr. Edward Payson Fowler of New York, a graduate of the New York Medical College in 1855, formerly visiting physician at Ward's Island and the Hahnemann Hospital, New York, a member of the New York Academy of Medicine, the New York State and County Medical Societies, and the New York Neurological Society, and the author and translator of many medical publications, died at his home at Pelham Manor, N. Y., from pneumonia, after a short illness, on January 29, aged 69 years.

Dr. Alfred C. Girard, Brigadier-General in the United States Army, retired, and librarian of the John Crerar Library, Chicago, died in Washington, D. C., on January 31, following an operation for appendicitis. General Girard, who was 72 years of age, served for eight years in the Indian campaigns on the frontier, and as Chief Surgeon of the Second Army Corps during the Spanish War. He also equipped the general hospital at the Presidio, San Francisco, and for three years was at its head.

## Obituary.

### WILLIAM KELLY SIMPSON, M.D.,

NEW YORK

Dr. William Kelly Simpson, professor of laryngology in the College of Physicians and Surgeons, Columbia University, New York, died suddenly at his home in this city, on February 6. Dr Simpson was born in Hudson, N. Y., on April 10, 1855, and was graduated from Cornell University in 1876 and from the College of Physicians and Surgeons in 1880. In 1892 he became assistant professor of laryngology at the college, and was elected professor in 1904. He held also the positions of consulting otologist to the Presbyterian Hospital, and consulting laryngologist to Seton Hospital, St. John's Hospital, Yonkers, and the Somerset Hospital, Somerville, N. J. He was a member of the American Medical Association, the New York State and County Medical Societies, the American Laryngological Association, the New York Academy of Medicine, the Hospital Graduates' Club, and the Alumni Associations of the College of Physicians and Surgeons and of the Presbyterian Hospital.

Dr. Simpson was most skilful in his profession, being gifted to a rare degree with the delicacy of hand and surety of touch so necessary to the laryngologist. As a teacher also of his chosen specialty he was eminently successful, his strong personal magnetism and essential friendliness bringing him into unusually close touch with his classes. He had a rare personality; most humanly gregarious, endowed with abundant humor and natural high spirits, and withal sweet tempered and full of charity, his friends were legion, and he was always a welcome addition to any gathering, whether social or medical. There have been few men whose taking away has left an ache in so many hearts as has that of Kelly Simpson.

# Correspondence.

## OUR LONDON LETTER.

(From Our Regular Correspondent.)

GRESHAM LECTURES—MICROSCOPE IN MEDICINE—INSURANCE DIFFICULTIES, STATE SERVICE PROPOSED, VARIOUS MEETINGS—OBITUARY.

London, January 23, 1914.

The first Gresham lecture for this year was delivered on Tuesday at the new Gresham College, by the "professor of physic" Dr. F. M. Sandwith, his subject being "Medicine Old and New." In this first of the course of four he spoke of medicine in Sir Thomas Gresham's day when he said although there were contradictory accounts, the sanitary conditions were the cause of much ill-health in the population and constituted a hotbed of epidemics from which the country was seldom free. There was no check upon overcrowding, windows were few and those not made to open; water supply, too, was bad. Under Queen Elizabeth the Mayors and Councillors were required to introduce reforms in these matters. All through the 16th century plague was never absent from Europe and England was rarely free from it. In the first seven months of 1563 no less than 23,000 persons died of plague. Rich people who could fled from the city into the country. A vigorous quarantine was insisted upon, citizens kept isolated in their houses and when allowed to go out compelled to carry a white rod. Elizabeth took the strictest measures for protecting herself at Windsor. Stow records that a gallows was set up in the market place to hang anyone who came from London or had goods from London. Another disease at that period was smallpox, which prevailed so constantly that it was considered inevitable for everyone to contract it sooner or later. Malaria was very common. Another epidemic called ague, but which was perhaps influenza, swept the country and the mortality it caused was great. Sweating sickness also appeared and scourged the country for about sixty-six years, passing swiftly from town to town; it usually attacked the rich rather than the poor and robust young men rather than old people or children.

In the second Gresham lecture Dr. Sandwith reviewed the late International Medical Congress of which he held the scientific work had been of the deepest interest and of the highest importance to those working in different countries for tne advance of medicine. In the previous congress held in London in 1881 the sections—only 6 in the late seventies—had grown to 16 and in the last year's meeting there were 23; and it was further gratifying to notice that for the first time the government was represented at the gathering. He pointed out the advantage of medical experts meeting, inasmuch as the personal factor still exists although the modern physician is armed by many instruments of precision. The profession also had learned to look further ahead and watch for possible or probable dangers to the community. As a result protective measures were used against typhoid, smallpox, plague, diphtheria, and hydrophobia. The lecturer next entered a defense of vivisection. This country, he said, was the only one where there was a need for protest against the absurd opposition to scientific labors for the advance of medicine.

Ehrlich's address at the Congress was a description of a new treatment by its originator which could not have been discovered except by experiments on animals. He instanced relapsing fever as a triumph for the method, whereas a patient under previous plans would have seven or more periods of high fever, a single Ehrlich administration brought the temperature down, kept it down and eliminated the parasites. How was it found out and proved that salvarsan would do this? Only by experiments on animals. The result, most successful, led to use on man. In Russia, where the disease prevailed, 92 per cent. had no relapse after the first injection. In China the mortality fell from 4 to 1 per cent. and the patients only spent two-thirds of the former period in hospital. Ehrlich's patience was extraordinary. Salvarsan was the 606th arsenic compound he prepared, and neo-salvarsan he arrived at last year, the 943d. In yaws he had reported another victory. Ehrlich looks forward with confidence to achieving further advances of the highest importance within the next five years.

The presidential address of the Royal Microscopical Society was delivered by Prof. Sims Woodhead, who took for his subject the microscope in medicine. Opening with remarks on the history of his subject he said Kircher was convinced in the Seventeenth Century that disease was caused by something possessing the attributes of a living organism. But more than a century before him Fracastorius had in some observations seemed to anticipate some such separate bodies but did not speak of them as living organisms. It was, however, to Malpighi that we owed the most fruitful work of the Seventeenth century. In the Nineteenth century the idea of contagious agents, perhaps alive, occupied much attention during the thirties. In 1840 Henle concluded they must be living organisms, capable of continued, probably independent existence, having further the power of multiplying and producing certain ferments and toxins which affected the tissues by interfering with their functions or even leading to their disintegration.

Protozoology, the newest of microscopical sciences and now the most important branch of parasitology, could only have been brought into existence by the modern microscope. Malaria, parasites, trypanosomes and all protozoa had had their life histories demonstrated by the improved methods of investigation with the best microscopes. The lecturer thought if only some twenty or thirty members of this society could be turned into the medical schools to show the potentialities of the microscope there would be still further advances in medical knowledge as the facilities for investigation would be increased in the hands of thousands of workers.

The president's idea is appropriate from his chair, and it may be admitted that the more familiar every student could be made with the microscope the better, but it seems impossible for every practitioner to make advance in research work which demands all a man's time and devotion.

The Insurance Act continues to excite discontent not only in the profession but in many sections of the public. Indeed, it looks as if it might become as perennial a source of opposition as the Vaccination Acts. People who approve of national assurance find it impossible to excuse the many anomalies of the act and are joining those who plead for drastic amendments, while others declare that the act has so utterly failed as to prove the necessity for a state medical service. The advocates of this scheme are accordingly encouraged, and many who clearly discern its socialistic tendency are willing to adopt it,

though not without regret. The Faculty of Insurance began a course of lectures last week which will perhaps consider the subject in its widest aspects. The first lecture was on the "Medical Profession and National Assurance" and the chairman, Mr. Kingley Wood, remarked that medical benefit was the cornerstone of every scheme of national insurance and in every country where it had been tried the position of the medical profession had been a source of controversy. The problem he found no nearer solution anywhere than it is here today. Owing to failure of the penal system opinion was growing in favor of a state service; but many dangers were in the way, such as its becoming akin to Poor Law relief, and as there could be no free choice of doctor there could be little personal feeling between doctor and patient. Our present scheme called national was not so, for women and children were outside. He held that whatever form it eventually took the profession must be prepared to treat the whole of the industrial classes and means must be found to secure a whole-hearted service, and insured persons got the medical aid in the form that suited them best.

Sir John Collie then proceeded to give the lecture and began by pointing out defects in the act itself, in the central administration, in the local administration and inherent in the panel system. As to the act it was a mistake to set up a new body. The Local Government Board was at hand and could have coordinated clinical and preventive medicine. Among other mistakes Sir John Collie specified setting up four separate commissions and numerous local committees and all the steps taken in dealing with the profession, especially that of admitting every one to the panels, and which therefore rushed all those who could not succeed; unduly large lists of patients were allotted to men who could not do justice to them and enormous sums were spent on trivial ailments, nothing on laboratories, *x*-rays, opportunities for consultations. The list of medical appliances was cut down to a bare minimum to spare money, but nothing like the same solicitude was shown to friendly society funds.

Sir John Collie's remedy for all these and other errors was a State Medical Service, with payment by salary, to avoid competition. Those who feared the doctor would become stereotyped he bid look at other State Services—military, naval, sanitary, education. He pleaded for a State Medical Service to follow, in a way that has delighted the Socialists and encouraged others. He would put it under the L. G. B., make it attractive to the most earnest young doctors, give them laboratories and furnish them with everything needful for research, providing them thus with a career which would demand so much competition to enter it that an examination might be imposed on candidates—as if the young men he hoped to secure had not had enough of examination! The discussion has been taken up by the outside public and the newspapers are admitting different views. One of the most trenchant replies to Sir J. Collie is by Dr. H. H. Mills, vice-chairman of the Medical Sub-committee of the London Insurance Committee. He admits the scheme is illogical and incomplete but says that is just along the lines of compromise and adaptation of all our schemes. He declares the committees have built up a complex organization affecting 14,000,000 persons directly or 20,000,000 including those indirectly concerned. The chief difficulty has been shortage of doctors. But with fair payment and relief from dispensing and collecting their accounts he has no doubt this problem will soon be solved. The immediate need is linking the scheme with hospitals and other institutions.

On Tuesday there was a meeting in the Examination Hall of the Royal College of Surgeons of the four commissions (England, Scotland, Wales, Ireland), under the Insurance Act, to consider the contribution arrears, penalties, and reduction of benefits. A scheme was submitted and duly adopted. The English Advisory Committee subsequently held a meeting to consider a proposal to prohibit after five years the meetings of approved societies or their branches on licensed premises. Great diversities of opinion were expressed and no decision arrived at. The London committee yesterday discussed the question of payment of members which has been raised, and after the expression of strong opposition of members who hold it more honorable to give their services, the decision was in favor of a payment to cover expenses of travelling, loss of time, etc., so as to enable anyone to serve to whom such expenses might be deterrent. Several cases of complaints against doctors were reported by a sub-committee. One was admitted to have been when the accused doctor was ill with scarlet fever, but it deemed the applicant did not know the *locum tenens*. It was admitted that the doctor had paid the expenses involved. Another member drew attention to a complaint shown to be unreasonable and others in which it had been found that more than "adequate treatment" had in reality been given. It was referred to the Medical Subcommittee to inquire into and report on the arrangements for treatment in the London Boroughs and also to consider the question of nursing insured persons in the County of London.

Mr. H. A. Reeves, who died on the 16th inst., aet. 70, will be missed by many, although he had for some time given up practice. He filled at different times the post of Surgeon to the London Hospital and Lecturer on Anatomy in the School attached, Surgeon to the Hospital for Women, Central Ophthalmic, East London, for Children and several others. In all he was an agreeable colleague and in all proved himself an able surgeon. At the Royal Orthopedic he made good use of the opportunities and showed great familiarity with the subject in its widest aspect. He contributed to the societies and the journals many practical articles. He wrote an excellent treatise on "Applied Anatomy." His "Human Morphology" will doubtless be known to your readers and his "Bodily Deformities" deserves their notice.

## OUR LETTER FROM THE PHILIPPINES.

(From Our Regular Correspondent.)

CRIPPLING THE BUREAU OF HEALTH—CAMPAIGN AGAINST RATS—DISPOSAL OF GARBAGE—CHRISTMAS CELEBRATION AT THE LEPER COLONY—EXAMINATION OF PUBLIC WOMEN—LAXITY IN ANTI-MOSQUITO WORK.

MANILA, P. I., December 30, 1913.

THE Appropriation Bill which has just been passed by the Lower House of the Philippine Legislature carried large reductions as compared with the bill for the past year. A great decrease in the revenues and alleged high salaries of Americans are given as the causes. The appropriation for the Bureau of Health was reduced more than $263,000

United States currency. When it is remembered that the health bureau in the past has received less than $1,000,000, it will be realized that this reduction of over 25 per cent. will in all probability seriously impair the efficiency of that branch of the government. A large percentage of the million dollars that has heretofore been appropriated has been devoted to the care of the insane, the upkeep of orphan asylums, the maintenance of general hospitals and other functions which are not ordinarily classed under health appropriations, so that the actual amount available for health purposes in the Philippines has at all times been very small. The Bureau of Health for the Philippine Islands is in effect the medical department of the government and includes not only all those functions which ordinarily come under health organizations in the United States but everything of a medical and charitable nature. As the proposed bill does not reduce the appropriations for charity purposes, the cut falls almost entirely upon health activities, so that there will be available less than $100,000 for conducting the health work of the Philippine Archipelago. This sum is believed to be entirely inadequate to provide for the most urgent health needs. As the Islands are constantly threatened with outbreaks of cholera, smallpox, and plague, the prospects for holding these diseases under control in the future are not very bright if the Appropriation Bill in its present form should become a law. The bill is now before the Upper House of the Legislature, where Dr. Heiser, the Director of Health, argued for three whole days for an increased appropriation. He pointed out that the leper segregation which had been begun so auspiciously would have to be abandoned and that the large sums which had been spent in the past would probably have been spent uselessly. Vaccination, which had already saved more than 40,000 lives a year, would have to be largely abandoned and smallpox would return once more to claim its victims. He protested against the elimination of Americans who had given the best years of their lives to the service and said that the salaries of $2,000 per annum for doctors were meager enough and could not be further reduced without losing their services.

In the course of the systematic examinations which are made of rats caught in different sections of the city, a number that came last week from Nos. 417 and 419 Calle Peñarrubia in San Nicolas District were found to have buboes and subcutaneous injection, but the incubation experiments made at the Bureau of Science were negative for plague. As an extra precaution, however, a large force of rat catchers has been put to work in the above district and general anti-rat measures are being carried out. No plague rats have been found in the Philippines since September. Two cases of human plague have occurred since May last.

The conditions at the garbage plant of the Philippine Manufacturing Company, which is the concern that has recently contracted to dispose of Manila's garbage, became so insanitary that the Bureau of Health recommended to the Municipal Board that the contract be suspended until the company provides itself with the necessary facilities to dispose of the garbage in a more sanitary manner. Owing to the lack of incinerator facilities, much crude garbage was dumped on the beach, which resulted in the breeding of myriads of flies. A case of cholera made its appearance in a house located near the garbage plant and it was believed that the flies might prove an important factor in the spread of cholera. The Municipal Board took immediate action and placed the recommendation of the Bureau of Health into effect. Extensive improvements are now being made in the garbage plant and the company hopes in a short while that it will be in a position to dispose of both garbage and refuse in a manner satisfactory to the health authorities.

The large obligation which the segregation of lepers imposes upon the Philippine Government was well illustrated by the arrangements which were made in order to make Christmas for the inmates of the Culion Leper Colony a more or less enjoyable occasion. The colony now numbers approximately 3,500 persons, and a ton of candy and a ton of popcorn were sent for free distribution among the lepers. In addition, the Manila public contributed very liberally in money and other gifts, so that it was possible to give each of the inmates of the colony a Christmas present.

The dance hall ordinance, which requires the examination at regular intervals of all women who dance in public dance halls in the city of Manila, in order to ascertain that they are not afflicted with tuberculosis, venereal, or other dangerous communicable diseases, which went into effect July 1 and which was so largely nullified on account of the fact that the dance halls simply transferred their operations to points outside the city limits, is now beginning to bring about the results which were hoped for it from the first. All of the municipalities which surround Manila have now passed similar ordinances. The examinations which have been made to date show that a large percentage of the women examined suffered from venereal diseases, and it can now be definitely stated that these women were largely responsible for the great increase which has taken place in the prevalence of venereal diseases in Manila during recent years.

The antimosquito service, which has heretofore been conducted by the Bureau of Health, has now been transferred to the Department of Sanitation of the city of Manila, which has charge of street sweeping and garbage collection. In accordance with the policy of the present administration, all of the Americans have been replaced by Filipinos. The local newspapers have been filled with complaints relative to the increase in the number of mosquitos since this transfer has been made.

Dr. A. P. O'Brien of the San Francisco Board of Health has been a visitor in the city of Manila during the past few weeks.

## Progress of Medical Science.

**Boston Medical and Surgical Journal.**

*January* 29, 1914.

1. Recurrences of Ulcer of the Duodenum, Following Operation. W. J. Mayo.
2. Progress in the Diagnosis and Treatment of Syphilis. J. H. Cunningham.
3. The Care for Radium Therapy. S. Delano.
4. A Study of Cancer. S. W. Little.

1. **Recurrences of Ulcer of the Duodenum.**—W. J. Mayo notes that in an investigation of the results following operation on 600 cases of ulcer of the stomach and duodenum, Graham found that 81 per cent. were so relieved as to be considered cured and 10 per cent. were markedly benefited; that is, 91 per cent. were cured or improved and 5 per cent. of the remainder were moderately improved. The results in the gastric group were not as good as in the duodenal by 3 or 4 per cent. Gastrojejunostomy was the method of choice

in the larger number of cases of duodenal ulcers subjected to operation. Failure to cure and recurrences following operation can be divided into two general groups: First, failure of the operation to relieve the stomach of its acid, irrating secretions, and inadequate protection of the ulcer itself during the healing period. For the purpose of permanently closing the pylorus, C. H. Mayo introduced the method first employed in Germany, of cutting a strip from the gastrohepatic or gastrocolic omentum, leaving it attached at one end and drawing it twice about the stomach just above the pylorus, or, if the ulcer of the duodenum is sufficiently far below the pylorus the omental strip is passed about the duodenum below the pylorus between it and the ulcer. In the second group of cases, recurrence of the ulcer following gastrojejunostomy was apparent rather than real, and had its origin in improper suturing in the operation. Suture ulceration is sometimes responsible for recurrences. Experiences of this kind teach that very fine silk, not heavier than 0, should be used for gastrojejunostomy, that the bite of the suture should be as near the margin of incision as possible and that, if it is necessary to reinforce a weak suture line, interrupted fine silk sutures are advisable on such sutures used for part or the whole of the outer row. It has been the practice in the Mayo clinic for a long time to use catgut for the inner row, but it is not the inner row that gives trouble. It is the outer or musculoperitoneal suture, and W. J. Mayo has no doubt that if the order were reversed, using silk or linen for the inner row and catgut for the outer, better results would follow.

## New York Medical Journal.

*January* 31, 1914.

1. Neurology at the Recent International Congress of Medicine. C. K. Mills.
2. Oil-Ether Anesthesia. J. T. Gwathemey.
3. Large Gallstone Passed *per Vium Naturalem*. H. J. Novack.
4. Mental Defectives. H. A. Knox.
5. Foreign Bodies in the Appendix. J. W. Kennedy.
6. The Modern Treatment of Chronic Nephritis. R. Hills.
7. Dermatoses Neurotica. W. P. Cunningham.
8. On Testing Urine for Bile, Pigments, and for Diacetic Acid. J. Rosenbloom.

**4. Mental Defectives.**—H. A. Knox classes mental defectives under the following heads: Idiots, profound and superficial; imbeciles, low grade, medium grade, and high grade; feeble minded, low moron and high moron; characterological freaks; vagrant type, and cranks; emotional and volitional defectives. As to the popular belief that insanity is rare in mental defectives, Knox declares that this is far from the truth; insanities, periodical and otherwise, are frequent. It is seen in infancy, and in one class of cases is characterized by dullness, melancholia, excitement or mania. When one considers, says Knox, the subject of mental enfeeblement one finds one's self at some time or other wondering what should be done to prevent it. Some authorities do not think that there is any danger to our racial mentality from this source; nevertheless, strenuous prophylaxis should be instituted in the form of: 1. Restricted immigration. Knox is of the opinion that if illiteracy were a mandatorily excludable defect, ninety per cent. of our alien defectives would be automatically excluded for the next ten years at least, and a lesser percentage for all time. 2. Public education and eugenic laws. 3. Incarceration in self supporting institutions of all known defectives. 4. All children should be examined mentally when entering school and at the end of every year thereafter until their education is completed. 5. The eradication and prevention of infectious diseases, both acute and chronic protozoon and bacterial. 6. Sensible assexualization in properly selected cases.

**5. Foreign Bodies in the Appendix.**—J. W. Kennedy gives the history and reports several cases of foreign bodies found in the appendix. It is quite impossible to say, even if a foreign body is found in the diseased organ, that it is the positive cause of the inflammation. He believes that the appendix, acting as a storehouse for infection of all kinds, has a very intimate relation to many constitutional conditions for which it has not been held responsible. We must look up its relation to typhoid fever. For the past two years Kennedy has looked into its relation to enteric fever and has, at least, made this observation, that a very small percentage of patients have typhoid who have had the appendix definitely and thoroughly removed.

**6. The Modern Treatment of Chronic Nephritis.**—R. Hills sketches the modern treatment of chronic nephritis. Referring to the treatment of special symptoms, he recommends for anemia, fresh air in abundance and good food, and states that the various preparations of iron, quinine, and strychnine have been of much service as tonics in nephritis. After reviewing the many modes of treatment for this condition, the writer says that he is impressed with the vagueness of our knowledge of the proper treatment of chronic nephritis and hopes that his resumé called from various sources will arouse discussion and bring out some points of practical importance on what is surely an important subject.

## Journal of the American Medical Association.

*January* 31, 1914.

1. Accidental Injuries to Duodenum. W. J. Mayo.
2. The Periosteum and Bone-transplants. C. A. McWilliams.
3. Epididymotomy. C. P. Knight.
4. Congenital Pyloric Stenosis. H. M. Richter.
5. Corpus Luteum Organotherapy. W. T. Dannreuther.
6. Paroxysmal Hemoglobinuria. W. W. Young.
7. Wassermann Reaction. B. A. Thomas and R. H. Ivy
8. Oil-Ether Intoxication. R. C. Coburn.
9. Vagotomy. B. L. Spitzig.
10. Ureteral Obstruction. O. S. Fowler.
11. Military First Aid. L. C. Garcia.
12. Pulsating Exophthalmos. A. T. R. Cunningham.
13. Roentgenoscopy in Obscure Fractures. H. M. Stewart.
14. Hematemesis Control. W. Hersey Thomas.
15. Blood Cultures in Children. J. R. Gerstley and H. B Fuller.
16. Pension Sutures. E. Viko.
17. Urine Ferment Preparation. J. Rosenbloom.

**1. Accidental Injuries to the Duodenum.**—W. J. Mayo points out that the anatomic relations of the retroperitoneal portion of the duodenum are such that this organ may be injured during operations for the removal of the right kidney when there is infiltration about the pedicle causing close adhesion to the duodenum. It not infrequently happens that in such cases the vessels are torn, causing hemorrhage calling for active hemostasis. In the attempt to check the hemorrhage by using strong biting forceps the duodenum may be seized and necrosis follow the injury, with the resulting distressing fistulæ and death. The vena cava is even more frequently injured, and Mayo is of the opinion that the use of the forceps is seldom necessary until after the vessels have been caught and the hemorrhage stopped by the finger. He mentions other arterial injuries as liable to occur in operations for kidney removal. When there is not much infiltration and nephrectomy is not advisable, it is best that one should make sure that there is no opening into the peritoneum. Mayo notes the different characters of kidney tumors, especially in malignant disease involving the pelvic and calices and other structures in which the duodenum is liable to be injured even by the most expert and careful surgeon. As a rule the duodenal injury is not made manifest for several days after the operation and the fistulæ do not tend to heal. In such a case in which the fistula was large, infiltrated and without the peritoneum, Mayo would recommend a transperitoneal attack on the fistula itself before the

patient becomes exhausted, lift the descending duodenum from its bed, suture the opening, transplant a flap of omentum across the suture, and finally perform a jejunostomy for temporary feeding purposes. Such an operation, however, while easy to figure out on paper, is sufficiently difficult to make one careful to avoid the accident requiring it.

6. **Paroxysmal Hemoglobinuria.**—W. W. Young reports a case of hemoglobinuria in a man aged 45 occurring paroxysmally and closely resembling malaria. The diagnosis of paroxysmal hemoglobinuria seemed justified by the demonstration in the blood of an autohemolysin without increased corpuscular fragility. Malarial organisms were absent, the blood platelets increased. The Wassermann reaction was positive for the blood serum. Lues was denied. Young concludes that the autohemolytic substance is probably the result of luetic infection, though possibly other agencies may produce the same effect. A vigorous antisyphilitic regime appeared, therefore, advisable in the treatment, but no case in the literature of the disease has been followed up by this form of treatment to the point at which the Wassermann becomes negative.

9. **Vagotomy.**—B. L. Spitzig discusses the disorders of the vagus as affecting the abdominal viscera more especially. On account of the anatomical distribution of the vagus, symptoms of increased innervation are readily identified in the gastrointestinal tract and are perhaps the result of such activity with hypertonia of the musculature of the stomach and intestine. This is shown in the type of constipation called spatic of early and adult middle life. A tender palpable colon and the tightly contracted external sphincter are prominent signs and rectal palpation should never be omitted. In pronounced cases intermittent pain in the region of the large bowel is complained of and may be referred to the cecal region and may lead to a needless appendectomy. The descending colon, however, is more likely to show spasticity when such pain occurs. A good many patients do not complain of abdominal pain and careful abdominal examinations may reveal hypertonicity where least expected. Spitzig estimates that perhaps two-thirds of young adults are thus affected at one time or another. Pyroplasm from vagus overfunctioning may cause delay in emptying of the gastric contents and this is usually associated with hyperacidity, suggesting ulcer. While the diagnosis of pronounced cases is easy there are less manifest conditions which may, perhaps, be included and are controlled by proper treatment, such as status lymphaticus, chronic intestinal indigestion, and the mucous colitis of adults, which may not be a colitis, but due, in its early stages at least, to a central lesion, causing vagus stimulation. As regards treatment of vagotomy atropin and belladonna are the drugs upon which dependence must be chiefly placed. The correction of constipation is very important, but it should not be treated by irritating measures which might aggravate the condition. Agar is especially recommended as a natural laxative. In the mucous disease of childhood dependent upon this cause diet should be attended to, avoidance of coarse foods, protein rich in iron, and reduction of starchy products; coffee and tea should be forbidden. The treatment of mucous colitis is more difficult. Rest in bed, hot abdominal applications, and as soon as possible a regular diet should be insisted on, as these nervous patients are apt to be overabstemious.

17. **Urine Ferment Preparation.**—J. Rosenbloom describes a method of making the enzyme from yeast for use in the fermentation test for glucose and keeping it in a form in which it will remain active for weeks. His formula is as follows: Grind up thoroughly in a mortar three cakes of compressed yeast with about 200 c.c. of liquid, with constant stirring, to about five times its volume of 95 per cent. alcohol. Allow the precipitate to settle, filter and wash the precipitate on the filter paper with about 50 c.c. of ether. Allow the precipitate to dry in the air after spreading it on a glass plate. Powder and put residue in a tightly corked amber bottle. To use this powder as a ferment for urine, take about as much as the end of a medium-sized knife blade will hold, mix it thoroughly with the urine to be tested, and pour the mixture into a fermentation tube. The urine freed from protein, if present, should be slightly acidulated with 1 per cent. tartaric or acetic acid solution and later boiled to dislodge any combined carbolic acid. Control tests should also be made with normal urine to show the activity of the test and the absence of gas from self-fermentation.

## The Lancet.

*January 24, 1914.*

1. An Address on the Pathology of Syphilis, Especially in Its Bearing on Treatment. W. D'Este Emery.
2. Dosage—Some Suggested Amendments in the Manner of Stating the Doses of Medicine in the British Pharmacopeia. C. O. Hawthorne.
3. The Bismuth Uretral Catheter, Collargol Solution, and Barium Sulphate Suspension in the Diagnosis of Some Urinary Diseases. R. J. Willan.
4. Protein Metabolism, During Starvation and after the Administration of Milk Protein. G. Mann.
5. The Tolerance of Arsenic by the Human System. H. G. A. Harding.

4. **Protein Metabolism During Starvation.**—G. Mann refers to a previous paper in the *Lancet* dealing with the changes induced in blood by feeding, in which Dr. Gage and he described alterations which are induced in the circulating blood by starvation and by the subsequent administration of milk protein in the form of sanatogen. The conclusions set forth in the present paper are based on three distinct sets of experiments made with sanatogen, which gave them such marked changes in the blood. General conclusions are as follows: Starvation leads invariably to a rarefaction of the cell body and its processes, as is evidenced by the diminished staining powers of the cell plasms of all cells in the body. The nervous system also suffers during starvation to a much greater extent than ordinary measurements by weight would lead one to suppose. This loss, if stimulation of the nervous system is eliminated, is restricted to the conducting paths, as is proved by both the nerve cells, apart from Nissi's substance, and also the nerve fibers staining much less deeply in starved than in fed animals. That Nissi's substance is diminished, during functional activity Mann has proved previously. Feeding with sodium caseinogenate containing 5 per cent. of sodium glycerophosphate it is possible within two hours to get a definite increase in the nuclear activity even of cells which are not supplied directly by the blood, as, for example, in the cornea and in cartilage. This milk protein further leads to an increased depth of staining of the heart muscle and of nerve fibers, and this deeper staining it is impossible to explain in any other way, except to assume that the amino-acids liberated by the digestion of the caseinogen are actually built up into what Mann has termed the "available" protein.

5. **Toleration of Arsenic by the Human System.**—H. G. A. Harding conducted a series of experiments to ascertain the toleration of arsenic by the human system. H. G. A. Harding records experiments undertaken on himself to test the tolerance of arsenic by the human system. He commenced with 1/30 gr. doses three times a day immediately after food, and

continued for four days without any results beneficial or otherwise. Analysis of an aliquot part of the urine passed, the daily dose of arsenic being 1/20 gr. yielded 1/50 gr. per diem, thus showing 3/100 gr. per diem otherwise disposed of. Doses of 1/15 gr. were taken on an empty stomach three times daily. The result was that the system became irritated and a distinct feeling of discomfort was experienced lasting over two hours; 75 per cent. of this amount appeared in the urine; 1/5 gr. was then taken at a single administration. This also produced irritability and uncomfortable abdominal pains of a more or less severe character. Recourse was now had to the old dosage of 1/15 gr. and after the system became quite normal again the dose was increased to 1/12 gr., then to 1/10 gr., 1/8 gr. and to 1/5 gr. By thus going gradually to 1/5 gr. it was found that the amount was quite well tolerated without any discomfort or marked changes, and, moreover, the average percentage of the drug appearing in the urine was maintained. At this stage, but not before, the urine began to depart from normal. Proceeding still onward the doses were increased to 2/3 gr., 3/4 gr., 5/6 gr., 1 gr. At this point it was felt that the limit was being approached. The next and highest dose reached was 1 1/5 gr., which produced irritability and distinct and lasting discomfort every way it was taken, and all precautions notwithstanding. The drug was now discontinued, but fullness after meals and general derangement were felt for several days. Harding then kept on with the drug, decreasing the amount daily. In one week 1/5 gr. was reached and in less than another week arsenic was dispensed with altogether without any of the symptoms mentioned above.

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## British Medical Journal.

*January 17 and 24, 1914.*

1. The Infection of Children with the Bovine Tubercle Bacillus. P. Mitchell.
2. Torn Semilunar Cartilages. W. Robinson.
3. A Possible Fallacy in the Diagnosis of Internal Derangements of the Kneejoint. S. Mort.
4. The Treatment of Fractures About the Elbow-joint and Knee-joint. B. Hughes.
5. The Use of Ionic Medication in the Treatment of Certain Venereal Diseases. R. Connell.
6. Rapid Delivery in Eclampsia. R. Jardine.
7. Autointoxication and Sub-infection. J. G. Adami.
8. Anatomy and Treatment of Chronic Intestinal Stasis. S. S. Pringle.
9. Etiology and Treatment of Intestinal Stasis. H. M. W. Gray.
10. Effects on the Female Generative Organs of Intestinal Stasis. H. Chapple.

**2. Torn Semilunar Cartilages.**—W. Robinson draws attention to the fact that, as there can be a tear without displacement, the name "torn menisci" or "torn semilunar cartilages of the knee joint" should replace that of "dislocation of the semilunar cartilages." After describing the anatomy of the semilunar cartilages in their relation to the knee-joint and the mode of production and nature of torn cartilages Robinson says a certain diagnosis can often be made solely from the history. In nearly every case we learn by inquiry that there has been a severe twisting of the leg in walking, or even turning over in bed. In workingmen there is only one treatment, namely operation.

**3. A Possible Fallacy in the Diagnosis of Internal Derangements of the Kneejoint.**—S. Mort reports three cases in which operation for displaced, loose, or fractured semilunar cartilages revealed little or no change in the interior of the joint, but there were periarticular rheumatoid affections of a spur-like character simulating it. The symptoms were: (1) Pain, swelling, and clicking sensations on movement. (2) A sickening pain and often a sensation of something having given way in the joint. (3) "Locking" of the joint; that is, inability to extend the limb, if the anterior part of the cartilage be torn, or much less often to flex it, if the rent is in the posterior half. (4) A temporary effusion into the joint, traumatic synovitis. (5) One or several recurrences of the above symptoms, especially of "locking" of the joint on slighter but similar accidents, such as slipping off a branch. The site was internal in all cases, the tendon of the sartorius muscle riding upon a distinctly lipped portion of the inner border of the femoral condyle. In the three cases injury was adduced as the supposed cause; incipient rheumatoid arthritis was the real cause, and operation was beneficial in allowing the deformed spur of bone to be burred off though signs of typical rheumatoid change were developed afterward. Mort believes such cases with external joint trouble, and others with typical internal mischief, often referred to internal traumatic damage, to be much more commonly the resultant of rheumatoid diseases than is usually diagnosed. Sometimes they are due to exostoses, in other cases tuberculosis may be a factor. Their importance of their clear recognition, especially in cases of compensation proceedings for injury is obvious.

**5. The Use of Ionic Medication in the Treatment of Certain Venereal Diseases.**—R. Connell reports cases of primary syphilis, secondary syphilitic ulcerations, gummata, soft sores, septic buboes after operation, and gonorrheal rheumatism treated by ionic medication. The best results were obtained in those cases of syphilis in which there was no evidence of a mixed infection. In the Royal Naval Hospital, Plymouth, it has been the practice to give internal antisyphilitic treatment as soon as the diagnosis is confirmed. This consists of grey powder gr. ij thrice daily and to the majority of cases three injections of neosalvarsan are given in addition. It may be, therefore, objected that the results of cases given in this paper were really due to the neosalvarsan or the mercury, rather than to the ionization, but several of the cases mentioned were almost completely healed before the first dose of neosalvarsan was given, and the two most striking cases had no salvarsan at all. The improvement too follows so hard upon the first application of ionization and is at once so marked that to the observer there can be no doubt as to the cause. Also, certain stubborn cases which failed to respond to mercury and salvarsan cleared up rapidly on the application of ionic medication; and before this treatment was tried it was unusual for primary sores to be healed until some time after the three injections of salvarsan had been given. Ten cases of successful treatment by this method are given and the technique is described. Attention, however, is drawn to the fact that this treatment must be regarded as purely local, although Connell suggests that when greater experience of it has been gained by a more extended trial, it will prove to be one of the most rapid methods of healing a superficial syphilitic lesion, whether primary or secondary. Gummata, non-syphilitic lesions, soft sores, and septic buboes are according to the author all amenable to treatment by ionic medication, and in support of the statement cases successfully treated thus are adduced.

**7. Autointoxication and Sub-Infection.**—J. G. Adami describes Sir Arbuthnot Lane's thesis of chronic intestinal stasis and its sequelæ and goes on to criticise the term autointoxication. He thinks that the word should and must be banished from the vocabulary of all self-respecting medical men. Speaking as a pathologist, in the etiology of intestinal stasis, lies his main criticism

of Lane's views. To say, as Lane at least implies, that without intestinal stasis there would be no generalization of tuberculosis, is, it may be urged to ride one's horse to death. Adami strongly opposes Lane's teaching that the colon is merely a "common sink" and argues that encouraged by Lane's brilliant advocacy, encouraged to regard the colon as of no account, the immature surgeons of two continents will inaugurate an era of short circuiting, performing this or the yet graver colectomy for all sorts and conditions of diseases of men, women, and children on the smallest possible pretext. Adami is of the opinion that subinfection will explain all of the consequences attributed by Lane to intestinal stasis and autointoxication. His conclusions are as follows: (1) It is more rational to regard the evil effects of intestinal stasis as, in the main, a result of conditions favoring subinfection and low forms of infection than as a result of chronic intoxication. (2) The term "gastrointestinal autointoxication" is pernicious and not to be employed by any self-respecting member of our profession, save for so limited a set of conditions that for ordinary purposes it may safely be expunged from the medical dictionary. (3) While the symptoms and diseases enumerated by Sir Arbuthnot Lane may follow intestinal stasis, at least, a large proportion of these may originate independently of such stasis. (4) Before recommending the operation of short circuiting, it is necessary, therefore, to make the fullest studies, so as to discover, if possible, the nature of the organism responsible for the disturbance and its probable seats of entry. (5) A discovery of the cause of the symptoms is calculated to suggest the appropriate means of treatment by means other than short circuiting. Only when these have been tried and found wanting is removal or short circuiting of the colon justifiable.

8. **Anatomy and Treatment.**—S. S. Pringle in an anatomical consideration of intestinal stasis says to his mind there are two distinct factors in its production: (1) Ptosis of some part of the gastrointestinal tract and (2) kinking and stenosis of the bowel by bands and membranes; in other words, we may speak of "stasis of gravity" and "stasis of obstruction." There are midline ptosis and right-sided ptosis. Pringle describes at length the various bands and membranes and points out that the treatment of chronic stasis is a subject of lively controversy. On the one hand, Lane advises ileocolectomy or complete colectomy in all severe cases, while, on the other hand, orthopedists as Goldthwait claim to be able to cure even most advanced cases by belts, exercises, etc. Pringle after treating many of these cases considers we may divide the treatment into: (1) Prophylactic; (2) medical; (3) local operative; (4) radical operative. Prophylactic treatment consists of suitable exercises, the acquiring of a regular habit of emptying the bowels and the avoidance of the routine use of aperients. If there is any costiveness, it should be combated early by the regulation of the diet, belts, exercise, and the use of liquid paraffin. The latter can be taken in doses of 1 to 4 drams three times a day flavored with one of the essential oils, as cinnamon or peppermint. A few patients find it impossible to take it in this form and then one or other of the proprietary preparations may be ordered. The author enters into the technique of many of the local operations and then describes the two radical operations. With regard to colectomy Pringle says patients after complete colectomy make good recoveries, put on flesh, and gain better health than they have experienced for years; in fact, they derive the greatest benefit from the removal of their great bowel which has lost its original function and degenerated into a cesspool, as tersely expressed by Lane.

9. **Etiology and Treatment.**—H. M. W. Gray thinks that it is curious how many surgeons are still skeptical about the presence of membranes which interfere with the full action of the bowel. All one can say is, that although their presence may not be "well recognized" they are very easily recognizable. As to the etiology of these membranes there is as yet no unanimity. There is a tendency for two schools to be set up. One, with Lane at its head, believes that these membranes are the result of the stasis. The other school believes that they are developmental in origin. Gray could never bring himself to accept Lane's theory as to the origin of the membranes, and after much consideration of the matter and study of the conditions found at operations he came to the conclusion that the membranes were congenital and gave voice to his opinions two years ago. As frequently happens, workers in another country, Connell and Flint in America were on the same track about the same time. Still less can Gray credit the theory that they are due to long continued inflammation. If these are studied, the fact will be appreciated that they are all due to an excess of developmental fusion or to a deficiency of developmental absorption. These may be present in well marked form without producing constipation. The stasis is caused by the manner in which these bands are attached to the bowel or its mesocolon. If the membrane is short and causes angulation of the bowel, sooner or later it will be the cause of stasis proximal to the angulation. The great indication for any surgical interference is the presence of dilatation and hypertrophy, be this in stomach, gall-bladder, small intestine, or colon. When admissible Gray prefers division of the membranes to the operation of colectomy, because it is a less formidable and in suitable cases an equally efficacious procedure. He thinks that colectomy should be given the preference when there is marked ptosis of the ascending or transverse colon, or, when accompanying an acute angulation. The results of successful operative procedures are very striking. The patients often veritably seem to renew their youth. They sleep better, eat better, and feel better. They are desirous of and capable of leading more active lives; that is, they lose their mental and physical lassitude. What seems to give most delight and satisfaction is the natural, regular, and free motions of the bowels. Proper treatment will have an effect on the peace and prosperity of the nation, for is not Sir Arbuthnot Lane reported to have said recently that "he can understand a man preferring to live with a drunken woman rather than a toxic one. A drunken person is occasionally merry, but a toxic one never?"

10. **Effects of Chronic Intestinal Stasis on the Female Generative Organs.**—H. Chapple referring to the band now generally known as Lane's kink and the argument that bands of this nature are of congenital origin, said that with the object of inquiring into this point he had opened and carefully examined at Guy's Hospital thirty-one fetuses. Their ages varied from four to nine months, but in no case had he been able to find anything that might be considered a true Lane's kink. Chapple mentioned that he had recently received confirmatory evidence in this direction in the form of a beautiful series of pictures from the clinic of Dr. Bainbridge of New York. Chapple pointed out how gravely intestinal stasis affected the generative organs of women and that operative measures for its relief almost invariably had a remarkably favorable effect on these organs. Especially was this so in the degenerative changes which accompanied or followed intestinal

stasis. Attention was drawn to the fact that opinions on the subject of intestinal stasis of those members of the medical profession whose notice had been called to it had undergone a very rapid change and that nothing could better illustrate this change than the address in surgery delivered before the annual meeting of the British Medical Association at Brighton in 1913. This surgeon referred to Lane's disease as a clinical entity.

### Münchener medizinische Wochenschrift.

*January* 6, 1914.

**Acute Fetid Diphtheritic Bronchitis.**—Beyer reports the following female, aged 31. As a child had had scarlet fever and articular rheumatism, with repeated attacks of angina. At 23 went through pleuropneumonia. Her present illness began with chills and fever. First diagnosis angina, to which she was subject, followed by pleuritic symptoms. In a few days acute symptoms had passed, but she was left with a severe cough which ended in vomiting. Angina still in evidence, and cervical lymph nodes swollen. The woman was unusually strong and robust and her constitution suffered but little, the organs affected comprising only the throat, including the larynx, and perhaps the bronchi. Patient coughed up a pint of purulent expectoration, extremely foul smelling. Bacteriological tests showed the Loeffler bacillus in pure culture. Serum at once injected into a vein. There was a distinct improvement after injection of 2000 units. After patient had apparently recovered from the disease, she was kept under treatment of the larynx, and also until the disappearance of the germs from the sputa. The author dwells on the presence of a psychic factor in activating latent bacilli. The author has seen cases follow dreams, fright, operation on tonsils, also of course exposure to cold and wet. In the author's case the infection traveled directly from tonsil to bronchus, indicating an absence of natural antitoxin; her symptoms promptly disappeared after one injection of serum.

**Clinical Studies with Abderhalden's Dialysis Procedure.**—Oeller and Stephan, working in von Strüpell's clinic, remind the reader that thus far this test has been applied to extensive domains, as gynecology, obstetrics, psychiatry, internal medicine, bacteriology and malignancy. They review the validity of these tests in the departments just enumerated. Thus in obstetrics the test is trustworthy save for the fact that it is positive in non-pregnant women in a certain number of cases. The test has also met with the same degree of success in psychiatry. In gynecology, despite some surprising successes, it is impossible to lay down any laws from the reports which have come in. In regard to malignant growths the author, after a long review of testimony, decides that the method here has thus far been a failure, but other substitute procedures may bring about better results. The article will be continued.

### Deutsche medizinische Wochenschrift.

*January* 8, 1914.

**Cardiac Disturbances after Accidents.**—Paul Horn sums up a very long study of this subject as follows: Cardiac disease may result from psychic or mechanical causes. Psychical causation may be primitive or secondary. When due to mechanical causes we may see functional disorders alone, function disorders becoming organic, and cases organic from the beginning. When due to fright, primary psychogenic cardiac disorders are usually accompanied by vascular anomalies or other phenomena of a vegetative nervous system. Secondary cardiac disturbances of a functional character are comprised in the picture of neurasthenia, the subject of a damage process. The cardiac disorder is not a condition *per se*. In other cases we see arteriosclerotic changes as a result of the same type of neurasthenia. Arteriosclerosis has occasionally followed a blow on the head. The prognosis of functional cardiac disorders after accident is as in the case of most accident neuroses, favorable, supposing the indemnity claims are promptly and definitely settled by a single examination. In a damage suit, symptoms dwindle away more slowly. An expectant behavior is to be recommended in the damage suits following breast contusions which are followed by apparently functional cardiac disorders. Organic injury to the heart after mechanical injury appears at first as if purely functional, but gradually or abruptly becomes organic, leading to notable alterations in the heart and circulatory disorders.

**Causation of Contracted Kidneys.**—Enderlen lays most stress on cooling of the surface in the genesis of this affection. Some years ago an investigator dipped a dog's paws in cold water, and later demonstrated on microscopic slides the occurrence of acute nephritis. The ill effects of wetting the feet in causing various catarrhal affections is well known. The association of nephritis with sweating feet has usually meant that the former is provocative of the latter, but the author contends that these furnish a special predisposition to chilling. Leaving out of question other known causal factors, sweating feet are present in all where other factors were absent. As hypendrosis may be familial affection, the author was not surprised to find that nephritis was later associated in the same members of the family. Chronic cold and wet in other words represent a summation of insidious injury to the kidneys. The latter may not be strong enough to cause actual nephritis in a given case. Thus far the author has not explained the connection between acute nephritis and contracting kidney. He appears to believe, however, that the same rational applies to both primary and secondary chronic contracting kidneys. The acute phase, often overlooked, may be styled acute nephritis from exposure. The author thinks much might be done in the way of prophylaxis by using formalin lotion on the feet which prevents the saturation of the stockings by the perspiration.

**Epidemiology of Rhinoscleroma.**—Does this affection originate in separate foci or is there an epidemiology which can trace the disease from one focus to others? Friedrich mentions a focus in East Prussia in where were to be found 28 cases, chiefly familial. The disease is known to be moving slowly from East to West, but this emigration cannot be followed out. The author has seen one case in West Prussia, an isolated one. After much effort this case was traced directly to the focus in East Prussia.

**The Absence of the Oculo-Cardiac Reflex in Tabes.**—M. Loeper and A. Mougeot describe this reflex as follows: Compression of the eyeball is followed in two or three seconds by a diminution of the rate of the heart beat to the extent of eight pulsations per minute. This reflex is abolished in tabes. The absence of this reflex has the same significance as the Argyll-Robertson pupil.—*Le Progrès Médical.*

**Senile Osteomalacia.**—S. Bonnamour and A. Badolle point out that the first symptom of this condition consists in the pains referred to the spine, the sides, and the sterum. Later the bony deformities develop, chiefly in the spine, with consequent shortening of the stature. The *x*-rays reveal a loss of the normal opacity of the bones. A special cardiac symptom noted is the occurrence of paroxysmal attacks of dyspnea.—*Gazette des Hôpitaux.*

# Insurance Medicine.

## SUGGESTIONS TO THE MEDICAL EXAMINER.

BY THE INSURANCE EDITOR.

### GOITER.

CONTINUED research for the purpose of determining the function of the thyroid gland has encountered difficulties and, although our knowledge is more accurate than formerly, there are various conflicting theories in regard to the matter. We do know that the thyroid is essential to life and that death ensues when it is wholly removed. Any disease of the gland is, therefore, an important matter and it becomes the duty of the medical examiner to make an inspection of the throat of every applicant, as small goiters frequently escape discovery. Simple goiter was formerly regarded by many as a disease largely confined to continental Europe, but it is now recognized that the disorder is fairly common in many localities. In the United States and Canada, it is frequently found in the region of the Great Lakes and in scattered centers.

In 1902 one company made an investigation of the subject of goiter through its medical representative in Austria, the data in this country at that time being insufficient, and the following directions were formulated for use by the medical examiners in collecting information. They should be carefully observed in every case of thyroid enlargement:

1. Congenital or acquired?
2. Size of goiter?
3. Has it increased in size during the past five years?
4. Is the growth substernal?
5. Is it due to simple hyperplasia or hypertrophy, or is it cystic or degenerating?
6. Have there been any signs of disturbance of the nervous system or of pressure?
7. Any exophthalmos?
8. Is the applicant's place of residence free from conditions which predispose to tuberculosis?

Reviewing these directions, it may be added that an applicant with a congenital growth is uninsurable. The tumor should be small enough to remove the probability of pressure, and if there has been any increase in size in the last five years the risk should be declined. Pressure upon important parts depends more on position than size and, for this reason, a careful examination should be made to ascertain if any portion of the goiter is substernal, a condition which should cause rejection. The cystic or degenerating goiters are apt to lead to a fatal termination through hemorrhage, necrosis, or septic poisoning. Large cysts are easily recognized, especially if superficial, but small ones are almost impossible to detect unless extraordinary care is observed in the examination. When there is a history of disturbance of the nerve centers or of exophthalmos the applicant should be summarily rejected, for another and more serious condition is encountered under such circumstances in the form of Graves' or Basedow's disease. The relation between simple goiter and Graves' disease is not understood, but it is always highly important to search for evidence of Graves' in every case of goiter. All forms of goiter may be involved with Graves' disease for the reason that it is possible for thyroids, already diseased, to more readily undergo other changes. On the other hand, cases of Graves' disease are met without thyroid enlargement, and at other times without exophthalmos. It is difficult to explain cases in which a previously healthy gland undergoes the degeneration peculiar to Graves' disease. The disturbances in Graves' disease seem to be caused by a morbid product which acts on the heart, tissues, central nervous system, and skin without much or any relation to hypertrophy of the thyroid.

The Austrian corespondent further advised that applicants should be accepted only when between the ages of 25 and 50 upon endowment plans which would terminate not later than age 65, and that only 15 year endowments should be issued to women at any age. This opinion was based upon conditions existing in continental Europe, and should still be regarded as correct when applied to risks assumed in that part of the world. Later experience and observation in this country have led to the conclusion, however, that the rulings may be modified in dealing with individuals living in the United States and Canada, as the goiters found here are generally considerably smaller and pursue a much less eventful course than those met with in Europe, cretinism and other complications being comparatively rare. This difference may be easily explained by the better conditions under which our own people live, and possibly to less active exciting agencies. The distinction in regard to sex may, also, be largely ignored, for while it is probably true that goiter is more common among women on account of frequent congestion and hyperemia excited by the sexual functions, the facts remain that women in this country have lighter burdens, that they are better cared for during menstruation and pregnancy, and that their special ailments receive more attention. Furthermore, they have hygienic homes and surroundings, and nourishing food. Another point applying to both sexes is that the value of an early resort for preventive as well as curative treatment is more fully understood by the lower middle classes in this country than in Europe, and any awakened activity of the growth will inspire an early search for medical assistance.

If the report of the examiner is satisfactory, it may now be considered good practice to adhere to the following plan in the process of selection at the home office:

1. No distinction should be made between men and women.
2. The youngest age at which applicants with goiter should be accepted may be set at 20. This gives an ample opportunity to determine whether the goiter is progressing or liable to become active.
3. A policy on the 15 or 20 year endowment plan may be granted according to the age of the applicant. The contract should terminate at an age not later than 65 in the great majority of cases.
4. In a few carefully selected cases a policy on the life plan may be granted. The applicant must have reached the age of about 30; the goiter should be decidedly small; the history of the growth should show it has existed for many years without enlarging or showing any signs of activity; no medical or surgical treatment has been resorted to; the applicant must be intelligent enough to realize the importance of treatment in the event of any signs of activity; the surroundings must be unquestionably hygienic; the occupation should be healthful; the personal history should be without blemish, and there should be no taint in the family history; and the financial means should be sufficient to allow a ready recourse to medical aid.

## Book Reviews.

A Textbook of Histology. By Frederick R. Bailey, A.M., M.D. Fourth Revised Edition. Profusely Illustrated. Cloth; 644 pages; price $3.50 net. New York: William Wood & Company, 1913.

This book was written for use in classroom teaching in connection with laboratory work by the student and is admirably adapted for that purpose. With this idea in mind, the author has made the text as concise as possible, yet has given entirely adequate descriptions of the essentials. The work is divided into four parts: (1) Histological Technique, (2) The Cell, (3) The Tissues, and (4) The Organs. In the first section the composition and preparation of staining fluids, methods of preparing, mounting and staining specimens are given, including both the simple and many of the more complex procedures, such as the Golgi, Cajal, and Weigert-Pal methods of staining nerve tissues. References are given at the end of the section for further study of technique, as is found to be the custom throughout the book. In the section on the cell, the fibrillar, granular, and foam or emulsion theories of protoplasmic structure are briefly outlined, the question as to the ultimate structure of protoplasm still remaining unanswered. This is followed by a description of the vital properties of cells, cell division, fertilization of the ovum, and technique. In the third section, after enumerating the special tissue derivations from each of the three primary layers of the blastoderm (ento-, meso-, and ectoderm), chapters are devoted to epithelium (including meso- and endothelium), the connective tissues (including cartilage and bone), the blood, muscle tissue, and nerve tissue. The remainder of the text, about 450 pages, deals with the special organs of the body. In this division the portion devoted to the nervous system is especially voluminous, and furnishes a remarkably lucid exposition of this most complex portion of the human organism. Much anatomy has been incorporated in this section and adds materially to the teaching value of this part of the book. An unusually complete index deserves special mention. The book is profusely illustrated, valuable for reference, as well as for classroom use, and may be conscientiously commended by the reviewer.

The Dietetic Treatment of Diabetes. By B. D. Basu, Major, I.M.S. (Retired). Fourth Edition. The Panini Office. Bhuvaneshvari Ashram. Bahadurganj, Allahabad, 1913.

The author considers diabetes in most cases as a manifestation of alimentary "toxicæmia" and upon that consideration bases much of the treatment which he advises. The diets given are the conventional ones except where they take advantage of the natural products of India, such as the cocoanut.

International Clinics, a Quarterly of Illustrated Clinical Lectures on Treatment, Medicine, Surgery, etc. Edited by Henry W. Cattell, A.M., M.D. Vol. IV, Twenty-third Series. Price $2.00. Philadelphia and London: J. B. Lippincott Company.

This issue of the International Clinics contains eighteen articles on diagnosis, medicine, neurology, surgery, and eugenics. The most important article is one on traumatic lipemia and fatty embolism by Alfred Scott Warthin. Others of interest are Azurphile microorganisms by F. Proescher and factors in the clinical physiology of the heart by Henry Sewall. The number is an exceedingly good one, rather above the general grade of excellence exhibited by this publication.

Hair. Its Nature, Growth, and Most Common Affections, with Hygienic Rules for Its Preservation. By Richard W. Müller, M.D. Price $1.50 net. New York: William R. Jenkins Company, 1913.

In this interesting book the writer gives the results of years of research at the clinics, universities, and hospitals of Paris, London, Vienna, and Berlin. In the last twenty years the diseases of the scalp and hair have been most thoroughly studied by various schools. Notwithstanding the fact that these disorders are for the most part cosmetic diseases, such men as Sabouraud of France and Unna of Germany have been leaders in these investigations. As a result, the subject has been invested with a new dignity and interest. The author has been permitted to use in this volume some of Sabouraud's fine plates made for his own work on diseases of the hair, which is as yet unfinished. Ignorance of the nature, characteristics, developments, and diseases of the hair is almost universal. So are various affections of the hair. With these facts in mind, the author discusses the nature and growth of hair, the different forms of baldness; with their causes; superfluous hair and its removal; knotted hair, split hair, parasitical and fungoid diseases of the hair, and hygiene of the hair. Extremely interesting and valuable is the last chapter—on food in general and especially for the growth of hair. To emphasize the great importance of proper food and especially the proper manner of eating it, the latest statistics of Dr. Lucien Jacques, of the Saint-Antoine Hospital of Paris, are given here. Seventy-one patients who had consulted Dr. Jacques for great loss of hair were found to be suffering from gastrointestinal disorders. A series of prescriptions are appended for convenient reference and the book is completed by an excellent index. This handy little volume is sure to prove of value to the general practitioner as well as to the laity.

Modern Problems of Biology. Lecture Delivered at the University of Jena, December, 1912. By Charles Sedgwick Minot, LL.D., Yale, Toronto, and St. Andrews; D.Sc., Oxford; Director of the Anatomical Laboratories, Harvard Medical School; Exchange Professor at the Universities of Berlin and Jena, 1912-13. With 53 illustrations; price $1.25 net. Philadelphia: P. Blakiston's Son & Co., 1913.

At the request of the Grand Duke of Saxe-Weimar, the Rector Magnificentissimus of the University of Jena, Dr. Minot, at the time Exchange Professor at Berlin University, delivered a course of six lectures at the former university, the subject chosen being modern problems in biology. These lectures are here published in book form. The researches referred to in the lectures were mainly American, and this was done because the author was the American Exchange Professor and partly because he was informed that his audience in Jena would like to hear especially about American discoveries. The result has been that Professor Minot has presented the modern problems of biology in lucid and attractive form which must give a thrill of pride to Americans. That no more able exponent of American researches in biology could have been found than the Harvard professor, himself among the most eminent of all American investigators in this field of science, goes without saying.

The Practical Medicine Series. Comprising ten volumes on the Year's Progress in Medicine and Surgery, under the general editorial charge of Charles L. Mix, A.M., M.D., Professor of Physical Diagnosis in the Northwestern University Medical School. Volume VII—Obstetrics—Edited by Joseph B. DeLee, A.M., M.D., Professor of Obstetrics, Northwestern University Medical School, with the collaboration of Herbert M. Stowe, M.D. Series 1913—Price $1.35. Chicago: The Year Book Publishers.

Although there has been no particular advance in obstetrics during the past year, this book is valuable, as it contains synopses of many interesting and instructive cases which were reported in the literature of the year. This volume should prove of particular service to the physician in general practice.

Die Malaria nach den neuesten Forschungen. Von Prof. Dr. Angelo Celli, Direktor des Hygienischen Institutes der Universität Rom. Zwete Deutsche Auflage nach der verten neubearbeiteten Italienischen Übersetylung. Von Anna Fraentzel Celli. Price, 16 Marks. Berlin: Urban & Schwarzenberg; New York: Rebman Company, 1913.

Professor Celli has revised his work which appeared in 1900, as he believes the experience gained in the last decade in Italy should be extended to the other parts of the world in a language common to the world of savants. In view of our own work in the Southern States, in Panama and in the Philippines, the hopeful conclusion of the author that colonies can be grounded in the most dangerous malarial tropical regions from one day to the next is enlightening. Celli believes that one must at all events keep the man exposed to malaria in good physical condition, and if he falls sick he must be treated energetically and quickly so that he can continue his hydraulic and agrarian labors. The therapy is quinine, both as preventive and cure. The other antianophelin measures are practically too complicated to be used in the country. Professor Celli warns both authorities and physicians against the advocacy of any exclusive theory and advises them to proceed according to "unum facere et alterum non omittere."

# Society Reports.

## MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

*Stated Meeting, Held December 22, 1913.*

THE PRESIDENT, DR. BROOKS H. WELLS, IN THE CHAIR.

**Amebic Dysentery with Special Reference to Its Treatment with Emetine.**—DR. FRANK C. YEOMANS presented this communication. He first reviewed the history of the use of epecac in dysentery from the time of its introduction into Europe from Brazil by Piso in 1658. While the value of this drug in certain forms of dysentery had been recognized its use had been limited because of the impossibility of administering therapeutic doses without causing distressing nausea and vomiting. Following the demonstration of Rogers, in 1907, that ipecac would rapidly cure an amebic hepatitis in the presuppurative stage and so prevent the formation of liver abcesses, the administration of large doses of the drug returned to favor and good results were reported by Simon of New Orleans in 1909, and by Dock, Brem, and Zeiler in Panama. Emetine was recognized as the nauseating constituent of the epecac and also as the principle that controlled amebic dysentery. One grain of emetine was equal to about ninety grains of powdered Brazilian epecac root. Dr. Yeomans reviewed the work of Rogers in India, J. Preston Maxwell in China, and Baermann and Heinemann in Sumatra. The latter, as a result of their experiments concluded that 250 mgs. was the maximum dose for a body weight of 60 kilos and that 200 mgs. was fully as sufficient. With this dose the kidneys escaped damage. They had a mortality of 32 per cent. in their series of 22 cases, but this was no reflection on the value of the drug; on the contrary more than one-half the patients were cured of severe chronic or acute fulminating forms of the disease, the majority of which, because of profound toxemia, were foredoomed to failure by any method of treatment. Fortunately these severe types of amebic infection rarely occurred in the temperate zones. In one of their series of cases in which emetine given subcutaneously had failed, a cure was affected by a single intravenous injection. It was also worthy of note that necropsy on the seven fatal cases showed the ulcers healed or healing in every instance and stained sections through the ulcers were practically free of amobæ. Dr. Yeomans said his personal experience with emetine comprised seven cases, three of which were treated at the protocological clinic at the Polyclinic Hospital. Six of these cases were males and one a female. All were adults except one, a boy of twelve years. Three had contracted the disease in or near New York, and one each in Germany, Cuba, the Philippines, and India. The disease had varied in duration before treatment with emetine was instituted from six months to 14 years. Entamebæ histolyticæ were demonstrated in every patient. Other forms of treatment had been employed in all cases with temporary relief only. The amount of emetine hydrochloride injected varied from two and one-half to 14 grains, with an average of three and one-half grains. Five patients were cured clinically and two greatly improved. The term clinical or apparent cure was used advisedly, for one could not pronounce a patient really cured of this intractable disease until a long period of time had lapsed without recurrence. It was not less than marvelous to watch through the proctoscope the healing of ulcers while the emetine was being administered. It would convince the veriest skeptic of the specific action of emetine in amebiosis and was comparable only to the disappearance of syphilides after the use of salvarsan. The non-recognition of amebic dysentery was due to failure to make proper examinations. Every patient who did not respond to a few days of ordinary treatment should be proctoscoped, as the proctoscopic picture in amebic dysentery, if not pathognomonic, was certainly very characteristic. If ulcers were found the discharge should be transferred directly from their surface to the warm stage of a microscopic field and examined immediately. The only absolutely pathognomonic sign of amebic dysentery was finding the pathogenic amebæ. Failing the equipment to make a proper examination, Rogers had suggested the therapeutic test of two or three doses of emetine given by needle. If decided improvement did not result they were probably not dealing with a case of amebic dysentery, for emetine had no effect on the bacillary or other forms of disease. Emetine as used in the form of a soluble salt, emetine hydrochloride, which came in tablets of various strengths and also in hermetically sealed ampoules, containing the salt dissolved in sterile solution. The average dose was one-half grain of emetine hydrochloride dissolved in ten to fifteen minims of normal saline solution and injected subcutaneously in the outer part of the arm over the deltoid. This dose was administered daily for three to seven days, depending upon the return of the stools to the normal, the absence of amebæ and the healing of the ulcers as shown by the proctoscope. When the signs and symptoms of the patient indicated a clinical cure the emetine should be discontinued, for an excess of this drug in its excretion through the bowel would cause irritation. Dr. Yeomans said he had had no experience with intravenous injections and believed they were seldom, if ever, indicated in the type of cases met with in this latitude. During the treatment the patient ate a non-irritating diet and rested as much as possible, though not necessarily confined to bed. The stools should be disinfected as in typhoid fever. The essayist concluded that in emetine they possessed a specific for amebic dysentery in the same sense that quinine was a specific for malaria and salvarsan for syphilis. Used at the outset of the disease cure should be prompt and permanent in all cases. After weeks, months, or years latent amebæ might reappear, hence amebic patients should be kept under prolonged observation and on the first signs of recurrence a course of emetine should be given.

DR. JEROME M. LYNCH said that he had nothing to add except to say that the diagnosis of amebic dysentery was comparatively simple after one had once observed a few cases. The infectious character of the disease was illustrated in that at one time he had traced ten cases to a little grocery store in lower New York, where Armenians were accustomed to congregate in the evening. He believed that those men were infected from the groceries in that store. He had met with a case to-day in an Armenian and he meant to look up his history and to see if he could trace the infection. In amebic dysentery there were three stages: (1) The catarrhal, (2) the necrotic, and (3) the ulcerative. The ulcers were typical in that the edges sloped in to a base one-half the circumference of the outlet. Up to the time that Rogers published his paper they had used surgery in amebic dysentery and had obtained good results because they kept the opening patent for a year and a half. One should remember that if the disease had existed for a long time a mixed infection was present and not a pure amebic dysentery. The question then arose as to whether such cases could be influenced by emetine. In regard to operative measures Dr. Lynch said he preferred an ileostomy to an appendicostomy. With the appendicostomy one had fecal matter passing over the ulcers and it was difficult to effect a cure. Ileostomy was far superior. Many had the idea that an ileocostal opening was inconvenient, but after about six weeks the ileum took up the function of the colon and formed movements were passed from the ileum.

DR. JULIUS W. WEINSTEIN said that he had one case of amebic dysentery in a man 38 years of age who had contracted the disease in the Brazilian gold fields. The dysentery had been present fourteen months when he first began to treat the patient. He had previously been treated in several hospitals, but without much improvement. His history and physical examination were typical of amebic dysentery. Several ulcers were present and the ameba were found in the discharge from these. He had administered emetine hydrochloride hynodermatically beginning with small doses and increasing them until he gave two-thirds of a grain. There were no ill effects and the two-thirds of a grain were equivalent to sixty grains of inecac. From the first administration all symptoms disappeared and in a short time the stools became natural. At the end of three weeks treatment was discontinued against his advice. The patient returned later with a recurrence. There were many species of amebas, but it was only the entameba histolytica that caused this form of dysentery. In any patient in whom amebic dysentery was suspected a proctological examination should be made, and if several ulcers were present the secretion from these should be taken and examined, and if the amebæ were present one could be sure of the diagnosis.

**Fracture of the Skull: The Roentgen Ray as an Aid in Its Diagnosis.**—Dr. W. H. LUCKETT and Dr. W. H. STEWART presented this communication. Dr. Luckett first described the anatomy of the skull, calling attention to the weak points which were particularly susceptible to injury. These were the centers of the orbital plates of the frontal bones, the middle cerebral fossa, the center of the squamous portion of the temporal bone, and the center of the inferior occipital fossæ. These points seemed to have a direct bearing on the location of fractures, particularly of the bursting linear fractures extending into or originating in the base from blows on the thicker expanse of bone forming the vault, or blows on the point of the jaw, or from violence transmitted upward from the spine, as falls on the buttocks. The essayists pointed out reasons why fractures of the skull had a tendency to replace and maintain themselves, and that for this reason a fracture of the skull in itself was of secondary importance, the vital consideration being the amount of injury to blood vessels, intracranial nerves, dura, and brain substance, and the opening up of possible avenues of infection, meningitis, cerebritis, encephalitis, abscess, epilepsy, softening, secondary traumatic insanity, post-operative psychoses, and post-operative neuroses. As a clue to the location of the serious lesion the fracture was of the utmost importance. The writers showed that in view of the findings with the *x*-ray the statistics as to the frequency of fractures of the skull were altogether too low. Fracture of the skull resulted in many instances from apparently trivial causes and the *x*-ray frequently revealed the presence of a fracture where there were no symptoms suggestive of one. The writers stated that they had no hesitancy in saying that the majority of fractures of the skull were not diagnosed as such and remained undiscovered. For these reasons they emphasized the aid that could be rendered in discovering and locating these fractures by means of the Roentgen ray. In a hurried review of the English literature on fractures of the skull they had failed to find the *x-ray* mentioned as a means of diagnosis. Hitherto for every hematoma an exploratory operation had been advised, thus compounding a simple fracture when the *x*-ray would very much more easily aid one. They were all conversant with the number of cases in which the fracture with a lacerated bleeding artery was remote from the point of injury. The frequency with which fractures of the skull were mistaken for various other conditions, especially coma, called for any method which would make a rapid and positive diagnosis. There were a number of cases of fracture of the skull in which diagnosis could be made only by the *x*-ray. This referred to those cases which gave no symptoms, either objective or subjective, only a history of a fall. In the Harlem Hospital every patient who received a blow on the skull, or point of the lower jaw, either directly or from a fall, was considered as suffering from a fractured skull unless proven otherwise. The signing of a release holding the hospital blameless was always required when such a patient desired to leave. The elasticity of the bones was largely accountable for the rarity of basilar involvement in children; this was in marked contrast to this injury in adults where authorities claimed 80 per cent. of linear fractures of the vault extended into the base. The frequency of a serious fracture in small injuries of the head in children and the apparent insignificance of such fractures had been observed. The skulls of children fractured easily without injury to the brain or blood vessels. When there was some injury to the vital tissues the extensive nature of the fracture relieved the tension; in other words, the skull decompressed itself. Just why the radiographing of the skull for a possible fracture like radiographing any other bone for diagnostic purposes had been so generally neglected, practically ignored, was one of those peculiar anomalies that crept into the routine work of medical practice.

Dr. W. H. STEWART prefaced his lantern slide demonstration of radiographic work on fractures of the skull by stating that these patients were often in a comatose or irritable condition and that a great deal of patience and perseverance was required in handling them. It must be constantly borne in mind that the minimum amount of disturbance and movement was the rule. The head must be absolutely fixed and all respiratory movement overcome. If objective symptoms were present they were a clue to the site of the fracture and attention was naturally directed toward that region; this must not mislead one, however, for every case should have the frontal, parietotemporal and occipital regions radiographed. In the examination one should endeavor to show on the radiograph as much of the vertical plate of the frontal bone as possible. This was best obtained by placing the patient flat on the abdomen, with the head, face down, resting on the inclined plane at an angle of twenty-five degrees. A small cone having an outlet of about five inches was used; the vertical axis of this cone represented the central ray and should be centered on the glabella and directed straight down. A tube was used of rather high vacuum, which would take 45 to 50 milliamperes. An exposure of five seconds was given. Frequently the patient's condition would not permit of his being placed in this position and then the procedure was reversed. In radiographing the radioparietal region one should show that portion of the skull lying between the sagittal suture above, the coronal suture anteriorly, the lambdoid suture posteriorly and including the entire temporal bone. Both sides of the head must be examined. For this region a cone having an outlet of seven inches was used. The same conditions governed the tube as in examining the frontal region. The occipital was the most difficult of the three regions and was best examined by having the patient lie on his back, the head resting on the raised platform and the chin sharply flexed. This brought the occiput flat on the plate. In this region a cone with an outlet of four inches was used, the vertical axis being centered on the foramen magnum. The normal radiating lines of the grooves in the inner table of the skull, accommodating the meningeal blood vessels might be mistaken for fractures of the skull. Fractures usually showed in the radiograph as light, sharply cut lines of varying width, depending on the amount of separation. The fracture lines were usually at direct variance with the shadow lines of the meningeal grooves. Dr. Stewart then showed illustrations of fractures in the different regions of the skull. Among the most interesting cases shown was that of a man who was admitted to the hospital with a small punctuate wound over the right supraorbital ridge. In the radiograph the ventricle was distinctly outlined. Decompression was performed, but the patient succumbed later, and, believing the appearance of the ventricle was caused by its distention by air that had entered through the wound, the brain was opened under water and it was definitely proved that air or gas escaped. Another case was shown of a boy who was admitted to the hospital for a fractured femur; several days later it was accidentally discovered by the nurse that he had a fracture beginning high up in the occipital bone over the superior longitudinal sinus, extending downward to the right, passing over the right lateral sinus and ending in the mastoid portion of the temporal bone. A fork extended downward parallel and to the right of the occipital sinus, terminating in the foramen magnum.

Dr. WILLIAM P. HEALY said that this was a subject that was of great interest even if one were not a surgeon or interested in the surgical service of a large hospital. The work described was a decided step forward in the diagnosis of fractures of the skull. Fractures of the skull had been divided into those of the vault and those of the base, and the textbooks had asked them to depend on sight and touch in making a diagnosis. Some injuries to the vault could be seen, but when there was a hematoma one had to cut down and find out what was wrong. He was sure this was the method still used by most surgeons. It certainly was unfortunate to convert a simple linear fracture into a compound fracture, and this was no longer necessary in a properly equipped and manned hospital. In many hospitals the *x*-ray expert was only present a half a day, and this was a difficulty in the practical management of these cases. There could be no question as to the great value of this method in the diagnosis of fractures of the skull, but whether it would be of any aid in the treatment was still a matter of conjecture. The *x*-ray examination of all cases suspected of having a fractured skull was undoubtedly very valuable in the keeping of records, as it could be definitely stated that a case had or had not a fracture. The equipment for making these examinations should be attached to all hospitals and the examination should be made in every case giving a history of a fall, or even of transient unconsciousness.

Dr. OTTO SCHULTZE said that Dr. Stewart was to be congratulated for his excellent showing of Roentgen

ray pictures, but that they did not cover everything. Bursting fractures did not decompress themselves. If hemorrhage was correctly diagnosed one could learn almost as much from it as from the *x*-ray picture. It was not enough to know the line of fracture; one must know whether he was dealing with an epidural clot. When there was a lucid period followed by a gradual sinking into coma, it was probable that an epidural clot was present. One should try to map out this clot and the spinal fluid should be examined for blood; all these things taken together could be relied upon, but if one depended upon the *x*-ray alone he would be led into error. An important point was that the brain might burst at the convexity opposite that at which the injury was received. One statement was made that should be corrected and that was that fractures decompressed themselves. Where there was a comminuted fracture the handle of the lever was broken and decompression did not take place of itself. Again, it should be remembered that the brain might be lacerated and yet there be no fracture of the skull.

Dr. LOUIS J. LADINSKI said that if any one thought that in the Harlem Hospital the diagnosis of fractures of the skull was limited to the *x*-ray examination alone he was very much mistaken. Often even if there was a fracture of the skull there was little damage to the cranial contents. Frequently he was not shown the *x*-ray plate until after he had made an examination; in one case recently he had asked for the *x*-ray plate and was told that they did not want him to see it until after he had made the examination, as they wanted his independent opinion. It was not always easy to make a diagnosis from the *x*-ray picture and sometimes a fracture might exist without being observed in the *x*-ray picture. At times a suture might be taken for a fracture. He thought that possibly they had not appreciated the picture showing the ventricles; this illustrated a condition never shown before so far as he knew. They had had this patient under observation and all they could say was that there was intercranial pressure. The case had been published with the pictures and he knew of no other similar one. Much could be said by the neurologist on the diagnosis of fractures. Much could be found out without the *x*-ray, especially as to which side was injured. Sometimes it was only on fleeting unilateral symptoms that a diagnosis could be made.

Dr. WILLIAM H. LUCKETT, in closing the discussion, said that he would again call attention to the title of his paper, where it might be seen that he had regarded the Roentgen ray as an *aid* to diagnosis in fractures of the skull. In reference to the case with air in the ventricle there was no air at first, but a week later air was present. They performed decompression, making an opening from behind and air came from the foramen of Magendie. In endeavoring to get a history of when the air had entered, the patient stated that he had sneezed very violently, suffered intense pain, and fluid came from the nose. Probably at this time the air entered the ventricle. Dr. Luckett said he would have to disagree with Dr. Schultze that fractures did not change the shape of the head.

Dr. WILLIAM H. STEWART, in closing the discussion, said that this was a new work and there was no doubt but that they made some mistakes, but he believed the number of those mistakes compared favorably with those of surgery. He appreciated what Dr. Schultze had said about the subdural clot. There was great difficulty in locating those clots; even when one knew the clot was there it was not easy to find it. The interpretation of the plate was important and could only be done by one experienced in the work. Careful technique was necessary, but in the end the method would, he felt sure, be useful to surgery, but it must be remembered that it was only one means and should be associated with clinical history, laboratory reports, and physical examination.

**The Functional Metrorrhagias; Their Nature and Control.**—Dr. ARNOLD STURMDORF presented this paper. He declared that in the daily experience of the gynecologist there was probably not another manifestation with which he was more familiar and of which he understood less than a bleeding uterus. Time-honored dogma had so habituated them to accept every concomitant pathological element as the immediate and direct cause of the bleeding that they had become oblivious to the existence and significance of certain intrinsic intermediary factors that essentially linked cause to effect, and revealed the "why and how" of the uterine hemorrhage in logical consequences. Still less did they know why those uteri bled which presented no palpable evidence of any causative factor; and furthermore they knew nothing of why and how the uterus bled during normal menstruation. Whether the cause of the hemorrhage was apparent or not they promptly inaugurated the same venerable therapeutic trilogy, namely, ergot, packing, and lastly, but inevitably, the curette. If the bleeding continued they renewed their efforts by employing proprietary uterine styptics, and when no further choice remained they resorted to hysterectomy. This, of course, conquered the hemorrhage and left no evidences of their therapeutic impotence, but their clinical conscience might be much disturbed. The two questions to be answered were: (1) Why did this uterus bleed so persistently, and (2) why had they failed to control the bleeding? One after another of the alleged etiological factors failed to exhibit that uniform synchronism essential in order to establish a direct relationship of cause and effect, so that in the present state of their knowledge the title "Functional Metrorrhagia" was justified. These cases occurred most frequently at the two extremes of life and their diagnosis rested on the exclusion of every demonstrable exciting factor. To establish the functional nature of the condition was to establish a favorable diagnosis, for most of these cases, notwithstanding the persistency and gravity of the hemorrhage, tended toward recovery after a more or less protracted period. Coagulation was nature's universal hemostatic and every effort to control bleeding must be an effort to induce coagulation. These hemorrhages presented a perverted menstruation, and any one who had attempted to check a normal menstruation would fully realize the therapeutic difficulties that confronted him in the control of these abnormal types. The incoagulability of the menstrual blood had been noted since the earliest times and the identical coagulability characterized the cases under discussion. For the elucidation of the hematological problems involved Dr. Sturmdorf referred to his former publications on this subject in the *American Journal of Obstetrics and Diseases of Women*, Vol. LXI, No. 6, 1910, and "Studies on Local Hematologics in the Causation of Uterine Hemorrhage," *New York State Journal of Medicine*, October, 1911. The endometrium during menstruation and in hemorrhagic cases received normally coagulable blood from the general circulation and shed this blood in a non-coagulable state. This was due to an inhibiting substance that was periodically secreted by the corporeal endometrium, from which it might be expressed. Such expressed endometrial juice was capable of inhibiting coagulation in any normal blood. The endometrium was activated to the secretion of this substance by a hormone generated in the Graafian follicles. Thus far they had not succeeded in isolating this substance, nor had they discovered its specific antagonist, but they had learned to circumvent it by effectual measures. The object of these measures was the regulation of the systemic blood pressure and the inhibition of the endometrial hyperactivity. Under the guidance of a reliable pressure apparatus, aconite, nitroglycerine, and especially atropine, should be administered until the pressure was normal. Opium was a sovereign adjuvant and was indispensable in cases characterized by cerebral erethism and general restlessness. Ergot was mentioned only to be condemned in the most emphatic terms. It did not and could not control these metrorrhagias. Its influence was not exerted on the non-gravid uterus and it increased the general vascular tension which only tended to increase and prolong the bleeding. The same applied to hydrastin and cotton root bark, while various synthetic oxytocics were absolutely inert. The essayist emphatically condemned the curette except as a diagnostic aid, but held that it had no place in the thereapeutic armmentarium for this form of hemorrhage. Two topical medicaments fulfilled the indications, correcting the perverted function without destroying it, and these were pure acetone and 16 per cent. formalin solution. Either of these agents was cautiously but copiously introduced into the uterine cavity by means of an interuterine syringe of special construction, the end being notched and fenestrated. The syringe held one-half to one ounce. The uterine end was wrapped in thin sterile gauze and introduced into the uterine cavity to the fundus. A free return flow must be assured by the patency of the cervical canal and the vagina protected from the irritating fluid by proper lubrication. The syringe was slowly emptied and carefully withdrawn so as to leave its saturated wrapping in contact with the endometrium for twenty-

four hours. A daily repetition of this procedure was essential. The hemorrhage persisted for several weeks, but was steadily reduced and during this time the treatment must be persisted in. Should this method fail a few applications of the D'Arsonval spark as recently adopted for the treatment of vesical papillomata would yield the desired result. In these cases one should always bear in mind that he was dealing with not merely a bleeding uterus but a bleeding woman. In closing, Dr. Sturmdorf said that during his five years' study much had come to light on this subject and much remained to be solved, but he ventured to assert that no pathologist would ever again have occasion to report that he had deprived a woman of her normal uterus for the control of grave functional metrorrhagia.

Dr. J. RIDDLE GOFFE said this subject had been handled by a master hand; all realized their helplessness before these cases of bleeding without palpable pathogenic condition to account for the hemorrhage. The treatment suggested was based on physiological lines, diminution of blood pressure and treatment of the endometrium. It was only a short time since they were face to face with the fact that there was no cure for these cases but removal of the ovaries or of the uterus. At the recent International Congress in London, Sir Francis H. Champnup, Bart., chairman of the Section of Obstetrics and Gynecology, advised the destruction of the endometrium with nitric acid, and it was maintained that this produced a satisfactory and permanent cure. Dr. Herbert Spencer, the secretary, indorsed his statements. Of course, this treatment destroyed all possibility of pregnancy. He now had three cases under observation in which he had applied the nitric acid treatment and which seemed to be permanently cured. He said that it was a method which he hesitated to use in young women, as it deprived them of successful motherhood, but in advanced years it was indicated and gave permanent results.

Dr. BROOKS H. WELLS said that Dr. Sturmdorf had told them many truths. Functional metrorrhagia occurred in women at the two extremes of life. In young women there was no call for the use of the curette and none for the use of nitric acid. Years ago it had been the fashion to use nitric acid, zinc chloride, chromic acid and even the stick of nitrate of silver. Then all these were abandoned until they were recently resurrected. In young women nothing should be used which would destroy the chance of pregnancy. It was not necessary to examine young women until after drug treatment had been tried. Aconite, calcium chloride in large doses, hydrastis, of which he was very fond but of which Dr. Sturmdorf disapproved, when administered in large doses, had given good results. In cases at the other extreme of life he always tried to make a diagnosis by means of the curette because of the danger of cancer, and this could not be eliminated without getting a specimen. If there were no indications of cancer fuming nitric acid might be used.

Dr. WILLIAM H. LUCKETT said he was much interested to hear that Dr. Goffe had used nitric acid long ago; he too had seen it used many years ago with good results. There were cases in which this was not effective and then one might ligate the uterine artery and once in a while one had to take the uterus out, and then one saw that the blood vessels were very much sclerosed and this might have something to do with the hemorrhage.

Dr. JOHN VANDOREN YOUNG said that no one appreciated more than he the work that Dr. Sturmdorf had done. He wished to add his name to the record as one who would never again take out a normal uterus. They had all been struck by the difficulty of deciding whether hemorrhage in these cases was due to a pathological condition or was simply a functional metrorrhagia and they should thank Dr. Sturmdorf for having called the attention of the general profession to these so-called functional metrorrhagias. The physician was apt to slide over these cases trying one measure after another and that had been his mental state until he had become acquainted with Dr. Sturmdorf's work and had tried to grasp the idea of uterine hemorrhage that was functional. Dr. Sturmdorf's first paper was rather difficult to comprehend and not many knew of the painstaking work put into the two former papers. There was little difference between destroying the endometrium with nitric acid and removing the uterus, of the two the latter was rather to be preferred. If nothing else had been taught except that there was a functional and a pathological metrorrhagia and that it was up to the physician to find out which in a given case, the work of the evening would be productive of great results. It should be remembered that there was nothing more difficult, however, than a positive gynecological diagnosis.

Dr. J. MILTON MABBOT said that a year and a half ago he had sent a case to a specialist and when he got through with her the specialist had said "There, you are all through your troubles now." A few months later she came back and said that she recalled that remark and it seemed like sacrilege. Cures should not be promised and could not be absolutely expected by the patient. In the early and late parts of life these cases went on to cure of themselves and the last man who treated them got the credit.

Dr. E. K. BROWD said that it was not good judgment in these cases simply to take away the uterus; they should remember that, as the speaker had said, they were dealing not with a bleeding uterus but with a bleeding woman. He had had one case in which the uterus was small and the thyroid large. She had been curetted four or five times. He concluded that the bleeding might be due to a systematic condition and administered calcium lactate and thyroid extract, but left the uterus alone. In another case which had been operated upon four or five times a hematoma was found on the ovary which was responsible for the bleeding. Professor Kroenig had just come before them and condemned all attempts at removal and recommended the *x*-ray and radium.

Dr. ARNOLD STURMDORF said in closing the discussion, that in regard to Dr. Goffe's treatment by nitric acid there was one point which he wished to emphasize. Treatment should be directed toward the restoration and not the destruction of a normal function. The nitric acid treatment was a very heroic procedure and while it was safe in the hands of Dr. Goffe it were wiser that the general practitioner should go slowly with it. The endometrium was an organ of internal secretion just as was the thyroid or pituitary gland, and it had other functions with which they were not fully acquainted. The use of the cruette might be followed by permanent amenorrhea and artificial menopause. It was possible to effect all these results through the uterus as well as through the ovaries; furthermore the nitric acid treatment was followed by sloughing of the endometrium and this opened a way for infection and a train of serious troubles. It must be borne in mind that menstruation was a function depending upon a normal ovary *plus* a normal endometrium, and neither of these two essential organs could be destroyed by any form of chemical thermical, or mechanical agent without destroying the menstrual function. In Dr. Goffe's case in which he used nitric acid in a young woman a permanent amenorrhea could be predicted. Dr. Wells had referred to cases that he had cured with drugs; the paper dealt with cases that could not be cured by such measures. The fact that drugs were administered did not necessarily mean that they had caused the cessation of hemorrhage. A tonic contraction of the puerperal uterus lasting forty minutes and over could be produced, but a nonpuerperal uterus cannot be induced to contract for more than forty seconds. It is not a question of impaired contraction but of impaired coagulation with which one is confronted in these cases. The possibility of overlooking cancer had been suggested. It was not intended that any one should run such a risk and he had emphasized in the paper the existence of some insidious forms of adenocarcinoma limited to the upper endometrial zone, the recognition of which was possible only by exploratory vaginal hysterectomy. As to sclerosed vessels as a cause of uterine bleeding, it should be remembered that these were a natural concomitant of senescence and most women with sclerosed uterine vessels did not bleed. One found sclerosed vessels in many brains, yet these brains were not anoplectic, nor did the extravasated blood fail to coagulate.

## MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

*Stated Meeting, Held November* 17, 1913.

THE PRESIDENT, DR. REYNOLD WEBB WILCOX, IN THE CHAIR.

**Osteosarcoma Successfully Treated.**— Dr. J. HERMAN BRANTH presented the patient, a young college student, whom he had shown at the annual meeting of the association in January last, suffering from a recurrence

of osteosarcoma, involving the left lower ribs. When Dr. Branth saw him in June, 1912, he found that he also had a rotary lateral curvature of the spine. The patient was given *x*-ray treatment, combined with the bipolar, high tension, high frequency current, and this afforded relief much more quickly than the *x*-ray alone, which had been employed after an operation nine years before. Another and unexpected relief resulting from the treatment was the marked improvement in the spinal curvature, with reduction of the consequent anterior and posterior chest depressions. The osteosarcoma had now entirely disappeared, and there was little left of the rotary curvature, which Dr. Branth believed to have been of a compensatory nature, and in the treatment of which he had made use of gymnastic exercises.

**The Importance of Early Recognition of Myopathies by the General Practitioner.**—Dr. FRANCIS A. SCRATCHLEY read this paper. He first pointed out the necessity of suspecting all cases in which there were early loss of power and wasting in the muscles (especially in children), whether these pursued a rapid or slowly progressive course. All alterations in the contour of the limbs or changes in gait or other movements, particularly when not preceded or accompanied by other symptoms, should arouse suspicions of myopathy or myelopathy. He urged careful examination with the of the electric currents, and also microscopical examination of the tissues. Early consultation with a competent neurologist was advisable, since the earlier the nature of the condition was recognized, and proper treatment instituted, the better would be the prognosis. In most instances the damage was done early; after which arrest might occur, only to be disturbed by some circumstance causing renewed progression. Among the cardinal characteristics of myopathy were the following: It might appear at any age, but usually occurred in the young, and the disease was more frequently transmitted from the mother than the father. It ran a slowly progressive course, attacking groups of muscles and spreading from muscle to muscle. There was loss of power, with wasting of muscles, though the wasting might precede the other. There was a diminution or loss of faradic response. The muscles were flaccid until wasting was complete. Myopathy might come to a standstill—be arrested or improve. The other symptoms laid down in the books might not be present in all cases of myopathy, and might be found in myelopathy. The speaker's inferences from the recent changes in classification, and from the newer histopathological findings, were to the effect that observers were tending toward the opinion that myopathies and myelopathies were more tha nallied, and it now became a desideratum to find some common cause of origin—such as a neurotoxin, perhaps. The question was still unsettled whether in sympathy the muscles were alone attacked or whether muscles, nerves, and spinal cord cells were all implicated. A simpler classification was urged, as tending toward an earlier and beter diagnosis, which would make the prognosis better. The treatment should preferably be at the hands of a neurologist, since in these cases much depended upon the manner in which massage, passive and active, and electrical agencies were employed.

Dr. LOUIS F. BISHOP said that Dr. Scratchley's effort to point out the practical causes of such troubles, and then reassemble the affections in a few groups, was one quite in line with the present tendency in the progress of medicine. This was clearly shown at the recent international congress in London, where the general aim seemed to be to simplify and find fewer causes for diseases. It was important, he thought, that those in general and hospital practice should bear these myopathic conditions in mind. Every now and then he recognized some patient who had been supposed to be suffering from something entirely different, but in whose case it was found, on careful examination, that the real trouble was one of the muscular dystrophies. Unfortunately, such cases were often misunderstood. While the condition was really a local muscular one, the patient was believed to be the subject of some general wasting disease.

Dr. DAVID E. HOAG said that the chief merit in Dr. Scratchley's paper, he thought, was the getting away from the prevailing nomenclature of the myopathies, which neurologists had seemed to vie with each other in making as complicated as possible. There was probably no condition, or group of conditions, in the whole range of neurology in which there was greater need of elucidation, or which had thus far promised so little in the way of treatment. A professor in a western medical college was said to have once told his students that the pathology and diagnosis of disease did not so much matter; what the public wanted was a "curing doctor." And, so, what the general practitioner wanted was a curing specialist. Too often the specialist, in his consultation work, neglected to give specific directions regarding treatment. Thus, for instance, he should state the relative value of massage and electricity in a given case. If massage were advised, the particular kind of massage should be mentioned; if electricity, the special current to be used and just how and when it should be applied. It was these matters of detail in regard to which the textbooks were so weak.

Dr. FRANK WADE ROBERTSON said that the neurologists had indeed seemed to fairly gloat in finding out new types of myopathies. There was, therefore, much confusion regarding them, and Dr. Scratchley's illuminating paper had distinctly cleared the atmosphere. He agreed with the opinion expressed as to the more frequent heredity on the maternal side. Another point was that at the clinics cases were quite often seen in young children who had been treated for rheumatism. The hypertrophy of wasting was found more particularly in the muscles of the trunk, where the condition was less likely to attract attention than when it affected the extremities. The progress of the disease, as it appeared in children, was apt to be more rapid in cases complicated by gastrointestinal disturbance. He had also found myopathies more frequently following scarlet fever and diphtheria than other infectious diseases. The treatment, unfortunately, was at present very unsatisfactory.

Dr. RANSFORD E. VAN GIESON said that the great number of classifications had arisen, he thought, from the observations of different writers in different cases. The great point to be considered in these cases was whether or not degeneration of the nerve cells was present. If it was, the case was hopeless; although we could not, of course, be sure of such degeneration unless the opportunity for an autopsy were afforded. In cases where there was no nerve cell degeneration he had seen cases not only improve, but entirely recover.

Dr. EDWARD WALLACE LEE said that these cases of muscular atrophy, hypertrophy, etc., were of interest and importance from a medicolegal point of view, because suits for damages were often brought in cases where it was claimed that they had occurred as the result of injuries. Dr. Scratchley's paper was, therefore, of great value in this aspect, as a study of it would enable one to give an intelligent opinion as to the worth of injury as an etiological factor.

Dr. SCRATCHLEY said that a large number of cases were on record in which there was a history of injury. In many of these cases, however, the etiological relation of this was very questionable. Personally, he believed the underlying cause to be some neurotoxic condition, and that trauma was only one of a number of exciting causes.

**Why Electrotherapy Does Not Cure.**—Dr. ALBERT C. GEYSER, in this paper, said that altogether too much was expected from this method of treatment, and only too frequently the showy apparatus and startling electrical manifestations overshadowed the therapeutic possibilities. Honestly mistaken, but deluded, the enthusiast, under the spell of autosuggestion, lauded this agent to the exclusion of all else. A few unexpectedly good results caused the tyro to proclaim his cures as bordering on the marvelous. Yet, electricity applied in some form or other to living tissue was bound to produce some effect. Between the two extremes, electrocution on the one hand and reanimation on the other, lay the great field of electrotherapy. Referring to drug therapy, dietotherapy, hydrotherapy, serotherapy, psychotherapy, and other methods of treatment, as well as electrotherapy, he said that the existence of all these various measures was a certain indication that there was among them not one which could be relied upon as a curative agent to the exclusion of one or more of the others. As a rule, each one was just one link in our therapeutic chain, and only too frequently it happened that the chain was neither strong nor long enough for the desired purpose. Electrotherapy, then, being viewed as just one link in the chain, it was a fact that occasions were met with where the employment of electricity was the proper procedure. In electrotherapy we recognized thirty or more modalities, each one produced in a specific manner and each one capable of producing upon the body specific reactions. Hence the diffi-

culty in selecting the appropriate modality under the conditions present in a given case. Exactly in the same manner, and with the same care, with which a certain drug would be selected and the dose regulated, so should the particular electrical modality be selected and graded as to dose and length of time of application. It, therefore, became apparent that he who would use electrotherapy must be in possession of the means for creating all the various modalities, and be familiar with the physical and physiological properties of these means. Above all should he know the reactions produced by each modality under all the varying circumstances of disease conditions. Without these essentials electrotherapy was a makeshift, and failure to cure would be the result. In illustrating the point, how to arrive at the selection of the indicated modality, a case of neuralgia was taken. The electrotherapist did not treat the *tic douloureux*, sciatica, or supraorbital neuralgia, as the case might be. On the contrary, he saw before him a patient presenting the symptoms of pain in some nerve. He had no stereotyped treatment for the *disease*, but selected his modality according to the reaction desired in that particularly patient. Here was a pain in or about a certain nerve trunk and its immediate branches. While a true neuritis differed in its etiology from so-called neuralgia, clinically we encountered, in many cases, great difficulty in differentiating the two. In the application of electrotherapeutics the results were as satisfactory in the one as in the other, so long as we were dealing with the local treatment of the painful area. An examination of all the various therapeutic measures would show that in reality we were possessed of only two kinds or groups of agents, sedatives and irritants, and in the use of electrotherapy the different modalities enabled us to choose for our local application either a sedative or irritative measure. Under the irritative or revulsive method belonged all those modalities which were capable of causing more or less energetic stimulation upon the cutaneous surface, and especially in the terminal nerve filaments. The faradic high tension current, applied by means of the tinsel brush discharge, was the one in common use. The most efficient of all the irritant measures, however, was the short sparks drawn from a metallic conductor from some static high tension apparatus. There could be no doubt that all these methods frequently showed most brilliant results in neuralgia; it was equally true that all had utterly failed. There must be some underlying principle accounting for this. In medicine we had counterirritants in the form of rubefacients and vesicants. Whatever could be accomplished by such agents could be done by the electrical modalities, with this important difference: the applied dose and resultant effect could be almost mathematically calculated. To properly understand the action of counterirritation we must appreciate the fact that when the central nervous system recognized pain from somewhere in the economy, the moment that a greater irritation was set up at another peripheral point, the original pain ceased to be felt; also the fact that the system acquired under certain circumstances what might be described as the habit of having or interpreting pain. The more successfully and frequently this habit was interfered with, the easier it was made for the central nervous system to forget, as it were, the original chronic pain and substitute for it the pain artificially produced by counterirritation. In neuralgia this might be interpreted that the counterirritation produced upon the terminal filaments caused cessation of the pain in the main nerve trunk produced by some pathological irritation. It was a very simple matter to demonstrate that after the application of some one of the electrical modalities there was a decided change in the pain sense appreciation of the area treated. Such changes lasted from a few hours to a number of days, and tests showed that irritative or revulsive electrical applications caused a long-continued supersensibility. Theoretically we might infer that if the terminal filaments of a certain nerve remained for hours in such a state the pathological irritation from the main branch would be held in abeyance for a greater or less time, according to the reaction produced. The rule could also be formulated that in all cases of neuralgia where the skin overlying the painful area was in a hyperesthetic condition, these and all other methods of counterirritation were absolutely contraindicated; for where the pathological irritation had invaded the terminal nerve filaments the case could only be made worse, because the supersensibility was markedly increased. A point of practical interest was that the treatment with the faradic current should be made only with the tinsel brush, and never with moist sponge electrodes; for the latter allowed the current to penetrate into the deper tissues—a thing we desired to prevent. A drying powder on the skin would cause it to become a very poor conductor, and thus all the faradic counterirritation would be spent upon the surface. The rule should be observed never to attempt to treat an acute case of neuralgia or neuritis by counterirritation; also, never to treat a chronic case without first testing the sensibility of the skin. When the sedation or irritability reducing method was applicable we were at once confronted with the proposition that the pain had already invaded the terminal filaments in the skin, either primarily or secondarily. Any suitable therapeutic agent or method should therefore be capable of diminishing the supersensibility. When an animal was tetanized with strychnine, and the positive pole of a galvanic current was placed over the peripheral end of a nerve, while the cathode rested on the spinal origin of the nerve, we found produced a negative phase of electrotonus, or anelectrotonus. The result was a physiological inhibition of nerve transmission, interference with the transmission caused a failure of response to the toxemia from the strychnine, and the tetanus ceased in that particular nerve. If when a person complained of noises and ringing in the ears after taking quinine, the positive pole of the galvanic current were placed in both ears and the negative pole at the nape of the neck, and the current were passed to the point of tolerance for ten minutes, all the sounds would cease for an hour or more. Such demonstrations warranted us in assuming a similar inhibition in hyperesthesia of a sensory nerve. The older method of using small electrodes and correspondingly small milliamperage had given way to the use of very large electrodes and milliamperage. The galvanic current was indicated in neuritis, especially when such signs as muscular atrophy and disturbed reflexes were present. Another method employed was the use of the static brush discharge, which obtended the terminal filaments by the rapid bombardment produced. Still another method was the use of the high frequency current for diathermic effects. From time immemorial heat had been employed to alleviate pain. When we considered the fact that the externally applied electrodes remained cold, while the tissues between the electrodes could be heated four or five times above the normal, we had a rational explanation of the relief afforded by the diathermic method in such painful conditions as *tic douloureux*. Electrotherapy, therefore, was to be viewed as only one link in our chain of therapeutics; so that if it were employed to the exclusion of the other indicated links it must fail to cure.

Dr. MARCUS NEUSTAEDTER expressed skepticism as to the relief of such conditions as *tic douloureux* by electrical treatment.

Dr. SAMUEL G. TRACY said he could personally testify to the great relief often afforded by the intelligent use of electricity in cases of neuralgia. Even in *tic douloureux* he had seen the pain disappear instantly.

Dr. FREDERICK DE KRAFT said he believed that the reason why electricity so often failed was because those using it did not understand the underlying pathological condition. For instance, many of the cases of muscular weakness following diphtheria were made worse, instead of better, by electrical treatment. Here there was generally a peculiar involvement of the nerves at their point of exit from the spinal canal, and this pathological condition was increased by the injudicious treatment given; with the result of further wasting of the muscles and an augmentation of the palsy. It was a fact, however, that if a very mild constant faradic current were applied to a muscle for four minutes daily for a period of twenty days, its size would be increased 50 per cent. Good results could be expected, he believed, only in the hands of those who carefully studied the pathological conditions encountered and the physiological relations of the various currents. By the intelligent use of high frequency currents we had a means of so affecting the general circulation that the blood would be driven to the periphery. As a result, anemia of the splanchnic area was produced, and in this way we could get rid of the chronic congestion of the liver so often met with in intestinal toxemia, with the production of pain in the form of gouty attacks, neuralgia or so-called neuritis (not true neuritis). Such conditions might often be relieved by thus abating the cause. Many failures in electrical treatment were due to the lack of cooperation on the part of patients who neglected to observe proper precautions as to rest, etc.

### Pathological Society of Philadelphia.

At a stated meeting held January 22 Dr. Charles W. Burr read the report of the Committee appointed at an earlier meeting to present resolutions on the death of Dr. S. Weir Mitchell, one of the founders of the Society, always an active member and its seventh president.

Dr. F. D. Weidman presented a specimen of "Gummatous Scar of the Liver associated with Biliary Abscesses, Septic Phlebitis of the Portal and Coronary Veins and Abscess of the Stomach."

Drs. B. A. Thomas and David Riesman presented a specimen of "Carcinoma of the Prostate, with Secondary Vesical, Ureteral, and Renal Lesions." At one time in the history of the case the symptoms were supposed to be dependent on the presence of vesical calculus, but when the real cause was determined it was too late for any hope from operative intervention. Through studies of the eliminative function of the kidneys by means of phenolsulphonephthalein it was possible to demonstrate the progressive degeneration of those organs.

Dr. Robert N. Willson, Jr., demonstrated "Specimens of *Filaria sanguinis hominis* from a Patient seen in 1898." They were obtained from a patient from the west coast of Africa admitted to the Pennsylvania Hospital at the date named and who informed the examining physicians that his blood contained interesting objects. Examination in the evening showed active filariæ over a considerable period of time.

Dr. Willson also discussed "A Case of Splenomyelogenous Leukemia, with 800,000 Leucocytes to the Cubic Millimeter." The patient was a Hebrew who was advised operation for removal of the spleen in one hospital and promptly left this institution to enter the Philadelphia General Hospital, where he died a few days after admission. Examination of the blood disclosed the large number of leucocytes mentioned and of these a considerable proportion were myelocytes.

Dr. Willson also demonstrated the brain from "A Case of Meningitis." The patient was a man admitted to the hospital in a state of persistent and unyielding coma, with a leucocytosis of 20,000 and evidences of nasal disease and mastoid involvement. There was no response to treatment, and death ensued. On post-mortem examination a disseminated purulent meningitis was found, most marked at the base, with suppuration of the ethmoid sinuses and necrotic disease of the mastoid on one side. Obviously the extension had taken place through the ethmoid bone to the meninges.

Drs. John A. Kolmer and Augustus A. Eshner presented specimens from "A Case of Hodgkin's Disease, with a Diphtheroid Bacillus, Corynebacterium Hodgkini." The patient was a man, 28 years old, who after chills, fever, vomiting, and diarrhea observed enlargement of the glands in the groins, the axillæ, and the neck, and on examination in addition the spleen was found to be enlarged. Section of a removed gland exhibited the characteristic histological picture of Hodgkin's disease and inoculation of various culture media resulted on the twenty-second day in the development of a granular diphtheroid bacillus, which was, however, finally lost by overgrowth of *Bacillus subtilis*. Culture from another gland resulted in the growth of a solid diphtheroid bacillus, and the histological picture of sections of this gland, while distinctive, differed in some respects from that originally observed. The man presented slight irregular elevation of temperature for several weeks, the number of erythrocytes and of leucocytes and the percentage of hemoglobin were about normal, the percentage of polymorphonuclear leucocytes 65 per cent., that of small lymphocytes 30 per cent., and that of eosinophiles 3 per cent. Donovan's solution of mercury and arsenic was administered and applications of *x*-ray made and reduction in the size of the glands followed. Also a small dose of a vaccine from the organism isolated was administered, but this gave rise to no reaction.

Drs. B. A. Thomas and Robert H. Ivy presented a communication entitled "Observations on the Wassermann Reaction." They pointed out a number of ways in which error might arise in the making of the test and the clinician accordingly might be led to false conclusions with respect to both diagnosis and treatment.

Dr. Frank B. Block read a paper entitled "The Effect of Operation Upon Renal Excretion as Indicated by the Elimination of Phenolsulphonephthalein." It was found that little if any change was brought about in the elimination of urine as a result of anesthesia and surgical procedures with respect to both healthy and diseased kidneys.

Drs. J. A. Kolmer and C. P. Brown presented a communication entitled "A Study of Complement-Fixation in Gonococcus Infections." They found a positive reaction in upward of 60 per cent. of cases. The results were naturally more constant the longer the existence of the infection and the more deeply situated it was. Accordingly, while a negative response may be of little significance a positive response must be looked upon as diagnostic.

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### Philadelphia Psychiatric Society.

At a stated meeting held January 9 Dr. Frank Woodbury, secretary of the Pennsylvania State Lunacy Commission, read a paper entitled "The State Care of the Indigent Insane." He gave an account of the historic development of the care of the mentally deranged in Pennsylvania and pointed out the inadequacy of the present method of operation. As a result hospitals in all parts of the State are overcrowded, while deserving patients cannot be given care and treatment to which, especially by reason of the nature of their ailment, they are entitled. He made a plea that all hospitals for the insane should be under State care, utilizing pre-existing institutions and making expansion from them as centers of development. There is urgent need for psychopathic wards for the care of acute or suspicious cases, as well as departments especially for curable cases and for incurable cases capable of performing certain tasks and thereby contributing, in however small a measure, to their own support and maintenance.

The discussion was participated in by Dr. Mitchell of Warren, Pa.; Dr. E. F. Brush of Towson, Md.; Dr. Owen Copp, Dr. J. Allen Jackson, Dr. Charles K. Mills, Dr. A. R. Moulton, Dr. T. H. Weisenburg, Dr. George E. Price, Dr. J. H. W. Rhein, Dr. J. Madison Taylor, Dr. W. W. Hawke, Dr. F. X. Dercum.

Dr. Francis X. Dercum delivered the presidential address, the subject of which was "An Evaluation of the Psychogenic Factors in Mental Diseases, Including a Review of Psychoanalysis." He considered the etiology of mental diseases, placing the greatest stress on the factor of neuropathy in the causation, and in conjunction with which a large number of other factors might be operative. He delivered a most scathing criticism of psychoanalysis, designating it as a form of mysticism, without scientific basis, exhibiting a sort of epidemic prevalence that eventually must undergo subsidence and relegation to the storehouse of discarded theories.

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**Paradoxical Tachycardia Associated with Arterial Hypertension.**—A. Mougeot points out that in the absence of any disorder of the auriculoventricular conducting mechanism, persistent arterial hypertension of a moderate degree is associated in most instances with a tachycardia of from 80 to 120 pulsations. The reason why the name paradoxical has been applied to this phenomenon is because it apparently contradicts the law of Marey, namely, with increased arterial pressure there is a diminished pulse-rate and vice versa. But this law applies only to the normal individual. In pathological hypertension there are certain accessory phenomena that reverse Marey's law. Mougeot tested the oculocardiac reflex in case of paradoxical tachycardia accompanying hypertension. This reflex consists in a slowing to the extent of eight beats of the pulse upon compression of the eyeball. There is a positive response in cases of paradoxical tachycardia of hypertension, showing that the vagus nerve has retained its normal excitability.—*Le Progrès Medical.*

**Keratosis Follicularis Spinulosa.**—J. L. Bunch reports a case of this condition in a child, aged 2, on whose scalp and eyebrows no hair had at any time grown except a number of stumps, darkly pigmented, and ⅛ inch long. Round each pilosebaceous orifice was well-marked keratosis, and to the touch the surfaces gave the sensation of a nutmeg-grater surmounted by very small bristles. No redness or hyperemia was present, the disease gave rise to no apparent subjective sensations, and the child seemed to be otherwise in good health. Microscopically, no fungus was present in the hairs. A younger sister had a good crop of healthy hair. The name keratosis follicularis spinulosa was given to the disease by Unna, and appeared preferable to the name keratosis pilaris.—*Proceedings of the Royal Society of Medicine.*

## Books Received.

*The* MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

PRACTICAL PRESCRIBING WITH CLINICAL NOTES. By ARTHUR H. PRICHARD, M.R.C.S., L.R.C.P., R.N. Cloth; price $2.00; 307 pages. Oxford University Press, New York.

SURGERY OF THE UPPER ABDOMEN. In Two Volumes. By JOHN B. DEAVER, M.D., Sc.D., LL.D., and ASTLEY PASTON COOPER ASHHURST, A.B., M.D. Volume II, Surgery of the Gall-Bladder, Liver, Pancreas, and Spleen. Illustrated; cloth; price $5.00 net; 499 pages. P. Blakiston's Son & Company, Philadelphia.

THE PRACTICE OF MEDICINE. By JAMES TYSON, M.D., LL.D., and M. HOWARD FUSSELL, M.D. Sixth Edition, Revised and Rewritten. Illustrated; cloth; 1211 pages. P. Blakiston's Son & Company, Philadelphia.

PSYCHOPATHOLOGY OF HYSTERIA. By CHARLES D. FOX, M.D. Cloth; price $2.00 net; 437 pages. Richard G. Badger, Boston.

HAIR. Its Nature, Growth, and Most Common Affections, with Hygienic Rules for Its Preservation. By RICHARD W. MULLER, M.D. Cloth; price $1.50 net; 154 pages; illustrated. William R. Jenkins Company, New York.

PROCEEDINGS OF THE CANAL ZONE MEDICAL ASSOCIATION. For the Half Year, April to September, 1912. Vol. V, Part 1. Paper; illustrated; 165 pages. I. C. C. Press, Canal Zone.

MENTAL DISEASES. A Textbook of Psychiatry for Medical Students and Practitioners. By R. H. COLE, M.D., M.R.C.P. Illustrated; cloth; 343 pages. Hodder & Stoughton, London.

THE DIETETIC TREATMENT OF DIABETES. By B. D. BASU, Major, I.M.S. Fourth Edition, Revised and Enlarged. Cloth; 52 pages; price Rc. 1-8. Published by the Panini Office Bhuvaneshvari Ashram, Bahadurganj, Allahabad.

DIE AUFFINDUNG VON ARZNEIMITTEIN. By ARTHUR HEFFTER. Paper; price 1 mk.; 35 pages. August Hirschwald, Berlin.

ÜBER DEN GEGENWARTIGEN STAND DER PATHOLOGIE UND THERAPIE DES DIABETES INSIPIDUS. By Prof. Dr. ERICH MEYER. Paper; price 1.50 mk.; illustrated; 58 pages. Carl Marhold, Halle a. S.

KURZE PRAKTISCHE ANLEITUNG ZUR ERKENNUNG ALLER FORMEN DES KOPFSCHMERZES. By Oberstabsarzt Dr. LOBEDANK. Paper; price 2 mks.; 71 pages. Curt Kabitzsch, Würzburg.

DIE FREIE SELBSTBESTIMMUNG BEI DER WAHL DES AUFENTHALTSORTES NACH DEM REICHSGESETZ ÜBER DEN UNTERSTUTZUNGSWOHNSITZ. By Prof. Dr. phil. et med. H. LIEPMANN, Berlin. Paper; price 1.20 mks.; 56 pages. Carl Marhold, Halle a. S.

KINDER- UND JUGENSELBSTMORDE. By Prof. Dr. A. EULENBURG, Berlin. Paper; price 1 mk.; 34 pages. Carl Marhold, Halle a. S.

SURGICAL DISEASES OF CHILDREN. A Modern Treatise on Pediatric Surgery. By SAMUEL W. KELLEY, M.D., LL.D. Second Edition, Revised and Enlarged. Price $5.00; illustrated; cloth; 789 pages. E. B. Treat & Company, New York.

PRINCIPLES OF SURGERY. By W. A. BRYAN, A.M., M.D. Illustrated; cloth; 677 pages; price $4.00 net. W. B. Saunders Company, Philadelphia and London.

AN INTRODUCTION TO THE HISTORY OF MEDICINE. By FIELDING H. GARRISON, A.B., M.D. Illustrated; cloth; 763 pages; price $6.00 net. W. B. Saunders Company, Philadelphia and London.

A TEXTBOOK OF THE PRACTICE OF MEDICINE. By JAMES M. ANDERS, M.D., Ph.D., LL.D. Illustrated; eleventh edition, thoroughly revised; cloth; price $5.50 net; 1335 pages. W. B. Saunders Company, Philadelphia and London.

A TEXTBOOK OF PHYSIOLOGY. For Medical Students and Physicians. By WILLIAM H. HOWELL, Ph.D., M.D., Sc.D., LL.D. Fifth Edition, thoroughly revised. Cloth; price $4.00 net; 1020 pages; illustrated. W. B. Saunders Company, Philadelphia and London.

GEUNDSATZE FUR DEN BAU VON KRANKENHASSERN. By Dr. THEL. Paper; 170 pages; price 6 mks; illustrated. August Hirschwald, Berlin.

## Miscellany.

**Quackery in the Eighteenth Century.**—Tobias Smollett, who was a member of the medical profession, delineated in Ferdinand Count Fathom a vivid picture of the contemporary quack. Fathom took lodgings over an apothecary's shop, and advertised that every day at a certain time and place he would give advice to the poor for nothing, hoping that some lucky cure might bring him fame and patients. In the meantime his chariot rolled during the whole forenoon through all the most frequented streets, and at the usual hour he never failed to put in an appearance at the medical coffee house, where he mingled freely with the company there. "The other means used to force a trade, such as ordering himself to be called from church, alarming the neighborhood with knocking at his door at night, receiving sudden messages in places of resort, and inserting his cures by way of news in the daily papers, had been so overdone that they had lost their effect on the public." Fathom, therefore, decided to wait till he should have acquired interest enough to erect a hospital by the voluntary subscriptions of his friends—a method which had paved the way to success for many doctors. But even in the middle of the eighteenth century it "was so overdone that almost every street was furnished with one of these so-called charities."—*British Medical Journal.*

**The Medical Historian.**—A writer in the *Lancet*, October 4, 1913, points out that the history of medicine is a subject which has of late years attracted far more attention than formerly. The Royal Society of Medicine has organized a section of the History of Medicine, and in addition, also for the first time, a section in the same subject has formed part of the proceedings of the recent International Congress of Medicine. The history of medicine is a study of very many, and at first sight, of widely divergent, matters, and the ideal medical historian would be a man of encyclopedic knowledge. He should know Greek, Latin, and Arabic, to mention only the three principal languages, as well as his own tongue. He should have a knowledge of paleography; he should be an accomplished physician and surgeon; he should have a knowledge of ecclesiastical history and the lives of the saints, and in addition he should be no stranger to anthropology and folklore; for the history of medicine is a part, and no mean part, of the history of human intellect and of search into the two great mysteries of life and death. Primitive medicine was, and is still among the few primitive races that are left, mainly concerned with amulets, charms, and incantations.

**An Automobile Danger in Winter.**—In cold weather the first explosions of an automobile engine are apt to be irregular and uncertain. An explosion in one cylinder will warm up that one, and to some extent the next one, while the others may remain cold. This irregularity tempts one to advance the spark more than it should be advanced for safety.—*Motor.*

**Safety First.**—A clipping bureau has collected accounts of over twenty-two hundred broken arms from "kickbacks" last year. The damage done in this one year would offset the expense of placing self-starters on half the automobiles in the United States.—*Motor.*

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## Original Articles.

### INTRAVENOUS INJECTIONS OF SODIUM SALICYLATE IN THE TREATMENT OF RHEUMATIC AFFECTIONS.*

By LEWIS A. CONNER, M.D.,

NEW YORK.

(From the Department of Medicine of the Cornell Medical College and the First Medical Division of the New York Hospital.)

The well-known irritant effects of sodium salicylate upon the stomach of many patients and the complete intolerance to the drug of certain susceptible subjects has led to various attempts to find some satisfactory substitute for the usual method of mouth administration. Thus the drug has at times been given by rectum, and has been applied to the skin locally, and attempts have been made to use it by subcutaneous injection. This latter method has been found impracticable because of the painfulness of such injections, the local irritation, and the large quantity of solution required. A modification of the hypodermic method was introduced by Bouchard, who sought to obtain a local effect by the injection of a weak (3 per cent) solution of the drug into the periarticular tissues of the inflamed joints. This method has had some vogue in France, but has gained no widespread popularity.

In 1904 Felix Mendel[1] demonstrated the feasibility of the intravenous administration of sodium salicylate and published the results of his experience with such intravenous injections in the treatment of various rheumatic affections. In selected cases he claimed for this method certain decided advantages over the usual mode of administration by mouth, basing his conclusions upon a series of over 300 injections. If certain special precautions were observed the method, he found, was free from danger and was usually quite painless. In a few instances the injections resulted in thrombosis of the vein at the site of puncture which, however, soon subsided without any unpleasant sequellæ. Among the cases so treated were included examples of acute, subacute and chronic articular rheumatism, sciatica, lumbago, pleurisy, and peliosis rheumatica. The advantages claimed for this method were the avoidance of the unpleasant stomach symptoms; the absence of prostration and profuse sweating; the prompter and greater relief of pain, and greater effectiveness in the treatment of certain types of rheumatic trouble. He obtained very striking results in the relief of pain in all sorts of rheumatic affections whether the lesions were localized in the joints, muscles or serous membranes. The method he thought was especially useful in severe cases of rheumatic fever in which the usual mode of treatment produced little or no effect; in cases in which the inflammation tended to persist indefinitely in one or two joints, and in cases of monarticular rheumatism without fever. The treatment he found had little or no effect upon the temperature in rheumatic fever. and he did not recommend that it be employed as a substitute for the usual method in the routine treatment of such acute cases.

Mendel's results were verified, to some extent, by Behr,[2] Rubens,[3] and Winkelmann,[4] who saw the same striking analgesic effects and who found the injections, under proper precautions, painless and free from danger. On the other hand Brugsch[5] could see no advantages in the intravenous injections over the ordinary form of administration and both he and Doevenspeck[6] found them frequently painful and liable to local complications. The method thus far seems not to have gained any general or widespread application.

The aqueous solution used by Mendel contained, in addition to sodium salicylate, a small quantity of caffeine sodio-salicylate, the object of which was to render the injection painless by its local anesthetic action. Two cubic centimeters of the solution (representing about 6 grains of sodium salicylate and one grain of caffeine) were injected at intervals of from 12 hours to one or two days. Mendel insisted that freedom from local complications (pain, inflammation, thrombosis, etc.) could be insured only if special precautions were observed in giving the injections. The point upon which he lays great stress is that the vein to be used must be of large size in order to avoid the local irritant effect upon the endothelium which is likely to cause thrombosis. In most cases the vein, he thinks, should be dilated by the procedure of letting the arm hang down for several minutes, with the fist tightly closed and with an elastic ligature upon the arm to prevent the venous outflow. By repeating this process two or three times it is possible to dilate even relatively small veins to a size sufficiently large to render the injections painless and free from the risk of thrombosis. Mendel advised that, as far as possible, a fresh vein be used for each injection.

My own experience with the intravenous administration of the drug is limited to 12 cases of articular rheumatism of various degrees of severity in which about 130 injections were used. This number while too small to justify any sweeping assertion as to efficacy of this method of treatment is yet sufficient to give some indication as to its practicability and its freedom from objectionable side effects. We very soon found that in order to obtain any really satisfactory results the drug had to be used in considerably larger doses (from 10 to 20 or even 30 grains) than that employed by Mendel. In these larger doses we found that the amount of caffein contained in Mendel's solution was sometimes objec-

*Read at the 259th meeting of the Practitioners' Society, January 2, 1914.

tionable, and as the caffein seemed to serve no very good purpose it was omitted and the sodium salicylate was used alone in a 20 per cent. solution. A very important factor in determining whether or not the injections were painless and free from the risk of local thrombosis was found to be the size and character of the needle employed. We at first used a needle of the size commonly employed for blood cultures and occasionally this was followed by thrombosis at the site of puncture. When, however, we began using a very small hypodermic needle and were careful to see that it had a fine, sharp point, this difficulty ceased immediately and it was found that the same vein could be used over and over again without the slightest pain and without local irritation or thrombosis.

Mended noted that the solution changed rapidly on exposure to light and air, the colorless liquid soon taking on a reddish or brownish tinge; and he insisted that only the fresh and colorless solution was suitable for intravenous use. The commercial form of synthetic sodium salicylate usually dispensed is an amorphous powder and solutions of this, we have found, usually show an amber or yellowish color almost as soon as made. In our first cases, in which this form of drug was used, an injection would occasionally be followed by a chill or by vomiting. When, however, a change was made to the chemically pure, crystalline form of sodium salicylate the solution was perfectly colorless and would remain so for several days if protected from the light; and with this solution we have never had a chill or an unpleasant symptom even when doses of 30 grains were given.

In my experience, therefore, the two most important points to be observed in the giving of the injections are: (1) to use only a very fine, sharp needle, so that the trauma to the vein wall may be as slight as possible; and (2) to have the solution fresh and made with chemically pure, crystalline sodium salicylate.

The technique employed at the New York Hospital is as follows: A stock solution is made by dissolving 10 grams of c. p. crystalline sodium salicylate in 50 c.c. of distilled water which has been freshly sterilized by boiling. The drug is weighed and handled as aseptically as possible and the solution after being made is not subjected to further sterilization. The solution should be perfectly colorless and, if protected from the light, will keep for several days.

A rubber ligature is applied to the upper arm sufficiently tightly to prevent the venous return flow and, if necessary, the venous engorgement is increased by letting the arm hang down and by closing and opening the fist. The skin about the flexor surface of the elbow is sterilized by painting it with tincture of iodine. A 10 c.c. all glass syringe, carefully sterilized, is filled from the stock solution, each cubic centimeter of which contains 3 grains (0.2 gm.) of sodium salicylate. A fine, bright, sharp hypodermic needle is used. With the patient's arm fully extended and the vein fixed below by pressure of the left thumb the needle is thrust into the vein in the direction of the venous flow. In order to be certain that the point of the needle is within the lumen of the vein the piston is then slightly withdrawn. If a drop of blood appears at the mouth of the syringe the ligature is loosened and the proper quantity of solution injected. As the needle is withdrawn from the vein gentle pressure is made for a moment at the site of the puncture to prevent leakage of the blood into the subcutaneous tissue, and the iodine is then washed off with alcohol. No dressing is required for the tiny wound in the skin. In case a good sized vein is available in each arm it is well to use the arms alternately, but we have found no difficulty in using the same vein for a number of successive injections when necessary.

The size of the individual dose and the frequency of the injections will vary with the requirements of the individual case. As has been said, we have found it necessary to use larger doses than those employed by Mendel in order to obtain distinct effects. In most cases the dose has been either 15 or 20 grains and the injections have been given at 12 or 8 hour intervals over a period of from 3 to 6 days. Occasionally, in robust men, as much as 30 grains have been given at a time and as much as 120 grains given in the first 24 hours without any unpleasant effects whatever. Indeed one of the noticeable features of this method of administration, in my experience, has been the entire absence of shock, prostration or other objectionable constitutional effect.

Emphasis has been laid by certain writers (Lüthje,[7] Brugsch[8]) upon the irritant effects upon the kidneys of large doses of the salicylates, especially if continued for a considerable period of time. In the cases treated by me intravenously no such effects were observed when the drug in daily amounts of from 75 to 100 grains was continued over a period of several days.

As regards the therapeutic effects of the intravenous use of sodium salicylate in rheumatic fever my experience has been that the relief of pain is prompter and more pronounced than is usual when the drug is administered by mouth. It has been a common occurrence to see a patient, who had been suffering intensely, obtain almost complete relief from pain for a number of hours after an injection, and to look forward with impatience to the time for the next injection. In one extremely severe case, in which 130 grains a day by mouth was given for three days with no effect whatever, improvement was seen almost immediately after the intravenous injections were begun.

In the case of a young girl, whose intolerance to the drug by mouth was complete, the intravenous injections produced immediate relief and a rapid cure.

In spite of such examples of marked benefit, however, I am by no means convinced that the intravenous method is, in general, more effective than the usual one, and I am far from feeling that it should replace the method of mouth administration for routine cases.

That it has a field of usefulness, however, I am convinced. It solves most satisfactorily the problem of the treatment of those patients who are quite unable to retain the drug when given by mouth. It should be tried in patients who show little or no response to the usual method of treatment. In cases in which the pain is intense it seems to me worth while to begin the treatment with a few intravenous injections before resorting to the usual method. Finally the injections seem to have distinct advantages over the ordinary method in cases with threatening heart complications and in the treatment of severe rheumatic affections of the eye, by reason of their more rapid action and accurate dosage. Sauton,[9] who reports a number of cases of rheumatic iritis so treated, emphasized the prompt relief

of pain and believes that the course of the disease is shortened and the chance of recurrences lessened by this mthod.

*Summary.*—To summarize briefly it may be said that, with the proper technique and with a chemically pure preparation of the drug, the administration of sodium salicylate by intravenous injections is safe, painless, and easily performed. So administered the drug seems to have a much more pronounced analgesic effect than when given by mouth. While it seems unlikely that the intravenous method will replace the usual one in the routine treatment of rheumatic fever, it nevertheless has a distinct field of usefulness, the limits of which cannot yet be determined. At present this field seems to include cases in which the drug is not well borne by the stomach; those which show little or no improvement under the usual mode of administration; those with beginning heart complications, and, possibly, cases of severe rheumatic inflammation of the eye.

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121 East Sixty-second Street.

## A STUDY OF PROSTITUTION IN EUROPE

By DOUGLAS C. McMURTRIE

NEW YORK.

The control of prostitution is, to say the least, a highly controversial subject. Opinions of competent experts have ranged between the widest extremes.

In the resulting polemic there has been much vigorous discussion between the advocates of varying methods proposed for dealing with the social evil. Leaving aside for the moment matters of detail, the question has hinged on the decision as to whether the public authorities should in any way supervise or control the actual system of prostitution. Those who believe in the wisdom and justification of such a course are said to believe in "regulation." Those who believe such a system to be an improper function of the State, pernicious in its exercise, are termed "abolitionists," by reason of their desire to "abolish state control of vice."

Prostitution is essentially an urban problem; its organization is extensive in the great cities of the world. The centers of large populations among civilized peoples are practically restricted to Europe and North America. In the United States and Canada there can be said to exist or to have developed no specific system of dealing with prostitution. In fact, until very recently, little attention has been accorded the subject at all. Individual communities have met their most acute problems of police jurisdiction in various ways; some form of segregation was the usual solution. There has been, however, constant advocacy by certain persons of the advisability of introducing some system of regulation.

No such system, however, can be said to have been given a reasonable trial in the United States. An experiment was made in St. Louis some years ago, but was soon abandoned, and a recent introduction of medical inspection and supervision of prostitutes in San Francisco has been inconclusive in results. We can, therefore, not look to American experience for a settlement of the relative merits of the systems of dealing with prostitution.

In Europe, however, the situation is different. The great cities of the Continent, unlike our own metropolitan communities, have had large populations for many years. The prostitution problem with them is not a new one and they have been dealing with it for a long time. There has been extensive experience and the resulting methods developed have varied widely. Both extremes of regulation and abolition, in addition to the intermediate stages, are represented. There are also communities which have had experience under both systems.

In some of the European cities extensive regulatory systems have been in operation. Extravagant claims with regard to the advantages derived have been advanced by their advocates—claims which on the face of them were too preposterous to be believed. On the other hand, the abolitionists attacked the systems in a most intemperate manner, making statements which were too sweeping to be credited. The accounts of any given situation were almost exclusively partisan in character and thus valueless from a judicial point of view.

In Europe, therefore, was available a rich fund of experience, while the opinions respecting the prostitution question were conflicting to the point of confusion.

Believing that an impartial study and description of the European methods of dealing with prostitution and their results would aid in the solution of problems which are in the United States becoming more and more pressing, the Bureau of Social Hygiene retained Mr. Abraham Flexner to make a personal investigation on the ground. The findings of this study have just appeared* in a volumne which recounts the first-hand experiences of the author. The purpose of the book is a laudable one and much of the material presented is of unique value. Any attempt at a critical evaluation of the work will be deferred until later in the present article.

The scope of the work is defined as a study of prostitution "from the standpoint of the practical experience of European countries. An effort will be made to ascertain its forms and extent, the sources from which it is recruited, the conditions that either cause or conduce to it, the procedure of different communities in dealing with it and with the conditions responsible for it, the measures which have been employed by way of combat or control, and the results which have been thus obtained. Material will be drawn from extended personal inquiry and observation in the larger cities of England, Scotland, France, Italy, Belgium, Switzerland, Holland, Denmark, Norway, Sweden, Germany, Austria-Hungary—from the countries, in a word, that may be grouped as Western Europe, because they are characterized by a considerable degree of similarity in all that pertains to social life, national ideals, and political institutions." In detail the following cities were visited: London, Liverpool, Birmingham, Manchester, Glasgow, Edin-

*Abraham Flexner: "Prostitution in Europe." Introduction by John D. Rockefeller, Jr. Publications of the Bureau of Social Hygiene. New York: The Century Company, 1914; pp. ix, 455.

burgh, Paris, Lyons, Rome, Brussels, Berlin, Hamburg, Dresden, Frankfort-on-Main, Cologne, Hamm, Stuttgart, Munich, The Hague, Amsterdam, Rotterdam, Copenhagen, Stockholm, Christiania, Geneva, Zurich, Vienna, and Budapest.

The definition of prostitution involves several difficulties. The police authorities have arbitrary criteria and historical authorities have adopted varying formal distinctions. The experience of the author leads him to "consider prostitution to be characterized by three elements variously combined—barter, promiscuity, emotional indifference. The barter need not involve the passing of money, though money is its usual medium; gifts or pleasures may be the equivalent inducement. Nor need promiscuity be utterly choiceless; a woman is not the less a prostitute because she is more or less selective in her associations. Emotional indifference may be fairly inferred from barter and promiscuity. In this sense any person is a prostitute who habitually or intermittently has sexual relations more or less promiscuously for money or other mercenary consideration. Neither notoriety, arrest, nor lack of other occupation is an essential criterion. A woman may be a prostitute, even though not notorious, even though never arrested, even though simultaneously otherwise employed in a paid occupation.

"The scope of the term is thus greatly, and, as I hope to show, justifiably, nay necessarily, extended. Barter, emotional indifference, and more or less promiscuity do not in modern cities characterize the sex relations of the avowed or professional prostitute alone. They are equally characteristic marks of the clandestine prostitute, using the term in its literal meaning to designate the numerous class of professional prostitutes whose real character is known only to their own clientele and their close female companions; of the occasional prostitute—women who alternately emerge from and relapse into an irregular life; of the incidental prostitute—those who carry on more or less prostitution without interrupting some honorable employment; of women who practise prostitution under cloak of other occupations; of women, who, ceasing to be kept as mistresses, practise prostitution as a stop-gap until a firmer footing is once more found; of women who reserve themselves by express arrangement for a small group, none of whom can alone afford their support; of women, who, faithful to one individual at a time, are still taken up by a succession of men paying for favors; finally, of married women, by no means always of the lowest classes, who, perhaps irreproachable in the eyes of the world, are not above earning through ignominy the price of luxuries. Here are eight different categories, falling outside the narrow conception of prostitution, if prostitution is conceived to be characterized by barter, emotional indifference, and promiscuity."

Prostitution is found to be objectionable for one or more of several reasons: in the first place, because of the personal demoralization it entails; in the second, because of economic waste; again, because it is the main factor in the spread of venereal disease; finally, because of its intimate association with disorder and crime. The count on the score of venereal disease might be even more emphatic; prostitution is the sole reason for its existence to any appreciable extent.

The conclusions regarding the prostitute class are in a certain respect decidedly optimistic. "What becomes of the ordinary prostitute? For the common notion that her expectation of life is some five or sir years, there is no basis in fact whatsoever. It is demonstrably untrue even of the avowed professional or registered continental harlot. . . . Prostitutes disappear rather than die—a fact of great practical significance as we shall discover; only a part—it is uncertain of what size—remain prostitutes; a small fraction marry, a much larger fraction return to work; those who stick to the business wind up as the servants of younger prostitutes, occasionally as brothel-keepers; a few of them are found as aged hags, offering themselves for a copper coin below the bridges of Berlin or in the dark corners of Whitechapel." On this basis the ultimate fate of the prostitute is menacing but not entirely hopeless.

Any estimate of the cost of prostitution to the community must be more or less fantastic. According to Flexner, "of the total loss only the roughest guesses can be made; but it is worth noting that any estimate that endeavors to include all factors, direct and indirect, soon reaches into the millions. Losch, for example, has reckoned the annual cost of prostitution to the German Empire at something between 300 and 500 million marks. This outlay may be contrasted with that spent by the Prussian Government on its entire educational system; its universities, secondary schools, elementary school system, technical and professional institutions of all kinds involving a budget in 1909 of a little less than 200,000,000 marks. Assuredly the economic burden imposed on society by prostitution is comparable with that due to standing armies, war, or pestilence."

So much by way of introduction. The present review will endeavor to bring out the points of the study which have especial interest from the medical point of view.

Homosexuality is given brief mention. "Prostitution in Europe as an organized business is by no means limited to the intercourse of persons of opposite sexes. A homosexual prostitution—prostitution, that is, in which the parties belong to the same sex—has developed on a considerable scale. Notorious resorts for those addicted to homosexuality are to be found not only in Paris but in smaller towns, like Hamburg. Berlin is, however, probably the main mart. In prominent thoroughfares, bars exist to which only women resort as well as bars to which no woman gets access; and at intervals, large homosexual balls are given, attended only by persons of a single sex. I witnessed one such affair, at which some 150 couples, all men, appeared. It is estimated that between 1,000 and 2,000 male prostitutes live in Berlin; forty homosexual resorts are tolerated by the Berlin police; and it is reported that some 30,000 persons of marked homosexual inclination reside in the German capital." It may be mentioned in passing that the question of homosexuality has received extensive attention in Germany.

At Berlin was found one of the best systems of medical inspection, the bureau charged with this duty having been completely reorganized in recent years. The requirement regarding frequency of examination depends upon the age of the prostitute: if under twenty-four, twice weekly; between twenty-four and thirty-four, weekly; and over thirty-four, fortnightly. Any registered prostitute is also examined whenever she may be arrested for any offense. Clandestine prostitutes may

be examined under compulsion at the discretion of the bureau chief. Such examination is made by a woman physician; the inspection of the registered women is delegated to male physicians.

The staff consists of eight police physicians and four microscopists of whom four are on duty at a time.

The hours are from nine to twelve and from twelve to three, daily except Sundays, and on this latter day provision is made for those whose situations so require. "The examination consists of a clinical inspection and the use of the speculum. For the detection of gonorrhea, microscopic examinations of the secretions are made fortnightly in case of women under 34; monthly in case of older women. At any time, however, when appearances are suspicious, the physician is instructed to ask for a microscopic examination without waiting for the regular day. Female assistants are provided for this work; the word of the assistant is sufficient in case the microscopic preparation is found to be negative; the physician must by his own observation confirm a positive result." The Berlin bureau presents, strange to relate, the only instance in Europe of expert medical control of this sanitary function, Dr. Georg Güth being the present director.

When inscribed women are found to be infected they are confined "under duress in a municipal hospital, on the theory that, being professional prostitutes, who can maintain themselves only by plying their business, they must be interned in order that the carrying on of their business may be temporarily suspended. In very rare cases, however, even when found to be diseased, they are permitted to retain their freedom provided an approved physician makes himself responsible for their systematic treatment, and provided, further, that there is reliable evidence to show the possession of resources which will enable the women in question to keep their engagement to refrain from plying their vocation for the time being. Women are also at times released from the hospital on condition that they report at intervals for further treatment; should this understanding be violated, they are once more interned. Clandestine and occasional prostitutes if found diseased on being arrested are somewhat differently managed. If without resources, they are sent to the hospital; but the bureau chief may, in his discretion, permit them to remain at large on condition that they place themselves in charge of a competent physician. It is, however, admitted that pledges, whether given by clandestine or registered women, are not to be relied on. At both hospital and police headquarters in Berlin conscientious and intelligent efforts have been made to provide satisfactory arrangements. Registered and non-registered women are scrupulously separated at every stage, on the ground that the latter group may contain young, innocent, or, at least, not yet hardened persons, who should not be further contaminated by the carelessness of the State. Premises not adapted to this end have, therefore, been extensively remodeled. The rooms utilized for the medical examinations at the police headquarters are light and equipped with a modern examining-chair, hot and cold water, and electric light; the microscopic room has the necessary equipment for clean and accurate work. The hospital, though old and small, has been latterly renovated and its staff reorganized. The present medical chief of the police division in charge of venereal disease is a specialist of distinction, who has made important contributions to the literature of the subject on both medical and sociological sides. The division possesses an excellent laboratory manned with trained assistants; and it is properly equipped with microscopes, culture-ovens, animals for experimental purposes, etc. Patients are examined separately in a clean, well-lighted room, containing all necessary paraphernalia. Women at different stages of demoralization—registered, non-registered, first offenders—are scrupulously kept apart; clean and orderly as the women are in appearance, there is nothing in their demeanor or surroundings to suggest prison confinement." The above description is based on extensive personal observation and interview.

The regulation system of Paris is probably more referred to than any other. It is certainly the most widely known from the historical point of view. The conditions are not encouraging; from the hygienic point of view they are quite the opposite, to say the least. According to Flexner "all day long a dismal succession of groups of abandoned women file into the rudely equipped rooms in which two physicians ply their repellant task perfunctorily. A line is formed; with open jaws and protruding tongue they march rapidly past; the doctor uses one spatula for all, wiping it hastily on a soiled towel from time to time. This finished, the same group in quick succession ascends two surgical chairs to permit a cursory vaginal inspection; the physician, stationing himself between them, loses no time, for one women is assuming the recumbent position while he is engaged in the examination of another; he switches back and forth as rapidly as the women can get up and down—indulging in good-humored and sometimes unseemly jocularity as the work proceeds. Of the two physicians employed on the occasion of one of my visits, one used a rubber glove, the other a rubber finger—in both cases the same for all; though wiped on a towel from time to time, neither was changed or cleansed. On one occasion I observed one of the physicians examine 25 or 30 girls without changing, washing, or wiping the rubber fingers he wore; and a number of those examined were adjudged 'diseased.' The speculum was rarely used. In one instance, pressure by the finger on the urethra discharged an abundant suspicious secretion; the same finger, unwashed, was used in examining the next case; in another instance, the same rubber finger was used on the genitalia and about the mouth. The inspections consumed from 15 to 30 seconds each; 'for vaginal examinations,' so read my notes made on the spot, 'it takes less time to examine one woman than it takes another to mount the examining chair and offer herself for examination, despite the fact that her clothing has been adjusted before entering the room.'" And this constitutes sanitary control of prostitution in Paris!

Perversion is rampant in modern prostitution, largely for the reason that it is highly profitable. This is especially the case in the established house. "The bordell is a veritable school of abnormality. The Paris bordells are elaborately equipped for every conceivable form of perverse indulgence. The inmates compete with one another in forcing upon the youthful customer the knowledge of unnatural and artificial forms of sexual gratification. Similar excesses are practised elsewhere—indeed wherever the bordell is found. The Swedish

women told Dr. Lindblad that 'the girl-house is the main seat of perversity; soon,' they added, 'Stockholm will be as bad as Paris.' The infamous implements employed are in full view as one enters the apartments in Helenenstrasse. The degradation of the bordell inmate is total; her rehabilitation well-nigh impossible. She fares worse than the street-walker, who sometimes returns to an orderly manner of life."

The relation between alcoholism and prostitution figures largely in the study. This differs not at all from the determinations of American experience; the saloon is handmaiden to the brothel. The psychology of the matter is about as follows: alcoholic intoxication decreases actual sexual capability but it greatly increases sexual enterprise, the illusion of capability. Further, it renders inoperative the inhibitions of caution, prudence, and the like which are usually in force. Thus Flexner notes that "the sale of alcohol in the bordell markedly increases the range of infection, for it provokes recklessness and banishes caution. It has been estimated that one-third of the gonorrheal infections are incurred while the victim is in liquor" and again: "In Möller's cases at Stockholm 67.7 per cent. of the infected men admitted intoxication." Further "one of the most disgusting aspects of bordell life is the forced consumption of alcohol; the customer on entering is plied with drink; and, of course, the inmates share; conviviality is procured by general and continuous indulgence in beer, wine, and champagne. In order to prevent complete physical disorganization on the part of the women and to restrict the commerce in volume, the sale or use of liquor is forbidden in the bordells of Brussels, Altona, Hamburg, Stuttgart, Bremen, and other cities. But it goes on openly and flagrantly, nevertheless." Everywhere prostitution and the sale of drink are in close connection.

The various first hand accounts given by Flexner of conditions in European cities simply go to show that medical inspection at its best is usually inferior. It is, however, well known at the present time, that no clinical examination will surely detect the presence of venereal disease. The best that can be done is to detect virulent states of disease in a few women and effect their confinement for a ludicrously short period. They then return to their business. Every prostitute is in a chronic state of venereal disease; there is no safety in prostitution.

Segregation practically does not exist in Europe, probably more on account of moral considerations than those of order or sanitation.

Flexner has satisfactorily demonstrated that the European regulation systems, first, are not essential to the preservation of order, and, second, do not conduce materially to the reduction of disease. He has further demonstrated that as good results on the scores of both order and health are obtained under abolition conditions. The undoubted statement is made that whatever reduces the volume of promiscuous coitus is the most potent factor in limiting the spread of disease. There have been carefully considered and discussed the various statistics and authorities bearing on these points.

The appendices giving translations of the regulations in Paris, Berlin, Hamburg, Vienna, and Denmark are extremely valuable to students of the subject.

The book is the only one in English treating of the working of the prostitution systems of Europe. Its preparation involved careful work on the part of a trained observer, and the result is such that no student of the subject can neglect.

On the other hand, however, there are some features still to be covered. The present writer had read a reasonable amount of the polemical literature regarding regulation and abolition. What was lacking, however, was a visualization of the actual conditions in the various European capitals. At no point in the book, for instance, is there any description of what the prostitution situation is in Paris today. Nor is there any consecutive description of conditions in Stockholm or Rome. Certain selected features only have been described in the discussion of certain points. Without questioning the validity of the conclusions, the reader cannot feel sure that another might not go over the same ground and the same literature and prove almost the opposite thesis. In special pleading such as is under present consideration the method does not seem the most convincing possible. A faithful survey of vice conditions in the various individual European cities still needs to be written if the American reader is to be in possession of all the facts.

It is to be regretted that a book of such permanent scientific value and upon the compilation of which such great pains had been bestowed was not more carefully proofread. Such words as *faithful, originally, duties,* and *surveillance* are misspelled. In a casual reading without checking at all the original sources I found twenty-three errors of spelling and typography and nineteen errors in style, these numbers not including lack of uniformity in the spelling of words such as *gonorrhea* and *moeurs* nor in the anglicization of geographical names.

The index is deficient; some of the best known authorities on prostitution who were quoted in the text are entirely omitted, while inconsequential citations are listed. This is a serious lack in a book of the character of the one under review, as it makes it impossible to locate material for specific purposes.

One final word, and this only a suggestion. The question of prostitution in its relation to health is manifestly shifting from inspection of the prostitute to protection of her client through the means of personal prophylaxis. So far as I can discover the employment of preventive measures is on the increase in Europe today and the German student who elects to take his chances in the maze of prostitution is placing more reliance on his own safeguards than on any government oversight of his partners. At present this subject is clouded and confounded with moral considerations, but it seems destined to have an important relation to the prostitution of the future.

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## THE SURGICAL ANATOMY, DIAGNOSIS, AND TREATMENT OF THE INFLAMMATORY AFFECTIONS OF THE NASAL ACCESSORY SINUSES IN CHILDREN.*

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Inflammatory affections of the nasal sinuses occurs more frequently in children than is generally

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considered. Not only does this statement apply to the adolescent, but also to the small child and infant. From a study of the surgical anatomy of the nasal accessory sinuses, it does not seem improbable that some instances of meningitis are the result of unrecognized sinusitis. This can readily be appreciated from the structure of these parts, as there is great variation in their size and shape; they are surrounded by much softer bone than occurs later in life; there is greater development of the vascular and lymphatic systems, and the mucosa is in intimate relation with the osseous tissue, so that inflammation of the former produces some pathological changes in the latter.

My experience has been that chronic sinusitis is not as frequent as in the adult, but both acute and subacute sinusitis are common and it will be found that many instances of postnasal catarrh are but symptoms of some inflammatory condition of the adjacent sinuses.

Case I.—C. M., a boy of 12 years, following measles three years previously had a constant discharge of mucopus from the postpharyngeal region. Two years later I first saw him and found his pharynx and nasopharynx in good condition and that the discharge of which he complained, came from the posterior nasal cavities on both sides. The turbinals were but slightly congested and swollen, but after careful repeated observations, it was found that the trouble was confined to the posterior group of ethmoid cells on both sides. After free drainage was obtained through surgical intervention no further trouble was experienced, the discharge ceasing entirely.

In connection with the anatomical development it should be remembered that the maxillary sinus is well defined, although rudimentary at birth, and even in the fetus it is found about the fourth month, so that inflammation of this sinus at an early age is not infrequent. From this early form which represents the adult sinus but in miniature proportions and which has a triangular shape, it undergoes but little change until the second dentition, when the development of the molars and bicuspid teeth play an important part in its relation to the bones of the face. In the new born it is situated internally to the orbit and does not sink below it until some time later, while its mucous membrane lining which is tenuous in the adult is exceedingly thick, so that it almost fills the small cavity, leaving but little space in which pathological fluids might accumulate.

Previous to the completion of the first dentition, the odontoblasts are in most intimate relation with the floor of the sinus, which is usually high, reaching about to the attachment of the inferior turbinal body. The floor of the antrum in the child previous to the second dentition is on a line with the nasal floor and it is not until a later age that it becomes lower as in the adult type, but it does not reach the latter type until about the twelfth year. The increase in size of the antral cavity occurs principally at the expense of the alveolar process, which is in part absorbed with the resultant downward enlargement of the cavity, when the thickest wall is then found to be formed by the body of the superior maxillæ posteriorly, while the orbital wall superiorly is of extreme tenuity. Of all the walls of the antrum, the nasal aspect is the most important, not only surgically, but also from a diagnostic standpoint; on account of its tenuity and from the fact that at this point visible pathological changes are found in immediate conjunction with the natural stomata. Much previous to this, however, accessory foramina are found, but not as frequently as in the adult and the stomata opens into the middle meatus at the posterior end of the semilunar hiatus.

Most important in the child are the inflammatory affections of the ethmoid cells, these cells and the antra being more frequently involved than the frontal and sphenoidal sinuses. Evidences of the ethmodial area are seen in the fetus about the fifth month and distinct cells are frequently found at birth; often more, eight to ten being found during the first year and from that period on, these tissues are susceptible to morbid changes, the cells reaching their maximum development about the eighteenth year. Frequently these cells are rudimentary, however, and occasionally one finds a misplaced cell that makes it rather difficult to locate the various parts with any degree of accuracy. In the child as in the adult, the middle turbinate body is essentially a portion of the ethmoid area, although its anterior end is thinned out, is small, and runs parallel to the perpendicular plate, so that the lower border is deflected inwards.

At about the eighth to the tenth year, one finds that the ethmoidal ostia open into the nasal meati and for surgical purposes and especially in the recognition of morbid changes, the cells can be grouped into an anterior mass communicating with the middle meatus, while the posterior group opens into the superior meatus. The anterior group is by far the most important, as its stomata are found along the semilunar hiatus and the fissure between the ethmoidal bullæ and the inferior turbinate body, at a location where infection from intranasal morbid changes most frequently takes place. The anterior cells are more numerous than the posterior, although the latter are larger as regards the capacity of the individual cells, but their stomata are much less in size than those of the anterior mass.

As the internal wall of the orbital fossa forms the external boundary of the ethmoid, the possibility of orbital symptoms as a complication of ethmoidal infection, is apparent. In operating upon this region, this relationship must be borne in mind on account of the extreme thinness of the orbital wall and the danger of injuring the contents of the orbital cavity.

Case II.—C. D., one year. Measles. Profuse mucopurulent discharge from both nostrils during the course of the disease. After convalescence continuation of discharge from left nostril. When seen, considerable unilateral orbital cellulitis and swelling of cheek. Proptosis conjunctival ecchymoses. Ectropion. Discharging sinus at lower angle of orbit. Probe passed into sinus entered area of roughened bone in ethmoidal region. Operation. Puncture of maxillary antrum through nasal wall with positive results. Incision of orbital sinus and incision over and removal of portion of nasal process of superior maxilla to expose ethmoidal tract, which was then removed with cutting forceps. Convalescence uneventful.

Previous to the seventh or eighth year, the frontal sinus is usually not developed to any extent, although from the second to the third year it is not uncommonly found as a mere trace of a cavity. Rather infrequently, it is present as early as the fifth year as a definite cavity subject to pathological changes, but before puberty it does not extend far up in the frontal bone; then a marked change takes place continuing until the eighteenth year, when its full development is accomplished. It must always be borne in mind that the frontal sinus is a sequence of the cellular expansion of the anterior group of ethmoid cells—into the diplopia of the squamous portion of the frontal bone, and that

in the treatment of inflammatory conditions here, the intimate relationship with the ethmoid region must always receive due consideration. The anatomical and surgical relations differ in no way from that in the adult, excepting that its relation to the cranial cavity on account of the thin posterior wall, is most intimate, and this must be considered in relation to inflammatory processes.

The sphenoidal sinus may show as a depression in the cancellated tissue of the sphenoid body even at birth and a definite cavity may be present at the fifth month, although of necessity it is a mere slit in the soft osseous structures. A definite cavity being found as early as the third year, while by the twelfth year, it is well developed and while its inflammatory changes have not been as much studied as have the other sinuses, yet I am of the opinion that it is more frequently involved than is usually considered. Strangely, however, it seems that the capacity and size of the sphenoid cavity is most erratic and the age of the child will give little information as to these factors, as a study of several anatomical specimens will usually show marked variations so that a young child may have a comparatively large cavity and a much older child will have a very small one. Its lateral walls are largely within the intracranial cavity and especially is this to be considered in relation to the development of obscure cases of nasal meningitis, as is also its intimate relations laterally and superiorly, with the internal carotid artery and cavernous sinus.

Case III.—M. S., age three. History of unusually frequent coryzas. Nasal diphtheria followed four weeks later by temperature, neck rigidity, double Kernig and convulsions.

Examination:—Excoriated upper lips. Slight anterior nasal discharge. Much mucopus in nasopharynx. Child semi-comatose and moribund. Death. Post-mortem inspection of nasal chambers. Middle turbinates and septum removed to expose the sphenoid. Anterior wall of sphenoid removed and cavity found to contain large quantity of pus. Culture. *Streptococcus pyogenes*. No cranial post-mortem allowed, but it seems likely that the meningitis was directly the result of the nasal accessory cavity infection.

The recognition of sinusitis in the child is more difficult than in the adult, as the symptoms are usually obscure; are rarely characteristic, and it is rather unusual to have a single sinus involved to the exclusion of the others, the rule being that more than one sinus is affected at the same time. Under such circumstances, one can well appreciate the difficulty of differentiating individual inflammatory areas. When the superior sinuses are the seat of a purulent inflammation, the discharges may infect those lower down, especially the maxillary antrums, so that the soft tissues around the stomata are kept irritated and swollen, and it becomes most difficult to determine the exact primary condition.

The frequency of the infectious diseases in childhood and the concomitant inflammatory changes of the nasal mucosa, explains why the sinuses should be involved during this period and especially does this occur in influenza, scarlet fever, measles, pneumonia, and diphtheria. In the vast majority of cases, there is a primary inflammation of the nasal mucosa and the sinuses become involved from direct extension of this inflammation, irrespective of its basal cause, the swelling of the soft tissues around the sinus opening, causing the secretions to be retained as a result of the stenosis thus produced. Unlike that which may occasionally occur in the adult, sinusitis in the child is practically never of primary origin, the close relationship of these tissues with the nasal mucosa being such that when the latter is inflamed from any cause the former must invariably be simultaneously involved.

In the newborn, antral sinusitis may occur as a result of infection by vaginal discharges from the mother or from injury, the result of instrumental delivery, and the resultant purulent inflammation involves the soft, osseous antral walls. In my experience this condition arising from these causes, or others in small children, is a true sinusitis as definite as that found in the adult, and it is not a tuberculosis caries, or osteomyelitis, as has sometimes been claimed. As a rule, affections of the antrum occur during the second dentition, while infrequently errors in the development of the teeth may act as an exciting cause of the empyema. In such cases the relation of the teeth to the maxillary cavity must be carefully considered and the radiograph alone will clearly elucidate the conditions along the alveolar process.

The ethmoid labyrinth in the older child is especially liable to become involved in all inflammatory affections of the nasal mucosa and in coryza. In the contagious diseases, these cells are affected in practically every instance; to my mind, accounting frequently for the manifest suppurative ethmoiditis in later life, which has in reality existed from early childhood.

The recognition of the various sinus affections in the child is more difficult than in the adult, as the subjective symptoms are not clearly defined. Great weight should be attached to the intranasal findings. Transillumination in my hands as a method of diagnosis has proven of great value providing it is used in connection with a regulating rheostat to measure the intensity of the illumination. I have found of considerable use when its introduction was possible the electrically illuminated pharyngoscope, as one can explore readily the nasal areas and the recognition of posterior ethmoid and sphenoid disease is much facilitated. The use of carefully made Roentgen plates is of great service, especially as regards the presence of pus in the antra, or frontal sinuses, and previous to the tenth year the use of the stereoscopic radiograph is the most valuable single diagnostic medium that we possess. A markedly swollen mucous membrane, however, will give a shadow more clearly than the presence of pus in a sinus.

The presence of frequent headache should always occasion suspicion of sinus inflammation, as should also tenderness to touch over the suspected sinus, such a symptom, however, being of practical value mostly as regards the frontal sinuses, bearing in mind that localized pain is difficult to ascertain with accuracy in the very young. When headache is present, however, it is most important as part of the general complex of symptoms, but its absence indicates nothing and as a symptom alone without other intranasal signs it is of no value from a diagnostic standpoint. In acute sinusitis, pain of an aching character or acute, neuralgic in type, even like that of the adult, is almost invariably present at some time during the course of the inflammation, but in chronic cases it is frequently absent, unless the secretions are retained under pressure, when it may become most intense; but it must be remembered in this connection that the degree of pain in the head very often bears no relation to the severity of the inflammatory process of the particular sinus involved. A dull pain between the eyes, however, in the presence of other intranasal symp-

.oms, is strongly indicative of ethmoid involvement.

A marked symptom of great diagnostic value when present is the cessation of pain with the appearance of free nasal discharge, and the return of he pain when the discharge lessens or temporarily eases. The presence of discharge especially if unilateral and purulent, or semipurulent in character, s always of diagnostic value and especially if intermittent; but the presence of pus in the nasal chambers is in small children not necessarily indicative of sinus disease, while at the same time it is important to remember in this respect that the absence of pus does not necessarily mean the absence of a purulent sinusitis. Curiously in purulent sinusitis in children the nasal chamber may be entirely free from pus during irregular periods of the day, so care must be taken in considering this, as serious errors may ensue. If there is lymphoid tissue in the vault of the pharynx, most marked on the side from which this discharge comes, it will often be found that the adenoids alone are not the source of the continued coryza from which the child suffers, but n addition there is a sinusitis. The location of he discharge is of great value in determining which sinus is affected, and the method of ascertaining his differs in no way from that in the adult, which s so well known as to require no further discussion here. At the same time it is important to bear n mind that the pus may be inspissated, or of such a thick character, that it will not drain freely, so that at certain periods of the day it is apparently absent, while on the other hand, if purulent fluid should be present in the nasal chamber it is a positive indication that a particular sinus is involved, if the fluid rapidly continues to reappear in he same location as soon as it has beeen removed. Such a symptom being indicative of the fact that a collection of pus of some standing is present, as t cannot be secreted in this manner from the mucous surface.

Aprosexia and disturbance in the general health are more or less inevitable concomitants of chronic purulent sinusitis and not infrequently it will be found that there is a daily rise of temperature of a degree or more, while in addition the pulse will be more rapid than normal. Complications are possibly not as frequent as in the adult, although orbital symptoms are not uncommon. In the socalled strumous child, where there is a purulent nasal discharge, with excoriated upper lip and marginal blepharitis, with frequently corneal ulcers, purulent sinusitis usually of the antrum and ethmoid cells exists, and while serious organic osseous changes are not present, yet when they do occur the ethmoid structures are the ones most frequently involved. The formation of polypoidal degeneration as in the adult is most infrequent, and usually when it does occur in my experience it is strongly indicative of a latent specific basis. In purulent inflammation of these sinuses, and especially in that acute fulminating type sometimes seen, serious orbital complications may ensue as a result of pathological changes in the correlated vascular sinuses, with the devlopment of thrombosis of the cavernous sinus and resultant pyemia, meningitis, and death. In the milder form, a symptom not uncommon and always of diagnostic value, is edema of the eyelids from vascular pressure.

In inflammatory processes affecting the maxillary antrum, it is not uncommon to find some involvement of the osseous structures of the superior maxillæ if he purulent sinusitis is long continued, and in children under one year of age a true maxillary empyema may occur with the development of abscess and fistula in the infraorbital region, but in the majority of instances the affection presents rather a benign course and is only too frequently unrecognized and treated as "nasal catarrh." After cleansing the nasal chamber, the reappearance of pus in the middle meatus is indicative of antral suppuration, appearing most often beneath the middle turbinate. In older children, puncture of the lateral nasal wall of the antrum is necessary to establish the diagnosis of the condition present. In very small children this procedure must be performed most cautiously.

As a result of neglected rhinitis, inflammatory changes in the ethmoid structures are frequently found, but it has been my experience that isolated sinusitis is uncommon. In younger children the antrum is apt to be simultaneously involved, while in older children the frontal sinus may be also affected, and, not infrequently, it will be impossible to differentiate between a frontal sinusitis and an ethmoid affection, in which the anterior cells of the latter are involved, but for practical purposes this is of little moment. On account of the relation of the complicated ethmoid system to the other sinuses, and the fact that pathological changes occur here so frequently as a result of the various infectious diseases, it will be found that this sinus is the primary source of infection in the great majority of cases of pansinusitis, and that this relationship is especially emphasized on account of the intimate connection of the various stomata of its component cells with the other sinuses, so that a purulent discharge here is almost impossible, without involving other sinuses to a more or less degree. The difficulty of diagnosis in such cases is also enhanced by the variations in the location of the stomata of the sinuses involved, as the variations in their location are so frequent that in the soft tissues of the child the accurate recognition of the particular sinus involved, in a given case, may present most grave difficulties. Anatomically, this becomes evident when one recalls that the ethmoid mass occupies at least one-half of the space between the cribriform and the nasal floor, and therefore its various cells each with its own stomata, are peculiarly subjected to the brunt of any inflammatory changes which take place.

As a result of the late development of the frontal sinus, as has been previously pointed out, chronic changes are unusual, but its involvement in the older child during acute intranasal inflammation is much more frequent than actually considered.

Case IV.—M. T., female, age 12 years, had a severe attack of coryza five months ago, which her physician stated cleared up in about ten days, with the exception of a periodical headache over the right supraorbital region and a semipurulent discharge from the nares of the same side. Two weeks later she complained of a dull ache constantly present, over the right frontal sinus, which became most acute about ten o'clock each morning and lasted for about two hours, when the extreme pain would subside coincident with a free discharge of purulent fluid from that side. There was considerable tenderness to pressure over the sinus and examination showed the left nares normal, while on the right side there was marked turbinal engorgement and a purulent discharge coming from the middle meatus. The radiograph showed a shadow on this side, while all the other sinuses were apparently normal. The use of warm saline irrigations were without effect and as the symptoms were not relieved after several days of this treatment, it was deemed advisable to resect the anterior end of the middle turbinal, which gave free access to the sinus, and irrigations, followed

by the injection of a week argyrol solution, were followed by the prompt disappearance of both headache and purulent discharge.

The recognition of inflammatory changes in this region does not differ from that in the adult, and the presence of pus in the middle nasal meatus may greatly aid in establishing the diagnosis, although it may be easier to eliminate suppuration of the frontal sinus than to define its presence. The value of a well made radiogram in defining the surgical aspects of the frontal sinus, as to its presence or absence, height, depth, etc., is of the utmost importance. The pain is apt to be more localized over the affected sinus than that which occurs in other regions, and while it is often dull in character it is at times violent or throbbing and is accompanied with local tenderness.

The recognition of purulent sphenoidal sinusitis is by far the most difficult as it is practically always combined with ethmoidal changes and the symptoms are not characteristic. Severe occipital, or vertical headache with more or less dizziness, is suggestive of retained secretions; the discharges are scant and usually become inspissated in the nasopharynx, or along the posterior portion of the vomer and floor of the nasal chambers, and it will be found that not infrequently the condition cannot be recognized until exploration has been made of the interior of the sinus.

The routine use of the pharyngoscope in young children has disclosed a surprisingly large number of cases of posterior ethmoidal and sphenoidal suppuration which would have been unrecognized by any other method of examination.

Most important is the fact that these inflammatory invasions mean a radical disturbance of the entire drainage system of the nasal interior, and all treatment, whether conservative or radical, must rest upon this basis.

The treatment of sinusitis in the child should always aim to destroy as little tissue as is consistent with obtaining permanent results, and as far as possible the nasal mucosa should be preserved if operative measures are employed. Palliative treatment will permanently cure the majority of acute sinus inflammations, where such treatment is intelligently directed toward free drainage and the reduction of inflammation. Previous to the employment of surgical measures, therefore, the use of warm alkaline sprays, or normal salt solution and a weak epinephrin solution to reduce the congested mucosa, with, if the case is severe, rest in bed, the employment of laxatives and such general measures as may be indicated, will often produce the most happy results, and in this connection it should be remembered that the tendency of acute sinusitis is toward cure. The local employment of cocaine in these acute cases is usually unnecessary and is to be deprecated. Much relief may, however, be obtained by the external local application of heat or cold, or the use of the steam atomizer.

Where the sinus disease has continued and resists treatment it may be found that the general health of the child has been impaired previous to the development of the nasal affection, as a result of the original disease causing it, and until proper care of the general health is instituted local measures may not be of much avail. It would be well under such circumstances to obtain a culture of the microorganisms present in the sinus, and to have prepared an autogenous vaccine which may increase the opsonic index and powers of recuperation. Intranasal treatment I believe to be primarily indicated in all cases of sinusitis in children, but it should be strongly emphasized that the turbinal tissue should as far as possible be preserved, and while it is necessary at times to remove the anterior end of the middle turbinate body, yet the removal of its entire structure to reach the stomata of any of the sinuses is not warranted.

As an example of intranasal treatment in such conditions:

Case V.—M. L., female, age 6 years. Unusually well developed and healthy child. Had an attack of influenza of unusual severity, six months before coming under my observation. This was accompanied with profuse purulent discharge from both nares, which completely ceased on the left side within a few weeks, but has continued on the right ever since.

When she came to my office the left nasal cavity was normal, as was also the pharynx, but the right cheek was tender to pressure and she complained of more or less constant dull pain over the infraorbital region. The right nasal chamber contained pus, which when removed reappeared in the middle meatus. As it was impossible to enter the sinus through the natural opening, a puncture was made in the thin lateral nasomaxillary wall, and a metal cannula was left *in situ* through which irrigation was practised every day for two weeks, then at less frequent intervals until at the end of five weeks no trace of discharge could be found, when the cannula was removed. No evidence of any nasal suppuration has manifested itself since, being now two years.

When possible, drainage should be obtained through the natural openings, and to accomplish this it is proper to remove enough tissue at such points as may be required. It should be remembered in this connection that the greatest caution must be exercised in any operative procedures involving the superior portion of the nasal chambers, as in the child, the anterior segment of the cribriform plate is especially thin, where the branches of the olfactory nerve penetrate and is particularly susceptible to injury with possible serious results.

When the frontal sinus is involved its relation to the anterior group of ethmoid cells is such that attention must be paid to them before the inflammation of the mucus lining the frontal sinus will subside. When the antrum is diseased inflammatory changes as a rule readily subside under ordinary treatment, but in obstinate cases, after fracturing and pushing aside the inferior turbinate body, a large opening should be made through the inferior meatus into the sinus and the parts drained in this way, the use of irrigation or not depending upon the character and chronicity of the purulent discharge. Aspiration and subsequent lavage are indicated in older children instead of more radical measures, when the antrum continues to discharge pus and does not respond to the usual treatment.

The following case illustrates the conditions that prevail when the ethmoid area is involved:

Case VI.—C. E., male, 12 years. Had a severe rhinitis which resisted treatment for six weeks, when I first saw him. He complained of dull headache all over the head; a purulent discharge from both nares and inability to breathe through the nose. Both middle turbinals were swollen and occluded. The meatus, and considerable pus came from the ethmoid region. Under shrinking with adrenalin, followed by warm saline irrigations, the purulent discharge completely ceased on the right side, but it was necessary to open the anterior group of ethmoid cells on the left side before the pain in the head disappeared, and the purulent discharge entirely ceased.

In some fulminating forms of sinusitis in the child and in the persistent suppurative cases resisting endonasal treatment, with impairment of the general health, or violently acute symptoms, exter-

nal operation will be indicated, bearing in mind, however, that previous to any radical external operation in the child a careful examination should be made for any morbid changes in adjacent areas which may be keeping up the sinusitis by interfering with drainage, as it has been my experience that in not a few instances treatment for a considerable time may be of no benefit until an hypertrophy of the middle turbinate body has been removed, or possibly an adenoid mass in the nasopharynx which has acted as a constant source of reinfection. It should be emphasized that the enlargement of the middle turbinate body is a serious obstacle to the cure of inflammatory changes in any sinus, and until this has been relieved the sinusitis may prove most obstinate to treatment. The attempted removal of purulent material in the child, by suction or negative pressure, has not in my hands been of much value, and I am not certain but that it has exercised a harmful effect.

Free drainage must be secured before cure can be obtained and if intranasal treatment fails to obtain such a result, then whatever radical operation may be selected should be performed. It should be also emphasized in this connection that free drainage means free nasal respiration, and this is another prominent factor which must be taken into consideration in the surgical treatment of these conditions. In addition, it is essential that whenever pus is found in any of the sinuses it must be evacuated as a surgical principle. On this basis rests the surgical treatment of all chronic sinus affections, with the various modifications of technique in the care of individual sinuses, dependent upon the peculiar anatomical structural characteristic of each.

When the external radical operation on the frontal sinus is under consideration it is essential therefore as a preliminary step to remove the anterior portion of the middle turbinate body in order to secure thorough drainage. The external operation on the frontal sinus in the young should be performed with the greatest reluctance in the absence of external or intracranial symptoms. When it is necessary to operate on this sinus it is well to attempt an osteoplastic procedure and to form an anterior bony flap.

In those cases where the frontal sinusitis has been unrecognized, a fistula may have resulted and the condition has possibly been treated as a dacrocystitis. The only method by which relief may be obtained is by thoroughly opening the sinus externally, cleaning out the ethmoid cells which are always concurrently involved, and obtaining free drainage through the nasal chambers. Before performing a radical external operation for frontal empyema on the child it is well to remove the entire group of ethmoid cells.

In children the antrum rarely requires external operation, as opening through the lateral nasomaxillary wall the irritation is usually sufficient to cure the suppuration. In the absence of the diseased osseous tissue or new growths, external operation is never indicated; a large opening through the pars membranacea giving better results in every way than a Caldwell-Luc operation. In young children operative work upon the maxillary antrum must be performed with great caution on account of the relation of the teeth at this age, as such procedures during the formative period of the teeth are apt to result most disastrously.

In conclusion, as a result of my experience, I believe that in young children radical external operative procedures for the relief of purulent sinusitis are infrequently indicated, and are not as productive of satisfactory results as intranasal procedures, and while the same may be said of older children, yet in such, when the sinuses approach the adult type, the same indications for treatment and operative procedures apply as in the adult.

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## CARDITIS

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The cause of diseases of the heart in so many of the children who come under care in St. Mary's Free Hospital for Children—about fifty cases each year out of about seven hundred and fifty medical admissions—has been a constant subject of study during the whole period of my twenty-seven years of service at the hospital. The great amount of investigation that has been carried on by many workers during the last few years has done much to elucidate the question, and has enabled me, by piecing together points gathered from many sources, to develop, for myself at least, what seems a satisfactory explanation of the cause and course of carditis.

For several years it has been evident to us at St. Mary's that the cause of heart disease and also of acute joint disease in children had in most cases to do in some way with the infections occurring about the nasopharynx (adenoids, ethmoidal cells, tonsils), but especially with the infections of the gums and alveolar processes which have been irritated by the presence of decayed teeth. If we removed these sources of infection and improved the condition of the nasopharynx and gums, in most cases of acute cardiac disease, distinct and immediate improvement occurred in the condition of the child. The continuously elevated temperature would subside and the child would practically recover, though often with a murmur remaining; the presence of a cardiac murmur however, without more definite signs and symptoms of disease we have learned to ignore. Many children are admitted for various reasons to the hospital, in whom a murmur is present, but with no other signs of illness, recovery having already occurred from the acute process causing it. These facts we had learned from clinical experience, but the definite cause of carditis we had failed to grasp.

In an article by Cary Coombs, of Bristol (*Journal of Pathology and Bacteriology*, 1910-1911), on "Microscopic or Submiliary Nodules of Active Carditis," there is a report of a most painstaking investigation of the nodules found by Coombs and other observers, in the hearts of people dying from cardiac or rheumatic conditions. "These nodules were found scattered throughout the myocardium, in the valves, subendocardial and subpericardial; they were rarely found in the walls of the auricle, and more in the left ventricle than in the right. The central fibrous body, or that zone of muscle which borders on it, is especially liable to develop nodules; there is the closest relation between the distribution of the nodules and the coronary arterial system, so close that some sections recall periarteritis nodosa. The nodules may lie in the periarterial connective tissue at a little distance from the vessel; they may develop in the arterial

*Read before the New York Clicinal Society, October 24, 1913.

adventia enwrapping the vessel in it, or they may begin in the arterial media, swelling and bulging the wall of the vessel on one side to such an extent as almost to obliterate the lumen. In the valves it is clear that the nodule begins in the depths of the valve, possibly spreading towards the surface; also there is loss of substance in the endocardium; nodules are also found throughout the pericardium."

In the same article Coombs also says that the rheumatic germs are distributed through the coronary vessels. His main point is that the nodules are peculiar to the rheumatic condition, and that other infections cause other lesions without these peculiar nodules. To me however, the main point of interest in Coombs' report is the demonstration that the infections are distributed by means of the coronary system of blood vessels—a pathology quite different from that which most of us were taught. I find also that Coombs at the meeting last summer of the British Medical Association, in his remarks on "Affections of the Heart in Childhood," states his points with great clearness, but says nothing concerning the nodules. I abbreviate his points: (1) Rheumatism is a streptococcal infection. (2) The infective agent enters the body in many cases, if not all, by the lymphoid tissues of the nose and throat. (3) Its attack on the heart is executed through the heart's arterial channels, and is delivered simultaneously upon all parts of the heart wall. The microscopic character of the inflammatory foci found in the myocardium as well as in the other tissues attacked, shows that the organisms enter through the arterioles. (4) Progress of the infection is not steady—it consists of a series of active phases, separated by periods of absolute quiescence. (5) These attacks come close together and so probably the streptococci are resident in the body. (6) It is in its tenacity, rather than its virulence, that the chief danger of the rheumatic infection lies. (7) The heart is a muscle, and it is only by crippling its muscular functions that disease can overcome it.

To me the especially interesting point of Coombs' remarks, is the definite statement, based on his careful investigations, that the infecting organisms are distributed through the blood vessels of the heart, and yet this point seems to have excited no interest, at least no discussion at the meeting where the remarks were made.

Thomas Lewis, of London, in a most lucid lecture (*British Medical Journal*, March 2, 1913), also describes the myocardial involvement and localized inflammatory lesions due to infections, and he also is impressed with the idea that there is a difference between the infection by the rheumatic organism and other infections, though the signs produced by their local inflammatory foci are the same. In this case also, to me, the main point of interest is that Lewis also recognizes the general infection of the heart, and especially the involvement of the myocardium.

During the last year Rosenow and Leila Jackson, of Chicago, in two separate articles in the *Journal of Infectious Diseases*, September, 1912, have reported results of their experiments on animals with the organisms obtained from tonsils of people sick during the milk epidemic. They used rabbits and guinea pigs and found after injecting the material into the animals, that the organisms were scattered throughout the heart causing multiple embolic processes in the capillaries of the valves, and in the vessels of the myocardium, endocardium and pericardium—in other words, there was a general cardiac infection. The organism for the most part was found to be *Streptococcus viridans*. Leila Jackson, in her experiments, found the nodules to contain the infecting organisms. It seems to me that these results, added to the findings of Coombs, already referred to, point to something definite, and indicate that an acute infection distributed through the coronary vessels is the cause of carditis. The nodules are the result of the inflammatory action excited by the local infection.

The young men working last winter at St. Mary's were able to demonstrate in the blood of several cases of acute cardiac disease the presence of the *Streptococcus viridans*, and in one case at autopsy not only was a streptococcus found in the pericardial effusion, but it was also scattered throughout the myocardium and endocardium; there was besides a definite embolic process in one of the larger branches of the coronary artery with abscess formation. All this coincides perfectly with Rosenow's findings in his rabbits. Another case at St. Mary's of staphylococcic infection of a finger, showed upon autopsy the staphylococci distributed throughout the myocardium and endocardium, demonstrating that in this case also the infection was a general one. The results of these investigations, and the demonstrations of the presence in the blood of organisms which upon autopsy are found distributed throughout the different parts of the heart, have convinced me, looking at the question from the standpoint of a clinician, that this is the correct explanation of acute cardiac disease. We must learn to look upon acute infections in the heart just as we do on acute infections elsewhere and recognize that the infecting organisms are distributed in the course of the coronary vessels. The difficult thing for some of us, who have been trained to believe that the term rheumatism really means some actual but undefined condition, is to free our minds of this idea. For though for some years I suppose most physicians have accepted the demonstrations that acute articular inflammations—the so-called acute articular rheumatism—are due to acute infections, perhaps of some peculiar organism, we have not acted upon that belief, and have continued to think and act as though we believed rheumatism meant something more, and could act as the cause of endocarditis. I believe we should absolutely drop this indefinite idea, and accept the fact that acute articular inflammations as well as acute cardiac inflammations are due to infections; with this postulate we have no difficulty in gaining a perfectly clear conception of the subject. We ought to look upon cardiac infections as exactly similar to infections elsewhere, *i. e.* as a septic process, the septic organisms being carried and distributed by the coronary vessels and causing more or less localized lesions.

The theory which guides our action at St. Mary's is somewhat as follows: infecting organisms are taken up by the circulation from some part of the nasopharynx, adenoids, ethmoidal cells, tonsils, or as I believe more commonly from infected gums or alveolar processes about decayed teeth. Of course, the organisms may be absorbed from any point where there is a septic process, a finger, an extremity, the genital organs, the intestinal tract, the bronchi or lungs. These organisms having an es-

pecial affinity for the heart are distributed through the coronary system of vessels causing multiple embolic processes; frequently the capillaries of the valves are affected, setting up a valvulitis with perivascular exudation; or the vessels of the endocardium may be plugged and cause a loss of tissue, an ulcerative process; or the vessels throughout the myocardium are involved with perivascular exudations and occasionally an abscess; or the pericardium is affected. All parts of the heart are involved together, but naturally in different degrees; we have to do with a *carditis*, as implying that all parts are affected, rather than any one part, though some one part is likely to be more affected than the others, the processes are such as occur in septic processes elsewhere. If the organisms are comparatively few and less virulent the individual in most cases overcomes the infection and recovers with a scar remaining. There may, however, be perivascular swellings of greater or less degree with inflammatory effusions of various amount and even abscesses. The subsequent course of these lesions is such as occurs in any other organ; there must be a great variety of lesions and the action of the heart muscle under the influence of these lesions must vary: As to this point, Lewis, than whom I suppose there is no greater authority on the subject, explains the occurrence of partial heart block of short duration in acute cases as due to inflammatory swellings which compress the auriculoventricular bundle. In some cases where perhaps an important nutritive vessel is blocked, a degenerative process will have been started which goes on to a fatal termination; or the exudation in the valve goes through the changes which we usually think of in connection with valvular disease; or the toxemia accompanying such septic process may disturb the muscular action.

The signs and symptoms of the disease process will be influenced by the particlar part of the heart affected, by the amount and character of the swellings and exudations, and by their persistence and the changes which they bring about. Thus as regards the pericardium there may be a small area of congestion only, giving perhaps a friction sound of short duration, or at the other extreme there may be an immense exudation, which in itself will cause embarrassment to the thoracic conditions and last over a long time; there is quite surely at the same time infection of the myocardium and probably of the endocardium. These conditions are just such as we find in other organs from septic processes. To grasp this idea of a general cardiac infection is the important thing, and to drop absolutely the idea that what we have been accustomed to call rheumatism, a something due to improper diet, or exposure alone can be accountable for such a definite septic condition.

When one goes back over the ground with this idea in mind, one readily understands how so many children have become the victims of such a septic process. A more or less virulent organism may be absorbed from a post nasal inflammation or a tonsillitis. The resistance, perhaps affected by fatigue, exposure, or what not, is lowered and infection occurs. A large number of children having by inheritance a deficient dental development are so improperly fed that their buccal secretions destroy their teeth and these injure the gums so that they become a fertile soil for organisms, which are readily absorbed by the vascular tissues. These are conditions which are universal, and if the organism happens to be one with an affinity for the heart, or if there is a diminished resistance, a cardiac infection may easily result.

These facts give us a great opportunity for prophylaxis and treatment, and as a matter of years of experience we have found at St. Mary's that about the most important thing we can do for the children with infections (and also without them), is to literally clear out and clean up their nasopharynges, and especially their simply rotten teeth, their gums and mouths. If the supply of organisms can be cut off, just as happens in other forms of sepsis, most individuals will take care of the infection and overcome the attending toxemia and practically recover, though in many instances with a scar, which probably means a heart murmur, or if the auriculoventricular bundle is affected, a partial or complete heart block.

The latest conduct of hearts with such scars, or embarrassment by effusions or exudations, is quite a different question and perhaps such as we all have been accustomed to think of; but I am convinced that little of the older teaching concerning the pathology of acute cardiac processes has been correct. For some extraordinary reason we have satisfied our minds by using the term rheumatism as the cause of heart disease. We must learn that what we have called rheumatism is a form of sepsis, and that this is as applicable to the joints as to the heart. When we adjust our minds to accept the knowledge of the infectious character of these conditions, and allow this knowledge to guide our actions in the way of treatment, and regard the removal of the sources of the infections as the most important thing, we shall have made a great advance.

*Summary.*—The points which I have had in mind to make clear, in this paper, are: (1) That acute cardiac affections are due to germ infections; a sepsis (according to Rosenow the most common infecting germ is *Streptococcus viridans*); (2) that the infecting germs are distributed throughout all the structures of the heart and by the blood vessels of the coronary system; and (3) that the most important factor in treatment is the discovery of the source of infection and its removal.

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## TECHNIQUE IN RADIOTHERAPY, WITH ESPECIAL REFERENCE TO DEEP THERAPY AS PRACTISED AT FREIBURG BY KRÖNIG AND GAUSS.*

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It may surprise even roentgenologists to know that a review of the medical literature from 1896 to 1909 shows a total of 3,134 cases of malignant conditions treated by the *x*-ray, the results of which were published. (This does not include cases of non-malignant skin diseases.) Most of these cases were reported as either cured or improved. How many bad, indifferent or good results of *x*-ray therapy remain unpublished nobody knows.

A review of the literature[2] presents the following significant results obtained by the use of Roentgen rays in some gynecological conditions, and particularly in cases of myoma, metrorrhagia, and menorrhagia.

*Read before the American Roentgen Ray Society, Boston, October 3, 1913.

| Myoma | | |
|---|---|---|
| Number of cases treated | 794 | |
| Number of cases still under treatment | 60 | |
| Number of cases which continued treatment | 27 | |
| Number of cases lost track of | 40 | |
| | 127 | |
| Number of cases treated in which results are known | 667 | |
| Number of cases cured | | 376 or 56. 2% |
| Number of cases improved | | 208 or 31. 1% |
| Number of cases unimproved | | 74 or 11. 1% |
| Number of cases relapsed | | 7 or 1. 0% |
| Number of cases dead | | 2 or 0.29% |
| Number of cases which developed an X-Ray erythema | | 52 or 7. 8% |

| Metritis, Endometritis, Menorrhagia or Menopause | | |
|---|---|---|
| Number of cases treated | 353 | |
| Number of cases still under treatment | 39 | |
| Number of cases which discontinued treatment | 33 | |
| Number of cases lost track of | 10 | |
| | 82 | |
| Number of cases treated in which results are known | 271 | |
| Number of cases healed | | 127 or 46. 8% |
| Number of cases improved | | 111 or 41. 0% |
| Number of cases unimproved | | 28 or 10. 3% |
| Number of cases relapsed | | 4 or 1. 5% |
| Number of cases dead | | 1 or 0. 4% |
| Number of cases which developed an X-Ray erythema | | 11 or 4. 1% |

A study of the indications and contraindications,[1] as deduced from the literature on the subject, shows that:

(1) Roentgen treatment is indicated in
  (a) all cases of myoma in elderly patients, particularly
    if the size of the tumor is stationary;
    if there is no bleeding;
    if the tumor does not cause kidney or heart blockade;
    if the tumor does not crowd the pelvis.
  (b) cases of myoma, if the patient is deeply anemic, diabetic, nephritic, bronchitic, arteriosclerotic, or possessed of a bad heart or large thyroid.
(2) Roentgen treatment is contraindicated in
  (a) large, rapidly growing tumors;
  (b) all submucous polypoid growths;
  (c) adenomyomata;
  (d) infected or degenerating cases, or those suspected of malignancy;
  (e) cases of women below forty years with free bleeding and rapid development of the tumor.

From premises based on the large number of cases reported, it is only logical to conclude that Roentgenotherapy is an established factor in scientific medical procedure, and cannot be ignored nor discredited by real leaders of the medical world. It is noteworthy that the number of good results obtained varies directly with the attention given to technique.

One of the most important advances in the technique of scientific Roentgenotherapy was the measurement of the erythema dose. This was followed by the administration of massive doses usually at single sittings. The next improvement in technique was aimed at the generation of an increased number of hard, penetrating rays producing a maximum effect on deep tissues and a minimum effect on the skin. The most notable developments of this later step in technique has been perfected in the Gynecological Clinic of the University of Freiburg, by Krönig and Gauss, in connection with the treatment of myomata and allied gynecological conditions.

Beginning in 1906 Krönig and Gauss started treating selected gynecological cases with the Roentgen rays, giving three treatments per week, with a medium hard tube, at 15 cm. focus—skin distance, filtering through a kolpeurynter, using 2-3 m.a. of current through the tube, each treatment lasting five minutes. Subsequently the rays were filtered according to the method of Perthes, and an attempt was made to utilize the homogeneous rays of Dessauer.

Twenty-five cases were treated by the Albers-Schoenburg technique, consisting of a full pastille dose given in three sittings, using a tube reading 6-8 Walter; focus skin distance, 38 cm.; each sitting lasting about six minutes; 3-5 m.a. passing through the tube; each series of treatments being followed by an interval of fourteen days before a second series of treatments was begun. The skin over the

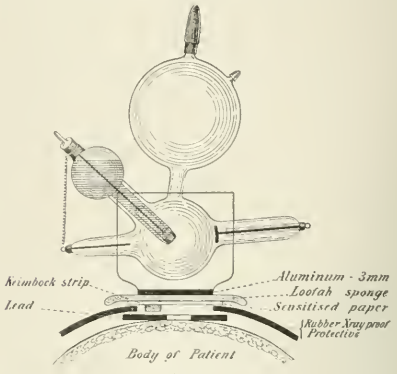


Fig. 1.

area treated was compressed and the *x*-rays were filtered through a layer of aluminum or tin.

Results were obtained by these methods but the patients' treatments extended over three to five months. In order to shorten this period of treatment, extensive experiments were carried out to utilize the greatest number of deep pentrating rays without bad effect on the skin. It was found that by using filters of aluminum 3 mm. thick, with a layer of leather or a layer of sensitized paper, with tubes reading Walter 6-8, a given area of skin could receive twice the usual erythema dose without danger. By treating only a small area of the skin at a time and "cross-firing" the rays so that they were directed toward the seat of the pathological process, and by allowing only a given area of skin to be rayed once, Gauss has administered

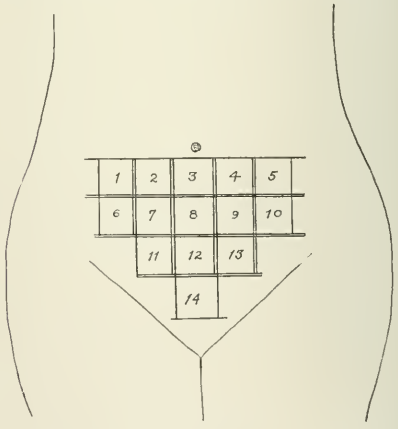


Fig. 2.—Outlines of skin areas treated, permitting "cross-firing" of the rays. Note narrow lanes of untreated skin between square areas treated.

150 to 230 erythema doses to a single case without any ill effect on the skin and with decided therapeutic effect on the tumor.

A series of treatments lasts not less than three hours. To illustrate the program of treatment, I

give a synopsis of two cases selected from the last ten cases in the monograph by Krönig, Gauss and Lembke:[4]

Case 196 (which received the maximum dosage in the series) —Diagnosis:—Myoma of the uterus, tumor extending above the umbilicus.

| | | Days |
|---|---|---|
| Series 1—366 Kienbock units (X) administered in two successive days | | 2 |
| Interval— | | 18 |
| Series 2—549 X, administered in one day | | 1 |
| Interval— | | 20 |
| Series 3—331 X, administered in two days | | 2 |
| Interval— | | 20 |
| Series 4—322 X, administered in two days | | 2 |
| Interval— | | 18 |
| Series 5—321 X, administered in two days | | 2 |
| Interval— | | 22 |
| Series 6—392 X, administered in one day | | 1 |
| Total..2281 X | Period of time under treatment.. | 108 |

Case 197—Diagnosis:—Myoma extending within three finger-breadths of the umbilicus.

| | | |
|---|---|---|
| Series 1—330 X, administered in three successive days. | | 3 |
| Interval— | | 18 |
| Series 2—368 X, administered in one day | | 1 |
| Interval— | | 28 |
| Series 3—234 X, administered in two days | | 2 |
| Interval— | | 17 |
| Series 4—146 X, administered in two days | | 1 |
| Interval— | | 18 |
| Series 5—152 X, administered in two days | | 1 |
| Total..1230 X | Period of time under treatment.. | 89 |

The arrangement of the patient in relation to the tube and the areas of the skin treated are illustrated in Figs. 1 and 2. When using a 220-volt current, 10 to 15 x can be administered to a given area of skin in 6 to 7 minutes; when using 110-volt current, in 7 to 8 minutes; so that if treatment is administered over twenty-one skin areas, the total time consumed, allowing for no interruptions or delays, will last 3½ hours.

In order to be able to administer such protracted treatments as well as to take advantage of the fact that there are a greater number of deep penetrating rays when the tube first lights up, a device for rhythmically interrupting the current to the tube (the rhythmeur is employed). A double bulbed, water-cooled tube with constantly circulating water is used. An air insulated induction coil which has in addition to the usual outfit, condensers and a rhythmeur, is recommended also.

The advantages claimed for the Freiburg technique are: (1) Results obtained in the shortest possible time, (2) utilization of a greatly increased amount of *x*-rays, (3) without danger to the skin.

Krönig and Gauss have reported favorable results in carcinomas of the face, breast, rectum, and uterus. Ashoff, Krönig, and Gauss[5] have reported a series of twenty-five abdominal cases in which exploratory laparotomies proved to be inoperable carcinomata of the abdominal or pelvic organs. Histological sections were obtained, and limited areas of the lesions were rigorously treated. At necropsy sections were taken from these rayed areas. These sections showed marked carcinomatous degeneration or absence of the carcinoma elements and their replacement by connective tissue.

Bumm and Voight[6] have reported thirteen cases of carcinoma of the cervix and four cases of carcinoma of the vulva and vagina that were treated by deep Roentgenotherapy, in combination with mesothorium. These cases were all inoperable, and were so favorably influenced by the treatment that they became operable with good results. The cases received from 62 to 10,000 x of Roentgen rays, and from 6,200 to 25,540 mg. hrs. of mesothorium, treatments lasting from 19 to 84 days. A noticeable tendency in the series of cases reported is to increase the mesothorium treatments and diminish the amount of *x*-rays used.

While there will undoubtedly be more or less dispute not only as to whether *x*-rays shall become the method of preference for the treatment of selected gynecological cases, but also as to whether the three to five hour treatments of the Freiburg technique have sufficient advantages over the simpler methods which have given good results in the hands of such men as Albers-Schoenburg, Pfahler, Stern and many others, we are certainly indebted to Krönig and Gauss for having called our attention to several important details or adjuvants to Roentgen therapeutic technique.

The utilization of the Freiburg technique for inoperable malignant conditions is, perhaps, more important to the development of Roentgen technique than its use in gynecological conditions. Certainly it will meet with an immediate and cordial welcome in this field, where it is sorely needed. Its application to gynecological conditions will be determined largely by the attitude of the gynecologists toward it. The duration of the treatments would seem to be needlessly tedious. They could be greatly shortened by increasing the size of the areas of the skin treated at one time, and although this would not result in such a grand total of figures at the end of the treatment, I venture to predict that the results would be quite as good. However, results are the only arguments admissible.

The fractional, *unmeasured* *x*-ray treatment technique should be unsparingly condemned. The widespread treatment of disease throughout the world, applied by men who do not measure their *x*-rays and are not careful in regard to their therapeutic technique, especially when such men are stimulated by the brilliant results and enormous dosages published by Krönig and Gauss, can only result in a new era of *x*-ray disasters and will tend to further discredit the Roentgen method of therapy. The only way to avoid this, and to safeguard our patients as well as our specialty is to insist that the technique be carefully followed out and that no area of skin be given more than an erythema unfiltered, and not more than 1½ times the erythema dose with the rays filtered through at least 3 mm. of aluminum. It would also be wise when possible to dehematize the skin by compression during the treatment.

In conclusion, let me emphasize that the slogan of success in Roentgen therapy is the same as that of surgery or any other specialty—*technique*.

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## A CONSIDERATION OF OBJECTIONS TO PSYCHANALYSIS

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In the MEDICAL RECORD of September 6, 1913, there appeared an essay entitled "The Psychoanalytic Delusion" which was intended "for the installation of the Psychoanalytic Society a few years ago," which the author had just completed. The writer of the essay is Dr. J. V. Haberman, and the object of the same is to demolish the victims of a very fatal malady—Freudism—that had its origin in the cracked brain of Sigmund Freud of Vienna, a victim of "mental stridulus," to rescue the medical profession and the suffering public from "specious guides" and to "stifle the *ecce!* of the soothsayers too utterly unmitigated for credence!" My reason for replying to this unscientific and pseudo-witty attack on psychanalysis is the fear that upon the unknowing and uncritical reader the quotations from writings of certain neurologists and pediatrists may make an impression which will hinder the spread of the Freudian teachings. A Mona Lisa smile is not the best answer to a scoffer.

The writer asks us to remember that "the Freudian theories all in all have not been accepted by a single distinguished neurologist, psychiatrist, or psychologist in Europe (Bleuler and Jung being the only exceptions), nor by a single professor or individual on the teaching staff of any university abroad." Let us note first the significance of the phrases "in Europe" and "on the teaching staff." American neurologists are of course poor trash unworthy of consideration, lame in judgment and faculty, afflicted with mental stridulus. Putnam, Adolph Meyer, A. Hoch, Jones, Jelliffe, White, and others on this side of the Atlantic, are not fit to pass upon a scientific question in their own specialty. American physicians must feel highly complimented by this tribute to American medicine. That Americans are too fair-minded and too level-headed to reject a theory merely because it is new and because a lot of biased and hopelessly prejudiced European pedagogues refuse to give it earnest consideration or to investigate it seems not to have occurred to the author.

But is it a fact that "not a single distinguished neurologist," etc., accepts "the Freudian theories?" Is not Dr. Haberman here indulging "in terms elastic" and "vocalizing in superlatives?" Of course, it would be absurd to attempt an enumeration of every European instructor and professor who accepts Freud's teachings, and I content myself with referring the reader to any of the following journals (*Zentralblatt für Psychoanalyse, Jahrbuch für Psychoanalytische Forschungen, Internationale Zeitschrift für Ärztliche Psychoanalyse*, and *Imago*) to prove that our friend is misstating the facts. The enumeration of a dozen or two of European professors and instructors would—and should—prove nothing, any more than an array of opposing names, more or less well known (most of them less), prove anything. Fortunately professors and instructors have no monopoly of science, and most of them are not even particularly gifted in their own specialty. From time immemorial your ordinary professor and instructor has been known for his vanity, jealousy, pedantry, unprogressiveness, and narrow-mindedness. We are also told that "in French literature one can find but scant reference to Freud" and that Déjerine devotes only a footnote to his teachings. In reply to this we say that Professor Morichau-Beauchant of l'École de Médecine de Poitiers is a confirmed psychanalyst; there is, therefore, at least one European professor—although only a French one—who accepts Freud's teachings.

On p. 426 the author gives a list of forty-four neurologists and psychologists (not all professors or instructors) who are "opposed to the teachings of Freud." "Opposed" is a good word, a very good word. And why are these good men "opposed" to a theory and method which have proved of incalculable value to numerous patients and which find acceptance and corroboration by earnest and impartial investigators throughout the civilized world? Some, I grant, do not accept psychanalysis because they do not find the evidence sufficient. To these we say: investigate! But, alas, many refuse to investigate for fear that they'll find it all too true, and then what is to become of their own pet theories? Moll has a theory of his own to champion; then how can he accept Freud's? Babinski has a theory of his own; how can he accept Freud's? Dubois has a theory of his own; how can he accept Freud's? Dercum has a dream theory of his own; how can he accept Freud's? Binswanger has a theory of his own to champion and how can he be expected to accept Freud's? And so on. And then, too, we must not forget that some persons, especially psychologists and neurologists, are psychically blind; that is why they take to psychology—to compensate for their natural shortcoming. Nor are leading neurologists particularly distinguished for logical thinking. Isserlin and Kronfeld are referred to as having written masterly essays against psychanalysis; but let any unprejudiced reader read Beuler's analysis of Isserlin's arguments and Rosenstein's analysis of Kronfeld and he will be convinced that neither Isserlin nor Kronfeld is competent to express an opinion of any value on the subject, that they are both helplessly prejudiced, that they do not understand what they are criticizing, that they have not mastered the theory and had no practical experience with the method.

Moreover, it is almost a law of nature that "masters" shall object to innovations (neophobia). There never was a great discovery but it was opposed by the masters. The masters are too thoroughly grounded in the old, too confirmed in error, to be capable of assimilating the new; they are like the mole that has burrowed in the dark so long that it is blinded by the glorious sunlight.

It is objected to psychanalysis that not all cases treated by this method are cured. But this surely in no way controverts the theory or calls the method in question. Quinine does not cure all cases of malaria, arsenic all cases of psoriarsis, diphtheria antitoxin all cases of diphtheria, mercury all cases of syphilis, etc. Hypnotism and suggestion do not cure all cases of hysteria; yet no one would relegate them to the lumber-pile. Some cases cannot be cured by any method of treatment. And, furthermore, is not an occasional failure amply compensated for by the knowledge that by psychanalysis certain cases can be cured which are incurable by any other method? (As to this see my quotation from Bleuler in an essay, "Objections to Psychanalysis Considered," in the *Medical Review of Reviews*, Sept., 1912.) Moreover, it must be borne in mind that not every person practicing psychanalysis is expert in the technique and that we must pay

(and the patients, too) for our experience. Dr. A. may cure a patient whom Dr. B. cannot. It is exactly the same with the surgeon: he does not cure all patients whom he operates upon; yet no one therefore impugns surgery. Besides, some patients do not want to recover. A woman who has developed an agoraphobia to insure her husband's fidelity and to secure his solicitous attentions would be a simpleton to permit herself to be cured.

Strumpell and others have laid stress on the fact that they have seen cases in which psychanalysis did harm. What if it did? The same objection was made to the use of diphtheria antitoxin, to the use of salvarsan, to vaccination, to hypnotism, etc., yet these are not rejected therefore. That a patient may be made temporarily worse by the stirring up of his repressed complexes is not denied. Is it any objection to cerebral surgery that a patient may become worse, or even his life be endangered, as the result of an operation for the removal of a foreign body in the brain or for the exploration of the brain in the search for the cause of obscure symptoms? By no means. The end sought justifies the means. Psychanalysis is such an operation, and the repressed complex is the foreign body. That in incompetent hands psychanalysis is capable of harm cannot be denied; even a simple curettage may be so badly done as to cause unutterable misery or even death; an injection of antitoxin incompetently done may cause death. Salvarsan, mercury, quinine, etc., may, even when properly administered, cause serious complications without invalidating their value as specifics. And sometimes even masters fail. How many mastoid operations result in facial paralysis? Yet we do not abolish aural surgery.

The most frequently repeated objection, and one that is always urged with a good deal of bad temper, pertains to the importance that Freudeans attach to the sexual element in the patient's life. Everywhere, they say, you find "only sexual complexes." Assuming that this is so, if it be the truth what reason is there for a scientist to develop an apoplectic rage over it? One might with as much sense object that in every case of malaria we find plasmodium, in every case of diphtheria the Klebs-Loeffler bacillus, in every case of tuberculosis the tubercle bacillus, etc. And did not the masters object, very strenuously and stupidly object, to finding syphilis in every case of locomotor ataxia and infection in every case of puerperal sepsis? The fact is, as unbiased and cautious physicians and neurologists have found, that in every case of hysteria repressed sexual complexes play the chief etiologic role. From this point we will not budge; it is the alpha and omega of the new theory of the psychoneuroses. And considering the vast importance of the sex instinct in the life of the individual and the race it is not at all improbable that an interference with the expression of the sex craving should be followed by a serious disturbance in the individual's health. If faulty nutrition causes an impairment of health, why should not an abnormal vita sexualis do likewise? A priori there can be no logical objection to the Freudean theory and clinical experience brings daily confirmation of its correctness. But our critics are wrong when they aver that we find only sexual complexes. Freud and his disciples repeatedly mention and never lose sight of the fact that other impulses (the ego impulses—ambition, craving for wealth, revengefulness, etc.) also frequently play a part in the symptom formation and disease production.

Dr. Haberman speaks of psychanalysis resolving itself "into a searching and filthy examination into the past sexual life" of the patient. "Everything is but as thinking makes it," says Shakespeare. As conducted by a tactful and scientific physician the investigation of a patient's amatory life is no more superfluous or filthy than an internist's examination of the urine, feces or sputum, or a gynecologist's examination of a woman's genitalia, or a genitourinary specialist's examination of gonorrheal pus. Any physician who entertains such Manichaean views about the sexual is unworthy of his calling and unfit to practise his profession.

Strümpell, Dercum, Moll, Kronfeld, and Mun, are cited to show that many of the sexual traumata narrated by the psychoneurotic patients are "pure inventions," confabulations, the products of a hyperimagination or pathological fantasy. That there is some truth in this I do not for a moment dispute; but it has nothing to do with the question of the truth of psychanalysis. That the patient lied during a psychanalysis, thus violating the first and only condition imposed upon him—to be perfectly truthful and candid in telling whatever comes to his mind —itself requires analysis. Pathological or impulsive lying is as much a disease as a hysterical twitch. From the analysis of my own patients' lies I can avouch that such lying is due to one or more of the following causes: the patients do not want to be cured; they are ashamed to tell what comes to mind and confabulate a substitute for it; the analyst has not overcome their resistances; there is no sympathy or rapport between that particular analyst and that patient, and the patients are psychic exhibitionists and psychic masturbators. The analyst who understands his business can often, almost always, recognize these lies and through them get at the truth. Moreover, the patient soon finds that lying does not pay, does not cure; and he apologizes and tells the truth. The direct or indirect (symbolic) connection between the symptoms and the etiologic trauma is such an intimate and necessary one that a real psychanalyst (not one like Dornbluth) soon detects the lie. And it is almost superfluous to add that not infrequently the patient's account of sexual traumata are corrobated by the testimony of relatives or by other evidence.

Dercum is quoted as follows: "Loewenfeld gives an instance of a patient of Freud who subsequently came into his hands. The woman stated to him that the sexual events which she had related to Freud when under his treatment had never really occurred. She declared that the whole thing had been a piece of pure (!) imagination." But what proof did Loewenfeld have that the woman was not lying to him when she said she lied to Freud? The fact that she left Freud showed that there was no rapport between them, that she did not like him; and perhaps she was "running him down" because she wished to ingratiate herself with her new physician whom she thought hostile to Freud's theories, and perhaps because she owed Freud money. Patients sometimes do those things.

Strenuous objection is made to Freud's delineation of the sexual life of infants and young children. A number of writers are quoted in opposition to the conclusions and opinions expressed in the "Drei Abhandlungen zur Sexualtheorie." Moll is quoted to the effect that "Freud is utterly wrong"; other writers are cited who deny that masturbation is a regular occurrence in infancy. A list of pediatrists is given who show their opposition to Freud's theo-

ries by not even mentioning him in their books or by referring to them as "unmaintainable exaggerations." Well, nothing but keeping our eyes open will settle these questions; and for myself, I can say that in a fairly extensive general practice during fifteen years in the heart of the lower East Side of New York I never saw a child that did not masturbate and that not a boy or girl past the age of puberty whom I question but admits to present and past masturbation. Mothers whose attention has been called to it invariably admit that their children play with the genitalia when they are not watched, and public school teachers have assured me that one of their most serious problems is the children's habit of masturbating in the classroom. Binswanger's statement—if he is correctly quoted—that masturbation is "only a symptom of the degenerative constitutional disposition" is too manifestly absurd. If Binswanger is right, we are all degenerates. It may not be unimportant to call the reader's attention to the fact that Loewenfeld and others whom the author quotes, do not deny that Freud's conclusions may be correct; they assert only that their experiences do not tally with his. As Bleuler says: future observation may show that Freud is right in every statement that he makes, even those as to which he (Bleuler) does not agree with him. Not dicta but observation will tell.

In one breath Freud's opponents exclaim against his attribution of sexual activities to all children and in the next they vociferate that "if the examiner only takes the trouble, sexual child-fantasies and experiences are to be fished out of every mortal's memory" (Scholz) and that it is incorrect to assign to anything so universal an etiological significance in the production of a neurosis. But no one now denies that the Klebs-Loeffler bacillus causes diphtheria because this germ occurs in the throats of many who never develop diphtheria, or that the mosquito is the cause of malaria because many are bitten without developing malaria, or that the tubercle bacillus is the specific cause of tuberculosis because it is found in the lungs of many who do not have the disease, and so forth. Scientific physicians know that several factors enter into the development of a disease: predisposing cause or constitution, exciting cause, adjuvant factor, specific cause, etc. So the infantile sexual furnishes the soil upon which the neurosis develops and serves to determine and shape the symptoms. To say that psychanalysts leave heredity and constitution out of consideration is to say what is not true. And then—what do we *know* about heredity or constitutional predisposition? (Parenthetically, let me here inquire how the statement that sexual experiences can be fished out of every mortal's memory—a statement that out-Freuds Freud—squares with the assertion that our patients' stories are fabrications and the products of suggestion?)

There is one statement in the "Drei Abhandlungen" that particularly arouses the ire of Freud's opponents. It is this: that thumb-sucking, tongue-sucking, etc., of children is a sexual manifestation. Loewenfeld is quoted to the effect that there is "no necessary connection between sucking and sexual satisfaction." Freud does not claim that there is a "necessary connection" between pleasure-sucking and sexual satisfaction, but that there is such a connection in fact. Let it be borne in mind, in the first place, that Freud was not the first one to assert that children derive a pleasurable sensation akin to sexual gratification from thumb-sucking; that was pointed out by a very careful clinician as far back as 1879. In the second place let it be remembered that so competent a pediatrist as Professor Holt—who is not a Freudian—regards "wonnesaugen" as a kind of onanism. The reasons for so considering it may be summarized somewhat as follows: (1) many children suck the thumb (or other object) at the same time that they are masturbating; (2) some children frankly admit that if they are permitted to suck the thumb they won't pull or squeeze the genitalia (cf. Clark and Atwood, "Habit Movements in Mental Defectives," *Journal of the American Medical Association*, March 23, 1912); (3) some children begin to suck the thumb when they stop masturbating; (4) older children and adolescents practise thumb-sucking secretly; (5) hysterics and others admit that the sucking often terminates with an orgasm; (6) children are frequently seen to break into profuse perspiration and to become exhausted after thumb-sucking just as after masturbation.

An excellent illustration of the method of the anti-Freudians to bring psychanalysis into contempt is the statement that "we are told that little children retain (hold back) their excrement in order to procure themselves a sexual pleasure-profit." But Dr. Haberman omits to say that the child does not do this voluntarily and consciously, that it is a passive and unconscious process. The experience of many observers shows that the passage of hardened feces is frequently accompanied by a pleasurable sensation both in the anal region and in the urethra. And when one bears in mind the facts of pederasty and anal masturbation, it is next to impossible not to attribute an erotogenic function to the lower end of the rectal mucous membrane. Other factors too, *e.g.* exhibitionism, are involved in the unconscious formation during infancy of the habit of constipation.

But, says the author, "no psychologist abroad or in America has accepted Freud's view nor indeed believes, for the most part, in the subconscious at all." In the first place, Freud and those of his followers who understand him, know no "subconscious" and are careful to distinguish between the conscious and the "unconscious." In the next place, Freud did not invent the unconscious. In the third place, it is not true that no psychologist believes in the existence of unconscious psychic activities. As a matter of fact the psychologists who accept the theory of unconscious psychic activities are decidedly in the majority. In the fourth place, it must be borne in mind that the theory of the unconscious is based on the careful observation of numerous facts which cannot be rationally accounted for by any other hypothesis; that the theory is just as sound a logical deduction as Darwin's theory of the origin of species, or as the theory of the atomic constitution of matter, or as the theory of the existence of the universal ether. The theory *explains* facts which can be explained in no other way, and a better theory has never been offered. What these facts are can be found in most of the recent good works on psychology (cf. my essay previously mentioned).

Dr. Haberman makes much of the fact that "nowhere are careful case studies presented, nowhere an endeavor made to substantiate with real evidence." And then he adds the following: "In the way of authorities these writers for the most part refer to one another even though none is recognized as an authority in anything, and the majority could

have had but limited neurological experience." But careful case studies have been published in the German periodicals (in the *Jahrbuch fuer Psychoanalytische Forschungen,* in the *Zentralblatt fuer Psychoanalyse*) and elsewhere, and cases have been reported in English by Brill, Coriat, Putnam, Campbell, Frink, and others. If the author means that no full reports are published in English he knows that this is impossible for three several reasons, any one of which would be sufficient: (1) the analyses usually last so long that the amount of material is too much for publication; (2) the cases are so recent that a full report would lead to the recognition of the patient by his acquaintances; (3) the kind of material elicited in almost all cases is such that publishers would not risk their publication for fear of offending our hypocritical morality. It may interest physicians to know that the *Journal of the American Medical Association* has hitherto refused to publish a single paper on psychanalysis.

Dr. Haberman refers to several writers who cry out against the danger of submitting children to psychanalysis; but be it noted that not one of these masters (Peritz, Vose, Redlich) refers to actual cases coming under their observation. They condemn psychanalysis not for what harm they know it has done but for what they pretend to fear it may do, thus putting themselves exactly in the position of Brutus (also a theorizer) who vilely assassinated Cæsar not for what he was but for what he might become—and who thus made himself the fool of time.

The author says: "In the way of authorities these writers for the most part refer to one another even though none is recognized as an authority in anything." In reply I would say that the leading psychanalysts were recognized neurologists before they became convinced of the truth of Freud's teachings. Let me name a few of these: Bleuler, Jung, Ferenczi, Stekel, Adler, Marcinowski, Juliusburger, Loewenfeld, Hitschmann, Hoch, Jones, Putnam, Jelliffe, Clarke, Brill, Coriat, Onuf, Riklin, etc. And it is not without significance that almost every one of the American psychanalysts, including the writer, took up the subject as an opponent. And then, to whose writings should the psychanalysts refer? To those of our opponents? An astronomer will not cite as a witness one who has never looked through a telescope; a physicist will not learn the composition of the stars from one who has never handled a spectroscope; a mathematician will not leave the solution of a difficult problem to one ignorant of the multiplication table, etc. So the psychanalyst can refer only to those who understand the theory and are skilled in the technique.

As to the assertion that European neurologists and psychologists reject Freud's theories let me say that even if they did, it would prove nothing. The history of Lister is not so old but many can remember the ridicule heaped upon him by his European confreres for maintaining the absurd thesis that living organisms of microscopic size were the cause of "blood poisoning." It was too ridiculous for rational men to discuss! Notwithstanding the misrepresentation and the burlesquing of psychanalysis (did not Tolstoy burlesque "King Lear"?) by those who know no touch of it, the new psychology brings health to a vast army of neurotics and finds new adherents each week the world over. And, "to put it briefly and pleasantly," *le present est gros de l'avenir.*

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## THE VALUE OF ABSORPTION METHODS IN THE WASSERMANN TEST.

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The presence of antisheep amboceptor in human serum has been considered by various serologists a source of error in the Wassermann test. The amount of serum used in the test may contain from zero to twenty units and the excess of amboceptor thus introduced may result in such an increase in hemolysis that a positive reaction is lost. According to Bailey[1] from five to fifteen extra units may cause a false negative. Instead of further increasing the excess by the addition of the regulation two units of amboceptor in the course of the test, the natural amboceptor content of the serum may be depended upon for hemolytic action, as in the Bauer modification."[2] Since, however, the amount of natural amboceptor is a variable quantity there is no certainty of the hemolytic system being in balance and the reaction may still be inaccurate. A more satisfactory solution of the problem is the absorption of the natural amboceptor from the serum, so that the balance of the hemolytic system may be assured by the addition of a known quantity of amboceptor. Methods of absorption have been described by Rossi,[3] Jacobaeus,[4] Mintz,[5] and others.

Other serum components as well as natural amboceptor may interfere with a positive reaction. Wechselmann[6] has called attention to the presence in heated serum of complementoids, which, though they have no hemolytic action, retain haptophore groups, hence are capable of being bound by the antigen-antibody combination and prevent the latter from binding complement, which is thus left free to hemolyze the cells subsequently added.[7] Noguchi[8] and others have expressed doubt as to the complementoid nature of the serum components, thus preventing a positive reaction, but agree that the accuracy of the test is increased by their absorption, which may be accomplished by treating the serum with barium sulphate. According to Jacobaeus[4] complementoids, as well as natural amboceptor, may be absorbed by digestion with sheep cells.

In order to determine the value of absorption methods in routine Wassermann work two series of tests were carried out at this laboratory, which, though too brief to be conclusive, are suggestive.

*Series* 1.—The technique employed in this series was the classical Wassermann[9] with the exception of the size, the quantities being proportionately the same, but the final volume 0.5 c.c. instead of 5 c.c. The first incubation was in the water bath at 37° C. for half an hour, the second, after the addition of 0.1 c.c. of 5 per cent. sheep cell suspension and two units of amboceptor, in the water bath for one hour. The tests were then allowed to stand in the ice box over night before being read. A test was considered positive if 0.02 c.c. of serum fixed complement completely, though 0.01 c.c. might show no fixation.

One hundred and sixty-two specimens of serum were tested for natural antisheep amboceptor as follows: 0.02 c.c. of inactive serum, 0.1 c.c. of 10 per cent. complement, 0.1 c.c. of 5 per cent. sheep cell suspension and 0.28 c.c. of physiological salt solution were mixed and incubated in the water bath at 37° C. for one hour. Hemolysis, partial or complete, indicated the presence of natural anti-

sheep amboceptor in seventy-seven specimens, 47½ per cent. The sera that were tested for natural amboceptor after absorption had no hemolytic effect on sheep cells. The natural amboceptor was absorbed according to Rossi's method,[9] *i.e.* three parts of inactive serum and one part of closely packed, washed sheep cells were mixed, kept on ice for from twenty to thirty minutes and then quickly centrifuged. The supernatant serum was tested as usual. Of forty-seven specimens that gave a negative Wassermann reaction before absorption five, 10.6 per cent., were positive after absorption. Two were from undoubtedly specific, active cases, one was from a case of latent syphilis and two were from cases that gave a suspicious history. Five cases with no luetic history remained negative after absorption.

Wechselmann[11] has recommended treating all sera to be tested for syphilis with barium sulphate, to absorb the complementoids and thus increase the binding of complement. The technique of the absorption is as follows: Nine parts of inactive serum, thirty parts of physiological salt solution and five parts of a 7 per cent. suspension of freshly precipitated barium sulphate are shaken together, incubated for one hour at 37° C. and centrifuged. Of the supernatant fluid ten times the regular amount for the Wassermann test must be used. Wechselmann,[11] Wolff,[12] and others have emphasized the non-suitability of commercial barium sulphate for absorption purposes; but they have not stated how fresh a precipitate should be used. We have found a precipitate four weeks old as effective as a perfectly fresh one. Since, however, a suspension of the barium sulphate is apt to become anticomplementary in three or four weeks it is advisable to make up a fresh suspension at least once in two weeks. A simple method of precipitating barium sulphate is described by Wolff.[12] Mix 15 c.c. of sodium sulphate and 10 c.c. of barium chloride. Centrifuge after precipitation has taken place, draw off the supernatant fluid and wash the residue, barium sulphate, once in physiological salt solution. After centrifugalization suspend the barium sulphate sediment in 25 c.c. of physiological salt solution, which makes the proper dilution for use in absorption.

We treated with barium sulphate forty-three specimens that had given a negative reaction in the unmodified Wassermann test, six of which—a percentage of 13.9—gave a positive reaction after absorption. Five specimens from which a history of syphilis could be absolutely excluded were even more clearly negative after absorption than before. Seven positive sera that were treated with barium sulphate lost no binding power thereby. That barium sulphate itself does not bind complement was controlled in each set of tests by a treated negative serum or by barium sulphate and salt solution alone. Eight specimens with a suspicious gonorrheal history that had given a negative reaction in the unmodified complement fixation test for gonococcal antibodies were treated with barium sulphate, after which two of them reacted positively, suggesting that Wechselmann's absorption method might be of as much value in the serum diagnosis of gonnorrhea as of syphilis.

At the suggestion of Dr. A. McNeil a combination of the Rossi and Wechselmann methods was tried, to determine the effect of absorbing both natural amboceptor and the other serum components that prevent a positive reaction. Sixty-six specimens that had given a negative Wassermann reaction in the unmodified test were treated first with sheep cells and then with barium sulphate; eighteen of them, 27.2 per cent., were positive after absorption. Exactly the same percentage was obtained in similar tests for gonococcal antibodies, three out of eleven negative specimens being made positive by absorption with sheep cells and barium sulphate.

Wolff[12] has emphasized the value of the barium sulphate treatment for the absorption of complement as well as complementoid. He also advises the use of active rather than inactive serum, as heating at 56° C. destroys some antibodies, thus weakening a positive reaction. We treated with barium sulphate twenty-eight specimens of active serum that, inactivated, gave a negative Wassermann reaction. Nine of them, 32.1 per cent., gave a positive reaction after absorption. Although this percentage is higher than in any of the series of tests with inactive serum the use of active serum does not seem to be advisable. Three cases from which a history of syphilis could be absolutely excluded gave a positive reaction and in at least one other instance it seemed highly probable that the binding was nonspecific.* In eleven instances 0.1 c.c. of serum bound more complement than 0.2 c.c. Though this phenomenon was not constant, it occurred so frequently as to render the test unreliable.

Thus it appears that by the application of absorption methods in the Wassermann test the number of positive reactions is increased. Wolff's method of treating active serum with barium sulphate gives the highest percentage, but is not, according to our experience, reliable. The combination of Rossi's and Wechselmann's methods gives a fairly high percentage of positives; and as far as may be judged from the results of our few tests there is no danger of thereby rendering the Wassermann reaction oversensitive. The effect of barium sulphate on sera free from syphilitic and gonococcal antibodies should, however, be tested at length before the use of barium sulphate in the routine serodiagnosis of these venereal diseases is recommended. Rossi's method of absorbing natural amboceptor from the serum to be tested is perfectly safe and its practical value is indicated by this series of tests.

*Series* 2.—After the adoption of a change in the technique of the Wassermann test that resulted in an increase in the number of positive reactions a second series of tests was made to indicate whether or not the natural antisheep amboceptor in human serum might still be a source of error in the diagnosis of syphilis. The readings were made as soon as hemolysis was complete in the antigen control (double the amount of antigen used with the serum) and in the serum control (0.04 c.c., double the maximum amount of serum used with the antigen), instead of after an hour's incubation in the water bath and a night in the ice box, as heretofore. The system of reading was the same as in the previous series of tests.

Of two hundred and twenty-nine sera tested for natural antisheep amboceptor sixty-four, 27.9 per cent., were found to contain one or more units.† Fifty-two of these sixty-four were treated with

*Jacobaeus describes a similar experience.

†By a unit of amboceptor is meant the smallest amount that with 0.1 c.c. of 10 per cent. complement completely hemolyzes 0.1 c.c. of 5 per cent. sheep cell suspension when incubated for one hour in the water bath at 37°C.

packed sheep cells, according to Rossi's method,[9] for the absorption of the amboceptor. In one case serum that fixed complement only partially before absorption gave a + + reaction* after absorption. Of the thirty-seven cases that were negative before absorption thirty-four remained negative and three gave a doubtful reaction after absorption. No negative became positive.

Thus by the absorption of natural antisheep amboceptor from the serum of forty-three doubtful or negative cases the diagnosis was changed in four instances, becoming positive in only one. Twenty-six of these same specimens, untreated, gave positive reactions by ice-box fixation.†

*Conclusions.*—Natural antisheep amboceptor is frequently present in human serum. An excess of amboceptor in the Wassermann test may result in false negative reactions. By the absorption of the natural amboceptor the binding power of some sera is increased, especially if the amboceptor has a long period of time in which to act, as is the case when the second incubation of the test is for one hour and the readings are not made until the following day. If. however, the readings are made as soon as antigen and serum controls are completely hemolyzed an excess of amboceptor makes little difference in the results. Thus the method of reading tests seems to determine the importance of absorbing natural amboceptor.

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*0.02 c.c. of serum gave complete fixation, 0.02 c.c. complete hemolysis.

†After the mixture of serum, antigen, complement, and saline the tests were set in the ice box for four hours, then filled with sensitized cells and incubated at 37°C. until readings could be made.

## Medicolegal Notes.

**Privileged Communications.**—In an action for personal injuries resulting in the loss of an eye, it appeared that the plaintiff, a railroad engineer, was taken to a hospital after having been injured. There the physician in attendance informed him that they had no eye specialist, and advised him to have an eye specialist examine his eye. The plaintiff permitted a specialist, obtained by the hospital physician, to examine him in order that he might obtain information as to the extent of his injury. The real purpose of this examination was to obtain information to be used against any claim on the plaintiff's part for damages, and the specialist was really employed and paid for by the defendant. The plaintiff, however, did not know this, but believed that the specialist's services were engaged for his benefit, and as his physician acting with the hospital physician. It was held that the specialist was disqualified to testify over the plaintiff's objection, under the Arizona statute providing that a physician cannot be examined without the consent of his patient as to any communication made by the patient with reference to any physical or supposed physical disease, or any knowledge obtained by a personal examination of the patient unless the patient has himself voluntarily testified with reference to such communications.—Arizona & N. M. Ry. Co. v. Clark, C. C. A., 207 Fed. 817.

**Hypothetical Questions—Basis of Hypothesis.**—Hypothetical questions were propounded to physicians in a will case in the following terms: "If one suffering from pneumonia lay in bed on his back from noon or 1.30 P. M., with his eyes and mouth open, his face purple, his pulse about 145, gasping for breath, paying no attention to anything or any person, except to answer a question when asked, and that condition continues until between 5.30 and 6 o'clock, what would you say?" etc. There was no testimony from anyone who pretended to have been in the presence of the testator all of that period. The testimony of two witnesses showed that they were present only a short portion of the time. It was held that the questions were properly excluded under the rule that the hypothesis stated must be founded on evidence which either proves or disproves, or tends to prove or disprove the same, and that, if the assumed facts are not supported by some evidence tending to establish them, the question is improper and should not be propounded.—In re Burnham's Will, Colorado Court of Appeals, 134 Pac. 254.

**X-Ray Photographs and Expert Testimony.**—In an action for personal injuries *x*-ray pictures had been taken, but were not produced in court, and no demand was made for their production. An expert stated in evidence that he was present when they were taken, saw them taken and developed, and looked at the plates immediately after they were developed. This established their identity and correctness. Then the expert and another physician told what they thought the pictures showed. It was held that this was sufficient, in the absence of a demand for a production of the pictures. The court said that "the doctrine that an ordinary photograph is the best evidence of what it contains should not be applied to *x*-ray pictures. They constitute an exception to the rule concerning ordinary documents and photographs, for the *x*-ray pictures are not, in fact, the best evidence to laymen of what they contain. Generally, they are no evidence at all, signifying nothing whatever, except to the expert. The opinion of the expert is the best evidence of what they contain—the only evidence."—Marion v. B. G. Cook Const. Co., New York Appellate Division, 141 N. Y. Supp. 647.

**"Chiropractics"—Necessity for License—Holding Out.**—In a prosecution for practising without a license it was shown that the defendants professed to be chiropractics maintaining an office, holding themselves out as prepared to treat patients for disease with the purpose of curing and healing them, and that they did so without procuring certificates from the state board of medical examiners. It was held that such proof showed a violation of the Iowa statute prohibiting persons from practising medicine without a license in so far as the defendants devoted themselves to and employed means of curing and healing and alleviating pain without a license. They were, therefore, not prejudiced by an instruction that they might be convicted if the jury found that, without certificates, they did publicly profess to cure or heal, or devoted themselves to and employed means of curing and healing and alleviating pain, though the statute did not make any specific reference to the specific act of devoting one's services to and employing means of curing and healing and alleviating pain. Whether the defendants made a practice of prescribing their treatment for the sick was immaterial if they held themselves out as publicly professing to cure or heal.—State v. Zechman, Iowa Supreme Court, 138 N. W. 387.

**Practising Medicine—Validity and Construction of Statute.**—The Texas medical practice act (Act Thirtieth, Leg. c. 123), which requires one desiring to practise medicine to obtain authority so to do from the State Board of Medical Examiners, is held to be valid since no one has an inalienable right to practise medicine or treat diseases for pay. It does not seek to regulate how any one shall treat diseases, but merely provides that, before any one shall treat, or offer to treat, diseases, he shall show his competency and obtain from the State Board of Medical Examiners authority to practise, and one treating, or offering to treat, without medicine, various diseases for a specific compensation is within the act.—Lewis v. State, Texas Civil Appeals, 155 S. W. 523.

# MEDICAL RECORD.

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## THE QUESTION OF PASTEURIZED MILK.

THE opinion generally prevailing in this country with regard to pasteurized milk as a food for infants appears to be that when breast feeding for some adequate cause is not available and raw cow's milk cannot be depended upon as free from infection and contamination, the wisest procedure is to pasteurize milk. It is argued that pasteurization properly performed, while destroying the germs of infection, at any rate those of tuberculosis, does not injure the nutritive properties of the milk. In Great Britain as a rule medical men have been more skeptical regarding the harmlessness of the various methods of pasteurization, with the result that pasteurization has not been nearly as much in vogue in that country as on this side of the Atlantic, reliance having been placed largely on boiling the milk. Recently, however, pasteurization has been practised on a wider scale, although by many British authorities the method is regarded with a considerable degree of distrust. A correspondence on the matter was begun in the *Lancet*, January 10, 1914, by Edmund Owen, who voiced his views on what he termed the dangers of sterilized milk, and while disclaiming the possession of any biochemical knowledge of the subject, he declared that by the process milk is changed from a living fluid to a dead one. The writer went on to say that in his opinion sterilization renders cow's milk unsuitable as a food for young children—he was half inclined to say dangerous. Ralph Vincent, who has long been known as a strong opponent of sterilization, in the next number of the *Lancet* made a somewhat exaggerated indictment of cooked milk and incidentally attacked the findings given in the final report of the Royal Commission on Tuberculosis. In the issue of January 24, 1914, Eric Pritchard deprecated the sweeping statements of Vincent and emphatically declared that the vast majority of medical men directly interested in the British Association of Infant Consultations and Schools for Mothers held views diametrically opposed. Pritchard showed by statistics drawn from the large district of Marylebone that since artificial infant feeding had been there conducted by municipal authorities and the local health society by means of boiled milk, both the infant death rate and the tuberculosis rate had been reduced to an astonishing degree. Furthermore, Pritchard pointed out that in America, the home of certified milk, there had arisen among certain enthusiasts an agitation for the pasteurization even of certified milk of the highest grade.

By a coincidence, at the same time that Owen's letter appeared, Philip Mitchell of Edinburgh communicated to the *British Medical Journal* the results of certain experiments carried out by him. These experiments showed that a large proportion, more than 90 per cent., of young children with tuberculous neck glands were infected with the bovine bacillus. He made this discovery the basis of a plea for the wholesale sterilization of milk. Thus it will be observed that a good deal of confusion still exists in Great Britain as to the true situation regarding sterilization of milk. On the one hand there are a large number of medical men who claim that bovine tuberculosis is a negligible quantity in the production of human tuberculosis and that consequently there is no need to sterilize milk. On the other hand, there are a yet larger number who hold that tuberculosis is frequently transmitted by the agency of infected milk, and that therefore, in existing circumstances, milk should be sterilized before it is employed as a food for young children. The conclusions reached by the Royal Commission on Tuberculosis and by investigators such as Mitchell would seem to favor the pasteurization of questionable milk supplies.

However, these points as to the transmissibility of and danger from bovine tuberculosis to the human race do not exhaust the subject. There is another phase which has been scarcely touched upon. In the *British Medical Journal*, January 24, 1914, Clive Rivière published an interesting letter. He did not deny that tuberculosis was prevalent in cows and that it might be transmitted to young children, but he took the stand that as things were now this was not an unmixed evil. Nearly every human being becomes infected with tuberculosis before the age of fifteen and Rivière pointed out that it was a matter of the utmost importance whether a child's first acquaintance was with the bovine or the human strain of this organism, since the first generally led to a mild and recoverable lesion, with protection against further infection, while the latter tended to produce more severe and often rapidly fatal forms of tuberculosis. Rivière inferred from experiments and statistics that immunity against tuberculosis was conferred by an early slight lesion. He also suggested that in the production of such immunity bovine tubercle was safer than human tubercle, and consequently so long as the human bacillus was rife we should look upon the bovine bacillus as a valuable means of protection against infection from human sources. Further, arguing from this standpoint, the safest and most practical method open to us at the present time seemed to be in the use of a well mixed milk. In such milk the bacilli would be well diluted and the danger of massive dosage reduced to a negligible figure. Nevertheless it must not be forgotten that dosage was relative and the resistance to tubercle was at a minimum during the first few months of life. It would appear best, therefore, to sterilize the milk at first and gradually add to it increasing quantities of raw milk until this alone is given.

## RADIOACTIVE THERAPY OF CANCER.

THE present excitement in the United States in regard to the power of radium over cancer, and the impending legislation affecting the ownership of radium ore lands and the distribution of the substance, makes an article by Wätjen (*Deutsche medizinische Wochenschrift*, 1914, No. 1), covering the same subject, of some interest. The author selected a number of inoperable tumors, treating them with both radium and *x*-rays for short periods only. In some of these growths numerous metastases were present. None of the tumors showed retrogression save cancers of the breast. None of the metastases was in the least improved. The poor showing was due no doubt to the short period of treatment and the lateness of the disease. Küpferle has attacked deeply seated tumors, but expects improvement only when the field to be rayed is large and homogeneous; and this is difficult of attainment. Recently his clinic has come into possession of large quantities of radium and mesothorium, so that technical difficulties alone prevent the use of the latter. For the present he is using *x*-rays for deep-seated tumors.

Aschoff believes that intensive *x*-rays do better work than mesothorium, but this is because the rays can attack a large surface at once; but the remote result is not favorable and metastases are not influenced at all. The effects of small doses do not seem to have been studied critically. The author does not say "return to the knife" but give radiotherapy a chance on early, not only on hopeless cases. Oberst holds that radiotherapy in the first stage of cancer can not compete successfully with the knife. We improve the technique greatly but the desired result is as far off as ever. A brilliant cure by radium may be followed by an untimely recurrence. Radiotherapy is of little or no avail in metastases.

In the discussion that followed the reading of these papers Bulius stated that the knife in the first stage gave at least 50 per cent. of cures—a good percentage. Röos was in favor of the knife, followed at once by destruction of all tumor cells through radiation. Schlimpert stated that Bulius's claim of 50 per cent. of cures in the first stage was without statistical basis. If statistics of remote results were accurately stated the knife did not figure to such an extent as had commonly been believed.

## IS LEUCEMIA AN INFECTIOUS DISEASE?

ONE of the vexing problems of pathology is the cause of the various forms of leucemia. The acute type of this disease with its rapid malignant course often beginning with an ulcerative angina, and accompanied by a febrile movement, strongly suggests an acute infection. Experiments to transmit this disease from human beings to animals have failed. No microbic factor has as yet been isolated, although Löwit in 1900 described what he regarded as protozoa in the white blood cells. There are two main theories that attempt to account for the pathological changes in this disease. One of these postulates a chemotactic influence exerted by toxins which cause an increase of lymphocytes in the blood. The other theory regards this cellular proliferation as closely allied to tumor growth. Many arguments have been advanced both in favor of and against each of these hypotheses.

An investigation which seems to indicate an infective origin for leucemia has recently been conducted by V. Ellerman (*Zeitschrift für klinische Medizin*, Vol. 79, Nos. 1 and 2). His observations were confined to the leucemia of fowls. It is impossible to state dogmatically that this disease is identical with the disease as found in human beings. But the similarity between the two is most striking. In both diseases there is a markedly increased leucocyte count with a predominance either of lymphocytes or of myelocytes. There is also in both conditions a hyperplasia of the hemopoietic organs. In both cases there are cellular infiltrations in the liver and kidneys. The disease in the fowl as in the human being is usually chronic and is always fatal.

Ellerman succeeded in transmitting the leucemia of fowls from animal to animal by means of inoculations of cell-free filtrates obtained by passing specimens of blood from affected animals through Berkefeld filters. Healthy fowl inoculated with these cell-free filtrates developed all of the characteristics of the disease. Moreover, the two types of the latter, the lymphatic and the myeloid were differentiated in the fowl as in the human being. Ellerman concludes that the virus of leucemia belongs to the filtrable microorganisms.

Possibly the good effects observed in the treatment of leucemia by means of benzol may be attributed to the antiparasitic action of this substance.

## TRANSMISSION OF OZENA BY DOGS.

PEREZ of Argentina has devoted much time to establishing the nature of this condition. Perhaps to escape the criticism of working in a country remote from the great medical centers, he has done much of his work in Continental laboratories, and hence has been able to make converts among coworkers. Facts regarded by competent authorities as beyond all question are the identity of true ozena and some types of ordinary atrophic rhinitis. The same germ of Perez is found in each. There is, of course, nothing in common between these affections and syphilis, and putrid disease of the nasal sinuses. It has been proved that ozena and atrophic rhinitis are alike infectious. One case in a family presenting the former, while other members show the latter. It has taken years to follow up cases, to prove that an adult with true ozena must have transmitted the disease to a child, several years intervening between the appearance of the second case. Most significant is the fact, proved by Perez and others, that the coccobacillus of Perez is a normal denizen of the dog's nasal chambers; that it may behave pathologically there and even be transmitted to human beings, probably through the nose. Numerous cases of this sort have been recorded, the evidence being far more complete than in any case of transmission from man to man. In the *Berliner klinische Wochenschrift*, Dec. 29, both Perez and Hofer contribute papers on this subject. The latter, who has repeated all of Perez's experiments, appears to be more than satisfied with the outcome. An interesting question is whether from a Perez culture an immune serum can be ob-

tained which will both relieve the disease and at the same time clinch the theory of its origin. Canine ozena should be studied *per se* and as related to human beings.

### "Instructive Mistakes."

Under this heading a number of unsigned case reports appear in each number of the *British Journal of Surgery* and thus far, at least, have justified the adoption of this innovation. Most men are willing enough to record successful cases but hesitate to acknowledge having made serious mistakes. A properly edited series like this, where the author is known to, and his veracity vouched for by, the editor, should be most helpful. Most of us quickly recall some error in diagnosis or in judgment, the recital of which would undoubtedly teach a valuable lesson and allow some other doctor (and patient) to profit by our bitter experience. In a previous editorial we referred to one of these reports which appeared in the October number and was entitled: "Tumour of the left vagus removed in mistake for a fibroma, with fatal result." In the January number we find the following four reports: Duodenal ulcer and ruptured tubal pregnancy, in which the pregnancy was overlooked; Melanotic sarcoma mistaken for an innocent tumor. A grave error in prognosis; An axillary abscess mistaken for a sarcoma; and A sarcoma mistaken for an abscess. These reports are well worth reading and it is safe to predict that the lessons taught will be kept much more firmly in mind from the very fact that one realizes that he is profiting by the actual mistake of another and will be anxious to avoid the error himself should a similar case appear in his own practice. One of these cases shows the danger of relying upon the frozen section for an absolute diagnosis in cases of suspected sarcoma. An unnecessarily extensive operation was done on the strength of the pathologist's report upon the small section that was removed for examination. The case proved to be chronic abscess in the subscapular lymph glands. "The portion on which the wrong diagnosis had been founded consisted of just that mixture of round and spindle cells which *might* indicate a sarcoma." Each of the other cases brings out some equally important and instructive point.

## News of the Week.

**Public Health Service Examination.**—Candidates for admission to the grade of assistant surgeon in the United States Public Health Service will be examined at the Bureau of the Service, 3 B street, S.E., Washington, on Monday, March 9, 1914, at ten o'clock A.M. The examination is open to men between 23 and 32 years of age, graduates of reputable medical colleges, and of good professional and moral character. Candidates must have had one year's hospital or two years' professional work. The examinations are: 1, Physical; 2, Oral; 3, Written; 4, Clinical. Assistant surgeons receive $2,000 yearly, and after four years' service are entitled to examination for promotion to the grade of passed assistant surgeon, the yearly salary then being $2,400. When quarters are not provided commutation at the rate of $30, $40, and $50 a month, according to grade, is allowed. For invitation to appear before the board of examiners, application should be made to the "Surgeon General, Public Health Service, Washington, D. C."

**Civil Service Examination.**—Competitive examinations, open to men and women, for the position of Sanitary Supervisor, New York State Department of Health, will be held in various cities throughout the State on March 7, 1914. Intending competitors must execute application blanks and file them in the office of the Civil Service Commission on or before March 2, 1914. The qualifications of sanitary supervisors are as follows: They must be physicians, not less than 28 or more than 60 years of age, and have been previously engaged in public health work of various sorts; they will not be allowed to practise medicine or engage in any other regular occupation or business; but shall be at liberty to accept or retain other positions in public health work. The salary of the office is $4,000 per annum. Application blanks may be procured by addressing the State Civil Service Commission, Albany, N. Y.

**Examination of Dentists.**—The Surgeon General of the United States Army announces that examinations for the appointment of acting dental surgeons will be held in various places throughout the country on April 13, 1914. Application blanks and full information may be procured by addressing the "Surgeon General, United States Army, Washington." Applicants must be citizens of the United States, between 21 and 27 years of age, graduates of a licensed dental school, and of good moral character and habits. Acting dental surgeons are employed under a three years' contract at the rate of $150 per month, and at the expiration of this time are entitled to examination for promotion to the grade of dental surgeon with the rank of first lieutenant. There are at present twenty-eight vacancies.

**Grant to Dr. McClintock's Widow.**—Two years' salary, amounting to $5,570, was voted by the United States Senate on February 12, to the widow of Dr. Thomas W. McClintock of the United States Public Health Service, who died from spotted fever contracted while he was making researches into the cause and cure of the disease.

**Prof. A. W. Mayo Robson** of London, who is an honorary Fellow of the American Surgical Society, was shot in the thigh recently by a gun bearer while on a hunting trip in British East Africa. He was carried to Nairobi for treatment and is now recovering.

**Dr. Benjamin T. Tilton,** surgeon in chief at St. Mark's Hospital, New York, was the guest of honor at a dinner at Lafayette Hall on February 9. Of the five hundred present two hundred were former patients of Dr. Tilton, and on their behalf a loving cup was presented to the surgeon. At the same time announcement was made that an annex to St. Mark's Hospital, to cost $150,000, would shortly be built on Second avenue.

**An Interesting Decision.**—Justice Marks of the Sixth District Municipal Court of the City of New York recently handed down a decision of interest to physicians. The plaintiff in the case was Dr. Mark J. Schoenberg, a physician of New York, who had sued the estate of Mr. M. E. Bernheimer for services rendered. Mr. Bernheimer and the physician had both been in attendance last September at the Supreme Court in Brooklyn, the former as the defendant of the case then on trial and the latter as a witness, and while the physician was in the witness chair Mr. Bernheimer was

taken ill and fell from his chair unconscious. The physician being excused by the judge hastened to Mr. Bernheimer's side and with another physician present in the court room attempted to revive him. Their efforts were unsuccessful, however, and the patient died inside of half an hour without regaining consciousness. The physician rendered a bill for $500 for his services, and payment was refused by the executors of the estate. Suit was then begun. In his decision Justice Marks reviewed the case, and discussed the question of whether the financial condition of the patient, who in this instance left a large estate, has anything to do with the amount which may properly be charged by the physician, the value of the special services rendered, and the liability of a person who is unconscious or in extremis for services rendered by a physician who has not been called by the patient or his family. After citing a number of previous cases, the judge decided that the physician in this case had the right to recover from the estate and that the charges for a physician's services may properly be based upon the financial condition of the patient. He held, however, that the services rendered in this case were not worth more than fifteen dollars, and rendered judgment for this amount for the plaintiff.

**Pharmacy Case to Supreme Court.**—The New York County Medical Society which is prosecuting Morris Lederman of the Standard Pharmacy Company for practicing medicine without a license, recently reached an agreement with the defendant by which the case will be carried to the Supreme Court for decision as soon as possible. The case involves the interest of a number of pharmacies in the city which, it is alleged, start under a trade name, hire a physician, and give free treatment if the prescriptions given are filled at the pharmacy. Counsel for the Medical Society holds that the law which prohibits a corporation from practicing medicine does not allow an individual to do so under a trade name.

**City Death Rate.**—For the week ending February 7, the death rate in New York City was 14.04 per 1,000, representing a total of 1,503 deaths. For the corresponding week of last year the rate was 15.23 per 1,000 and the total number of deaths 1,568. The following causes showed a decreased mortality: Lobar pneumonia, bronchopneumonia, whooping-cough, diarrheal diseases, Bright's disease and nephritis, diseases of the nervous system, and violence. Viewed from the point of age, the mortality of infants under one year showed a decrease of 16 deaths, that of children under five years a decrease of 46, between the ages of five and sixty-five a decrease of 71, while, on the other hand, among the aged there was an increased mortality of 52 deaths. For the first six weeks of 1914 the death rate was 14.62 per 1,000, as against 14.68 for the same period of 1913.

**Women Qualify as Interns.**—For the first time in the history of the institution two women physicians have successfully passed the examination held at Bellevue Hospital for admission to its interne staff, and the question of their appointment is now before the Board of Trustees. The successful candidates are Dr. Helen Balliser of Brooklyn and Dr. Ana Tjohnlands of New York, both from the Cornell University Medical College. At the close of the examinations, for which there were fifty-five entrants, these two women held tenth and twelfth places respectively.

**German Orthopedic Society.**—The Thirteenth Congress of the German Orthopedic Society will be held on Monday and Tuesday during Easter week, April 13 and 14, in the Langenbeck-Hause, Ziegelstrasse 10-11, Berlin, under the presidency of Prof. Dr. Th. Kölliker. The chief subject for discussion will be "The Operative Treatment of Spondylitis."

**Physicians' Motor Club of Philadelphia.**—At the annual meeting held on January 20, the following officers were elected: *President*, Dr. S. Leon Gans; *First Vice-President*, Dr. William Duffield Robinson; *Second Vice-President*, Dr. John J. Robrecht; *Third Vice-President*, Dr. Charles A. E. Codman; *Secretary*, Dr. Howard A. Sutton; *Treasurer*, Dr. Lewis H. Adler, Jr.; *Directors* (for four years), Dr. H. Augustus Wilson and Dr. Sylvester J. Deehan.

**The National Association for the Study of Epilepsy** will hold its annual meeting in Baltimore, Md., on Monday, May 25, 1914. The programme and details of the meeting will be announced later. Dr. J. F. Munson, Sonyea, N. Y., is the secretary of the association.

**Federation of Medical Boards.**—The second annual session of the Federation of State Medical Boards of the United States will be held at the Congress Hotel, Chicago, on Wednesday, February 25, 1914. The meeting will be called to order promptly at 9 a.m., with President Charles H. Cook in the chair, and papers on the following subjects will be presented: "Public Health Administration," by Surgeon General Rupert Blue, U. S. Public Health Service; "Should the Federation of State Medical Boards of the United States recommend a uniform minimum curriculum for medical schools?" by Dr. John L. Heffron, Dean of the College of Medicine, Syracuse University; "The use of the United States Medical Services in standardizing medical education," by Lieut.-Col. J. R. Kean, Medical Corps, U.S.A.; "Some thoughts on the standardization of medical education," by Dr. Harold C. Ernst, Harvard University; "What instruction ought medical colleges to give in pharmacology?" by Dr. Samuel W. Lambert, Dean of the College of Physicians and Surgeons, Columbia University; "The viewpoint of the State examiner," by Dr. Walter L. Bierring, president of the Iowa Board; "The viewpoint of the pharmacist," by Dr. Bernard Fantus, professor of pharmacology in the University of Illinois; "General discussion of a model medical practice"; "General discussion of credentials and the evil of the 'Equivalent' "; "General discussion of practical examinations"; "Reciprocity," by Dr. John Montgomery Baldy, president of the Pennsylvania Bureau of Medical Education and Licensure. At the business session the reports of officers and committees will be received and officers for the ensuing year will be elected. Further details may be obtained from Dr. Otto V. Huffman, Secretary-Treasurer, Secretary of the New York State Board of Medical Examiners, Albany, N. Y.

**American Life Convention.**—The fourth mid-year meeting of the Medical Section of the American Life Convention will be held at the French Lick Springs Hotel, French Lick, Ind., on March 4, 5, and 6, 1914, with Dr. James H. Stowell of Chicago as chairman. A long and interesting programme has been arranged, the details of which may be obtained from Dr. Stowell.

**New York Society of Anesthetists.**—A regular

meeting of this society will be held at the Academy of Medicine, New York, on Friday evening, February 27. The programme will include papers by Dr. Charles Teter and Dr. William Branower.

**Dr. Alphonse Bertillon,** the noted criminologist and the director of the anthropometric department of the Paris police, died in that city on February 13, in the sixty-first year of his age. Dr. Bertillon was known chiefly as the originator of the system called by his name for the identification of criminals by accurate measurement. The system was first introduced into France in 1883 and rapidly grew in popularity until it was adopted by practically all of the police departments of the larger cities. Of late years, however, it has been somewhat supplanted by the finger print method of identification. In recognition of his work Dr. Bertillon was some time ago made a Chevalier of the Legion of Honor.

**Inwood Hospital Report.**—During 1913 the Hospital and House of Rest for Consumptives at Inwood-on-the-Hudson, N. Y., cared for 133, of whom eighty were admitted during the year, making a total of 4,414 patients treated at the hospital during its forty-five years of existence. Of the 133 patients treated last year, forty-three were discharged and twenty-one died. The daily average of patients under treatment for the year was 65.1. The total number of days' care given was 23,786, an increase of 3,496 over the preceding year. The average stay of each patient was 178.8 days, as against 147.7 for the preceding year. The patients were received from various hospitals, clinics, settlements, and charitable organizations.

**Automobile Death Toll.**—There were 580 persons killed by vehicles in the streets of New York during 1913, according to the report of the National Highways Protective Association, and of these deaths 302 were due to automobiles. Trolley cars killed 108 persons, and wagons, 170. During 1912, the total number of deaths caused by vehicles was 532, and during 1911, 423. The number of killed and injured during 1913 amounted to 1,485, excluding those who received only minor injuries which escaped record.

**Personals.**—Dr. Karl Völckers, professor of diseases of the eye in the Königliche Christian-Albrechts Universität, Kiel, Prussia, and the author of a number of works on ophthalmology, died at Kiel on February 3, aged 77 years.

Medical Inspector William C. Braisted has been appointed by the Secretary of the Navy as Surgeon-General of the United States Navy, relieving Surgeon-General Stokes, whose terms of four years expired on February 6. In making the appointment, Secretary Daniels issued a statement praising the administration of Surgeon General Stokes, and declaring that never before have the standing and reputation of the Medical Corps of the Navy been so high.

Dr. Hermann M. Biggs was the guest of honor at a dinner given by two hundred of his professional colleagues in New York on February 7. Among the speakers were Prof. William H. Welch of Johns Hopkins University, Dr. William H. Park, Mr. Robert W. De Forest, Borough President Marks, and Dr. Biggs himself.

**Phi Delta Epsilon.**—At the annual convention of the Phi Delta Epsilon Fraternity held recently at the Yale Club, New York, the following officers were elected for the ensuing year: *Grand Consul*, Dr. Murray B. Gordon, Brooklyn; *First Vice-Consul*, Dr. Leo S. Schwartz, Brooklyn; *Second Vice-Grand Consul*, Dr. B. B. H. Aarons, Philadelphia; *Third Vice-Grand Consul*, Dr. George Piness, Passaic; *Grand Chancellor*, Dr. Aaron Brown, New York; *Grand Scribe*, Dr. Ellis Campus, New York; *Grand Historian*, Dr. Irving Gray, Brooklyn.

**Medical Society of the Missouri Valley.**—The 26th semi-annual meeting of this society will be held at Lincoln, Neb., on March 26 and 27, 1914, under the presidency of Dr. F. B. Tiffany of Kansas City, Mo.

**Medico-Legal Club of Philadelphia.**—At the annual meeting held on January 27 the following officers were elected for the coming year: *President*, Dr. W. T. Hamilton; *Vice-Presidents*, Dr. E. W. Kelsey and Dr. Benjamin H. Swartz; *Secretary*, Dr. C. W. Schaubel; *Treasurer*, Dr. C. M. D. Peltz.

**Obituary Notes.**—Dr. Alonzo F. Huntoon of Los Angeles, Cal., a graduate of the Missouri Medical College, St. Louis, in 1881, a member of the American Medical Association, the Medical Society of the State of California, and the Los Angeles County Medical Society, and formerly a well known practitioner of Duluth, Mich., died in Los Angeles on February 2, aged 62 years.

Dr. George Lloyd Magruder of Washington, D. C., a graduate of the Georgetown University School of Medicine, Washington, in 1870, and for many years professor of materia medica and therapeutics, and dean of the school, a member of the American Medical Association and the Medical Society of the District of Columbia, and one of the organizers of the Central Dispensary and Emergency Hospital, and a member of the staff of the Providence Hospital, died at the University Hospital, Washington, on January 28, aged 65 years.

Dr. James A. Cox of New York, a graduate of the Long Island College Hospital, Brooklyn, in 1891, died at his home on February 3, aged 55 years.

Dr. Ray Vaughan Pierce of Buffalo, N. Y., a graduate of the Eclectic Medical College, Cincinnati, O., in 1865, died at his winter home on St. Vincent's Island, Fla., on February 4, aged 74 years.

Dr. Armin Ubelacker of Morristown, N. J., a graduate of the New York Homeopathic Medical College and Hospital in 1871 and a member of the American Institute of Homeopathy, died at his home on February 6, following the amputation of his foot at the Memorial Hospital a few days before.

Dr. Daniel C. Logue of Bellmore, L. I., a graduate of the New York Medical College, and said to have been the last survivor of the crew of the *Monitor*, on which he served as surgeon during her engagement with the *Merrimac*, died at his home on February 3, aged 81 years.

Dr. J. Henry Ludwig of Boyertown, Pa., a graduate of the Medico-Chirurgical College of Philadelphia in 1903, and a member of the Medical Society of the State of Pennsylvania and the Berks County Medical Society, died at the Pottsville Hospital, following an operation for appendicitis, on January 31, aged 38 years.

Dr. Luther K. Stine of Philadelphia, a graduate of the Department of Medicine, University of Pennsylvania, in 1860, died at his home, January 23, aged 77 years.

Dr. Caroline H. Vanhorne of Englewood, N. J., a graduate of the Woman's Medical College of Pennsylvania, Philadelphia, in 1894, died at her home, from heart disease, on February 3, aged 51 years.

## Obituary.

### ROSWELL PARK, M.D.,

BUFFALO, N. Y.

Dr. Roswell Park, Professor of Surgery in the University of Buffalo, died suddenly at his home in that city on February 15. Born in Pomfret, Conn., May 4, 1852, he received his medical degree from Northwestern University in 1876. He was successively Demonstrator of Anatomy in the Women's Medical College, Chicago, Adjunct Professor of Anatomy in the latter institution, and Professor of Surgery in Rush Medical College, and in the Medical Department of Northwestern University. In 1883 he was appointed Professor of Surgery in the University of Buffalo and Surgeon to the Buffalo General Hospital and held these positions to the time of his death. He was a director of the New York State Cancer Laboratory at Buffalo. Dr. Park received honorary degrees from Lake Forest University, Harvard, and Yale. He was at one time President of the American Surgical Association and of the Medical Society of the State of New York. He was the author of many medical works, notable among which are his: "Modern Surgery" and "A History of Medicine." He was associate editor of *The Annals of Surgery*. In the death of Dr. Park this country has lost one of its most distinguished surgeons and scholars.

## Correspondence.

### OUR LONDON LETTER

(From Our Regular Correspondent.)

HORMONES—GRESHAM LECTURES 3 AND 4—PITTSDOWN SKULL — RECONSTRUCTION OF SKULLS — PUBLIC HEALTH—INSURANCE NOTES—OBITUARY.

London, January 30, 1914.

It is only ten years ago since Professor Starling announced at the Royal College of Physicians his discovery of "hormones" in the secretions of ductless glands, and now we have had a discussion at the Royal Society of Medicine on the therapeutic value of these interesting bodies. This was opened on the 20th inst. by Prof. G. R. Murray, who remarked that our knowledge of them had increased so rapidly that we must beware not to confuse advance with mere theorizing. Hormones regulated metabolism, some controlling or inhibiting, others stimulating. They might be tried in (1) disease or injury of the glands secreting them; (2) the physiological need of increased secretion; (3) when the known action might be of service though there was no deficiency; (4) empirically. Thyroidal hormones had been of value in cretinism and myxœdema for which treatment must be continued with a preparation known to be physiologically active and the dose regulated by the effect on the individual. Simple goitre gave an example under group (2), but care should be taken to exclude Graves' disease. Obesity would be an example under (3), and under (4) rheumatoid arthritis, rickets and nocturnal enuresis. In reference to suprarenal hormones he had not found adrenalin replace them in Addison's disease, though recoveries had been reported, and they were useful in asthma and hemorrhages. Some spoke well of the remedy in Graves' disease, but he had not found it of real use. As to the pituitary gland good results had been claimed for its extract, and it seemed to stimulate the mammary and renal activity, but was of no use in acromegaly. Judgment must be reserved as to ovarian and other extracts and he would not confuse questions arising by referring to combinations of two or more hormones.

Professor Starling said his hormones were chemical messengers by which correlation was maintained between different organs. These correlations he considered as twofold: (1) Acute, where change in organ A was followed quickly by change in one or more organs, the change ceasing in these with cessation in A. In (2), chronic, the changes in all were similar but slower. The balance of effect and cause was brought about by the instability of the hormone. Secretin acted acutely; so did carbonic acid, which took messages to the respiratory and vasomotor centres. Adrenalin wa rapid, was secreted in excess over fright and put the animal in the best state for defense or flight. Hormones were also rapidly destroyed, and this was a difficulty in some cases and rendered them useless by the alimentary tract. Secretin was, therefore, given intravenously and harm might be done if the body was not prepared for it. Much the same was the case with adrenalin. Of chronically acting hormones were the thyroid, pituitary, pancreatic, etc. Their value was based on arguments, for they had no direct proofs, except in the case of the thyroid, and that was slight. His laboratory experiences made him sceptical about extracts, for, with all conditions in his favor for exact experimentation, he had made mistakes. Only as to the thyroid was there direct evidence of therapeutic results—perhaps because that gland was connected originally with the alimentary tract. Dr. Leonard Williams was at first afraid of the pressor action of the pituitary, but had found this was not produced when given by the mouth. He disapproved the term thyroid excess for Graves' disease, the symptoms of which were not such as simple excess produced; in fact, deficient secretion could often be detected. He employed small doses of thyroid extract and calcium (chloride or lactate). Dr. H. H. Dale said extracts of ductless glands could be regarded as drugs. Pituitary extract was tonic to involuntary muscle, acting by increasing the sensitiveness to ordinary stimulants, rather than by itself stimulating it.

Dr. Hale White (presiding) said many people took excess of thyroid extract for myxedema. In a woman affected with that disease and pregnant the thyroid normally enlarged. Would it be right to give more thyroid? In obesity thyroid often started a loss of fat which diet had not done, but would then continue without more thyroid. In asthma he found adrenalin remarkably successful.

In this third Gresham lecture Dr. F. M. Sandwith continued his review of the late Medical Congress, dealing chiefly with the possibilities of radium. The difficulty of investigating rapidly its therapeutic value lay in the small quantities available. Probably its curative properties were vast, but on account of the widespread prevalence of cancer the new agent had been most used for that disease. Passing on to the section of the History of Medicine, the lecturer referred to Mr. Welcome's bacteriological laboratory at Khartoum and his intention to establish others in the tropics. He then proceeded to speak of prehistoric human remains, from the study of which it had been suggested that man's stature and brain were practically the same now as 400,000 years ago. The owner of the Pittsdown skull, he conjectured, might have lived a million

years ago, and even then, if not capable of speech, and still using his teeth for grasping or defense, he could fashion stone implements with considerable skill. The origin of man seemed to recede so far they could hardly reckon it in years, but in the sequence of geological periods. That seems the position of the theorist who thinks the idea of development accounts for everything, even for the beginning of development itself. At his concluding fourth lecture of the series Dr. Sandwith introduced the cinematograph and showed pictures concerned with various biological matters and explained further how by means of a combination of the cinematograph with the microscope it was possible to demonstrate a number of interesting phenomena of cells and microbes.

Professor A. Keith, R. C. S., has also spoken of the Pittsdown skull in his presidential address at the Royal Anthropological Institute. That address was devoted to the "Reconstruction of Fossil Human Skulls." He said when he took up earnestly the study of skulls of extinct forms of mankind he realized, as others had done, that the methods of measurement of complete modern skulls were useless in this study. A complete fossil skull was not obtainable, never would be, and the measurement of parts were insufficient. He set to work to find out a new method of interpretation, and some persons were amused by his theories, and some fancied he had "a bee in his bonnet." When he began to apply his theories to the Pittsdown skull the "fat was in the fire." It was not possible to make a dogmatic assertion on the question, but he declared his conviction that there could be only one way of building up a skull, and he proceeded at the request of friends to build up this according to his method. To test this there had been submitted to him some fragments of a modern Egyptian skull, raising problems similar to those in the Pittsdown case. From them he built one which varied from a cast of the original by only one millimeter in width, two in height, and twenty in total capacity. The only serious mistake he made was in making the forehead too large, as he had assumed it was the skull of a male, whereas it was that of a female. Professor Keith related the nature of the various checks he employed in his system of reconstruction. He wished to show that it was not mere guesswork, but that the reconstruction of skulls was a science which before long would become exact.

The medical officer of the Local Government Board has made a report on the public health in England and Wales during 1912-13. Compared with the average of 1891-1900, the infant mortality rate declined 38 per cent., measles 16 per cent., scarlet fever 66, whooping cough 40, croup and diphtheria 57, enteric 75, tuberculosis (all forms) 32, pulmonary 25 per cent. The death rate from all causes was less by 27 per cent. in 1912 than in the period 1891 to 1900.

Some differences among the Governors and other bodies connected with St. George's Hospital have been much talked about. The Princess Christian resigned the Presidency. It is said that some irregularities of slight importance have taken place, one relating to appointment of a superintendent secretary. The committee and all interested will probably attend the Governors' meeting, which is due on the 12th prox., when the several matters can be explained and discussed.

The Insurance Act still gives rise to much discontent which has extended to the army—not unnaturally, considering how it affects the soldier. When he is ill, *i.e.* in hospital, deductions are made from his pay, but the societies in which he is compulsorily insured contribute nothing toward that deduction. The men say they should be paid, as civilians are, during illness, and the Insurance Commissioners ought to refund to them the hospital deductions.

The Strand General Hospital reports a decrease of contributions by the working classes to the extent of £130 last year, attributing this to people being treated on the panel system who used to voluntarily pay small sums to the hospital.

The Manchester Insurance Committee reports 54,000 medical cards posted under the act have been returned by the "dead letter" office. At Liverpool such "dead" cards have not been counted but weighed. Their weight exceeded 3 cwt.

Dr. Philip Whitcombe has died, aged 98, at Gravesend, where he practised sixty years and held many offices, among them Medical Officer to the Port of London.

Dr. Alexander Newington, physician to Ticehurst Lunatic Asylum, was killed by an accident in driving his motor car on the 17th inst. He was at one time physician's assistant at Bethlehem Hospital, and was a Cambridge M. B.

Brigade Surgeon C. C. Reid, who died in December last, qualified in 1852, and entered the army service the next year. He served in the Crimean War and received the medal with clasp and also the Turkish medal. He was in the Soudan expedition and received the Egyptian medal and clasp as well as the Khedive's bronze star.

## OUR BERLIN LETTER.

(From Our Regular Correspondent.)

RADIOTHERAPY OF CANCER—RADIUM IN THE TREATMENT OF CANCER OF FEMALE GENITAL ORGANS—FAVORABLE AND INJURIOUS EFFECTS—THE LATTER MAY BE DELAYED—RADIUM AND RECURRENCE—EFFECTS OF RADIUM ON GLANDS AND ON METASTASES—INFLUENCE OF AGE OF PATIENT—QUESTION OF DOSAGE—INTENSIVE ROENTGEN RADIATION—THEORY OF THE MODE OF ACTION OF RADIUM—LEUCEMIA AN OCCUPATIONAL DISEASE OF RADIOLOGISTS—RADIUM IN ADENOPATHIES AND DISORDERS OF INTERNAL SECRETIONS.

BERLIN, December 15, 1913.

THE treatment of cancer by means of radioactive substances is a subject that interests not only the medical profession and the sufferers from cancer, but also the public in general. Throughout Germany funds are being raised to provide the hospitals with supplies of radium and mesothorium. The greatest obstacle is encountered in the high price of the radium salts. But recent investigations have shown that by means of certain forms of apparatus it is possible to utilize the Roentgen rays in such manner as not merely to take the place of but actually in certain respects to surpass radium and mesothorium. The Berlin Medical Society devoted its meetings of December 3 and 10 to a full discussion of the above subjects.

At the former meeting Bumm reported his experiences in the treatment of 108 cases of cancer of the genital organs in women. Apparently in every instance the use of radium produced good results. A swelling of the growths was noticed shortly after the use of the radium emanations; later the tumors underwent a process of shrinking. Ulcerations healed over. In contrast to these fa-

vorable effects there may be pronounced injurious effects. If there are employed large doses of radium for the purpose of obtaining a deep and extensive action, there results a fibrous induration of the tissues which is followed by their hyaline degeneration. Perforations and stricture formation are further consequences. These effects may be manifested from one-half to one year after the application of radium. The most injurious in this respect are the secondary radiations. The statement that radium rays have a selective action upon carcinoma cells is applicable only in the case of moderate doses of the rays.

The most important question with reference to the radium treatment of cancer is the following: Is freedom from recurrence to be expected after this treatment? The short time that has elapsed since the introduction of this method of treatment has not provided any statistical data upon which one might base an answer to this question. But the microscopical examination of organs that have been subjected to the action of radium has thrown light upon this problem. It was demonstrated in one case that at a distance of 9½ centimeters from a healed carcinoma of the cervix there was a carcinomatous gland. In another case, at the site of a former cancer there was a fistula with cancerous metastases. In general it may be said that glands within 5 centimeters of the focus subjected to the radium emanations are favorably influenced. At any rate, the microscopic examination of the metastases has not demonstrated any pronounced malignancy of their cells, as is illustrated in the following case: After the application of the radium rays to a carcinomatous uterus, this organ was removed; while at the same time cancerous tissues in the broad ligament were left behind. In spite of this, the patient was apparently well one year after the operation. Of the 108 cases reported by Bumm, there have been 15 relapses. The general rule has been established that the younger the patient the worse is the result to be expected from the effects of the radium therapy in cancer.

As regards dosage, Bumm states that 50 to 100 milligrams of mesothorium are sufficient. The use of 200 to 300 milligrams is a grave error, for the larger doses frequently give rise to fever and other disturbances. Small doses at greater intervals and applied for a longer duration of time produce the best results. As a filter, aluminum or brass, but not lead, should be used. In addition a covering of rubber is recommended. The radium or mesothorium should not be brought any nearer than 3 to 4 centimeters to the tissue to be acted upon.

Recently certain *x*-ray tubes have been constructed that permit the use of intensive Roentgen radiations. With the use of these tubes it has been found possible to influence favorably a cervical carcinoma through the abdominal wall. Since the *x*-rays traverse the healthy soft parts before they reach the focus of disease, this method of treatment is particularly of value as a means of influencing the glands and metastases. Whether a combination of *x*-rays and radium is more efficacious than either of these alone remains for the future to decide. At any rate, up to the present time the best results have been obtained with the *x*-rays. It is as yet impossible to state whether radiotherapy is a reliable agent in the treatment of malignant growths. Nevertheless, there is ample evidence that certain inoperable cases have apparently been cured by this method.

"The Status and the New Aims of Radium and Mesothorium Therapy" was the subject of a paper by Paul Lazarus. He explains the action of the rays as follows: The cell nuclei provide centers of attraction for the secondary radiations, in which centers the phosphorized proteins play the chief rôle. In addition ferments are active, the radium acting as a catalyzing agent, with the result that a toxic nuclear and consequently a cellular destruction is brought about. The radium rays have no elective affinity for the cancerous tissues. But the latter are in a more susceptible condition than the former. Of great importance is the proper dosage. If this is too scant the tumors grow rapidly. The use of 150 milligrams of radium at the initial treatment is to be regarded as sufficiently potent. The injurious effects on the skin are less than in the case of *x*-ray treatment. The mucous membranes are attacked only by the larger doses. By means of the colloidal metals a secondary radiation may be evoked. Deepseated tumors should be brought to the surface by means of a surgical operation. Up to the present time the best results have been obtained by means of surgery, followed by the preventive application of radium. Cutaneous and inoperable carcinomata should be treated from the outset with radium, high fever and cachexia being contraindications. Injurious effects may occur years later. Leucemia may be regarded as an occupational disease of radiologists, seven cases having already been reported. Radium treatment has produced temporary improvement in the adenopathies and in cases of anomalies of the internal secretions. Radium has also been tried in pulmonary tuberculosis, on the basis of the bactericidal and hyperemia-producing properties of the radiations.

Only a few points may here be noted from a review of the extensive discussion that followed the reading of the above papers. Von Seuffert, of Munich, reported that he had treated 152 cases of cancer with small doses of thorium. Three-quarters of the cases were treated without the Roentgen rays. There were 103 inoperable cases. In all instances the effect of the treatment was a favorable one, as evidenced by the cessation of bleeding and pain. In 31 cases a clinical cure may be said to have taken place. The *x*-ray treatment is more available for both physician and patient. Joseph Hirsch has treated 126 cases of cancer with good results. In some of these complete cures were apparently obtained. The best results are obtained in sarcoma. Bickel has observed among a series of very bad cases seven fatal terminations, but otherwise without exception favorable results. H. E. Schmidt discussed the late injurious effects. In particular he believes that the intensive Roentgen apparatus will produce ultimate injurious effects. Alfred Alexander believes that by the observance of proper intermissions in the treatment the injurious effects are almost entirely avoided. He also advocates the use of small doses. At the same time the general condition of the patient should be looked after. The tonic effects of arsenic and other remedies are helpful adjuncts in the radiation treatment of cancer.

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**Anti-Skid Chains in Snow.**—When tires are frosty, or covered with snow, tire chains may be prevented from slipping around the wheel by straps passing between the spokes. Chains all around in winter is a good rule.—*Motor.*

# Progress of Medical Science.

## New York Medical Journal.

*February 7, 1914.*

1. Personal Experience with Tumors of the Carotid Body. J. C. DaCosta.
2. Neoplasm of the Bladder. V. C. Pedersen.
3. An Inflating Gastroscope and Duodenoscope. Robert Coleman Kemp and A. Vander Veer, Jr.
4. The Etiology of Oriental Beriberi. W. P. Chamberlain.
5. A Case of Auricular Fibrillation in a Child. S. G. Ehrenreich.
6. Lesions Produced by Various Streptococci; Endocarditis and Rheumatism. E. C. Rosenow.
7. Herpes Zoster Oticus. V. Dabney.
8. Psychanalysis. S. A. Tannenbaum.
9. Cutaneous Epitheliomata Cured by Sunlight. H. H. Seelye.

1. Tumors of the Carotid Body.—J. C. DaCosta states that one is justified to-day in concluding: First, that the carotid body exists more frequently than was formerly believed; that it is of unknown function; that it should undergo fibrous atrophy at or soon after puberty, and that if such atrophy fails to occur the carotid body will probably enlarge and such enlargement is to be regarded as a tumor. Second, tumors of the carotid body are of the type of endotheliomata known as peritheliomata. Third, these tumors, originally innocent, usually pursue a long course. Rapid growth is exceptional until years have passed. Sooner or later they tend to take on rapid growth and to cause functional involvement. Rapid growth signifies malignancy. A malignant change is sarcomatous in character. Fourth, the growth is almost invariably unilateral. Fifth, the carotid body is associated intimately with important vessels and nerves, its position being retrocarotid rather than intercarotid. It has a large blood supply which is carried by the ligament of Mayer. Any injury to the carotid body produces profuse hemorrhage and if an operation is once started it must be completed or the man will probably bleed to death. The relations of the carotid body render any operation difficult and dangerous and make postoperative complications probable. Sixth, the carotid body is intimately associated with nerves, involvement of which will produce symptoms. Tumors are lifted by the pulsating carotid artery, and are movable laterally, but not up and down. Seventh, operative interference is comparatively safe when the tumor is recent and small, but is fraught with grave peril when the tumor is old and with especial danger if it is large. The larger and older the tumor the more probable it is that ligation of the common carotid or of all the carotids will be necessary in the removal and that injury to important nerve structures will be almost inevitable. Early operation may enable one to dissect the tumor from the carotids, or to get off with tying the external carotid alone. As these growths tend strongly to become malignant eventually, as early operation is reasonably easy and comparatively safe, as late operation is difficult and highly dangerous, and as sooner or later the tumor, if let alone, will kill the patient, early operation is imperative.

4. Etiology of Beriberi.—W. P. Chamberlain states that highly milled rice lacks some substance necessary for proper nerve nutrition, and that this substance is contained in the polishings obtained during the process of milling. The neuritis-preventing substance is in the outer coatings of the rice kernel. Only a very small amount of the neuritis-preventing principle is necessary to maintain health. The same substance resides in many common articles of diet such as egg yolk, barley, peas, and beans. It is also present in yeast. This element is destroyed by a temperature of 120° C., and also by prolonged boiling. A safe undermilled rice may be rendered beriberi-producing if cooked by steam under pressure. There is considerable reason to believe that the neuritis-preventing principle is an organic base. Funk calls the substance he isolated a "vitamine" and has shown that it consists of three fractions. Not all authorities accept the polished rice theory of beriberi production. In some instances, particularly in certain asylums, on ships, and in South America a disease called beriberi is reported to occur among persons who eat little or no rice. Three explanations of these are offered: First, the diet may be an unbalanced one, lacking the neuritis-preventing substance, even though it is not a rice diet. Secondly, the neuritis-preventing principle originally present in the food may have been destroyed by excessive heat, for instance by cooking with steam under pressure. This possibility appears to have received no investigation. Thirdly, the term "beriberi" may include several varieties of peripheral neuritis caused by lead, arsenic, and alcohol, and by bacteria. That a diet of rice deprived of its pericarp will produce one type of neuritis in man, as well as in fowls, seems fully established. But it by no means follows that there may not be still other types of endemic tropical neuritis, each presenting a symptom complex not readily to be distinguished from that of Oriental beriberi, and each having a distinct etiological factor which still awaits discovery.

5. Auricular Fibrillation in a Child.—By S. G. Ehrenreich. (See Medical Record, January 10, 1914, page 83.)

6. Streptococci in Relation to Endocarditis and Rheumatism.—By E. C. Rosenow. (See Medical Record, December 20, 1913, page 1148.)

7. Herpes Zoster Oticus.—V. Dabney states that according to Chavanne primary herpes zoster of the ear is exceedingly rare. The latter observer reports a case of his own, in which he attributes the deafness and tinnitus to labyrinthine invasion by the specific herpetic poison. Hunt believes that those cases in which there is a long interval between the auditory disturbance and the eruption or other manifestation of the disease, are properly classed as herpes zoster oticus, and that the hypacusis is most likely due to involvement of the eighth nerve somewhere in its course, perhaps most often in its internal ear distribution. The author reports a case which could not strictly be classed as primary, but clinically it was such, as there was no manifestation of herpes at the time, nor had there been any manifestation for nearly two months. The points of interest in the reported cases are chiefly as follows: (1) Long period (month) between deafness and any definite herpetic manifestation. The pain could not be classed as such, as it was merely an unexplained otalgia. (2) The severity and persistence of the postherpetic otalgia—four months after healing of the last vesicle. (3) Futility of any treatment directed to a cure. (4) Success of high frequency electricity in temporary alleviation of pain. (5) Marked neurosis, which at one time exaggerated the symptoms, and yet at another allowed the substitution of sterile water for codeine, producing relief from pain, as much from one as from the other. (6) Successive crops of vesicles, or more properly, successive vesicles, as they appeared singly, and not in crops as is usual in other cases.

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## Journal of the American Medical Association.

*February 7, 1914.*

1. The Air as a Vehicle of Infection. C. V. Chapin.
2. Hyperacidity of the Stomach. A. Schmidt.
3. Some Points in the Treatment of Hyperacidity, Especially with Reference to the Use of Hydrogen Dioxide. C. H. Neilson.
4. Presence of Dialyzable Products Reacting to Abderhalden's Ninhydrin in the Urine of Pregnant Women. A Preliminary Report. L. M. Warfield.
5. A Serum Reaction as an Aid in the Diagnosis of Cancer. O. Lowy.
6. Investigation of the Prevalence of Malarial Fevers in the United States by the United States Public Health Service. R. H. von Ezdorf.

7. Value of Roentgen Analysis of Gastrointestinal Tract in Some Types of So-Called Functional Nervous Disorders. A Preliminary Report. L. Pierce Clark and A. H. Busby.
8. Possibilities in the Routine Practice of a Small Hospital. H. C. Cole.
9. Brain Abscess Caused by Fusiform Bacilli. G. F. Dick and L. A. Emge.
10. Heredity in Bone Lesions, with the Report of an Unusual Family History. J. Ransohoff.
11. A Case of Brain Abscess. C. E. Reynolds.
12. A Case of Hardware Swallowing. W. O. Wilder.
13. A Transverse Incision for Operation on the Scrotum. G. M. Dorrance.
14. A Case of Right Inguinal Hernia of Ovary and Tube. A. S. Barr.
15. A Congenital Malformation of the Neck. C. A. Parker.
16. The Mouth-Drip. A Method of Administering Fluid to Infants in Gastroenteritis (Alimentary Intoxication). A. F. Hess.
17. A Simple Cystoscope Holder. L. Friedman.
18. Uterine Specimen Forceps. W. C. Gayler.
19. A New Motor-Meal and Lavage Tube. F. Smithies.
20. A Simple Device for Protection Against Infection in Nose and Throat Examinations. J. F. Crouch and C. A. Clapp.
21. Apparatus for Intravenous Injection of Neosalvarsan in Concentrated Solution. D. Geiringer.
22. An Inexpensive Screw-Holder for Use in Bone-Surgery. G. L. Bailey.
23. Improved Cutoff: A Modification of the Instrument Used with the Valentine Irrigator. S. B. Goldsmith.
24. Simple Attachment for Blood-Counting Pipet. F. B. Schroeder.

**1. The Air as a Vehicle of Infection.**—C. V. Chapin presents a general review of the facts regarding infection through the atmosphere. This includes the subject of dust and droplet infection, the importance of which in the author's opinion has been overestimated. The question of dosage in causing disease is all-important, but qualitative studies have been somewhat neglected. The precipitation of germs in indoor dust, which has been allowed to accumulate, is no indication of the number in the atmosphere at any one time. There is but little evidence of aerial conveyance except in a few conditions, like bubonic plague. There is still some difference of opinion among physicians in regard to chickenpox, measles, rubella, etc., but the evidence is not conclusive. Anthrax ought to be more easily airborne than other diseases, and inhalation of dust in the atmosphere may be the cause in some cases. The decrease of the pneumonic or internal type, however, in those exposed has been much greater than that of the external or contact type which would indicate the value of precautions taken in recent years against the inhalations of dust. The author concludes that aerial transmission of disease is rarely an important factor except possibly in tuberculosis, but the last word has not been said in regard to this disorder.

**2. Gastric Hyperacidity.**—A. Schmidt states that in the treatment of this condition the principal point is not to confine oneself entirely to the stomach, but also to calm and strengthen the nervous system. Some patients are best treated by being sent at once to a hospital or sanatorium, and this should be demanded in every severe case. Naturally, one should try first to reduce the secretion. Atropine accomplishes this result, but its continuous use is not advisable, nor is that of the alkalies, which may irritate the gastric glands. The author favors the use of magnesium oxide combined with a small amount of belladonna and a purgative, such as sodium sulphate. Silver nitrate owes its excellent influence on hyperacidity to its astringent effect on the circulatory cells and partly to its blunting the hyperirritability of the mucosa. For the latter purpose it should be given half an hour before meals; for the former, a solution to rinse the stomach should be used in the morning with the aid of the tube. Diet is perhaps more important, and foods that act as secretory stimulants, like spices, coffee, strong alcoholics, etc., should be avoided. As to special diets, it is difficult to keep them up for any length of time, and the author has long returned to a mixed diet and strict observance of the following rules: All food must be thoroughly cooked and carefully minced. The stomach must come to rest at least once during the twenty-four hours and the times of the meals should be changed to secure this. Drinking should be generally diminished and restricted to times when the stomach is not filled with food, especially in cases of ptosis. If the condition is severe or combined with ptosis the patient should stay in bed for two weeks. Sometimes hot compresses are used to bring relief—twice daily for two hours. At night they are replaced by cold hydropathic compresses. Washing the stomach is indicated only when the hyperacidity is based on catarrh.

**7. Radiography of Gastrointestinal Tract in Functional Nervous Disorders.**—By Pierce Clark and A. H. Busby. (See MEDICAL RECORD, July 19, 1913, page 135.)

**10. Heredity in Bone Lesions.**—J. Ransohoff reports the histories of four patients suffering from bone lesions in three generations of one family. The grandmother died of pulmonary metastases of sarcoma of the femur following spontaneous fracture. One son died from recurrent hemorrhages following an osteosarcoma of the femoral neck. Another son with osteitis deformans involving the bones of the lower limbs and progressing into the spine died from nephritis. A daughter of the last patient showed on examination at the age of six months a fracture at the lower end of the left tibia. Various operations were performed, leaving marked shortening of the left leg. All these operations during childhood failed to better matters. Trophic changes, ulcerations, etc., made life so intolerable that amputation was resorted to when the child was sixteen years old. In all these cases bone tissue was probably by heredity a *locus minoris resistentiæ*.

**11. A Case of Brain Abscess.**—C. E. Reynolds reports a case of brain abscess with obscure symptoms due to Pfeiffer's bacillus and a staphylococcus, and involving the white matter of the angular and interparietal lobes and the left optic thalamus. The early symptoms, besides headache and vomiting, to which the patient was subject, were verbal amnesia and inability to use the right word. Later the symptoms became more severe and included a slight paralysis of the right upper limb and beginning optic neuritis of the nasal side of each disk appeared. Operation was performed and two small abscesses were drained. Death occurred from the formation of a third abscess cavity on the thirteenth day after the operation. The case indicates the importance of early exploratory operation in doubtful cases of intracranial disease before optic neuritis has developed.

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## British Medical Journal.

*January* 31, 1914.

1. Linitis Plastica, or Leather-Bottle Stomach. Sir John Bland-Sutton.
2. Two Years' Operating to the Clock. J. O'Conor.
3. The Production of General Symptoms in Hemoglobinemia. J. O. W. Barratt and W. Yorke.
4. A Case of Eosinophile Ascites; with Remarks. H. D. Rolleston.
5. Syphilitic Paralysis of the Esophagus. R. Saundby.
6. The Importance of a Leucocyte Count in Doubtful Cases of Appendicitis. G. F. Aldous.
7. Observations on the Functions of the Colon, with Special Reference to the Movements of Enemata. H. Drummond.
8. The Pre-Peritonitic Stage of Acute Appendicitis. V. Z. Cope.
9. Alternative Methods of Treating the Appendix Stump. T. B. Henderson.
10. Appendicitis with Symptoms Resembling Those of Renal Colic. B. Hughes.

**1. Linitis Plastica, or Leather-Bottle Stomach.**—Sir John Bland-Sutton states that this condition was first described as a distinct disease in 1854 by William Brinton, although it had been recognized at least two centuries before. The leather-bottle stomach is greatly contracted in size and its capacity is markedly diminished. Instead of being 12 inches long and 5 inches

wide, as the normal organ, it may be 4 inches long and 2 inches wide. Instead of being flexible its walls are rigid, thick, and hard like a leather pouch. When pressed upon the wall does not collapse, and, as Brinton pointed out, it resists even considerable pressure, and returns to its original shape like a large artery or a caoutchouc bottle. The thickening involves the gastric walls from the cardiac opening to the pylorus. At the pyloric end it is sharply defined, and the thin walls of the duodenum are in striking contrast to the thickness of the walls of the stomach. The condition predisposing to linitis plastica is an ulcer in the mucous membrane, which permits the connective tissue planes of the stomach to be permeated by infective agents associated with the ulcer, and the new connective tissue grows in response to the irritation they cause. The sharp limitation of the thickening at the pyloric ring accords with the anatomy of the stomach. The leather-bottle stomach produced by malignant disease has a similar history. A cancerous focus in the gastric mucous membrane—probably a chronic gastric ulcer which has become malignant—allows epithelial elements to permeate the connective tissue planes of the stomach.

2. **Operating to the Clock.**—J. O'Conor for years past has acted according to the idea that the success of a serious surgical operation on the unknown quantity, the human body, is in direct ratio to its rapidity. He emphasizes the fact that quick operating is not of value *per se* unless combined with conscientious and thorough workmanship, and unless compatible with the removal of the *fons et origo mali*, whether this be an infected appendix, Fallopian tube, or gall bladder, or other cause. The system employed by the author in timing operations is as follows: The nurse in charge of the operating room writes down the time by the clock the moment knife enters skin, and when final skin suture is tied calls out the time occupied. This is immediately written down by her on the operation slate, under the supervision of the resident medical officer, who later on in the day fills in all details in the operation register. The author has found that the employment of ether by the open method has materially diminished the percentage of cases of shock. In serious cases of anteoperative toxemia he has found the placing of the patients permanently out of doors, immediately after operation, to be of immense service, and during the early convalescent stage in such cases he has also found that there is no drug, or anything else, equal to the daily administration of a pint of the best dry champagne for a week.

4. **Eosinophile Ascites.**—H. D. Rolleston reports the case of a male aged 22 years who at the end of September, 1913, had colic and vomiting two days after eating some fish, followed gradually by jaundice and putty-like stools, and about the middle of October by transient pruritus. He was admitted to St. George's Hospital on November 4 with considerable jaundice, some rather vague resistance in the right loin, an enlarged and tender liver, and tenderness near the umbilicus. The gall-bladder and the spleen could not be felt. For a time there was some apparent improvement, but on November 21 ascites was obvious, and on December 3 seven pints of fluid were removed; this contained red blood corpuscles, lymphocytes 46 per cent., endothelial cells 29 per cent., eosinophiles 22 per cent., polymorphonuclears 2 per cent., and mast cells 1 per cent. The Wassermann reaction in the ascitic fluid and in the blood was negative. Examination of the stools did not reveal the presence of any ova of worms. The urine constantly contained bile pigment, but not bile salts, and there was no sugar; in the last week of life there was a trace of albumin on two occasions. Early in December the base of the right lung was found to be dull on percussion, breath sounds to be absent, and skiagraphy showed opacity. On December 12 the patient had severe abdominal pain, and the pulse rose to over 100. The pain gradually increased and necessitated the use of morphine. On December 14 the patient became comatose and died on the following day. His temperature, which had always been about normal, rose to 99.6° F. on December 14. The necropsy showed the following: The skin was universally jaundiced. There was acute peritonitis with a copious effusion which contained polymorphonuclear cells 79 per cent., lymphocytes and endothelial cells 21 per cent.; a count of 400 white cells showing two eosinophiles. There were numerous minute secondary growths on the peritoneum, especially on the diaphragm, which was much thickened. There was a primary "colloid" carcinoma in the ascending colon just above the ileocecal valve, which was not narrowed. The cecum was high up in the abdomen on the right side.

5. **Syphilitic Paralysis of the Esophagus.**—R. Saundby reports the case of a man, aged 35, who consulted the author on March 30, 1895, complaining of his sight going dark at times, with giddiness, but no pain; he was occasionally faint; he had been ill for a month, and was gradually getting worse; he did not think he ever lost consciousness, and he had never fallen down. His previous health had been good, and he had never had gout or rheumatism; twelve years before he had had a primary syphilitic sore. His father was alive and well; his mother was alive but insane. Two brothers were alive, one well; the other suffered from chronic heart disease, and a sister, aged 42, also suffered from chronic heart disease and kidney mischief. There was no other case of insanity in the family known to the patient and no case of fits. During the attacks, which began in the fingers of the right hand and ran up to the shoulder, the arm seemed powerless; his head was drawn to the right, and his speech became thick and he saw double. Ophthalmoscopic examination showed some haziness of the margin of both discs, especially the left. Physical signs were normal; the urine was thick with urates, but free from albumin and sugar. The patient was not seen again until November, 1902. He had had difficulty in swallowing, but there was no obstruction to the passage of a sound into the stomach; fluids regurgitated when he attempted to swallow them, and for eight days it was necessary to feed him with a tube. Under anti-syphilitic treatment he made a rapid recovery and swallowed naturally, although he could not drink a draught of liquid. There was no giddiness, but he had a sensation of warmth down the left side and the left hand was unable to distinguish between hot and cold. There was no analgesia or anesthesia. The knee-jerks were present; the pupils reacted to light, and there was no Romberg's sign. On March 11, 1904, he thought that his swallowing was not quite what it had been, but there was no apparent difficulty either with solids or liquids. There was still imperfect sensation of heat in the left hand; his eyesight was good. Paralysis of the esophagus is generally dealt with in a summary fashion by systematic writers. The causes given are diphtheria, hemorrhage, softening, tumor, or sclerosis in the brain, and pressure from enlarged lymphatic glands on the vagus nerve or disease of the vertebræ, chronic alcoholism, or lead poisoning setting up a neuritis.

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### Berliner klinische Wochenschrift.

*January 9 and 26, 1914.*

**Sport and Accidents.**—Bartsch makes of this subject what he terms a "hygienic-surgical study." Athletic

heart is first mentioned, and this is so common in sport of all kinds that we now hear of a "ski heart." There are, however, numerous accidents in the narrower sense of the term, including some very simple ones, beginning with excoriations and sprains and ascending gradually until fatal injuries and sudden death are reached. Naturally the better the constitution and condition of the athlete, and the less the hazard involved, the less we expect to see of sport-injuries. The author thinks it might be possible to devise a "scale of risk" applicable to all sports. This would begin with individual sports, after which a composite could be reached. Naturally the subjects of contributory neglect and prophylaxis could then be formulated.

**Magnesium Treatment of Tetanus.**—Stadler concludes his article as follows: he and others tested Meltzer's method in the Balkan war. There were no recoveries reported, but death resulted in three of five cases from cardiac failure and not from tetanus. Such figures show no comparison with the results of Baccelli's method in the hands of Italians. For some unknown reason the German surgeons do not get such favorable results. The claim that in Italy the disease runs a mild course is entirely unfounded. Again, English, French, and Russian surgeons have obtained excellent results from Baccelli's method, equal to those of the Italians. The author has made experiments with phenol and magnesium sulphate conjointly upon animals and will report upon them soon. The serum treatment caused an initial great reduction of mortality, while symptomatic treatment with phenol and magnesium has added to the percentage of cures, either alone or with serum. For the present we cannot decide upon the relative advantages of the two chemicals. In general phenol seems to excel magnesium by a wide margin, but if the latter is given subcutaneously instead of intraspinally the margin is somewhat reduced. During the next decade we should determine which of the three known antidiphtheritics is really superior.

**Sarcoma as a Result of the Uviol Lamp Treatment.**—Simon first applied these rays for cosmetic purpose to a small growth over a woman's clavicle. Originally a wen, it was excised. Inflammation set in, leaving a blue-red scar, which remained unchanged for years. In the meantime psoriasis developed and was treated with the uviol lamp. The small, slightly keloidal scar from the operation was incidentally treated with the rays. The scar proliferated until a large sarcomatous tumor developed and was excised. This condition represented an ordinary sarcomatous degeneration of scar tissue. The author discusses the pathology of this apparent transition, but is silent on the pathologic activities of the rays.

**Cure of Peritoneal Tuberculosis by Direct Insufflation of Nitrogen.**—Brückner after two laparotomies and the use of all manner of physical resources, tapped the abdomen and gave exit to 2½ liters of ascitic fluid, infused 500 c.cm. of nitrogen, which was well borne but caused no diminution in the amount of ascites. In nine days after he infused 600 c.cm. without attempting to withdraw any fluid. On a third occasion 800 c.cm. were used with no attempt to draw off fluid. Within a month later all ascites had disappeared. The general improvement has been marked. No return of ascites.

**So-Called Relapsing Umbilical Colic in Children.**—Küttner quotes a recent statement by Moro to the effect that in appendicitis in children we often find what he terms a "relapsing umbilical colic." Küttner emphasizes that a consequential relationship has not yet been proven here, although the colic is said to disappear after appendectomy. The author has had several personal cases, of which one is as follows: a boy aged 9, healthy and vigorous, began to suffer from crises of colic which was most intense at the navel. The attacks succeeded each other with repeated frequency. The duration was at times brief, and attacks sometimes were precipitated by rough play or prolonged walking. Pain often occurred while dressing in the morning, so that the boy fainted. Tenderness over McBurney's point not invariably present. In fact, there was no tender spot anywhere over the abdomen. Appendectomy revealed that the appendix was healthy enough, but very long, rotated, and kinked. The pains at once ceased. The entire series of cases were close to this type. Appendicitis seems to have been absent, save perhaps for brief adhesions which may not have been of inflammatory origin. Fecal calculi were found several times. A case of clinical appendicitis was included, but on operation a mere rudimentary origin was found, obliterated. It was probably responsible for the pains which went away after appendectomy.

**Staphylococcus Sepsis After Furunculosis.**—Cassel reports a case of this sequence, which he sums up as follows: the disease was a metastatic pyemia following superficial suppuration on the surface—from small furuncles. Before the general infection there were an abscess in the axilla and rheumatoid symptoms in the lumbar region. The possibility of a renal lesion was naturally thought of, and this was later verified by a diagnosis of metastatic inflammation of the right kidney. A collection of pus became encysted in the latissimus dorsi; and after this was opened and drained the patient seemed to have recovered. One month later, however, it suddenly became evident that a second metastasis had taken place. The urine for the first time revealed that the parenchyma of the kidney had become involved. There was phlegmonous perinephritis, the entire renal fat being involved, while the kidney was cyanotic and the seat of an abscess. Despite the number and severity of the lesions, nephrectomy seemed contraindicated. Other metastases began to appear, indicating a general pyemia. The treatment was, therefore, generalized and an autovaccine (staphylococcus) was used. The escape of pus from the original exploratory incision, as well as by the urine, served to limit the process, and it could be seen that much of the renal parenchyma was still intact. Patient made a complete recovery. His liver metastasis was of such character that it could readily be opened and drained.

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### Münchener medizinische Wochenschrift.

*January* 13, 1914.

**The Disease of the Chamorros.**—Leber, an ophthalmologist, in association with Prowazek, the naturalist, describes an affection which is common among the inhabitants of a small island in the Guam group, now owned by Germany. It has been called the "cold woods-disease of the Chamorros," and bears some relationship to the "amok" disease, sometimes regarded as psychic epilepsy. The islands have been visited by many plagues and endemic diseases, so that the healthy are in a minority. Psychoses *per se* are, however, not much in evidence; hence the striking peculiarities of the disease in question. The author describes a case as follows: Strong, undersized Chamorro man, known to suffer from ascarides and ankylostomiasis. Has never abused palm wine, nor have his ascendants. The patient is an only child. Father healthy, but mother suffers from fits of some sort, in which she speaks confusedly, laughs, etc., but does not lose consciousness. Attacks occur once weekly and last half a day. They begin as a rule with headache or gastralgia. Aside from these seizures the mother is healthy. The patient

is usually sad in behavior, and often has the obsession that something bad has been "wished on him." When this feeling grows strong enough he hides himself, and may suddenly leave his comrades. He has ideas of grandeur and superiority at that time, and looks down upon the other Chamorros; and even looks down upon his own family. Since at this period he tends to wander into the woods (bush) his illness is termed "waldkrankheit." From these attacks he recovers suddenly, just as the seizure begin suddenly by a collapse and loss of consciousness. Seizures of this sort began at the age of sixteen and between the ages of sixteen and twenty-four he has had five of these attacks. The phenomena during these seizures point to a complete forfeiture of all ordinary ethical sense. On one occasion the patient showed violence and sought to attack his family with a club; it was necessary to restrain him forcefully. As a rule there was no confusion of sex. He had homosexual dreams and longings as well as heterosexual. As a boy he had had coitus in the posture of beasts with other boys, had practised mutual onanism, etc. He was in these seizures unable to find a partner; but justified abnormal coitus because it is practiced by animals. A question of great importance is the association of these spells with the "amok," which has been so extensively studied from the viewpoint of epilepsy. In the latter the freedom of will is forfeited, deeds of violence are unimpeded, and the subject is wholly irresponsible. The "amok" is not really limited to certain countries, save by name, but something akin has been seen throughout the savage world. The element of suggestion plays a considerable rôle in some cases, and a genuine murder lust may supplant all other phenomena. In regard to the Chamorro disease alone, the author finds no evidence of suggestibility, and which may be set down as epileptic in character when psychical phenomena recur periodically, even although suggestive influences are not wholly wanting. Its relationship with other kinds of "amok" is still problematic.

**Clinical Studies of the Dialysis Procedure (Abderhalden).**—Oeller and Stephan conclude their serial article as follows: to prove the organ specificity of a ferment, the field of investigation must be widened, so that for "specificity control" several non-specific organic substrata may be utilized. For organ control the entire research must be conducted with both active and inactive serum. A doubtful serum cannot be investigated; one desires a serum which gives either positive or negative results. The author's final conclusion is that his studies as to dialysis can only be conducted in special laboratories; we see in these the sole way to make a biologic reaction serviceable in the clinic.

## Deutsche medizinische Wochenschrift.

*January* 15, 1914.

**New Methods of Treating Deafness and Subjective Sounds.**—Hegener sums these up in somewhat meagre terms, despite the extent of his paper. He believes that the old, acoustic methods have not at all been supplanted by the new costly apparatus. Nothing new in principle has been introduced, while the "new" results are lacking in comparison with the old. Diathermy and radium are so dangerous as to be safely applicable only by experts. Naturally there is no denial that they may eventually come into general use, through prolonged study of techniques. The daily press is largely responsible for the vogue of new measures, and should in some way be antagonized. The patient, thus deceived, blames only his doctor and the profession.

**Inversion and Total Prolapse of the Puerperal Uterus.**—Allmann emphasizes the great rarity of inversion in the puerperal uterus. Naturally in the latter inversion and prolapse cannot always be dissociated, but the author's title seems to imply a special degree of prolapse. With incomplete inversion there is no prolapse, while total inversion may or may not mean total prolapse. The author's article is devoted entirely to the inversion feature, representing one more addition to the sparse collection of cases. Concluding, he says that total inversion is a severe condition, irrespective of prolapse. In the hopeless cases we must wait, while if the prognosis is not hopeless we may attempt a gentle reposition. Should this fail, bloody reposition becomes necessary. When there is no clear indication the uterus must be extirpated.

**Bone Necrosis and Sequester Formation.**—Axhausen seeks to account for this sequence. We know he says that in small necroses, despite infection, there need be neither demarcation nor sequestration. In a rib stump in an empyema operation, the traumatic marginal necroses despite infection does not necessarily mean demarcation. The process is the same as that seen on the cranium, where a granulating wound is seen on a skull deprived of periosteum. The old surgeons explained this phenomenon by the term "insensible exfoliation." As a matter of fact there is here no exfoliation; only an internal metamorphosis of a superficial necrosis. The same thing occurs in the mild pneumococcus osteomyelitis of children. Here we see despite laying bare of bone and suppuration no sequester formation may occur. As bone after infectious inflammation starts in to repair, the surrounding tissues which possess the power of ossification force themselves into the necrotic area and bring about an internal restitution of bone tissue. If this area is small no sequestration results. Only when it reaches a certain size does sequestration occur. Determining factors are an increased degree of damage to the bone, and a high degree of infection.

**The Hypophysis and Diabetes Insipidus.**—Römer sums up his long study of this relationship as follows: Polyuria is often seen after fractures of the skull, contusions, etc.; representing acute injuries; as well as in connection with tumors, hydrocephalus, etc., representing chronic stasis. Hence the hypophysis is not the sole occasion for polyuria related to cranial stasis. In inherited polyuria anomalous hypophyseal development has been accused. In addition to these conclusions, there are others which refer directly to an original relation of diabetes insipidus; to the hypophysis cerebri. This does not necessarily mean an overaction of the pars intermedia, but rather to a withdrawal symptoms in the gland, especially the intermedia, indicating a failure to form a certain substance.

**The Treatment of Cerebral Tumors in the Child.**—M. L. D'Astros points out that the essential conditions underlying the radical or surgical treatment of brain tumors in childhood, is the exact localization of the tumor and its accessibility. Hydatid cysts and gliomata, if within reach, are amenable to surgical intervention. This can not be said of the tuberculomata which constitute the majority of the cerebral tumors of childhood. The reason is that these tumors are usually multiple and are accompanied by other manifestations of tuberculosis. Marked meningeal reactions and meningitis contraindicate the radical treatment.—*Annales de Médieine et Chirurgie Infantiles.*

**The Myotonic Reaction.**—M. I. Babonneix describes this reaction as consisting essentially in an increase of the muscular excitability both to electrical and to mechanical stimuli. The excitability of the nerve trunks is not increased. Appropriate galvanic stimuli produce a slow and prolonged muscular contraction. This reaction is present in two conditions: in Thomsen's disease and in the myopathies. In the former it occurs early and is constant. In the latter it occurs early but is not constant.—*Gazette des Hôpitaux.*

## Insurance Medicine.

**Progress of Life Assurance in the Past Thirty Years.**—In the presidential address delivered to the British Life Assurance Medical Officers' Association on January 7, 1914, by Dr. R. Kingston Fox, the progress of life insurance medicine in the past thirty years was traced. In referring to the greater fullness of reports of life insurance examinations the speaker calls attention to some schedules, especially those of well-known American offices, which demand from the examiners answers to a series of questions of extraordinary length and multiplicity and remarks that surely if the medical mind is fatigued by the detail labor thus required, it will be less ready to give, what is really wanted most of all, a reasoned and balanced opinion, under a due sense of responsibility, of the healthiness of the life in question.

As to family history the opinion is advanced that upon the whole rather less importance has come to be attached to the facts of family history in estimating lives. This seems to be due to the fuller recognition of the causes of disease, or rather perhaps of their immediate or exciting causes. Since 1884 the connection of many diseases with the life history of microorganisms has been established and the onset of such diseases is seen to depend upon external causes to an extent not previously supposed. Hence the factor of inheritance looms less large in the field of prognosis. Probably, however, it will still be well to give it an important place. So far as personal history is concerned fresh light has been thrown upon many questions.

Pleurisy with effusion has been shown to be most often tuberculous and as such should be regarded as an adverse factor needing consideration. As yet it is too soon to say whether recent improvements in the treatment of syphilis, and especially the use of salvarsan, will lessen the adverse influence of a syphilitic history. For it is the remoter consequences of this disease and especially general paralysis of the insane which we have to take into account in our prognosis, and a good many years' experience of the newer remedies will be required before it can be determined whether they prevent the onset of these more remote phenomena.

Surgery has rendered feasible various abdominal operations and other formerly difficult operations and has thus tended to render less serious from the life insurance aspect many disorders for which these operations are performed. As to the condition of the heart Dr. James Mackenzie has done much to alter the change of outlook on heart disease. There is no doubt that not a few lives having a fair prospect of longevity used to be rejected for insurance on account of valvular defects which were well compensated, and that we are now able to recommend many such cases at an extra rating. The measurement of arterial tension has not as yet taken a recognized place in insurance medical examination. In this matter our American colleagues have been before us and have done good work on the detail of the methods in use and on its bearing upon the prospects of life. There is a disposition among the American offices to require a record of the systolic blood pressure whenever the age of the proposer is forty-five years or more, and to fix a limit of about 150 mm. at and over which no life is accepted on normal terms. Upon the whole, Fox suggests that the time has come when the English medical forms should include a question on the arterial blood pressure which is to be reported on whenever there is any history or suspicion of heart or kidney disorder and in all cases without exception in which the age is forty-five or over.

The evidence which has been accumulated during the past generation with regard to functional albuminuria justifies a clear conviction of the reality of this disorder, and the time seems ripe for the definition of its true nature and its relation to the bodily processes. It is suggested that taking into consideration the lesser risks of life in the tropics owing to the prevention of malaria and other diseases of the tropics, to improved manner of living, improved sanitation, and also when the fact is regarded that most of those who go to the tropics are picked lives and that provision for holiday and furlough has now become systematized, may not the time have been reached when those who go out under ordinary circumstances to India and perhaps also to China, may be taken without extra rating?

The speaker in referring to lymphorheumatic diseases, said that it may be permissible to point out that the recognition from family records and personal history that a proposer is liable to this group of disorders, would afford a fact of value in estimating his prospects of life. It may be added that it often supplies a determining factor in judging of the necessity of antityphoid inoculation under particular circumstances. Stress is laid on the fact that tuberculosis and cancer account for about 15 per cent. of the deaths of insured persons, while a more important fact is that many of these deaths occur in early adult or middle life. As to tuberculosis we know that a great change has occurred; that the discovery of its living germ has given an immense impetus to the movement for treating the disease on hygienic lines. And the results are seen in the returns of deaths, for the mortality from phthisis has not only declined rapidly but at an accelerated rate. For adults in England and Wales of over twenty-five years of age the death rate is now about 40 per cent. lower than it was thirty years ago, and the fall has been greater in the case of women than of men. If the present rate of decline continues for another thirty years, and there is good prospect that it will do so, the old plague of consumption will wear a very different aspect in all civilized countries. This is a remarkable prospect. For insurance purposes it must be discounted a little, because the returns are for the whole community, and the insured classes have already been in the enjoyment of some of the advantages which are now extended to those who are poorer; it follows that they may not share to the full extent in the reduction of mortality. Yet evidence enough is left to greatly modify our outlook. In view, then, of the present lightening of the risk of phthisis and the prospect of its further reduction, we are surely justified in treating those proposers who show a liability to tuberculosis with less rigor than in the past. We may now, in his opinion, regard a family history of tuberculosis as of little importance if the subject himself has sound lungs and good habits; we may accept many cases at tabular rates where the suspicion of liability rests on slight evidence; and we may be content with lower ratings where these are called for.

# Book Reviews.

Diseases and Deformities of the Foot. By John Joseph Nutt, B.L., M.D., Surgeon-in-Chief, New York State Hospital for the Care of Crippled and Deformed Children; Surgeon, Sea Breeze Hospital, etc. Illustrated; price $2.75 net. New York: E. B. Treat & Company, 1913.

This book of 286 pages is designed, as the author states in his preface, "for the use of physicians who have not had the time or the opportunity for the thorough study of this often neglected subject," and should be of value to the busy practitioner in his work. It will help him in treating the minor ailments, and possibly the more severe ones. Like most volumes of the kind, however, in the attempt to be practical, it sacrifices scientific accuracy. One is surprised to see the terms "rheumatism" and "sciatica" employed in the rather vague manner in which the author uses them. The illustrations are somewhat crude, and their captions are not carefully thought out, *e. g.* Fig. 18. In the practical portions of the book the author is at his best. On theory he is not so good. He shows a familiarity with modern textbooks, but not the wide reading would expect from an authority. This leads him into didactic statements that cannot be substantiated, *e. g.* the pronouncement on the cause of bunion. His terminology at times is slovenly, *e. g.* "osseous flat foot," "acute feet." One cannot help thinking that the author would improve his book greatly by threshing out his ideas with his fellows. They seem somewhat "insular."

Dysenteries. Their Differentiation and Treatment. By Leonard Rogers, M.D., F.R.C.P., B.S., F.R.C.S., C.I.E., I.M.S., Physician to the Isolation Ward (Cholera and Dysentery) Medical College Hospital, and Professor of Pathology, Medical College, Calcutta. Price, $3.75. London: Henry Frowde; New York: Oxford University Press, 1913.

This interesting work on dysenteries includes chapters on epidemiology which describe and differentiate the two great classes of amebic and bacillary dysentery. During his investigations Professor Rogers discovered the rapid specific action of hypodermic injections of the soluble salts of emetine in amebic dysentery. This discovery increased, naturally, the importance of distinguishing this variety of the disease from that caused by bacilli. Two autopsies which proved that death was not due to relapses of amebic dysentery furnished the proof that emetine injections can bring about rapid and complete healing of both very acute and very chronic amebic lesions. Out of 30 patients treated with emetine injections 3 died, making a mortality of ten per cent. compared to 43 per cent. in the series treated with ipecacuanha. The entrance to the hospital of all three fatal cases was too late to give a fair chance of recovery. Professor Rogers concludes that in cases treated with emetine the diet difficulties are much lessened and some solid food can usually be given about the third or the fourth day after admission. There are also a chapter on sprue, diagrams of the seasonal incidence of Indian jail dysentery in relation to rainfall and mean monthly temperature, of the seasonal incidence of dysentery, diarrhea, and hepatitis in Calcutta, and of the distribution of dysentery lesion in the intestines.

Leitfaden der Hygiene für Studierende, Aertze, Architekten, Ingenieure und Verwaltungsbeamte. Von Dr. Aug. Gärtner, O.O., Professor der Hygiene und Direktor des Hygienischen Institutes der Universität Jena. Price M. 8.60. Berlin: S. Karger, 1914.

This is the sixth edition of Professor Gärtner's textbook on hygiene. The chapters have been thoroughly revised and many abolitions made. Among the latter we note in the chapter on the pathogenetic bacteria in dirt a paragraph on the extraordinary vitality of the anthrax spores from the feces and cadavers of animals dying from splenic fever. The German law requires the burial of such animals in a separate, hedged burying place. In the chapter on residences and the planning of towns, Professor Gärtner mentions the garden city movements and regrets that the waterworks and the streets cost so much as to render them impractical as yet for the factory workers. There are additional paragraphs on anaphylaxis and serum disease in the chapter on artificial immunity, and newly inserted subdivisions on whooping cough and black-water fever.

The Principles and Practice of Medical Hydrology. Being the Science of Treatment by Waters and Baths. By R. Fortescue Fox, M.D. (Lond.), F.R. Met. Soc., Late Hyde Lecturer on Hydrology, Royal Society of Medicine. Price, $2.00. London: University of London Press; New York: Oxford University Press, 1913.

This comprehensive treatise on hydrology has a number of valuable rules for the use of baths in health and interesting information as to the medicinal waters of Great Britain and as to the climatic element in hydrological treatment. There is an index of the spas in all countries. Dr. Fortescue Fox is a believer in an after-treatment of a week or two spent in some exhilarating climate among the hills or at the seaside, with pleasurable recreation but without over-excitement or fatigue.

Die Therapie an den Bonner Universitätskliniken. Herausgegeben Von Prof. Dr. Rudolf Finkelnburg in Bonn. Price, 9.60 Marks. Bonn: A. Marcus und E. Webers, 1914.

The contents of this compendium are as follows: Internal Diseases, by Geh. Rat Prof. Schultze, Prof. Finkelnburg, Prof. Paul Krause and Prof. Stursberg. Pediatrics, by Prof. Esser. Nervous and Mental Disorders, by Geh. Rat. Prof. Westphal, Prof. Hübner, and Prof. Finkelnburg. Surgery, by Geh. Rat Prof. Gerré, Prof. Machol, Dr. Bayer, Dr. Els, Dr. Fruend, Dr. Geinitz, Dr. Krabbel and Dr. Syring. Ophthalmology, by Geh. Rat Prof. Kuhnt. Ear, Nose and Throat, by Geh. Rat Prof. Walb. Gynecology, by Prof. Reifferscheid. Skin and Venereal Diseases, by Priv.-Doz. Frieboes. Special Methods, by Prof. Dr. Stursberg. Therapy of Intoxications, by Prof. Dr. Finkelnburg.

Particular stress is laid on the negative results of the Bonn clinical practice in order that practicians may avoid the use of numerous methods proven by years of experience of the clinic physicians to be worthless. Details of the special technique of the kinds of treatment and the inclusion of diet lists and formulæ give the book increased practical worth. Each division is compiled by the privat-dozents and the professors of the respective clinics.

Roentgentiefentherapie. Ihre Theoretischen Grundlage, ihre praktische Anwendung und ihre klinischen Erfolge an der Freiburger Universitäts-Frauenklinik. Von Prof. Dr. C. J. Gauss und Prof. Dr. A. Lembcke. Mit einem Vorwort Von Prof. Dr. B. Krönig. Price, 15 Marks. Berlin: Urban & Schwarzenberg; New York: Rebman Company, 1912.

Professor Krönig states that on the basis of the abundant proofs accumulated in the treatment of myomas and hemorrhagic metropathies in the last six years at Freiburg, he concludes that these diseases can be cured in nearly all cases in the non-operative way. The Freiburg University hospital has a cure percentage of 100 per cent. with their method of filter close irradiation. The Roentgen doses previously used were too small, and the writers hope that with sufficiently high doses uterine sarcomas can also be cured by deep irradiation. The writers emphasize the fact that the after-effects of Roentgenization are more like those after uterine extirpation than after castration. The first part is devoted to the theoretical bases of Roentgen deep therapy with biological experiments on plants and animals, and an account of the quantitative improvement of the dose of rays active for the human body.

Taschenbuch der Diagnostik und Therapie der Lungentuberkulose. Von Dr. Heinrich Gerhartz, Assistant am. mediz.-poliklin. Institut der Universität Berlin. Mit 48 teils farbigen Abbildungen und 13 teils farbigen Tafeln. Price 5 marks. Berlin and Vienna: Urban & Schwarzenberg; New York: Rebman Company, 1913.

This flexible pocket manual of 200 pages presents a full and at the same time terse account of the modern methods in the diagnosis and treatment of pulmonary tuberculosis. It contains many excellent illustrations showing correct methods of percussion, schematic drawings that serve to elucidate the text, tables of differential diagnosis, lists of European climatic resorts and sanatoria, full page plates, including those of radiographic examinations of the lungs, etc. The tuberculin treatment and the method of inducing artificial pneumothorax are fully described. The book is eminently practical and should prove invaluable to the student and practitioner.

# Society Reports.

## PRACTITIONERS' SOCIETY OF NEW YORK.

*Two Hundred and Fifty-ninth Regular Meeting, Held January 2, 1914.*

THE PRESIDENT, DR. WALTER B. JAMES, IN THE CHAIR.

**Intravenous Injections of Sodium Salicylate in the Treatment of Rheumatic Affections.**—DR. LEWIS A. CONNER read this paper (see page 323).

DR. STARR said he would like to ask whether in general routine practice Dr. Conner preferred salicylate of sodium to any of the other remedies containing salicylic acid which had been introduced. This did not bear on the subject of intravenous injection, but he asked simply for information.

DR. THACHER said he had had no experience with this method, but if the discussion broadened into the general use of salicylates, he could quote the experience of a physician, who, after working up a large practice, had retired on account of ill health. He had acquired a reputation, especially among Chinamen, for curing rheumatism, so much so that they were shipped to him from all parts of North America to be cured. They told him that other doctors were not able to cure them. He said that there was nothing remarkable in his treatment, but that he had suspected that salicylate of sodium was more apt to be adulterated than salicylic acid, and that moreover it was an advantage to have the freshly combined salt; he, therefore, wrote his prescription for a solution of salicylic acid and bicarbonate of sodium, and used large doses. This was his only explanation as to why he was famed for curing rheumatism better than other people did.

DR. ROPER said he had been interested in watching results in some of Dr. Conner's patients. He had attempted to determine the amount of excretion of salicylate by the ferric chloride color test and had been able to demonstrate after five hours that only three to six grains had been eliminated in that time. This was following a 30 grain dose intravenously. After five or six doses that meant that the patient had at least one hundred grains in his system.

DR. BANGS said he was much interested in the remarks about the technique. It was similar to that used in the administration of salvarsan. Had Dr. Conner had any difficulty in finding a vein? The case rarely happened, but sometimes an individual was met with whose veins were so small in the arm or so much encompassed by adipose tissue that it was almost impossible to find a proper vein. In such a case a vein of the leg had to be taken instead in order to find one to take the necessary volume.

DR. DANA said that when he was an interne in Bellevue Hospital the routine treatment of rheumatism was to make a saturated solution of bicarbonate of sodium and add salicylic acid, giving the latter in doses of twenty grains every two hours. The results were very satisfactory. Probably the large amount of fresh salicylate the patients received was the secret of success.

DR. KNAPP said he was particularly interested in what Dr. Conner had said inasmuch as rheumatic conditions of the eye were so frequent. These forms were not associated with articular rheumatism, but usually occurred in patients with a history of muscular rheumatism. In a very serious eye trouble, sympathetic ophthalmia, good results had been obtained by the use of large doses of sodium salicylate. He asked Dr. Conner if he thought that intravenous injection would be of value when such large doses had to be given.

DR. BRANNAN said that when bicarbonate of sodium was combined with the salicylates when first used, years ago, it was probably to obtain the alkaline effect of the soda, not simply to make the salicylates better borne. Did Dr. Conner use this intravenous treatment in private practice?

DR. KENNEDY asked Dr. Conner if this treatment had been used in chorea.

DR. JAMES asked in regard to the general effects, tinnitus, delirium, etc., if the dosage was pushed till these symptoms were obtained. He said he thought a field of usefulness might lie in acute rheumatic affections of the eye. Modern teaching led to the belief that the infections were similar. In the old days it was thought that the drug had to be pushed till they got the physiological effect. If in this case you could get the physiological effect without upsetting the stomach it would be an advantage. In regard to Rosenow's theory of the mutations of the bacterium responsible for the complications of rheumatism, it seemed a slight confirmation of this theory that it was noticed in the clinical study of these cases that if the patient who was subject to repeated attacks of rheumatism was to have a heart complication, he usually got it in the first or second attack; if not, subsequent attacks usually did not harm the heart. This suggested that in this particular patient the type of diplococcus which was present was not the one with an affinity for the heart valve.

DR. CONNER, in answer to Dr. Bangs, said he did not remember experiencing any difficulty in any of the cases referred to, but occasionally one did, in blood cultures or salvarsan injections, find difficulties. Everybody found that. The use of a tiny hypodermic needle made it possible to get into a very small vein. Regarding Dr. Thacher's remarks as to freshly made salts, that it had been claimed that many of the effects experienced were due to impurities in the drug and not to the drug itself, it was a fact that since they had been using the drug in the crystalline form they had had no unpleasant after effects. Before that he had occasionally seen an injection followed by a chill or by vomiting. In answer to Dr. Knapp's question, he thought that if a rapid and powerful effect was desired the intravenous method had a distinct advantage. It was singularly free from uncomfortable effects. In large doses there might be a ringing in the ears and perhaps sweating, but the absence of all prostration and of all stomach discomfort, vomiting, and nausea was very marked. In little children there was always the difficulty of finding a vein, but with older children this should not be a factor.

**"Wry Neck" Deformity from Congenital Nystagmus.**—Dr. M. ALLEN STARR reported this case. He said he had a child brought to his office supposed to be suffering from wry neck. The child was nine years old. She came in holding the head on the right side. She was able to turn the head to the left and there was no characteristics of wry neck. He found she had a bilateral lateral nystagmus, which was evident whenever she turned her eyes or head to the left or attempted to look forward, but when she turned her head to the right it ceased; therefore, in order to bring the eyes to the desired point she had to turn her eyes to the right and therefore her head to the right. She was a bright little girl. After using the eyes much she had slight headache. The case was one of congenital nystagmus and the position assumed by the head was secondary to this, not a true wry neck. Several cases were seen at the clinic every year, but this case was the only one in which a nystagmus persisting to the ninth year had been seen. Usually after the third or fourth year it was outgrown. In adults it was associated with brain tumor or multiple sclerosis. The nystagmus had been present since birth and a physician had told the mother it would be outgrown. He could do nothing to help the condition.

**Case of Metastatic Tumor of the Spinal Cord as First Sympton of Hodgkin's Disease.**—Dr. DANA reported this case. The patient, J. D., single, aged 27, was born of healthy parents. One brother recently developed tuberculosis. Patient had always been a strong, active man with no history of luetic or tubercular infection. About two years ago when he was kicking a football he suddenly lost his balance and fell very heavily on his back. He continued well, however, and went about his business until August, 1912, when he had another fall. Since that time he had had some pain in the back, occasionally running down into the left arm. In November, the pain extended into the shoulder and down the arm into the fingers at times. During December and January, 1913, he had an aching pain and tender spot in the spine about the level of the third dorsal vertebra. He had at this time an *x*-ray taken which was negative; also a von Pirquet test, which was negative. During the following spring and summer he continued to suffer some pain in this same region of the back and arm, especially when he was jarred. In March, 1913, he consulted Dr. Prout of Summit, N. J., who went over him thoroughly, but found no objective symptoms except a trace of albumin in the urine. He was put on iodide of potassium without any good results. A little later he was given a high frequency electric current treatment under which he improved. In April he had an attack of the grippe. During the next two months he improved and seemed to be fairly well until one day in the latter part of June, when he got a bad jolt while riding. After this the pains returned and annoyed him again. In July he had herpes zoster over the area of

the second dorsal nerve on the left side. About the first week in October he noticed a numbness of the left lower extremity and of the left side of the face. A few days later there was difficulty in urination and about this time it was noticed that his pupils were unequal, the left being smaller than the right; also that he chewed more on the left side of the face. Dr. Dana saw him first on November 1, 1913. Patient was a tall, thin man. He was sitting in a chair and was just able to get up from the chair and with help walk a little. This disability had developed quite rapidly within the past few days and even that morning he had been able to go up and down stairs. There was weakness of the flexors of the thighs and legs, but much more of the legs. He had a drop foot in each extremity, almost complete. The knee jerks were equal and exaggerated. There was ankle clonus on each side and the ankle jerks were exaggerated. There was no Babinsky and no plantar response whatever. There was no atrophy and no fibrillary twitchings. There was a distinct absence of pain and temperature sense extending from the toes to about the level of the nipple. The blood examination showed hemoglobin 100 per cent.; red blood cells about 8,000. The spinal fluid examination showed Wassermann negative; cerebrospinal fluid Wassermann, negative; globulin slight; cells about 25 per cmm. He was operated on by Dr. A. S. Taylor, who found an extradural tumor, lying over the upper dorsal segment, extending up and down for several segments. This was removed almost completely. It was sent to Dr. Ewing, who stated that it was a metastatic adenoma and a secondary deposit from some other glandular enlargement, due to Hodgkin's disease. The patient had been examined carefully by Dr. Corwin, the family physician; Dr. Prout, Dr. Foster Kennedy, and himself, and no enlarged glands had been noticed. On the announcement, however, that this was a case of Hodgkin's disease, Dr. Walter B. James was called in consultation. A further examination was made and a small glandular node was found near the clavicle, which was removed by Dr. Hartwell. This was examined and found to present the appearance of Hodgkin's disease.

Dr. James reported that at the request of Dr. Dana he examined the patient and found a diffuse swelling of the base of the neck on both sides, in which certain discreet glands of small size could be found. There was also swelling in the supraclavicular fossa on the left side over which there was dullness and diminution of breathing. The patient had complained of shortness of breath. It seemed to be clear that he was suffering from Hodgkin's disease with an unequal distribution of the glandular enlargement and the physical signs pointed to a fairly extensive mediastinal development of lymphoid tissue. Dr. James advised that a culture of diphtheroid baccillus, which had been isolated from the cultures of Hodgkin's disease by Bunting and Rosenow, be obtained and that a vaccine be made from this and administered. At the time of this report it was too early to determine whether any benefit was obtained or not.

Dr. Peck said he had had a patient a year ago in whom an early and unexpected diagnosis of Hodgkin's disease was made. A young man was admitted complaining of pain in the right iliac fossa. Appendicitis was diagnosed, but upon operation the appendix was normal. A small retroperitoneal gland was removed and found to be typical of Hodgkin's disease. No other glands were discoverable in the body and he made a complete recovery. Three or four months later he returned with other involved glands and symptoms of progressing Hodgkin's disease.

Dr. Starr said he had watched a well-marked case of Hodgkin's disease for three years. During the last six months there was a secondary tumor of the brain. This was manifested by mental symptoms, intense headache, slight exophthalmos, and other symptoms that were distinctly indicative of brain tumor. There were other tumors in the body and the neck. The persistent insomnia was a marked symptom. For nine months the patient had slept very poorly.

**Palliative Treatment of Inoperable Carcinoma of the Bladder.**—Dr. Bangs said he had recently been interested in trying to find out what could be done to relieve a patient with inoperable carcinoma of the bladder. Last April a man of seventy-three had come to him, having all the appearance of having received an extreme shock. He was tremulous, his face grey and drawn, and he was extremely depressed. He said that his case had just been diagnosed as "cancer" of the bladder and that this diagnosis had been corroborated by another prominent diagnostician. The man was frightened to death. He was urinating frequently and blood was always macroscopically present, but there was very little pain. Dr. Bangs cystoscoped him and found a growth occupying the base of the bladder, obscuring the ureters, and it was certainly inoperable. The prostate was enlarged, making cystoscopy difficult and painful. He had marked evidence of chronic nephritis. The question was how was the mental depression and fright to be relieved and what to do for the neoplasm. The patient was told that he had a pimple-like growth which might eventuate in cancer, unless it could be relieved and this could be done. The moral effect was instantaneous. His pulse grew better; his pallor disappeared; his courage returned. A marked grade of cystitis, with fetid urine and great masses of muco-pus, was present. The bladder was treated with irrigations of different kinds and with applications of creolin, the latter to reduce the loss of blood. After having controlled the infection of the bladder the neoplasm was fulgurated every week. The pain of the pressure of the instrument upon the prostate seemed to give him a mild kind of shock, leaving him tremulous and weak. At last he reached a point where he refused to have the fulguration done. The pressure of the cystoscope upon the prostate becoming intolerable, in spite of the use of local anesthetics. The method next used was to give him gas and oxygen for the fulguration treatment. A cystoscope was introduced, by means of which an insulated copper wire was led into the bladder. Through the wire passed an electrical current of extreme high tension and by using a make and break device a spark developed which had an effect upon the tissue exactly where the copper cable was placed. This had worked well, no inconvenience to the patient followed, and the malady was being held in check. This was certainly worth while, for the patient was able to attend to business and share in the ordinary every day life.

Dr. Starr asked if exposure to radium would be beneficial in the bladder.

Dr. Bangs said that Dr. Abbe had told him it was too difficult to use; that it caused great pain, and a better effect was produced by fulguration.

Dr. Abbe said he thought fulguration was better; so far as anything could be good in such an extreme case, that was the best. In the newer methods of using radium it might be tried in time, but at present the methods were not adapted for it.

Dr. Bangs said he had handled a good many cases of tumor of the bladder. By the fulguration method the growth could be cut down and it could be applied on the first reappearance of the tumor. Once having gotten the confidence of the patient the state of the tumor could be watched and its first reappearance checked. Early symptoms must be treated. He had no experience with radium and since this method gave results of which he was sure he preferred to stick to it.

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## SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

*Twenty-fifth Annual Session, Held at Atlanta, Ga., December 16, 17, and 18, 1913.*

The President, Dr. John Young Brown, St. Louis, Mo., in the Chair.

(*Concluded from page 272.*)

**The President's Address: The Diagnosis and Surgical Technique to Be Employed in the Handling of Acute Abdominal Conditions.**— Dr. John Young Brown of St. Louis considered, (1) gunshot and stab wounds of the abdomen; (2) injuries to abdominal viscera, resulting from severe abdominal contusions; (3) acute intestinal obstruction. Gunshot and stab wounds of the abdomen might be classified under three heads: (1) The simple penetrating wound, or a wound where the knife or bullet penetrated the peritoneal cavity without injury to abdominal viscera. (2) Penetrating and perforating wounds, or wounds where the knife or bullet penetrated the peritoneal cavity and injured either solid or hollow viscera, or both. (3) Complicated wounds, or wounds in which the entrance to the abdominal cavity was made by knife or bullet through the chest, pleura and diaphragm with or without injury to abdominal viscera. It was at times very difficult to differentiate between the simple penetrating wound and the pene-

trating and perforating wounds. Dr. Brown had time and again operated on a patient whose abdomen had been penetrated by a bullet with both a wound of entrance and exit, where no damage to peritoneal viscera was found when the abdomen was opened and careful search for perforations was made. Such wounds gave few or no symptoms. Again, he had operated on many cases in which there was present within multiple bowel perforations, giving no symptoms indicating the serious nature of the injury, for the reason that the patient was not bleeding, as the perforations were in the bloodless portion of the bowel. In the penetrating and perforating wounds, giving no alarming symptoms, delay in exploring was the usual rule, and when the exploration was at last made the patient was found to be suffering from a lethal peritonitis. In contradistinction to the symptoms occurring in the above mentioned cases, they had another type of penetrating and perforating wounds, giving immediate and alarming symptoms. In these cases multiple perforations of the mesentery were present and profuse bleeding occurred at once, bringing about profound symptoms of shock. Such cases demanded immediate operative treatment. Complicated wounds resulting from both knife and bullet were wounds in which the peritoneal cavity was penetrated by the entrance of the bullet or knife through the chest, the abdomen being opened through the diaphragm. While the majority of wounds of this type were readily recognized, he had seen quite a number of such injuries in which the diagnosis was difficult. In all stab and gunshot wounds, where the bullet or knife entered as low as the sixth interspace, irrespective of symptoms, injury to the diaphragm should be suspected and such wounds should be explored.

The surgical treatment of gunshot and stab wounds of the abdomen might be considered under four heads: (1) Preparation and examination of patients. (2) Method of locating injury to peritoneal viscera. (3) Repair of such injuries. (4) After-treatment. In the repair of perforations of the bowel, he had found that they could best be closed either by a purse-string suture or by a through-and-through stitch, supplemented by the Lembert's stitch. In gunshot work, where end-to-end anastomosis was necessary, he much preferred the button to the suture. It had been his invariable custom to drain all gunshot and stab cases where there was extensive soiling of the peritoneal cavity and where severe hemorrhage existed. The drainage was accomplished by means of a glass tube introduced through a stab wound above the pubis and placed at the most dependent portion of the vesicorectal pouch. As to treatment, no hard-and-fast rules could be laid down relative to the treatment of acute obstruction. Too much stress could not be laid on the importance of preparing such cases for operation. As the majority of them came in profoundly toxic and vomiting fecal matter, stomach lavage should invariably be done before the anesthetic was given. The surgical technique should be carried out as rapidly as possible, consistent with thorough work. Dr. Brown said he could not too strongly emphasize the importance of draining the bowel of its highly toxic contents in every case. The after treatment of all of the types of cases considered should be as simple as possible. It was his custom, unless there were special contraindications, to allow such patients to have all the water they desired. Strychnine was never used, and morphine was rarely needed. Proctoclysis, saline solution, being used by the Murphy method, he had found of value. The Fowler position he had practically abandoned as a method of treatment, not only in the types of injuries above described, but in his other acute work.

**Clinical Suggestions Based Upon a Study of Primary, Secondary, and Tertiary or Migratory Epithelial Hyperplasia in the Breast.**—Dr. WILLIAM CARPENTER MACCARTY of Rochester, Minn., said that the plan which suggested itself to him after an extensive experience with the pathological conditions to be dealt with and also an intimate association with the activities of surgeons, seemed to be based upon some known factors relative to the histology of epithelial activities and the fact that surgeons differed regarding the extent of operations necessary in the conditions which had been described. (1) The conditions which were associated with classical signs of carcinoma should be treated radically. (2) The doubtful cases in women near or over thirty-five years of age should have the entire mammary gland removed for immediate examination. If primary or secondary hyperplasia was present nothing more should be done; if tertiary hyperplasia was present a radical operation should be performed. (3) In doubtful cases near or under thirty-five years of age a wide section of the mammary gland, including the pathological conditions, should be removed for extamination. If primary hyperplasia was present nothing more should be done. If secondary hyperplasia was present the rest of the mammary gland should be removed, and if tertiary hyperplasia was present the radical operation should be accomplished. This plan avoided incision of tumors. It removed the possibility of unnecessary radical operation and their physical and psychical embarrassment. It provided for a scientific means of determining more accurately the stage at which cancer might be cured by surgical operations, and the extent of the operation which was necessary to effect such a cure. In the experience of this clinic the removal of the mammary gland preceding an immediate radical operation had not been associated with earlier recurrence than had been found after a primary radical operation. The plan was herewith presented with the realization that it was a conservative experiment which was based upon scientific facts. It was based upon actual research upon each specimen, and was free from the incumbrances of extensive terminology and dogmatism relative to what was and what was not carcinoma.

**End-Results in Operations for Cancer of the Breast.**—Dr. E. S. JUDD of Rochester, Minn., presented a review of the results of operations for mammary cancer in the Mayo clinic from January 1, 1902, to January 1, 1912. This covered 608 cases, of which it was possible to trace the subsequent histories in 514. In all the patients the operations were radical and consisted in the removal of the entire breast, axillary glands and fascia, including the pectoralis major and minor muscles, usually all in one piece. The diagnoses in all of the cases were made from both macroscopic and microscopic evidence. Of the 608 patients, 2 were males, one of whom was alive without recurrence 3 years after the operation, and the other died at the end of 2 years and 8 months from recurrence. The youngest patient was 25 years of age and the oldest 85 years of age. By decades their distribution was as follows: 20-30 years, 13; 30-40, 147; 40-50, 228; 50-60, 147; 60-70, 88; 70-80, 27; 80-90, 1. Of the 13 patients under 30 years of age 5 were alive and well without recurrence. Of the 514 patients of whom the subsequent history is known, 266, or 52 per cent., are known to be dead, though 21 of these died from other causes without clinical signs of recurrence of carcinoma, leaving a balance of 48 per cent. of deaths, probably from cancer, for the entire series. Two hundred and forty-eight of the 514 patients were known to be alive from 2 to 11 4/12 years; 37 of these were known to have recurrences. Of the patients operated on during the years 1902 and 1903, 40 have been traced, 27 were known to be dead from various causes, leaving a percentage of 33 alive without recurrence more than 10 years. Three of those who died lived more than 6 years and died from other causes. Of the 321 patients operated on more than 5 years, 266 were traced; 148 were known to be dead and 106 living, a percentage of 40 who had lived more than 5 years. Six of the living had recurrences at present. Fourteen of those dead had died from other causes than cancer. Of the 510 patients operated on more than 3 years, 437 had been traced; 234 were dead, 191 living, a percentage of 45 of patients living more than 3 years. Twenty-seven of these had recurrences at present. Nineteen of those dead had died from other causes. One case was reported of a patient who died 9 1/12 years after the primary operation from general carcinosis; one from internal metastases without local recurrence 6 5/12 years after operation; and one on whom a secondary operation for recurrence was done 12 years after the primary operation. In this latter case the patient remained well nearly 3 years after the secondary operation. While noting the importance of an immediate radical operation after a diagnosis of carcinoma from a test specimen, Judd noted that the delay in such procedure did not necessarily always mean a bad prognosis. Conversely, he noted that patients in whom there was a very small mammary lesion without determinable glandular involvement might die of early internal metastases. He noted that while edema of the tissues was usually a contraindication to operating, one patient in his series on whom the prognosis was bad because of edema, and yet who was operated on as a palliative measure, was still alive without recurrence 5¼ years later. He noted that cancer in the lactating

breast had usually been rapidly fatal. A very large percentage of the patients heard from had reported that functionally their arms were all right or practically as good as ever. Judd noted that when it had been necessary to destroy one of the motor nerves the function of the arm was much more apt to be impaired. Not over 5 per cent. of the cases had had swelling of the arm. His conclusions were as follows: (1) Results in operations for cancer of the breast were as good if not better than results in operations for cancer elsewhere. (2) The prognosis in younger people who received the benefit of an early operation was better than they had expected. (3) The prognosis was variable in a certain per cent. An extensive external involvement might give a fair prognosis, while a slight external lesion might terminate early from internal metastasis. (4) That metastasis might occur many years after the operation, though in the great majority of instances they would appear in the first few years, if at all. The difference between the percentage of patients living over 3-5 and 10 years was not as great as might be expected, but this was because most patients who died of the disease died within the first 3 or at least the first 5 years. Five years without recurrence meant a very small probability of trouble after that. (5) Comparing these results with those of former years they felt that the results were improving, and that the improvement seemed due to the fact that patients were coming earlier rather than to any improvement or change in the technique.

**Hydrocephalus Internus; Lumbar Drainage by Utilization of a Meningocele Sac as a Drainage Tube.**—Dr. HERBERT P. COLE of Mobile, Ala., stated that the investigations of Leonard Hill disclosed the regulation of cerebrospinal pressure to be due to the venous and lymphatic circulation. The routes of communication, five in number, between the intra- and paracerebral spaces, offered numerous paths for drainage in the event of obstruction to one or more routes. Surgical treatment of hydrocephalus internus, instigated by the failures of medical treatment, dated its inception with the earliest days of surgery. Unfortunately only callosal puncture as advocated by Von Bramen, drainage into the longitudinal sinus after the method of Pays, and the combined subarachnoid and aspiratory procedure of Pussep seemed to be based on a clear interpretation of the anatomical and pathological problems to be dealt with. Numerous other drainage methods to the ventricles direct had been discarded so frequently as to indicate that as yet the operation route of choice had not been obtained. Various surgeons had advocated drainage of suitable cases through the spinal route. Of the different methods that of Cushing seemed to meet with enough success to encourage safe experimentation with this method. By a meningocele sac formed above a spina bifida he attempted to drain a case of hydrocephalus internus through the sac into the lumbar muscles. The case demonstrated that such a drainage would be maintained and was maintained for two weeks without leakage and with relief of the pressure symptoms. The child died on the twenty-sixth day of obstruction in sac. The author concluded that a knowledge of the normal drainage routes was essential to surgical drainage in these cases. Lumbar drainage in suitable cases seemed to offer a better field of experimentation as it was easy of approach and a cleaner field for repeated operations. Drainage by the spinal route might be either subperitoneal or intramuscular. A meningocele sac might be used for a drainage tube, but should be supplemented by an intrasacular firm tube drain. The tender age of the subjects, usually with grave destructive cortical lesions and attendant malnutrition would ever hold the surgical treatment of this condition one of alleviation rather than cure.

**Surgery of the Pancreas.**—Dr. R. C. COFFEY of Portland, Ore., stated that from experimental surgery they had reached the following conclusions: (1) The peritoneum must be brought to the field of operation in all direct pancreatic surgery. (2) Fat necrosis could only occur when the pancreatic fluid was delivered directly into the extraperitoneal fat. (3) Pancreatic fluid was no more dangerous than bile to the peritoneum, provided ample drainage was used to deliver it to the surface at once. (4) The pancreatic duct seemed to depend upon contiguous pancreatic tissue for its nutrition, and, therefore, was not adapted to direct implantation into the intestine. (5) The cut end of the pancreas, carrying an open duct, might be implanted into a loop of intestine with the same assurance that an intestinal anastomosis was made. (6) There was a marked tendency of the pancreatic ducts to reestablish continuity around a gap or an obstacle, provided the pancreatic fluid was temporarily delivered to the surface. (7) If the head of the pancreas was removed and the open end brought to the surface, a pancreatic fistula resulted, which usually closed in a few weeks. The secreting portion of the gland was rapidly destroyed, leaving a fibrous cord which contained many islands of Langerhans. These principles were borne out by the clinical work which had been done. The importance of surgical intervention in traumatic conditions of the pancreas was indicated by the following statistics from Mikulicz: Of forty-five cases of pancreatic injury, there were twenty-one penetrating; twenty-four subcutaneous or penetrating, twelve gunshots, nine stabs; five of the twelve gunshot wounds were operated, three recovered; seven not operated; all died. Seven of the nine stab wounds were operated on and recovered; of twenty-four cases of subcutaneous wounds, thirteen not operated on; all died; of eleven operated, seven recovered. These results corresponded exactly to the principles set forth in the experimental work in that drainage was the only essential feature. Finney and others had resected the middle of the pancreas and brought the cut ends together, using drainage to temporarily take care of the pancreatic juice. Finney's patient made a perfect recovery. Bloodgood had removed the head of the pancreas for cancer, had brought the cut end to the surface, produced a pancreatic fistula, which finally closed. The patient died nine months later from recurrence of cancer in the liver. Post mortem showed destruction of the pancreatic secreting tissues, leaving a fibrous cord which retained the islands of Langerhans. The exact result was the same as observed in experimental work. The writer had removed the tail of the pancreas, as had also Mayo and many others. The duct closed in a very few days, just as occurred in experimental work. The only principle of the experimental work which had not been paralleled by clinical work was the implantation of the pancreas into the intestine in the human. Freeman of Denver had performed that operation by his technique and found it not at all difficult. Unfortunately his patient died as a result of shock. Taking it all together, comparing the clinical work which had been done empirically, and the experimental work which he had performed, their perfect harmony seemed to indicate he had reached a definite basis for pancreatic surgery. Barring the greater anatomical difficulties, we might safely say that surgery of the pancreas was probably on exactly the same basis as surgery of the gall-tracts.

**Pyloric Stenosis in Infants.**—Dr. JAMES F. MITCH-Young Women.—Dr. RANDOLPH WINSLOW of Baltioffered interesting data of distinct diagnostic and pathological value in the development of radiography by means of the bismuth meal before and after operation. Autopsy reported and operation protocols were uniform in their description of a pyloric tumor which was always present, hard and free from adhesions to surrounding parts. The whole pyloric stem was thickened and in cases of long standing the stomach might be dilated and its walls hypertrophied. On inspection the pyloric thickening was found to be due almost entirely to an enormous development of the circular muscle fibers, an increase in both size and number. The lumen varied, but in marked cases with difficulty admitted the finest probe. The etiology was purely speculative, the two leading views being, first, that it was a congenital anomaly which progressed after birth, and, secondly, that there was some primary irritation with consequent spasm and hypertrophy. Kaupe, in 1909, after a careful study of three hundred and forty-six articles bearing on this point, concluded that the etiology was still a mystery. The clinical picture was well established and so characteristic that, having seen one typical example, a second was not likely to be overlooked. The diagnosis in his second case was made by the Sister who had observed the first in its hospital course. Nearly all were described as having been healthy at first: eighty per cent. boys, and the majority first born and breast fed, although Rammstedt had recently reported an operative case which was the third child in one family to have the same condition. In many cases a hard tumor could be palpated at the site of the pylorus, with this observation varying with different reporters from twenty-five to seventy-five per cent. He could not definitely feel a pyloric tumor in any of his three cases examined without an anesthetic. The diagnosis could usually be made on the above signs and

symptoms; but it must be remembered that these varied with the degree of stenosis and that in consideration of the treatment, pyloric spasm without stenosis should, if possible, be excluded. The bismuth radiograph was of great assistance in the differential diagnosis. Surgically, various procedures had been used, such as pylorectomy, divulsion, pyloroplasty, and gastroenterostomy. It was generally conceded that pylorectomy was too formidable. Divulsion offered evident difficulties. The ordinary pyloroplasty was unsatisfactory because of the unyielding structure of the pylorus, and Finney did not consider his operation applicable. In this country posterior gastroenterostomy had been so universally employed as to be looked upon as the operation of choice. Dr. Mitchell, after considering at length the statistics of either medical or surgical treatment, stated that his own experience had been limited to three cases. All came to operation early, only one having reached any degree of emaciation, weighing five pounds, six ounces, a loss of over three pounds since birth. Two were operated at seven weeks and the third at six weeks of age. A posterior gastroenterostomy was done in each instance. The pylorus always presented the typical stony hard, olive shaped tumor with apparently occlusion of the lumen. They were now healthy, normally developing children, three and one-half years, two and one-half years, and eight months after operation. Dr. Mitchell had been able to secure a radiograph of the second case which showed, after two and one-half years, that bismuth was leaving the stomach through the stoma and none by way of the pylorus.

**Excision of the Clavicle and First Rib for Malignant Disease.**—Dr. R. E. Fort of Nashville, Tenn., stated that the immediate mortality of excision of the clavicle was between 16 and 18 per cent. but the end results, or those who died from recurrence, was quite 70 per cent. The results, however, were sufficiently hopeful to make immediate surgical intervention not only justifiable but mandatory. In two cases there was recurrence in four years after operation, in two within 18 months, in one case sarcoma of the femur developed three months after operation, in one case there was local recurrence within six months, in one recurrence was immediate, in one sarcoma recurred in the upper jaw nine months after operation, in three cases recurrence was within three months, in seven recurrence occurred within six months, two were well five years after operation, one case well one year, one case well seven months, one case two years, and a case of his own well six months after operation. Dr. Fort's conclusions are as follows: (1) Primary sarcoma of the clavicle was a rare condition, and the earlier the diagnosis and the more radical the treatment, the better the chances for complete recovery; (2) the writer was of the opinion that partial excision of the clavicle or first rib should not be practised for malignant disease; (3) the danger of local or general metastases was very great, and as division of the bone increased this hazard, excision should be made with the bone intact; (4) because of the favorable results obtained in the few cases of sarcomata of the clavicle and the larger number of sarcomata of the long bone, it was advisable to use the mixed toxins of erysipelas and *Bacillus prodigiosus* for two or three months after operation; (5) under modern aseptic conditions the mortality for excision of the clavicle and excision of the first rib should be comparatively small, and considering the fate of the patients who were denied surgery, the opportunity of relief by surgery was mandatory.

**Congenital Tumors of the Neck.**—Dr. C. E. Caldwell of Cincinnati said that any statement as to the histogenesis of these tumors must be accepted with certain reservations. From the histological findings in a given case they could establish its origin at best only inferentially. More critical study of these tumors, and especially careful histological examination, had shown that not all congenital tumors of the neck were branchiogenic. In estimating the probable nature and origin of such tumors, they must be guided first of all by the history, second by the location, third by the consistency, fourth by the nature of the contents, and finally by the histological elements predominating in the investment of the cyst wall, the interstitial tissue of the wall itself, and the structures in most immediate relation to it. The impossibility of dealing with the whole of this subject in a manner which could be productive of any conclusions worth the while, necessitated limitation to the subject of multilocular serous cysts. From the contributions of Savelli and Florence Sabin, it seemed to Dr. Caldwell that the evidence adduced proved that the lymphatic cavities described by Veau, and the jugular sacs described by Sabin were but different interpretations of the same histological facts, and that in these lymphatic cavities or perhaps more accurately speaking, jugular sacs, they had the fetal anlagen which resulted by arrested evolution, in the multilocular serous cysts, the nature and disposition of which corresponded most accurately with that of these sacs. The absence of a true endothelial investment of the sacs or cysts might be explained on the theory of atrophy from intracystic pressure.

**The Significance of Pain in the Right Iliac Fossa in Young Women.**—Dr. Randolph Winslow of Baltimore stated that he believed that unless the symptoms of appendicitis in young women were frank and clear, the condition was probably something else. Pain and tenderness in the right side, without rigidity, elevation of temperature and leucocytosis was usually not appendicitis. Apparently severe and long-continued pain in the right side in girls was more likely to be neurotic than appendical. Pain might also be reflected from the pelvic organs or some of the other viscera, and the primary seat of the disturbance might be determined by a more careful examination. He thought we frequently operated too hastily on a diagnosis of appendicitis, without considering sufficiently the other possibilities in a case.

**An Instrument and Method for Removing Varicose Veins.**—Dr. Mack Rogers of Birmingham, Ala., stated that the instrument seemed to be an ordinary flexible probe with a handle, but on examination it was found that it was not flexible, but that it was rigid in order to avoid the pockets and sinuses in the walls of the veins and to follow more readily the tortuous course of its lumen. Just in front of the handle there was a distinct shoulder to prevent the ligature from slipping back over the handle. The handle was also very small that it might pass more readily through the lumen of the vein. An ordinary gynecologic standard would afford elevation and support for the foot with the leg extended. A button-hole incision was made about 3 inches below the saphenous opening, transversely to the vessel. The vein was picked up, divided, and the proximal end was ligated and dropped back. The point of the instrument was now inserted into the distal end of the vein and the probe was gently passed down through the lumen of the vessel till the shoulder of the instrument met the cut end of the vein; now a secure ligature was passed around the vein near its cut end causing it to firmly embrace the probe just in front of the shoulder; now the instrument was again gently passed down as far as the tissues around the shoulder or the obstructions in front of the point would permit. The point of the instrument was now elevated beneath the skin, and a second button-hole incision was made over the point of the probe, the same as the first. The vein in the bottom of this incision was again divided and the point of the instrument was forced out through this second opening and was caught by a pair of clamp forceps. While the assistant supported the skin and subcutaneous tissues on each side of the instrument, the operator by successive backward and forward movements of the forceps holding the tip of the probe would gradually strip off the tributaries and surrounding tissue, as the vein was turned inside out on the handle of the instrument as it was dragged down through the lumen of the vessel until it emerged from the second button-hole incision. This process was repeated till all vessels needing it had been removed. Whatever hemorrhage might theoretically occur from the lacerated tributaries was controlled by their own elasticity and the pressure exerted by the hands of the assistant on each side of the instrument at the time. Sometimes the vein broke before it could be removed. This occurred when the tributaries were unusually large and numerous. This also occurred in cases where the walls of the vessels had become thickened and adherent to the surrounding tissues. When this break did occur a new button-hole should be made at the point where the vein gave way and another effort should be made to remove it. If, however, this attempt was not successful, open resection should be resorted to till this particular obstruction had been passed over, then the subcutaneous method should be employed.

**Post-Operative Acute Dilatation of the Stomach.**—Dr. E. P. Hogan of Birmingham, Ala., stated that his limited observation of the prone position had not been satisfactory. In his judgment this position was inconvenient and uncomfortable. He had used the following

treatment in his own cases: (1) The stomach tube was inserted and the stomach was emptied of all contents and irrigated with physiological salt solution until the water returned clear. (2) The patient was placed in the horizontal right latero-prone position. This position was in every way convenient and comfortable. (3) Continuous proctoclysis was given. (4) Everything by mouth was excluded until symptoms were entirely relieved. (5) Strychnine and spartein were given (strychnine, gr. 1/60 or 1/30 and spartein, gr. 2 every four hours). (6) If the patient was not prostrated and was nervous and restless, sufficient morphia was given to produce comfort and sleep. With the above treatment some cases would have no further trouble. In others it might be necessary to repeat the washing of the stomach and morphine some four to twelve hours later. It should be repeated as often as indicated.

**Intestinal Resection; Successful Removal of More Than Twelve Feet of Bowel with Observations on the Subsequent Metabolism.**—Dr. RAYMOND C. TURCK of Jacksonville, Fla., reported the successful removal of 10 feet 10¾ inches of ileum, together with the cecum, ascending and part of the transverse colon because of dense adhesions, numerous partial obstructions, fecal fistula, and multiple sinuses. The work was done in three stages. Serious metabolic disturbances and diarrhea followed. Studies of the metabolic processes, eight months after the ileum resection, showed that a probable compensatory hyperplasia of intestine with consequent compensatory production of enterokinase had taken place, enough, with a regulated diet to thoroughly digest and assimilate carbohydrates and a moderate amount of fats, but not enough to fully care for proteids. A measured diet, adjusted according to caloric values, and thorough metabolic examination of feces controlled the diarrhea and caused a decided gain in strength and weight. Medication had no effect upon the diarrhea. Turck believed that, since the small intestine varied from 15 to 25 feet in length, no absolute rule could be laid down as to the amount of gut that might be removed with safety, and that reports of extensive resections were of no especial scientific value unless there could be shown in that particular individual the total length of intestine. Short-circuiting, when possible, was preferable to resection, particularly if the absorption area in the ileum was involved, and in cases of necessary extensive resection it was suggested that Fantino's plan of creating a vicious circle in the remaining segment of gut be tried.

**The Conservative Treatment of Undescended Testicle.**—Dr. ALEXIUS MCGLANNAN of Baltimore stated that the important questions to be decided regarding the conservative treatment of undescended testicle were, first, Was the non-descended testicle worth saving? Second, Was it technically possible to bring such a testicle into the scrotum in a manner that would preserve its vitality? A study of 16 cases operated upon by Dr. McGlannan, the histology of seven undescended testicles removed by several other operators, together with the literature on the subject, proved that an affirmative answer should be given to both questions. The histology of undescended testicle permitted the separation of these glands into four groups: (1) Those with few signs of disturbed development. (2) Those with marked disturbance (infantile type). (3) Those showing senile retrogression. (4) Those consisting largely of edematous fibrous tissue. The testicle might be arrested in the groin at the pubes, or remain in the abdomen. The vas and its vessels, as well as the spermatic vessels, might descend farther than the testicle, or might be in the canal or scrotum, while the testicle remained in the abdomen. The vessels and the testicle might be contained in a peritoneal fold, practically a mesorchium. In many cases simple division of adhesions in the canal, and straightening of the vessels, would permit the transplantation into the scrotum. When this failed, the shortened spermatic vessels were nearly always found to be the obstacle. Under such circumstances these vessels should be divided, as advised by Bevan, depending on the deferential vessels for the nutrition of the testicle. The factor of safety in the testicular blood supply was great enough to give a sufficient circulation after this maneuver. Unless the shortened structures be lengthened the transplantation would fail. No amount of fixation in the scrotum, or fixation by plastics to the thigh would prevent retraction on the shortened cord. The best age for operating was at about 10 years, so that the development of secondary sexual characteristics might not be retarded. In adults nearly one-half the removed undescended testicles contained tubules showing active spermatogenesis, the remainder were either infantile or senile. Senile atrophy occurred earlier, and progressed more rapidly, than in the normally descended gland. That the undescended gland might be transplanted without loss of function was shown by the result in one of the cases in the series now reported. Both testicles were undescended in a man of 30. Both were transplanted after division of the spermatic vessels. Eighteen months after the operation this patient became the father of a healthy child. In all sixteen cases hernia was a complication. Malignant tumors, and inflammatory disease of the testicle were absent from the series. Ten patients had been traced from 7 years to 3 months after operation. All were cured; the hernias had not recurred, and the testicles remained securely in the scrotum.

**Experience with a Method of Immediate Repair of Perineal Lacerations.**—Dr. GREER BAUGHMAN of Richmond, Va., stated that the plan devised by Dr. Charles R. Robins in 1909, and used in the series of cases, was as follows: The procedure was simple; the most important things to consider were a good light and a good exposure of the torn area. The patient was placed on her back with the thighs flexed on left abdomen and held in place with a suitable support like the Robb-Kelly strap. The vagina was cleansed of clots and the upper part of the vagina packed with sterile gauze or cotton, so as to make the field of operation as bloodless as possible. Then a good light was thrown into the vagina. Robins recommeded sewing the mucous membrane and submucous fascia of the vagina to the mucous membrane and submucous fascia of the opposite side of the tear with a continuous chromicized catgut suture. Care must be taken not to catch the muscles with the suture. The suture began at the upper part of the tear in the vagina and was continued down toward the vulva, uniting the mucous membrane and fascia with a continuous running suture, the operator trying to match the part of one side to that from which it had been torn. This restored the shape of the vagina (the vaginal sheath). After the vulva had been reached, the suture and needle were laid in the vagina to be used later to unite the skin with a continuous suture. If there happened to be another tear in the vaginal sulcus or median line, which was almost always the case after the use of forceps, that tear was sewed, the mucous membrane and fascia to the mucous membrane and fascia of the opposite side, and when the vulva was reached, the suture was temporarily laid aside. Then the crown sutures of silkworm gut were put in from the skin surface just as was usually done, slanting downward and backward; but the rectum should not be entered, as sometimes happened, unless one felt in the rectum with a gloved hand. It was well to pull the wound well forward with the sutures before tying, to see the perineum was well cared for; then they were tied. The catgut suture that was stopped at the opening of the vulva was then picked up with a continuous suture, the denuded surfaces were brought into apposition and the suture continued down the skin. If the rectum had been torn, the sphincter ani might be caught and brought together by a silkworm gut suture introduced in the skin just above the rectum, passing through the muscle and out at the other side through the skin. A similar suture just above the mucous membrane of the rectum, introduced from the skin, passing around the tear in the rectum and coming out on the skin of the opposite side, would draw the mucous membrane down like purse-string. When the sewing was aided by a good light the sewing was well-nigh perfect.

**Catgut as a Skin Suture.**—Dr. WILLIAM PERRIN NICOLSON of Atlanta, Ga., stated that the use of catgut as a skin suture had been opposed and rejected by many surgeons on account of objections which could be overcome. It was claimed that it became a safe suture just in proportion as the integrity of the skin was not damaged by excessive efforts at disinfection, and that a skin simply prepared would handle catgut as safely as any form of suture. The ideal condition surrounding an operative wound was that it should be made under aseptic conditions and closed with a suture which could in the end be disposed of by the tissues, thus permitting the original dressing to remain in place until healing was complete. Such a condition could only occur under the use of catgut sutures in the skin. The two objections used against the use of such a suture had been, first, that the animal suture became

a good culture medium for the bacteria in the skin, and, second, that too early absorption might permit the wound edges to gap before healing had taken place. It was claimed that the first condition was largely overcome by simple cleansing of the skin, which consisted of washing with soap and water and alcohol, and afterward applying tincture of iodine upon the perfectly dry skin, and this permitted to remain for about two minutes, after which it was washed off with alcohol. The second was overcome by the use of twenty-day chromic catgut. The size employed was the OO under ordinary conditions, and perhaps a little larger size where there was more strain upon the wound. The method of closing wounds advocated was the continuous running suture placed at intervals of from one-half to three-fourths of an inch and passing beneath the skin into the subcutaneous fat, which permitted the wound line to fall into perfect apposition, while at the same time the edges could be pulled apart at any point between the stitches. This permitted of drainage directly between the wound edges into the dressings, doing away with the necessity for a drain, and the blood serum drying in the gauze next to the wound made a perfect aseptic covering, practically impervious to air and water. Such wounds might be left without disturbance until healing was complete, when the dressing was removed permanently. All classes of wounds, including scalp wounds, hernia operations, breast amputations, kidney operations, were closed thus with chromic catgut and left until healing was complete. The catgut employed was that sterilized without chemicals, as it had been found that those sutures which contained iodine and mercurial salts had proved irritating to the tissues immediately surrounding the suture. In conclusion, it was claimed that such a condition removed the dread that every patient naturally had of the removal of stitches and change of dressings, and did away with the danger of infection, however remote, which attended upon exposure of the wound for the purpose of dressing and removing sutures.

**Thrombosis of the Mesenteric Vessels in a Scrotal Hernia.**—Dr. EDWARD A. BALLOCH of Washington, D. C., said that he thought that he had exhausted the possibilities in the way of complications in hernia until the following case added one more to the list. The subject of this report was a man, 45 years of age, who entered the hospital on February 7, 1913. He was an expressman by occupation and stated that he had had an irreducible right inguinal hernia for several years which had never given him any trouble until a few days before admission, when, after lifting a heavy weight, he had suffered from pain and discomfort for which he sought relief. At the time of admission his pulse was 116 and his temperature 99° F. Examination showed a right scrotal hernia, 15 x 8 cm., irreducible. Tympanites was present in the upper part of the hernia, while the lower half was dull on percussion, and had a doughy, semielastic feel. The abdomen was typanitic and waves of peristalsis could be seen passing across it from left to right, going down into the hernial sac. This fact was demonstrated several times. There was no vomiting or other sign of obstruction at any time. The notes showed that he felt comfortable and slept well. He took the ordinary ward diet without apparent discomfort. The dull area was aspirated with a hypodermic needle and bloody fluid obtained. Diagnosis, hernia with associated hematocele. It was thought that the lifting had caused the rupture of a vessel within the sac, causing the hematocele. Operation, February 10. When the sac was opened it was found that the dull area corresponded to a portion of the small intestine from which the circulation had been cut off for a distance of a half meter. This portion of the gut was pultaceous, and verging on gangrene. The ileum was enormously distended, but its walls were in a state of chronic thickening, showing that this condition was an old one and not due to acute distention. There was no constriction at either ring, and the distended intestine passed freely into the upper part of the sac, thus eliminating strangulation as a factor in the case. The gut was adherent to the wall of the sac, which accounted for the irreducibility of the hernia. The affected gut was removed with a good margin so that the proximal and distal ends of the gut were of nearly equal diameter, and an end-to-end anastomosis done. The patient did well for a few days, when a fecal fistula developed at the site of the operation wound, which was followed, four days later, by a peritonitis, which caused death on February 25, two weeks after operation. This case was interesting to Dr. Balloch for several reasons: (1) The entire absence of signs of obstruction was noteworthy. The tympanites, the patient stated, had been present for a year or more, and the fact that the peristaltic waves could be seen to pass into the upper part of the hernial sac seemed to exclude the possibility of strangulation. The entire absence of vomiting, or even of nausea in this case, he was utterly at a loss to explain, unless it be assumed that the thrombosis did not occlude the lumen of the gut sufficiently to cause obstruction. It was unfortunate in more ways than one, as it led him to defer operation for two days, greatly to the patient's detriment. (2) The association of tympanites with a dull area, the former of long standing and latter recent, together with the history of its appearance after lifting a heavy weight, seemed to him to indicate an acute effusion of blood into the hernial sac, and to make the diagnosis of associated hematocele a rational one. (3) The method of anastomosis used in this case was not suited to the conditions present. At the time of operation the end-to-end anastomosis seemed warrantable, but the author was not convinced that a side-to-side union would have been much better in this particular case.

The following papers were also read: "Hysterectomy," by Dr. A. C. SCOTT, Temple, Texas; "A Study of the Causes of Unsatisfactory Results Following Operation on the Biliary Tract," by Dr. J. M. T. FINNEY, Baltimore; "Ultimate Results in Eight Cases of Colectomy for Fecal Stasis," by Dr. JOHN G. CLARK, Philadelphia; "Heredity in Bone Lesions, with the Report of an Unusual Family History," by Dr. JOSEPH RANSOHOFF, Cincinnati; "Ankylosis of the Jaw," by Dr. V. P. BLAIR, St. Louis, Mo.

**Operative Treatment of Ankolysis of the Mandible.**—Dr. V. P. BLAIR of St. Louis, Mo., said that his observations convinced him that practically all of these cases of ankylosis could be permanently relieved. The ages varied, his youngest operated case being five years old and the oldest case treated being sixty. In nearly 50 per cent. of all reported cases the most common cause was trauma by a blow or fall on the chin. Next to injury came scarlet fever, accounting for one-fifth of all cases. From the reported cases bony ankylosis would be inferred as the cause in the majority of the cases, but his were mostly fibroosseous. The development of the ankylosis had in his cases been gradual. Following the injury or arthritis the opening became gradually limited and decreased until there was complete or almost complete closure. The result of forceful dilation were only temporary. The chief symptom was the inability to freely open the mouth, which latter was apt to be foul and masses of tartar covered the molars. In a somewhat close unilateral fibrous ankylosis, as the mouth opened, the chin deviated to the ankylosed side. He distinguished between cases where the joint was affected directly and those in which the limitation was due to binding scars in the cheek; though an Esmarch operation was designed to relieve both conditions. Simple division or excision of the cheek bands had not been efficacious, the bands soon united again or new scar formed. For the permanent correction of scar bands in the cheek, it was most reasonable to excise these bands and replace them with epithelial tissue. Where the mucous lining of the mouth was deficient, he had with satisfactory results, transplanted a skin flap from the neck left attached by a pedicle, and brought into the mouth through an incision in the lower fornix of the cheek. The flap was sutured in place and about two weeks later the pedicle was cut and the defect in the neck repaired. For ankylosis directly affecting the joint, an excision of the joint or the removal of a section from the body of the ramus was necessary. A considerable piece must be removed or some material (he used subcutaneous temporal fascia) must be interposed to prevent the cut ends reuniting. His incision, which differed from those presented elsewhere, had the advantage of being within the hair and allowed the making of a suitable flap of fat tissue for the construction of the new joint. A skin flap, with very little subcutaneous tissue, was turned downward and forward. A similar flap was made of subcutaneous tissue down to the temporal fascia, the parotid gland containing the branches of the seventh nerve, and the masseter muscle were stripped downward *en masse*, and the condyle, coronoid process and upper part of the ramus were removed. The fat flap was sutured to the now exposed internal pterygoid muscle so that it rested between the cut portions of bone. Though it caused the patient some discomfort, he preferred to dress the mouth open for one week. A report of 14 cases of the

author's and 194 drawn from the literature were appended.

Officers.—*President*, Dr. John Wesley Long, Greensboro, N. C.; *Vice-Presidents*, Drs. A. C. Scott, Temple, Tex., and James F. Mitchell, Washington, D. C.; *Secretary*, Dr. William D. Haggard, Nashville, Tenn., reelected; *Treasurer*, Dr. Le Grand Guerry, Columbia, S. C., reelected.

Asheville, N. C., was selected as the place for holding the next meeting.

## State Medical Licensing Boards.

### STATE BOARD EXAMINATION QUESTIONS.

LOUISIANA STATE BOARD OF MEDICAL EXAMINERS.

*October 27, 28, and 29, 1913.*

ANATOMY.

1. Name boundaries, anterior and posterior, of axilla.
2. Describe the thoracic duct.
3. Give origin, and structures supplied by the glossopharyngeal nerve.
4. Describe the Y- or iliofemoral ligament.
5. What is connective tissue? Where is it found?
6. Name ligaments of ankle joint.
7. Describe the pleura.
8. Describe the arteries and veins passing to and from the kidney.
9. Give component parts of spermatic cord.
10. Describe the relations of the peritoneum to the bladder.

PHYSIOLOGY.

1. What is invertin, and what part does it play in digestion?
2. What is an internal secretion? Name the more important organs concerned in the process of internal secretion.
3. What are the principal waste products of metabolism and through what channels are they excreted?
4. What are the average proportions of the principal constituents of normal human milk?
5. What kind of nerve impulses are carried through efferent and afferent nerve fibers?
6. What is the result of injury to, or removal of, the semi-circular canals?
7. Name the nerves concerned in the constriction and in the dilatation of the pupil of the eye.
8. State briefly what is understood by diapedesis and phagocytosis.
9. What factors are concerned in the second sound of the heart and where is this sound best heard?
10. Relative to external respiration, state briefly what is understood by (*a*) tidal air, (*b*) complemental air, (*c*) reserve air, (*d*) residual air.

CHEMISTRY.

1. What are the principal allotropic forms of carbon?
2. How does carbon dioxide act as a poison?
3. What is an unorganized or soluble ferment?
4. Name the soluble ferments of the body.
5. What are the tests for starch?
6. What caution should be observed in testing urine for sugar?
7. What are ptomaines, and name some of the best known ptomaines.
8. What is the principal salt of silver used in medicine, and what are the properties of this salt?
9. What are fats, and name the principal animal fats?
10. (*a*) Is elementary arsenic poisonous? (*b*) How does arsenic prove poisonous? (*c*) Which is the most common poisonous compound of arsenic?

PHYSICAL DIAGNOSIS.

1. What are the types of normal respiration, and what conditions would cause alterations of same?
2. What conditions influence the production and variation of pitch?
3. Define dyspnea, and state the types and causes of same.
4. Summarize the points of differentiation between pleuritic friction sounds and bronchitis.
5. Describe the natural heart sounds, and the causes of each.
6. Describe the characteristics and significance of the various kinds of arterial pulse.
7. What are the physical signs of pericarditis with effusion.
8. Differentiate cardiac hypertrophy and cardiac dilatation.
9. Give the physical signs of combined aortic and mitral insufficiency.
10. Describe the physical signs of ascites and those of cystic disease of the ovary.

### ANSWERS.

ANATOMY.

1. The axilla is *bounded: Anteriorly*, by the clavicle, Subclavius, Pectoralis major, costocoracoid membrane, Pectoralis minor; *posteriorly*, by the Subscapularis, Teres major, and Latissimus dorsi.

2. The *thoracic duct* extends from the second lumbar vertebra, where it commences by a dilatation, the *receptaculum chyli*, to junction of left internal jugular with left subclavian vein. The abdominal part is placed on the front of the body of the second lumbar vertebra, behind and to the right side of the aorta and on the inner side of the right crus; it then enters the thorax through aortic opening, on the right side of aorta, lying between it and the vena azygos major, and passes upward to right of aorta on right intercostal vessels. Opposite the fourth dorsal vertebra it passes to the left behind arch, and runs along the left side of the esophagus, behind the left common carotid artery. At the level of the seventh cervical vertebra it turns outward, and, passing behind left internal jugular and crossing first part of left subclavian artery, arches over the apex of the left pleura to open at the angle of union of the left internal jugular and left subclavian veins.—(From *Aids to Anatomy.*)

3. GLOSSOPHARYNGEAL NERVE. *Origin:* The upper part of the medulla oblongata, in the groove between the olive and restiform body; its deep origin is from the floor of the fourth ventricle. It *supplies:* Pharynx, fauces, and tonsils with general sensation; the posterior part of the tongue with the special sense of taste; it is also the motor nerve to the Stylopharyngeus muscle.

4. The *iliofemoral* or *Y-ligament* is connected with the capsule of the hip joint. It is attached above to the anterior inferior spine of the ilium; below it divides into two bands which are attached to the two ends of the intertrochanteric line.

5. *Connective tissue* is a general name given to several forms of tissue which support and connect the other tissues of the body; it is composed of cells and intercellular material. It is found in bone, periosteum, cartilage, perichondrium, the investing membrane of glands, the covering sheaths of nerves, arteries, veins, ligaments, basement membranes, tendons, and practically all viscera.

6. The *ligaments of the ankle-joint* are: Anterior, posterior, internal lateral (or deltoid), and external lateral ligaments.

7. "The *pleuræ* are two serous sacs enclosing and investing the lungs. Each pleura consists of a visceral and parietal layer. The *visceral* portion covers the lungs, and the *parietal* layer lines the inner surface of the chest walls, the upper surface of the diaphragm, and the sides of the pericardium. The visceral and parietal layers of the corresponding pleura become continuous in front and behind the root of the lung; and below the root a fold, the *ligamentum latum pulmonis*, extends downward along the inner surface of the lung to the diaphragm. The mediastina are formed by the visceral layers of each side approaching one another toward the median line."—(*Aids to Anatomy.*)

8. The *renal arteries* arise from the abdominal aorta, just below the superior mesenteric artery; they pass out at right angles to the aorta, and cross the crus of the diaphragm. The right is longer than the left, passes behind the inferior vena cava, the right renal vein, the head of the pancreas and the duodenum. The left passes behind the left renal vein, the body of the pancreas, and is crossed by the inferior mesenteric vein. Before reaching the kidney each artery divides into four or five branches.

The *renal veins* lie in front of the renal arteries; the left is longer than the right and receives the left spermatic vein. They both open into the inferior vena cava.

9. The *spermatic cord* consists of the vas deferens with artery to the vas, spermatic artery, and pampiniform plexus of veins forming spermatic vein above, sympathetic nerves, the cremasteric artery, the genital

branch of the genitocrural nerve, lymphatics, together with some areolar tissue; it extends from the internal abdominal ring to the testis, passing in its course along inguinal canal, from which it emerges by the external abdominal ring, and thence in front of the pubes to the scrotum. The vas deferens is placed at the back of the cord.

10. *Relation of peritoneum to the bladder:* The superior surface of the bladder is entirely covered by peritoneum, so is the posterior surface as far down as the base of the bladder. The inferior surface is uncovered by peritoneum. The lateral surfaces are covered by peritoneum in their upper part. The anterior surface is covered by peritoneum in the upper part, and not in the lower part; the extent of peritoneal covering depends, here, on the degree of distention of the bladder.

PHYSIOLOGY.

1. *Invertin* is an enzyme produced in the mucous membrane of the small intestine; it turns saccharose, maltose and levulose (which are non-assimilable) into dextrose and levulose (which can be absorbed).

2. *Internal secretions:* It is generally held now that the glandular organs, chiefly the pancreas, liver, and the ductless glands, produce a secretion, peculiar in each case to the particular gland producing it, and which is supposed to be given off to the blood or lymph, and to have some peculiar value in the general metabolism of the body. Such secretions are called internal secretions, in contradistinction to the previously known secretions, which are carried off by a duct, and are known as external secretions. Very little is definitely known of these internal secretions, but much work is being done on the subject.

Internal secretions are produced by the liver, pancreas, ovaries, testes, thyroids, parathyroids, spleen, suprarenals, pituitary body, and by the fetus.

3. The *principal waste products of metabolism* are: Water, carbon dioxide, nitrogen, and various solids. They are excreted by the kidneys, skin, lungs, and intestines.

4. Normal human milk consists of about 88 per cent. of water and about 12 per cent. of solids. These latter are, approximately: proteins, 2 per cent.; fats, 3 to 4 per cent.; sugar, 6 per cent.; and inorganic salts, about 0.3 per cent.

5. *Efferent nerve fibers* may carry the following kinds of impulses: Motor, vasomotor, accelerator, inhibitory, secretory, and trophic. *Afferent nerve fibers* may carry: Sensory, special sense, thermic, and inhibitory impulses.

6. "The semicircular canals are, through the vestibular nerve and the cerebellum, the most important agents in the preservation of equilibrium. When in a pigeon the horizontal canals are divided, the head moves from left to right and from right to left, with nystagmus and a tendency to revolve on its vertical axis. When the inferior vertical or posterior canals are divided the head oscillates from front to rear; the animal has a tendency to fall backward. A section of the superior vertical canal causes the head to oscillate from front to rear, with a tendency to fall forward. A section of all the canals is followed by contortions of the most bizarre nature. After a destruction of all the canals the animal cannot maintain his equilibrium. Similar phenomena have been observed in man in disease of the semicircular canals, known as Menière's vertigo. In the fixed position of the head there is equilibrium, but with each movement the varying tension of the liquid in the ampulla changes and irritates the hair-cells." (Ott's *Physiology.*)

7. *Contraction of the pupil of the eye* is caused by stimulation of the third cranial nerve, or by section of the cervical sympathetic. *Dilatation of the pupil* is caused by section of the third cranial nerve, or by stimulation of the cervical sympathetic.

8. *Diapedesis* means the passing of the red-blood corpuscles through the unbroken wall of a blood-vessel; it is also applied to the similar passage of the white blood corpuscles through the vessel wall.

*Phagocytosis* is the process by which the cells of the body (notably some of the white blood cells) ingest certain other cells and bacteria.

9. The second sound of the heart is caused by the vibration due to the closure of the semilunar valves. It is best heard over the base of the heart.

10. *Tidal air* is the air which is constantly passing in and out of the lungs during ordinary calm respiration. It measures about 30 cubic inches.

*Complemental air* is the air which can be taken in beyond what is normally inspired in ordinary breathing. It measures about 100 cubic inches.

*Supplemental air,* or *reserve air,* is the air which can be expelled at an extraordinary expiration. It measures about 100 cubic inches.

*Residual air* is the air which still remains in the lungs after the deepest expirations. It measures about 100 cubic inches.

CHEMISTRY.

1. The principal allotropic forms of carbon are the diamond, graphite, and coal.

2. Carbon dioxide is not a poison. It kills by causing spasm of the glottis; it is irrespirable.

3. *Soluble ferments,* or *enzymes,* are hypothetical substances produced by living cells, and which by their mere presence in a suitable medium cause certain definite and characteristic changes.

4. The soluble ferments, or enzymes, of the body are: Ptyalin, pepsin, trypsin, steapsin, amylopsin, lipase, enterokinase, invertin, erepsin, prothrombin, amylase, maltase, glucase, and lipase.

5. *Tests for starch:* (1) The addition of iodine causes a blue color to appear. (2) By the action of diastase four dextrins are produced: Erythrodextrin, which is colored red by iodine; achroodextrin, which is not colored by iodine.

6. Before urine is tested for sugar, any albumin (if present) must be removed.

7. *Ptomaines* are basic, nitrogenous organic compounds, produced from protein material by the bacteria which cause putrefaction.

*Some well-known ptomaines:* Tyrotoxicon, spasmotoxin, tetanotoxin, tetanin, muscarin, cholin, neurin, cadaverin, putrescin.

8. Silver nitrate, $AgNO_3$, is the principal salt of silver used in medicine. It occurs in crystals which are soluble in water; such solution is colorless and neutral; but in the presence of organic matter it turns black in the sunlight.

9. *Fats* are mixtures of certain triglycerides, chiefly tripalmitin, tristearin and triolein.

10. *Elementary arsenic* is not poisonous as long as it remains elementary arsenic. But on exposure to the air and on becoming oxidized, arsenic becomes poisonous. The most common poisonous compounds of arsenic are arsenic trioxide, and Paris green.

PHYSICAL DIAGNOSIS.

1. The *types of normal respiration* are: Vesicular, bronchial, and bronchovesicular. Alterations may be caused by: Pulmonary tuberculosis, lobar pneumonia, pleuritic effusion, thoracic aneurysm, and mediastinal tumors.

2. The *pitch* of a percussion-note is high over areas of consolidation; increased volume causes a low pitched note, and diminished volume gives a high pitch. A forcible expiration lowers the pitch. Higher pitch may denote tuberculosis, pneumonia, gangrene or tumor of the lung.

3. *Dyspnea* is the term used to denote difficult or impaired breathing. It may be inspiratory, expiratory, or both; and there may be an increase in frequency, or depth, or both, of the respirations. It is attended by varying degrees of distress, and when its severity requires the patient to sit up constantly it is called orthopnea. Dyspnea may be due to obstruction of the air-passages, pressure upon the respiratory system from without by tumors, and distention of abdomen, diseases of the lungs and pleura, heart disease, asthma, anemia, or paralysis of muscles of respiration as the result of hemorrhage, tumors, or degeneration of the respiratory center in the medulla or toxic agents in the blood. It may be *inspiratory* when it results from obstruction as in foreign bodies in the larynx or trachea, or it may be *expiratory* as in emphysema, or bronchial asthma. A combination is the more frequent condition. In all forms of dyspnea it is important to determine whether the shortness of breath bears any relation to exertion. Dyspnea independent of exertion is a serious condition and is symptomatic of severe cardiac and pulmonary disease. Dyspnea dependent upon exertion is less serious and is observed in health, simple debility, anemia, obesity and somewhat moderate cardiac debility. Dyspnea with slow or normal breathing is observed in diabetic coma, and again the breathing may be slow and stertorous, as in coma of central origin. Rapid respiration occurs in inflammatory pulmonary disease, pleurisy, painful affections of the chest muscles, heart

disease, fever, hysteria, toxic conditions affecting the respiratory centers, anemia, and morbid conditions at the base of the brain. Dyspnea may be constant or paroxysmal. Constant dyspnea is seen in asthma and cardiac affections. It may follow exertion in various central or reflex conditions. It is most marked at night. (From Hughes' *Practice of Medicine.*)

4. Pleuritic friction sounds seem to be near the surface, they have a creaking or rubbing character, are generally localized, are not modified by coughing, and seem to be intensified by pressure of the stethoscope. In bronchitis there may be râles, but they have none of the above-mentioned characteristics.

5. There are two normal heart sounds which follow in quick succession, and are succeeded by a pause. The first, or systolic, sound is dull and somewhat prolonged, the second, or diastolic, sound is sharper and shorter. The sounds may be expressed by the syllables—*lubb—dup.*

The first sound is heard best at the apex beat in the fifth left intercostal space; the second sound is heard best over the second right costal cartilage.

The *causes* producing the *first* sound of the heart are not definitely ascertained; the following are supposed to be causatory factors: (1) The vibration and closure of the auriculoventricular valves, (2) the muscular sound produced by the contraction of the ventricles, and (3) the cardiac impulse against the chest wall.

The *second* sound is caused by the vibration due to the closure of the semilunar valves.

6. Varieties of pulse. *Tachycardia* may be the result of a heavy meal, fear, exertion, excitement, fever, heart disease, exophthalmic goiter, cerebral disturbances. *Bradycardia* may be observed in jaundice, atheroma, cerebral disturbances, aortic stenosis, fatty degeneration of the heart. *Intermittent pulse* may be found associated with myocardial disease, dyspepsia, excitement, excessive use of tobacco or coffee, etc. *Irregular pulse,* found in organic heart disease, especially mitral regurgitation. *Dicrotic pulse,* found in typhoid fever and other adynamic conditions. *Corrigan's pulse,* found in aortic regurgitation. *Hard pulse,* found in arteriosclerosis, plethora, apoplexy, chronic nephritis, anemia. *Soft pulse,* found in collapse, typhoid, cardiac degeneration.

7. *Physical signs of pericarditis with effusion.* "(1) Marked increase of the cardiac dulness; (2) displacement of the apex beat; (3) muffling of the heart sounds; (4) displacement of other organs (if effusion be great). The shape of the dulness is characteristic. It is conical, the apex of the cone being truncated, and situated at the level of the second rib, owing to the close attachment of the pericardium to the great vessels at this point. The apex beat is generally pushed upward, and to the left. It lies, when it is palpable at all, distinctly within the left border of cardiac dulness, not, as in enlargement due to valvular disease, in close relationship to it. The marked distention of the pericardial sac surrounds the heart with fluid, and causes a dulness extending much beyond the limits of the organ itself. The amount of bulging and displacement of organs will, of course, vary with the amount of fluid present. As resolution takes place the friction returns, and may be very coarse in character. Muffling of the heart sounds is not always present, and is not entirely due to the presence of fluid, for the fetal heart is quite distinctly heard through an amount of fluid greater than is usually present in pericarditis. The muffling is therefore due mainly to weakness of the cardiac muscle from accompanying myocarditis, although where the quantity of fluid is very great, in serous and chronic pericarditis, this may in part account for it."—(Wheeler and Jack's *Handbook of Medicine.*)

8. Cardiac hypertrophy: "*Inspection* reveals fullness or prominence of the precordium with a distinct impulse. *Palpation* detects the impulse one or two intercostal spaces lower down and to the left. It is stronger and more or less diffused—the heaving impulse. *Percussion* determines an increase in the area of cardiac dullness vertically and transversely on the left side of the sternum, unless the right ventricle is also hypertrophied, when the cardiac dullness is increased to the right of the sternum. *Auscultation* in simple hypertrophy without any valvular changes detects a loud first sound of a somewhat metallic quality, the second sound being strongly accentuated. In the presence of valvular disease the characteristic murmurs are heard in addition."

Cardiac dilatation: "*Inspection* detects enlargement and distention of the superficial veins and an indistinct, often wavy and diffused, cardiac impulse. If tricuspid regurgitation is present jugular pulsation will be observed. *Palpation* confirms inspection; the impulse is feeble, irregular, and heaving. *Percussion* serves to determine extension of the area of cardiac dullness transversely and especially toward the right side. *Auscultation* in the presence of valvular lesions reveals characteristic murmurs. If there are no valvular lesions the cardiac sounds are weaker than normal and the first sound is sharper in quality than usual."—(Hughes' *Practice of Medicine.*)

9. In *combined aortic and mitral insufficiency* there will be found an enlarged left ventricle; a systolic murmur heard loudest over the apex, and transmitted to the left axilla; a diastolic murmur heard loudest at the right border of the sternum at the level of the third intercostal space, and conducted in a downward direction.

10.

| ASCITES. | OVARIAN CYST. |
|---|---|
| Enlargement comparatively sudden. | Gradual. |
| Face puffy; color waxy; early anemia. | Facies ovariana. Anemia absent, or later. |
| Patient on back, enlargement symmetrical; flat in front. | Asymmetrical until tumor is quite large; prominent in front. |
| Sitting up, abdomen bulges below. | No appreciable change. |
| Navel prominent and thinned. | Navel usually unchanged. |
| Fluctuation decidedly clear, diffuse throughout abdomen, but avoids highest parts in all positions, and always has a hydrostatic level. | Less clear; limited to cyst; not modified by change of position. No hydrostatic level. |
| Intestines float on top of fluid; hence percussion gives clear tympanitic note over the highest parts of abdominal cavity and dullness in lowest parts for all positions—*i.e.* areas of resonance and dullness change with position. | No change in areas of dullness and resonance with change of position. Dullness over cyst. Clear resonant note in all parts beyond cyst limits, *i.e.* in flanks and toward the diaphragm. |

—From Dudley's *Gynecology.*

**Expert Testimony—Hypothetical Questions.**—In an action for maltreatment of an oblique fracture of the bone of the plaintiff's right leg above the knee judgment for the plaintiff was reversed because the trial court erroneously charged the jury that they might determine the materiality of the facts detailed in a hypothetical question put to expert medical witnesses; the materiality of expert evidence being to be determined by the court, though its weight and credibility are to be decided solely by the jury.—Stanley v. Taylor, Iowa Supreme Court, 142 N. W. 81.

**Medical Practice and Good Will Not Subject to Involuntary Sale.**—A medical practitioner, after purchasing the location and good will of another physician, went into bankruptcy, one of his debts arising out of the purchase. An order in bankruptcy directed the sale by the trustee of "the medical and surgical practice and good will" of the bankrupt, as well as his leasehold interest in his office. It was held that, while whatever property interest might remain out of the bankrupt's purchase was saleable, his medical and surgical practice and good will were not. These were attributable to the personality, reputation, or skill of the bankrupt, which is entirely of a personal nature and not subject to involuntary sale, for the benefit of creditors or otherwise. Patients of the bankrupt, either present or prospective, could not be required to transfer their treatment or allegiance to another practitioner. The only force of such a sale would be to deprive the bankrupt of the exercise of his profession in the locality in which he has established or maintained a practice, a deprivation wholly unauthorized in bankruptcy proceedings.—*In re* Meyers, C. C. A., 208 Fed. 407.

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## Original Articles.

### THE EXTRADITION OF INSANE PERSONS.*

BY HENRY R. STEDMAN, M.D.,

BOSTON, MASS.

IT has taken the notorious Thaw case to awaken people to the necessity of interstate rendition laws providing for the return to proper custody in their own State of insane persons who have escaped into other communities, and if his escape from Mattewan should by any possibility accomplish this desirable end it will be the only redeeming feature of a case which has, as we all know, worked much harm to the repute of the medical and legal profession and has for years greatly offended the moral sense of the country.

It certainly appears to be the psychological time for making the attempt to secure such legislation, and its success seems probable if immediate steps to that end be taken. Nevertheless, it is a discouraging fact that little has come of other similar occurrences, which for a time aroused the intensest popular indignation and loud demands for the protection of the public from this, the only such peril against which it has no legal protection. The following cases furnish additional evidence of the necessity for such legislation, and no doubt others equally striking will come to light if the need of such a safeguard be brought prominently before the public.

The savage attack upon Postmaster Morgan of New York City on November 9, 1908, in which he was shot and seriously wounded, was made, it will be remembered, by an insane man, who immediately after the act took his own life. This person was a case of dementia præcox of the paranoid type. He was sensitive and socialistic and eccentric in behavior and personal appearance. He became the butt of the boys in his neighborhood, and in 1896 asked permission of the police to carry a revolver. This having been denied him he armed himself with two, threatening to shoot his persecutors, and in 1897, when, as he claimed, they attempted to mob him, he shot one of them. In 1903 he shot in the face a fellow employee who had torn his coat in a scuffle, and refused to pay for it. He was then arrested and committed to the State Hospital at Worcester, Mass., to the present superintendent of which, Dr. Scribner, I am indebted for information regarding him. He had reflected for many years upon his adverse circumstances, gradually developing delusional ideas which involved these "toughs," whom he came to regard as responsible for his supposed reputation as a coward, etc. Failing to obtain justice at the hands of the police, he formulated a plan whereby in killing the whole gang, as well as himself, the inefficiency of those in authority would be exposed and an example set.

On May 25, 1904, he escaped from the hospital, fled to New York City, and secured employment as stenographer for a law firm. When it became known that he was there the attempt was made through the State and local police to secure his return to the hospital. The district attorney decided that he could not be extradited. In the meantime his employers, who had been notified of the dangerous nature of his insanity, maintained that he was sane and would fight any attempt to return him to the hospital. The patient at the same time retained the services of a Worcester lawyer. His dying statement was that he shot the postmaster "as the last protest of a poor man against the custom of never enforcing laws against prominent and wealthy people." He asserted that the postmaster had withheld a registered letter to him, and that he had selected the postmaster as his victim because he was the most prominent man who had antagonized him.

What better proof of the need of interstate rendition laws for the insane could be had than this case of homicidal insanity, with its history of three murderous assaults, living at large in a great city for more than four years, and so protected by the law, or rather the absence of law, that he is free to gratify his deadly insane promptings to the last? In this instance the patient had no record of crime *per se*, and on that account, in the absence of any interstate rendition law applicable to insane persons, he could not be returned to the hospital from which he escaped.

A more recent case is that of a woman of 28, a married nurse of considerable capability, intelligence, and superficial refinement, who left her husband in England and came to this country. Hers was a case of moral insanity. She was an inveterate liar, and was discharged from four or five hospitals in which she was employed in a few days or weeks. She continually defamed respectable physicians and families in which she was employed by wholly unfounded charges of gross immorality, and is reported to have administered overdoses of medicine and given morphine without orders. She had a proclivity for inventing circumstantial accounts of sexual conversations and experiences. Employers and friends questioned her mental soundness. She was arrested in the fall of 1910 for ransacking the apartments of her aged patient after her death. The robbery, which she denied having committed, was so wholesale and the articles stolen so valuable as to expose her to immediate detection. She was committed to the Reformatory for Women in March, 1911. After several examinations she revealed the fixed delusion that she was the victim of a plot to incarcerate her in order to prevent her from making

*Paper read before the Psychiatrical Society of New York, November 5, 1913, endorsed by the society, and referred to its Committee on Legislation with instruction to draft a bill to be introduced at the present session of the Legislature of the State of New York.

scandalous disclosures regarding the family af a prominent and respected lawyer, which she maintained would ruin his political career. She repeatedly declared that his withdrawal of his name as nominee for a high office was wholly on this account. She narrated fictitious visits made by him to her patient, and said that he gave a false name in order to spy upon her. She also accused the superintendent of the Women's Reformatory of general persecution of her, of intimate and coarse conversations with her of a sexual nature, and confidences regarding the management of the reformatory impossible to have occurred, etc., etc. The writer certified that she was a case of congenital moral insanity of high grade, with late development of delusions of persecution, and a menace to society at large.

She was accordingly transferred to a State hospital in Massachusetts on March 15, 1911. She escaped from that institution on September 28, 1912, and after a prolonged search by means of detectives, the police and circulars sent broadcast over this country and Canada, was finally located in a New York hotel where she had secured employment, without taking the simple precaution of assuming another name. She was apprehended and sent to the Manhattan State Hospital. Dr. Mabon, the superintendent, reports that while there the Bureau of Deportation of the New York State Hospital Commission attempted to have her returned to Massachusetts; accordingly she wrote to and secured the services of a woman lawyer, who obtained a writ of habeas corpus, on which five hearings were held. She succeeded in postponing the case and on various pretexts greatly delaying its settlement. For some time the contest was over the legality of extraditing an insane person, and only at the last moment was the evidence brought out that when transferred from the Massachusetts Reformatory to the State Hospital there she had not completed her sentence, and was still a criminal under State control. The writ was accordingly dismissed and the patient deported to the Massachusetts hospital on January 29, 1913.

Here is an escaped insane criminal of an insidiously dangerous type who has imperiled the reputation of prominent and respectable people and the peace of families, and is a liar and a thief, as well as a possible poisoner, who, for the want of any law to protect the community against such patients, nearly succeeds in gaining her liberty. It was only when a criminal charge was found against her at the last moment that extradition became possible.

Dangerous, non-criminal patients not infrequently escape from public and private institutions into other States. Many of them are poor and have no one interested in preventing their return to the hospital, and are accordingly quietly deported back when found. But when any of them have wealthy or charitably disposed but misguided relatives or friends, as in the cases cited, they are able to defy arrest and excite a great deal of misdirected public sympathy among the unthinking and ignorant. To be sure, they can be recommitted in the State to which they have escaped if their insanity be pronounced enough to awaken people to the true situation, but usually only after long and hazardous delay.

Massachusetts has the only interstate rendition law applicable to insane persons to be found on the statute books of any State, or of any country. The immediate cause of its adoption was the above mentioned assault on Postmaster Morgan. It was enacted in 1909 on the recommendation of a commission appointed by Governor Guild for the revision of codification of the laws of that State relative to the insane, consisting of Dr. Tuttle, the superintendent of the McLean Hospital at Waverley; Mr. James F. Curtis, a lawyer of prominence and recently assistant secretary of the United States Treasury, and the writer. In framing the act the commission aimed not only to secure the return to the proper authorities of patients who had escaped into Massachusetts, but also, and chiefly, to induce other States, not a few of which have copied others of her laws relating to the insane, to adopt this one as well.

The text of the act is as follows:

SECTION 87. The governor may upon demand deliver to the executive of any other state or territory any person who has escaped from an institution for the insane, public or private, to which he has been committed under the laws of such State or territory, and who may be dangerous to the safety of the public, or may upon application appoint an agent to demand of the executive authority of any other State or territory any such person who has escaped from such an institution in this commonwealth. Such demand or application shall be accompanied by an attested copy of the commitment and sworn evidence of the superintendent or keeper of the institution stating that the person demanded has escaped from such institution, and by such further evidence as the governor may require.

SECTION 88. If the governor is satisfied that the demand conforms to law and ought to be complied with, he shall issue his warrant under the seal of the commonwealth to an officer authorized to serve warrants in criminal cases, directing him at the expense of the agent who makes the demand, at a time designated in the warrant, to take and transport such person to the boundary line of this commonwealth and there deliver him to such agent. The officer may require aid as in criminal cases.

SECTION 89. A person who is arrested upon such a warrant shall not be delivered to the agent of a State or territory until he has been notified of the demand for his surrender and has had an opportunity to apply for a writ of habeas corpus, if he claims such right of the officer who makes the arrest. If the said writ is applied for, notice thereof and of the time and place of hearing shall be given to the attorney-general or district attorney for the district in which the arrest is made. An officer who delivers such person in his custody upon such warrant to such agent for extradition without having complied with the provisions of this section shall forfeit not more than one thousand dollars. Pending the determination of the court upon an application for the said writ the person shall be detained in custody in a suitable hospital for the insane.

SECTION 90. If the application for the arrest of a patient escaped from an institution, public or private, in this commonwealth, is complied with and an agent is appointed, his account shall be paid by the institution from which the patient escaped, but the governor may direct the whole or part of such account to be paid by the commonwealth.*

Our commission felt strongly and was sustained in its belief by the best legal opinion, that the courts would use every endeavor to sustain such obviously beneficent legislation. The only clause of the Federal or State constitution that might be infringed would be the provision to the effect that no person shall be deprived of his liberty or property without due process of law, but we were strongly of the opinion that the detention of a person on the request of a Governor of another State with evidence that such person had escaped from a hospital to which he had been lawfully committed would well be considered as a detention under due process of law and consequently that the statute would be upheld.

*Commonwealth of Massachusetts vs. Klaus. Decision rendered July 7, 1911. In 145 Appellate Division Reports of Supreme Court of New York, page 798.

In this connection a decision recently cited by the legal member of the commission is significant. In that case* a statute which required the attendance of a witness in a court of another State was held constitutional on the broad ground that the power of a sovereign State to direct and control the actions of persons within its borders was without any limitations except those expressed in the constitution, and that there was no provision of the constitution which that statute seemed to infringe. While the basis for this legislation was the administration of public justice it has nevertheless a bearing on the interstate rendition of insane persons to this extent at least, that it shows that a State may cause a person who is not a fugitive from justice and who has committed no crime to betake himself outside the borders of the State at the request of officials of a sister State.

It has been thought that the amendment to the New York statute advocated by the Bar Association of that State, whereby the verdict of "guilty but insane" shall be substituted for "acquitted by reason of insanity" would, if it became a law, accomplish the same purpose by establishing the patient's status as a criminal subject to the usual methods of dealing with crime, among which is extradition. This is true as concerns a limited number of cases, of which Thaw's is an example, which come to trial. But such a provision would not affect the return of a larger proportion of dangerous patients whose insanity is so unmistakable that they are immediately committed to hospitals for the insane without trial.

New York City, with its immense and cosmopolitan population, its many insane and its countless opportunities of all kinds, whether for work or pleasure, for crime or its concealment, is more likely than any other city not only to furnish by far the larger number of escaped insane patients, but to be looked upon as a safe refuge by those from other States, and the cases before us are evidence of this fact. Is she not in duty bound to make every effort to protect herself and her sister States by some such legislation? Should New York follow Massachusetts in adopting an interstate rendition law, her example would have great influence in shaping the policy of other States in the same direction.

## A FURTHER STUDY UPON MENTAL TORTICOLLIS AS A PSYCHONEUROSIS.†

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In a previous paper** I undertook to show that certain types of tic such as mental torticollis were but continuations of habit movements. The tics remain as fragments of the complete habit and persist as crude symbols which serve as a most intimate and deep need of the abnormal personality of the individual patient. By the analysis of an illustrative case in that paper the habit movement was traced back to earliest infantile life and found there to have been closely interwoven with the mother complex initiated by a caressing, petting act of affection by the mother. It was also shown that the mother's part of the neurosis but served to waken and fasten upon the child an autopleasurable act, which act or habit movement took on secondary autoerogenous satisfaction in later life. The act, continued and modified in later life, constituted the tic from which the patient finally sought relief. It further developed that the main reason for the habit movement and its tic successor being irrevocably attached to the patient was due to the inherent sense of inadequacy of feeling and will generated from the conflict of doubt, the latter conditioned upon the most primal antagonism of the hate instinct in its process of sublimation by the love instinct. The whole chain of events served to form the vascillating, indecisive character and will of the obsessive neurotic of which the torticollic is but one of the group characters in the incompletely evolved neurotics.

Since the first study was made, another and somewhat similar type of mental torticollis has been under analysis and treatment. The case about to be detailed might be termed acute mental torticollis. However this may be, the tic movement is in no sense differentiated from the ordinary mental torticollis, only when we came to study the case from its genesis does it appear in the light of a psychoneurosis. In presenting the case history in which a psychosynthesis is shown I know of no greater test of scientific faith on the part of the hearer than that called forth in accepting the issues and interpretation of such a presentation. This tax would not be so great if we were permitted to develop the life history of the case under his own eyes, like a Chinese drama, but the exigencies of time for presentation of scientific data in any such study is very limited; therefore such reports must necessarily be fragmentary, mere vignettes of certain scenes in the individual life being shown, or time is only permissible to show specific reactions or trends that lead to the development of the frank neurosis. Such presentations have not only been charged as being dishonest, unscientific in arrangement of fact, but many believe that they lead one into bad intellectual habits of sizing up only the data that fit the final setting in diagnosis, or that they make the mosaic pattern of the clinical picture seem unnatural and not as it would appear to an independent observer. However this may be, we really have no redress at present, but must be content to report cases in as concise and graphic a manner possible, trusting in this way to persuade the incredulous hearer of the intellectual honesty and fairness of the reporter. If we shall but convince a few investigators in the study of the psychoneuroses that we all need to go still deeper into the intimate character and makeup of the psychoneurotic individual, we shall have labored to good purpose. The future must decide what the final fruition will be.

The case of mental torticollis which I shall present is as follows:

*One of the highest legal authorities, a former attorney-general of Massachusetts, pronounces this act as constitutional and manifestly in the public interest because if uniformly adopted a State could enforce its responsible and continued control over a dangerous insane person escaping into another State and the community into which he had come would be delivered of the danger of his presence and responsibility for his care. The operation of the act, however, might be hampered because of constitutional questions arising in habeas corpus proceedings regarding the expulsion from a State of any person other than a fugitive charged with crime. It is therefore, he thinks, of the utmost importance that such statutes should be most carefully drawn in order to eliminate these questions so far as possible.

†Read before Section of Neurol. and Psychiatry, N. Y. Acad. of Medicine, Jan. 13, 1914.

**Some Observations upon the Etiology of Mental Torticollis, N. Y. Neurological Society, December 2, 1913; MEDICAL RECORD, Feb. 7, 1914.

Miss F. B. C. was referred to me by Dr. C. A. McGuire for analysis and treatment. She suffered from a most persistent right spasmodic torticollis with an added spasm in the left trapezius and splenius, a not uncommon combined tic. The condition had existed for eleven months and had defied all the ordinary plans of treatment. Indeed, the tic had grown worse of late in that it was less easily controlled and all the muscles in the tic movement enlarged. They were in more or less clonic and tonic spasm during the waking state, and all the muscles concerned in the act were sore to the touch and ached. The patient in the extreme position of her tic is so typical of mental tic that it leaves nothing to be desired from a classic point of view. Suffice it to say that the condition present was the one usually encountered in such cases without anatomic or neurologic evidence of gross disease aside from the muscle hypertrophy which was directly produced by the tic movement itself.

It will be understood that the case history is much abbreviated and is given in the usual though reversed order in which the facts were obtained, that is, it is presented as a psychosynthetic study instead of a psychoanalytic one. Anyone acquainted with psychoanalytic methods fully recognizes the advantage of this manner of presenting it in the inverted order of its historical acquirement.

The patient is 29 years old and is the second in a family of five children, four of whom are living. Our patient is unmarried and now lives at home alone with her mother. The two brothers are regular and ordained priests, and her younger sister is a nun in a convent. The patient had a normal birth and childhood as ordinarily understood, aside from an attack of acute chorea preceding an attack of inflammatory rheumatism at five years of age. The St. Vitus' dance recurred again at eleven or twelve for a few months. She had a high school and business-college education and has been a stenographer and private secretary in an insurance firm for nineteen years. She left business December, 1912, from what she termed a nervous breakdown from overwork.

In opening the infantile life we find that our patient was an affectionate, sensitive child, but in the face of little affection from the parents, at four or five years of age she became a shy, diffident, reserved, and timid girl. Her mind developed equally. She was not boisterous as a child, and always acted older than her years. She was not nervous in her manner but felt an inner tension. She was not free in her associations with other girls or boys, and was very self depreciatory; but in spite of it was able to stand on her own feet. She depended upon the opinions of others largely, and strongly desired their approbation. She often felt and made attempts at self justification although her egotism was repressed. She was not conceited but quite vain and self conscious. Although she was inclined to a great deal of self pity she could stand real pain pretty well. At the age of eight or ten she felt a great desire for social life, but was not successful in forming friendships with the exception of a few girls as she could not get *en rapport* with a large group. As a child she had a great horror of death and was obsessed with the thought that the world was to burn up, and often prayed she might die before it burned. Every fire in the neighborhood made her think that the end was near, and consequently she was in frequent childish panics that she was about to die. She thought she had heart disease and would die of it. Through a lack of parental understanding the patient was not able to talk over her fears with them, and she dwelt upon her ills when alone. She grew up reserved on all topics and was frequently blocked by various scruples in situations requiring free activity of physical or mental acts. She usually lets other people do the apologizing when misunderstandings occur, and takes no initiation in making amends, and is quite apt to think she is right in most life issues.

From eight to twelve patient had frequent attacks of fear of death, especially at night, when she would rush to her father for protection and to calm her fears. She felt her father "was strong and masculine" and could ward off this death panic where her mother would fail.

At seventeen she felt her life at home was too monotonous and unsatisfying, and left it for a business training in New York. She easily qualified for a stenographer and obtained and filled a very acceptable position of secretorial work in an insurance office, as before stated.

Patient follows the father type in temperamental makeup and one of her brothers is also of the same type, between whom and the patient there is the best of understanding. Patient did not enter the society of the opposite sex until seventeen. She paid more attention to older boys then and preferred married men. Her love affairs with men were always casual and broken off on trivial grounds. She always grew tired of them. In friendships she demands a great deal of loyalty. She has not been especially attached to friends, with the exception of two girls. The first girl friend, whom she knew when she was eighteen, was a very close and intimate one. She formed a close attachment and took her as a model and ideal. She always felt rather awkward with her, and shy and diffident. Everything that the patient did, however, was much praised, and she was made to feel that all things were quite all right. The patient took to quoting her, walked, talked, and dressed like her. This friend got married rather suddenly without letting the patient know, which made her rather jealous, and she was very unhappy for a year or more, until the second girl friend appeared, of whom she was very fond and submissive; yet this friend reprimanded and corrected her in many ways, much to her chagrin, but she nevertheless loved and obeyed her. She was very religious in contradistinction to the other friend, who was quite the reverse. Each of these attachments lasted for two years, one following the other, dating from eighteen to twenty-two.

Her employer, the manager in the office, was an elderly man, very kind and considerate, and there gradually grew up between them the feeling of father and child. Her feelings were about equally divided between the "business father" and her own father. They both died six months apart about two years ago. Her father died of apoplexy six months after the elderly employer. His death agony was in the patient's arms. The father died in convulsions, there was congestion in face and stertorous breathing which frightened the daughter so much that she did not sleep for two nights, and she thought she would die the same way if she went to sleep. She accused herself of hastening his death by bolstering him in bed. She did not give way to her feelings, but collapsed two days after his death. First she felt a dead weight in the lumbar region, which quickly passed up to the shoulders and neck; they grew rigid, numb and cold,

the head felt as though it would burst, while the heart seemed as though it were about to stop and she were on the point of losing consciousness, and she knew she would die (apoplexy phantasie). Though she suffered greatly from all these symptoms, she had a quiet satisfaction that it was "all for the best."

One should particularly note the patient's exact description of the father's death agony, as it makes her own apoplexy phantasie the clearer: "The head was drawn back and turned to the right, the brows were corrugated, the arms were rigid and cold and drawn up near the neck as though holding the head in that position; the face was livid as though the heart and breathing had stopped, and the whole body trembled."

Many times as a child patient thought that the father didn't have very much in life, and since being near New York seemed to illy adapt himself to conditions and surroundings, and that she ought to make up to him for these deficiencies. Her mother always seemed like a sister to her. Patient was the oldest girl and took the household duties upon herself. After she left home at seventeen affairs about the home were carried out according to patient's directions. She seemed always to have made the decisions in regard to any new moves about the home. Occasionally the mother took her to task for going out to see some friends, inasmuch as the girls she visited had brothers; the mother told her she should be aware that she, the mother, was older than the patient, and knew that she ought not to visit these young men under the pretext of visiting their sisters. This caused anger and disappointment. At the time of the father's death, the mother made the patient very nervous as she seemed to take the matter so much more calmly than the patient did. The mother saw people who came to inquire about the death, and did many things which the patient said she herself ought to have done. She felt as though the mother was rather unfeeling and not aware that she, the patient, felt as if she were dying; the mother didn't seem to be at all concerned in regard to our patient's health, which made her nervous and antagonistic toward her. In this way she indicates the unconscious rivalry which she had against the mother, and of the feeling of replacement in her attitude to the father that made his death so serious to her, and also produced the apoplexy phantasie which was the basis for the desire for spiritual reunion. The feeling toward the mother gradually faded away; she believes, however, that the mother never really understood her feelings because even as a child she thought that her parents, being at considerable strife, didn't exhibit much tenderness toward each other, and that neither was much suited to the other. The father was not as attentive as he ought to have been, although the whole situation was quite reversed during the last ten years preceding his death, during which time she felt that her mother ought to have known her father better and not have antagonized him so much. She didn't feel able to show although she felt proper affection toward her father in late years. A girl friend who frequently visited her was very affectionate and demonstrative toward her father, which made the patient jealous and made her also feel more like a stranger in her own home.

Our patient's dreams immediately after the father's death are significant. The father appeared to her sad and sitting out in the cold misty night. He was illy clad in white and was shivering. She tried to persuade him to enter the house but he would not. She attempted to carry him in and on raising his head she saw that he was dead. She wakened in a nightmare just as she had determined to stay there with him. She found on waking that her arms were numb and rigid and her head felt as though it would burst. In the second dream the father appeared happy, talkative and much more affectionate than during life. In the midst of the pleasure of seeing him he announced that he was dead and must go away. Our patient strove to follow him, and awoke in a nightmare again with the apoplexy phantasie as in the first dream.

The patient did not cry at her father's death nor at his funeral. She stayed around home for a few days, having chills and tremblings at night, and was then sent to Atlantic City. Several times while there she had trembling fits and numbness in the arms as though the circulation had stopped. Then fright and anxiety succeeded and she became wakeful. When this clinical setting gradually disappeared there occurred pressure in the frontal region of the head. A more or less persistent headache succeeded this. She felt as though the head would burst and that the veins inside were struggling to break. This latter symptom gradually ceased in about six weeks and she returned to her office work. For a little more than a year prior to the death of the father and the aged employer a young man took charge of the work. She felt some stress in readjusting herself to the work, as the new employer was overexacting, but nevertheless more interesting. She now began to worry about pleasing him and did extra work as the business enlarged. Inasmuch as she was old to the business and he was new in the department he seemed to expect more of her from day to day. She was much flattered that he depended so much upon her ability. Although she worked harder, contact with the new employer steadily enlarged her scope of vision on life and its affairs; it softened her and made her ambitious to progress. She often dreamed of him in an intimate manner and her waking thoughts were much concerned with the new work, and she shared his desire to enlarge the business. In short, she fell in love with him, which was a one-sided affair as the employer was married. There was no declaration of affection on either side. She thinks she rather liked him the more because he was married, as she could allow herself more range in fancy because the matter could go no further. After a few months of repression of her feelings she found herself day-dreaming for a more intimate friendship, and the old headache came back once more and was made worse as she sought to apply herself more intently to her work. Some more office force was employed and she came less and less in contact with him, but felt the need of his presence the more. Her mental abstraction soon became apparent, and her employer gave her the name of "Miss Make Mistakes" in friendly badinage. The old tightness and numbness in the shoulders, arms, and neck returned and she steadily failed to compensate or get square with it by more intent application to her work. She now had severe headache, heavy feelings in the legs, tightness and numbness in the arms passing up into the neck muscles.

A new situation was now introduced. Her desk was located so that the manager's was to the right of her. Strangers also entered the office in that direction, and in order to protect him from un-

necessary interruption she kept a keen lookout to ward off various people. Then, too, whenever she looked up he always seemed to be looking at her; he frequently stood at the right of her desk to give her dictation. He was six feet three in height. It is but necessary to say in explanation for intruding the physical stature of the employer here that the patient's tic is to the right, the head being tilted upward at the same time, a species of human heliotropism is shown in our patient. In the patient's own words, "he was the center and life of the business and greatly looked up to by all of us." Before the tic broke out, however, the neck became stiffer, the head more congested, and to ease the latter—to shut out distraction and noise, and to keep the head and mind steady she sat many hours at her work with both hands, especially the right, pressed to the temples; after a time this protective mechanism of obsessive acts became insufficient and the head wobbled and shook in spite of everything, gradually turning to the right. The will broke and the complete and uncontrolled tic came through. She then left her work at the office for treatment of nervous prostration. However, as soon as the head was allowed to turn in full excursion to the right and upward, the tension in the head, arms and shoulders all disappeared and she felt better.

We have here, then, a case of acute mental torticollis in an unmarried women of thirty-nine, whose tic is a form of neurosis occurring in an individual who was very sensitive as a child, who had panics and fears in early life, and who had a strong father-attachment. The latter prevented her coming into free contact with life in any of its larger feelings and returns of affection and friendship. On the death of the two fathers she developed an apoplexy phantasie to gain a spiritual reunion with the father; the libido then gradually returned to actual life and she became attached very strongly to an unfortunate and one-sided love affair. The compensation or sublimation of it was insufficient or failed, and the tic as we see it became the fragment symbol of the life wreckage and unfulfilled desire. It may be that some critics would place the case as a neurosis to be classed with the obsessions, in view of the fact that the hands are still employed as a specie of exorcism of the tic movement, that there was a certain inability of the love instinct for free play. There seems to have been little doubt connected therewith but rather a too firm father attachment hindering its free range. The situation would seem to me, however, to be a breaking through of a sexual repression and therefore a sexual neurosis of the old hysteric type. Although I have seen the case but comparatively few times, not more than eight or ten, I may say she has shown great improvement. "She feels freer mentally, more able to do various kinds of work, sleeps well, without nightmares, and is less centered on herself. She comprehends the line of treatment and looks frankly at the defects of her inner life and no longer takes satisfaction in having a misunderstood disease." The extra muscle tension outside the field of tic movement has disappeared. There is no more pain and tenderness in the tic-producing muscles, the head remains quiet without effort for fifteen minutes at a time, and the general physical health is much improved. The process of disintegration of the tic movement on its way to betterment is interesting and significant. First the entensity of tonic spasm diminished to a clonic one; the head was turned less to the right and, at the end of the excursive movement to the right, the chin is no longer tilted up; yet the eyebrows are occasionally contracted. In other words, there is less helioptropism as it were, inasmuch as the sun attraction has been withdrawn.

In conclusion it is interesting to note that the patient's belief that the father's death is the real cause of the tic is probably quite true; the modern love affair probably would not have resulted in this particular kind of tic if the defense armor in motor control had not been weakest at this point. Finally, it would seem more than mere chance that this whole family of four brothers and sisters have missed the main pathway of normal expression of sexuality. The younger sister is a nun, the two brothers are priests, and the fourth, our patient, has had the mischances we have herein detailed.

The points of similarity in the two cases of tic I have presented are the mother and father love fixation respectively. It is also shown in a sense of shyness, timidity, a lack of push in the love expression to make a broad sympathetic and friendly contact with the outside world; a certain lack of ability to properly gauge and direct the love instinct is present in both individuals. The difficulties at bottom in hysteria and the obsessive neuroses do not seem so very dissimilar, but in our tic individuals the very precocious sexuality allies them nearer to the obsessive types than to hysteria. The aggressiveness of the sex hunger so easily stirred in our first patient by the mother's petting and caressing, was shown at four or five years of age in the latter female patient in an extra regression, as one might expect, into mental infantilism of fears, timidity, frank panics of death and free floating fear of world destruction. The doubt of being both physically and spiritually saved, if given in full in the latter history of this case, would have convinced any one that we were dealing with a doubt neurosis in its earliest development. Through it all was shown the unsuccessful psychosexual repression. However, one must not think the tics can be easily classified with the doubt or obsessive neurosis without a struggle, inasmuch as many ticeurs on close examination show that their tic often appears as the physical *conversion* of a painful affect or idea, thus lending much color to the contention that the tic is a physically converted affect, a hysteric complex, rather than a *substituted* obsessive idea neurosis. It may be found desirable one day to class the tics as a new type of transition neuroses between the hysteric and obsessive neuroses. Certainly many cases of tic have symptomatic settings from both clinical pictures. It is interesting to note, however, that the fearful and tragic setting of the second patient's affect into an apoplexy phantasie, being as the friends and patient thought solely conditioned upon a feeling of remorse and neglected attentions to the father, really belonged, as shown by its very intensity, to another and larger unconscious content, the long repressed love for the father. This is one of the firmest attachments of the second case to the obsessive type of neurosis. It is, of course, well known that the two affections have much in common in causation and symptoms and frequently appear in combination. I should say that case one is more of the obsessive type, while case two is nearer the hysteric one.

It becomes much more understandable now why most textbooks on tics are shot through and through

with the idea that the real genesis of the tic is a painful or unpleasant physical experience, and that they meet no real conscious need, when we see that the tic is often symbolically nonsexual. The tic then goes on devoid of motive and is senseless. In this respect it is no worse, however, than the often ambiguous wording of dreams. The obvious task hereafter will be for us to find what real satisfaction lies back of the tic forces that strives to give it physical meaning, just as the dreamer strives to give the real psyche a motif in the dream imagery. One should also be aware that the very physical treatments in the tics, though given for secondary defense against the obsessive tic movements, the patient may easily convert them into obsessive acts themselves. Thus the penitential measures of military exercises in calisthenics, the irksome ceremonials of mirror training, the observation of numbers in counting exercises may all be ultimately bound into the obsessive acts and thoughts and become a part of them. Even the surgeon must join with us in our teratological sins in applying corrective splints for the ticeur's infirmity and on which the patient builds mollusc fashion new formulas or obsessive acts.

The question naturally arises here, what about old systems of treatment of mental torticollis and is psychoanalysis alone sufficient to cure? My short experience in handling these cases is too limited to formulate any hard and fast rules of treatment. There is little doubt in my mind, however, that a lifelong maladaption of the psyche and the defects of inner adaption to the outside world require years for reconstruction. While the disease phenomenon may be greatly curtailed, be made to practically disappear by psychoanalysis, the tic neurosis—based as it probably is in most cases upon the warring contentions of the hate and love instincts, the most primitive mental infantilism—is almost beyond full correction; the very foundations of mind are at issue and it is just this fact that makes the tic and obsessive neurosis the most malignant psychoneurosis. Then, too, one has little positive knowledge of the correlation of structure and function of brain and mind. The manner and power of transmutation of thought into physical acts and *vice versa* are beyond even profitable speculation at this time. One can easily understand how a tic habit may continue as a detached pathologic function even after it has been deprived of its potential significance. It may not be unlike a guide-post which still points the way along which great traffic once took place although the road has long been abandoned to travel and its terminus may no longer even exist. In such instances the physical, moral and spiritual training, in their best sense, find a fitting and constructive upbuilding of personality and character. One should be very sure, however, that the psychic ground is very thoroughly cleared before assisting at such a delicate task as trying to set up soul ideals for another, though metaphysicians and the clergy in no wise fear to rush in where even physicians permit themselves to rarely enter.

84 East Fifty-sixth Street.

**Oxygen to Remove Carbon.**—Peroxide of hydrogen squirted into the intake manifold through a small hole near where it forks, and while the engine is running, will be carried into the cylinders and the excess of oxygen will quickly burn out the carbon deposits.—*Motor.*

## THE EVOLUTION OF THE STUDY OF ANATOMY AND ITS IMPORTANT RELATION TO THE DEVELOPMENT OF SURGICAL KNOWLEDGE.

By J. EWING MEARS, M.D., LL.D.,
PHILADELPHIA.

In a paper presented to the American Surgical Association the writer gave a brief and concise account of the history of anatomy, beginning with its study among the Greeks in the time of Hippocrates—the father of medicine—(460-357) to the latter part of the eighteenth and the beginning of the nineteenth centuries, when great perfection in its study was attained. Two great epochs mark the unfolding of the science of anatomy, and give character to its development and growth. These are (1) the dissection of the human body and (2) the introduction of the microscope as an aid in the revelation of the minute structure of the tissues and organs of the body. Omitting in detail the history of the science the writer is moved to place on record his experience, as a student and teacher of anatomy for many years during the last half of the last century, in certain matters relating to the methods of study and teaching of that period of time.

As has been stated, the great advance made in the study of the science of anatomy began with the dissection of the human body. The manner in which bodies have been obtained for this purpose furnishes an interesting chapter in recording the progress which has been made.

In the earlier days the bodies of condemned criminals were given for the purpose of dissection. Until authorized by law the bodies used in dissection were obtained largely by stealth from places of sepulchre. Those who practised dissection were socially ostracized, and legal enactments were directed against them. Later the commanding position of those who devoted themselves to the pursuit of anatomy gradually removed the prejudices, and laws were enacted giving the bodies of prisoners and paupers to investigators for the purpose of anatomical study.

"Frederick II, Emperor of Germany (1215-1250), is said to have forbidden any one to practise surgery without a competent knowledge of anatomy, and to have provided that every five years there should be held at Salerno a public dissection to which physicians from all parts of the Empire were invited. The senate of Venice decreed in 1308 that a human body should be dissected annually. Philip II of Spain interrogated the faculty of the University of Salamanca, then the leading theological school in Europe, as to whether dissection was permissible. After due deliberation, a reply was given that since knowledge of anatomy is useful to man dissection may be allowed."

In Great Britain, in 1827, in the universities and medical schools, dissection was made compulsory and the demand for bodies became so great that it was impossible to supply it. This condition led to the organization of a body of men known as "resurrectionists," with branches in every large city, which supplied the needs of the institutions by systematically robbing graves. Among these were two men in Edinburgh, Burke and Hare, who resorted to the murder of poor and friendless persons, whom they enticed into their dens, killing them by suffocation and selling their bodies to the medical schools

for dissection. This method of procedure gave rise to the term "burking," which has to-day a place in the dictionaries, and describes the condition. Two men, Bishop and Williams, practised the same method in London. This crime was stopped in Great Britain in 1832 by the enactment of an anatomy act, which legalized dissection and under restrictions gave available material to medical schools and to those authorized to use dead human bodies for dissection. In 1783, in the State of New York, a law was enacted making it legal to dissect the bodies of executed criminals.

It is suspected that until recent years, when in our own country anatomical laws have been enacted and enforced in several of the States, these methods were employed to obtain bodies which were sold to medical institutions. Grave-robbing was the usual method of obtaining bodies, not only by those who made a business of it, receiving in most instances large sums of money in order to compensate the parties engaged in the business for the great risks taken and the hazardous nature of their occupation, but also in small communities by students and even professors, whose needs for anatomical material compelled them to resort to such methods.

These excursions have been in several instances attended with the receipt of gunshot wounds by those engaged in the enterprise, inflicted by officers of the law having the duty to protect cemeteries from such illegal invasions, or by friends who were doing guard duty. It has happened also that through ignorance the bodies of persons of position and influence in communities have been resurrected and have been found by relatives and friends (whose feelings were greatly outraged by this violation of the sacredness of sepulchre) in the dissecting rooms of colleges.

A notable instance of this character occurred in one of the medical colleges of the West, where the body of the father of a most distinguished citizen, occupying a high place in the councils of the Nation, was found suspended by the neck in the "lift" of the anatomical room of the college.

The enactment soon after of an anatomical law in that State stopped the business of the resurrectionist and gave inviolate protection to the graves of all.

When the writer, quite a half century ago, began the teaching of anatomy it was very difficult to obtain anatomical material, and the cost, owing to the methods which were employed, was very great. On one occasion a resurrectionist was detected in his unlawful acts, was arrested, tried in court, convicted, and sentenced to a term of imprisonment. A professor of anatomy in a medical college, who was regarded as an accessory after the fact, was charged with conspiracy in the acts of the grave-robber, was arrested, tried, and acquitted, escaping conviction by a narrow margin. Practically he had nothing to do with the acts of the grave-robber; he simply paid for bodies deposited in the college building, with the source of which he did not concern himself. Technically, possibly, he was *particeps criminis* in the sense of being a "quasi receiver of stolen goods."

The case aroused great interest in the subject of obtaining dead human bodies by law for the promotion of medical science, and the teachers of anatomy under the guidance of Dr. W. W. Keen and the writer took active measures to secure the passage of a law of this character in the State of Pennsylvania. With great care and under legal advice an act was drafted and presented by a committee, of which the writer was a member, to the State Legislature, then in session, accompanied by a petition praying for its enactment.

The provisions of the law created a board, consisting of the teachers of anatomy and surgery in the medical schools and colleges of the commonwealth, which board after organization was to have entire control and charge of the receipt and distribution of all dead human bodies which the terms of the law gave to it. Each teacher of anatomy was required to give to the Prothonotary of the Court of Common Pleas, in the county in which he resided, a bond in the penal sum of one thousand dollars, that he would obey the provisions of the law. Traffic in dead human bodies was punishable by fine and imprisonment.

The officers of all municipal, county, and State institutions, having charge of the dead bodies of those unclaimed by blood or marriage relatives, to be buried at the public expense, were required to deliver such bodies to the board created under the law, all expenses to be borne by the board. The details of the conduct of the business of the board as to the distribution of the bodies coming into its charge to the institutions, schools, and those entitled to receive them was provided for by the rules adopted by the board. Exemptions were made in cases of old soldiers and certain others.

This law displaced one on the statute books of the State which was very defective, and was in all respects correctly drawn so as to protect the community and to promote medical science by giving in well-ordered manner dead human bodies for anatomical and surgical purposes. An essential feature of the law was the prevention of the traffic in dead human bodies which had existed before and which had wrought such shameful acts of spoliation of the resting places of the dead. The law of 1867, displaced by the act of 1883, was limited in its execution to two counties of the State, and gave the bodies of those who had no friends whose feelings could be wounded by their dissection. In 1855 a law had been enacted for the protection of burial grounds. A rigid and exacting rule of the board, requiring that a certificate of death made and signed by a reputable practitioner of medicine should accompany each dead body, made it impossible for any bodies to be delivered to the board unless under proper authority.

Feeling the great importance of the introduction of the provisions of this law in a proper manner, the writer accepted the position of executive officer of the board created by it, and for several years was interested in its execution, in order that all who were entitled under the law and who had complied with its terms should receive an equitable distribution of anatomical material and at a cost which encouraged the liberal use of material for anatomical and surgical purposes.

He was interested, as one of the features which attended the supply of dead bodies, in some of the acts practised by relatives who offered the dead bodies of members of their families to the anatomical board in order to escape the cost of interment. In all instances a certificate of death by a known reputable physician was required and the full consent of all parties related by blood or marriage was demanded to be placed on file in the records of the board.

One instance was so unique in its character that a brief account may be interesting in this chronicle..

A man of middle age, well-dressed as to hat, gloves, and top-coat, presented himself at the office of the board on one occasion and inquired whether the Anatomical Board purchased dead human bodies. On being informed that one of the purposes of the enactment of the anatomical law was to prevent traffic in dead human bodies, he stated he was ignorant of the law, and explained his reasons for making the inquiry to be a desire on the part of certain members of his family to obtain wearing apparel with the money received by the sale of the corpse. He was informed of the terms under which the board would receive the body, to which he agreed. He then stated that the body which was to be delivered to the board was that of his wife, who had not yet died, but who was ill and whose death was expected in a short time. With this statement he departed, and in three weeks returned with the information that death had occurred and requested that the undertaker in the service of the board would arrange a "little funeral" at his house. The services were held in the home of such character as belonged to well-to-do people, and the body came into the possession of the board without any expense to the mourning family. One year later this husband of frugal mind died, and his daughters, who desired to be adorned, as stated by him, their father, with wearing apparel purchased with money derived from the sale of their mother's dead body, arranged for the cremation of his body at the crematory where they had been informed by him the body of their mother had been cremated and her ashes sacredly in-urned. By tactful management the officers of the crematory accounted to the deceived daughters for the absence of the urn containing the ashes of their mother, and, through the records of the municipal Board of Health, traced the body to the Anatomical Board, which had in due order distributed it to the anatomical department of one of the medical institutions for dissection. The probate of the will of this devoted husband revealed an estate of $30,000. No suspicion of foul play was entertained in this case, the death certificate, signed by a well-known physician of the community, stated the cause of death to be "tuberculosis."

Members of the medical profession have at times, by last will and testament, given their bodies to medical institutions for the promotion of medical science by dissection, the skeletons of which, with certain organs were to be deposited in the museum of the institution. An act of this character on the part of one of the most eminent medical teachers of the country contributed his skeleton to a museum, which has become in process of time, by many valuable additions, a most important department of instruction in a great medical school.

In one of our cities, which for many years has been a center of medical teaching and medical authorship, a number of prominent members of the medical profession, teachers, and authors some years ago entered into a pact to give by provision of their wills to a museum connected with the medical department of a university their breains for dissection and study. Already a number of brains have been deposited in this collection and valuable information has been accumulated.

The preservation of dead human bodies for the purposes of dissection has been an important part of anatomical investigation. In order that a complete dissection, with proper study, should be made it was necessary that the body should be preserved in a condition as nearly natural as possible for an indefinite period. Not only should putrefaction be prevented, but the tissues and organs should be so treated as to retain the natural color—that present during life—and also a condition of flexibility through which the normal positions of organs and relations of parts were maintained.

The earliest accounts recorded with regard to body preservation after death are found among the ancient Egyptians, who carried the art of embalming to a high degree of perfection. Two reasons were assigned for this practice: (1) The scarcity of wood which prevented cremation, and (2) the impossibility of maintaining permanent interment in the ground owing to the recurring inundations of the Nile, and consequently the occurrence of serious unsanitary conditions by disinterment of bodies in states of putrefaction. Religious beliefs with regard to the resurrection of the body and a future life, it is stated, have also inspired certain peoples to preserve the embalmed bodies of their dead with solicitude. The process of embalming consisted in evisceration with as little mutilation as possible, the brain being removed through the nostrils by a bent iron implement, and with the injection of drugs. Various medicaments, notably aromatics, were injected into the cavities and the body immersed for a varying period of time in a solution of natron.

The early anatomists, as well as those in modern times, employed various methods of embalming. William Hunter used essential oils, alcohol, cinnabar, camphor, saltpeter, and pitch or resin. Tar, salt, asphalt, Peruvian bark, camphor, cinnamon and other aromatics and corrosive sublimate have been used; also the chloride and sulphate of zinc, the acetate and sulphate of aluminum, creosote and carbolic acid.

Before the occurrence of the Civil War, and some time after, the methods of preservation of bodies for dissection were crude and defective. A strong solution of the chloride of zinc was injected into the arteries, using either the aorta or femoral arteries for the purpose, and the bodies, doubled up, were placed in large casks containing alcohol, the price of alcohol at this time making it a fairly economical procedure. When wanted for dissection the bodies were removed from the casks in a state of rigidity which required soaking in a tank of water for several days before it was possible to restore them to normal shape. Then a solution of plaster-of-paris was injected into the arteries to facilitate their recognition in dissection.

When the cost of alcohol, by reason of post-bellum taxes, became prohibitive, bodies, after the chloride of zinc injections had been made, were kept in tanks containing a saturated salt solution. Bodies injected with the chloride of zinc solution as a preservative were very defective for dissection purposes by reason of the bleaching of the tissues which resulted and the tendency of the parts to undergo dessication. In order to overcome these conditions several other agents, notably the bichloride of mercury and carbolic acid, were tried, but these failed to preserve the tissues and organs of the bodies in a fit condition for a sufficient length of time to permit complete dissection. The perfection of cadaver preservation for anatomical purposes came with the use of cold-storage vaults, in which the subjects were placed and kept in a temperature sufficiently low to prevent putrefactive changes—40° to 50° Fahrenheit.

To the agents above enumerated, carbolic acid, creosote, alcohol, saltpeter, glycerine, arsenate of soda, and formaldehyde may be added in solution and thrown into the arteries by gravity. The color of the tissues is not changed by these agents, and the cadaver when taken from the refrigerator and thawed is in excellent condition for dissection. Instead of plaster-of-paris, melted wax or a solution of starch colored with vermillion may be used to fill the arteries and arterioles to assist in their dissection.

The methods employed in disposal of the remains left after dissection of bodies have varied. Originally they were thrown into a pit and a solution of lime poured in so as to promote destruction. In one institution the most reverent care is taken of the bodies and of the remains. The bodies are brought to the institution in coffins, in which all portions of the dissected remains are placed and every care to preserve the identity of each body taken. The institution, in a burial ground owned by it, inters the remains and marks the grave by a suitable headstone. The modern method accomplishes the destruction of the remains by incineration in a suitable furnace.

The methods of teaching anatomy to students have undergone changes which have been in harmony with the development and growth of the science. Since the time when Vesalius "proclaimed openly that the structure of man should be learned by the inspection of the human body, true knowledge could alone be obtained by the study of this, the only correct authority the body of man itself," and Harvey stated that he "taught anatomy not from books but from dissections, not from the suppositions of philosophers but from the fabric of nature," instruction in anatomy has been conducted by teachers by lectures illustrated by demonstrations on the dissected cadaver before the entire class of students, with practical instruction in the anatomical room; the students in sections being required to dissect, under supervision of a demonstrator, the entire body and to be submitted at intervals of time to an examination on the work which has been done. In the surgical laboratory the special work embraced the study of the surgical relations of the different structures, muscles, blood vessels, and nerves, the knowledge of which, with that of the topographical relations, is so important to the surgeon and constitutes the groundwork of his skill.

As the structures of the body are continuous in substance and correlated in function, the writer has always felt in his teaching that the one intending to become a specialist in the practice of any of the branches of medicine should receive instruction in anatomy in its entirety. Study by dissection only of the parts which contained the organs or of the organs themselves which constituted his practice, gives the specialist a very imperfect knowledge of the important relations the component parts of these organs bear to the general structures and organs of the body of which they are a part. Entertaining this opinion he was the first in the history of anatomical instruction, so far as he knows, to require that students in dentistry in the institution in which he was the professor of anatomy should be required to receive instructions in the anatomy of the entire human body, and in the anatomical laboratory dissect in order the entire body. Furthermore, during the period of instruction the student was submitted to periodical examinations, and in the final examination for the degree, examination on the entire subject held a place of importance and of value in the same respect as that of the special subjects taught. It is not possible for the purposes of intelligent instruction to separate special organs of the body, as the eye, the ear, or the teeth, and their associated parts, from the rest of the body, or to destroy their important relation, hence the importance of the study of anatomy by those who engage in the practice of specialties.

In the early days of the writer's experience in surgical work importance was given by the great masters to the necessity of well-grounded instruction in the *principles* of the science of surgery—these were basic in character and preceded instruction in the practice. In the hands of the true surgeon the knife is simply an instrument, guided by the knowledge which he has acquired of the morbid conditions which involve a state of normal health, or by progressive development which jeopardizes life. This knowledge is gained by study, investigation, and the lessons of experience. The study of the etiology of disease claimed earnest attention then, as it does in this day, when by the perfected laboratories of research and the faithful devotion of able investigators, the quest for the causes and the agents of relief of destroying diseases is unremittingly conducted, and the victories achieved in the contest contribute in ever-increasing beneficial results to the well being and welfare of the human race.

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## THE CARE OF SURGICAL PATIENTS.*

By DONALD C. BALFOUR, M.D.,

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So much has been written relative to the care of surgical patients that it may appear presumptuous to attempt to offer anything worth while in the limits of a paper on this subject. I shall only synopsize the essentials of surgical treatment as they are in vogue to-day, which will necessitate more or less repetition of well known and accepted principles. Some justification for this is found in the constant changes, minor in detail it is true, which are taking place in the conduction of surgical cases. To facilitate matters I would discuss the management of these patients under four headings: (1) Care before operation; (2) care during operation; (3) postoperative treatment, and (4) advice to patients.

### CARE BEFORE OPERATION.

A detailed physical examination and careful recording of the findings in connection with the preoperative care is imperative. The actual preparation of the great majority of patients for operation is simple and requires of them no deviation from their usual mode of living up to the afternoon previous to the day of operation, when the patient should receive two ounces of castor oil in beer and a light evening meal. A tub bath should be given, especial care being taken to avoid chilling, and the field of operation shaved. In the morning the lower bowel and rectum should be thoroughly evacuated by enemata when the preparation for the operating room is complete. This simple routine applies to the large percentage of surgical cases, while special conditions require special measures.

In all emergent cases the preliminary treat-

*Read before the Sangamon County Medical Society, Springfield, Ill., November 10, 1913.

ment should necessarily be abbreviated and usually omitted altogether.

It is advantageous in extremely fleshy individuals in which a radical operation for hernia is to be done to decrease the weight as much as possible by judicious dieting.

There are several groups of cases in which operative procedures would be of considerable risk, and in which the patient can be improved by appropriate treatment. Under this class we have:

(1) Goiters of the exophthalmic type, in which the disease is at an acute stage. The operative risk is prohibitive in these cases and measures must be attempted to quiet the exacerbation. The preparatory treatment is extremely important and yet simple, depending, as it does, on absolute physical and mental rest and the use of infusion of digitalis as a cardiac corrective. Practically all drugs and local treatment have been proved to be of little definite value. The acute intoxication must subside before operative measures are attempted. Exophthalmic goiter is never a condition demanding an emergent operation and the importance of avoiding surgical treatment during this critical period is obvious when one remembers that the operative mortality had been reduced to about one per cent. because of better preparation of patient and the proper selection of the type of operation.

In the toxic type of goiter without exophthalmos, the chief lesions are of the heart and kidneys, and this group exhibits the heaviest mortality following operation. Similar preoperative care is as applicable to these cases as to the typical exophthalmic group. The management of patients of both these types after their arrival in the hospital should be conducted with the greatest caution. The patient should have a room alone and should be shown the greatest consideration with every whim gratified if possible. We have on more than one occasion seen patients develop an acute hyperthyroidism from a definite mental irritation. A laxative should not be given these patients because of their susceptibility to gastrointestinal disturbance. About 45 minutes before operation 1/6 grain of morphine with 1/120 grain of atropine and 1/200 grain of scopolamine should be given, the combination of which limits the secretion of mucus in the respiratory tract and more or less stupifies the majority of patients.

(2) One of the most striking examples of the value of preparatory treatment is seen in prostate cases. In these the operative results have been greatly improved by the introduction of one principle, *i.e.* the preliminary drainage of the bladder. The opportunity this affords of clearing up the urine, maintaining the specific gravity, and of diminishing the blood pressure has been definitely shown in cases treated in the Mayo Clinic. This drainage is accomplished in some cases by a permanent catheter in the urethra; in others it is necessary to introduce a catheter through a suprapubic stab in the bladder. Crenshaw has shown that in the last 50 cases of prostatectomy in our clinic the average improvement during their pre-operative care was a drop in blood pressure from 166 to 145 mm. and the specific gravity of the urine maintained at an average of 1011.

(3) Severe anemias due to hemorrhage from uterine fibroids, bleeding ulcers of the stomach and duodenum, and hemorrhoids should be treated by large doses of iron, and forced feeding. An occasional case may be suitable for transfusion shortly before the beginning of an operation.

(4) Patients deeply jaundiced are bad surgical risks and if the jaundice is transitory operation should be delayed until it has almost disappeared. The coagulation time of the blood is the most accurate indication we have as to advisability of operating, but it is also true that changes in the blood vessels themselves are more or less responsible for their tendency to bleed easily. We have not seen any appreciable results from the use of the calcium salts and have been disappointed in the results obtained from experiments with horse serum.

(5) The condition of emaciated patients—particularly gastric cases with obstruction at the pylorus—can often be greatly improved in the course of a few days by increasing the body fluids; *e.g.* a quart of saline solution administered per rectum night and morning. All patients with suspected gastric lesions involving retention of food should have the stomach thoroughly washed the morning of the operation.

(6 ) Certain cases with acute infections are benefited by careful preoperative watchfulness. Active infections in the pelvis, cholangitis and certain stages of peritonitis are oftentimes better left undisturbed than interfered with when the patient's illness is due to a general toxemia and not to some focus of disease. These patients are still a subject of considerable controversy but I believe the opinion is gaining ground that if they are definitely getting over the infection it is worth while to wait for a time until some immunity is established.

(7) As regards the administration of alkaloids before operation: There is no doubt but that their use should be limited, and probably confined, to morphine and atropine. Although we are accustomed to give scopolamine to patients having exophthalmic goiter, we must admit that we believe making a routine of this practice is open to question. Morphine and atropine are given in gastric and rectal cases, in recent infections of the lung, to very fleshy individuals, to alcoholics, and occasionally to patients with heart lesions with whom local anesthesia is to be used.

### CARE OF PATIENTS DURING OPERATION.

The question of anesthesia is still a much discussed one. Ether administered through an open mask by a competent anesthetist is believed to be the most satisfactory anesthetic for the majority of cases. Ether by the intratracheal method is extremely satisfactory for certain types of cases. After the patient has been placed in the proper position on the table and while the anesthetic is being given, the preparation of the field of operation is made. The skin is cleansed by a piece of gauze moistened by benzine to remove grease and dead epithelium, and after this has thoroughly evaporated, tincture of iodine is applied, the strength varying between 3½ and 7 per cent. When this has dried, and the operative area is surrounded by towels, the preparation is complete.

For the welfare of the patient during the course of the operation nothing more than adherence to sound surgical principles is necessary. A minimum quantity of anesthetic should be used to produce anesthesia which will be just and consistent with the surgeon's work. Careful exploration, a not unduly prolonged operation, maintaining bodily heat, as little manipulation as possible, no more retraction of wound than is necessary to expose the parts,

accurate hemostasis, and a precise toilet to complete the operation, are all factors in lessening the possibilities of postoperative complications. Rarely, if ever, are stimulants necessary or even advisable during the course of an operation. It is illogical in a patient who is markedly shocked to add further stimulation to an already over-stimulated nervous system.

CARE OF PATIENTS AFTER OPERATION.

It is true that the majority of operative cases require no special care during their convalescence, and this discussion will be confined to the treatment of special groups of cases and various complications which may arise.

Patients with toxic goiter require just as painstaking postoperative care as they received before operation. It is extremely essential that these patients obtain fluid in some way as soon as the operation is completed. As a routine, saline should be given per rectum and in the serious cases if this is not retained, hypodermoclysis should be used. In patients with mental restlessness or cardiac irritability, ice to the head and precordium are probably of service. Drugs of any kind are of doubtful value; morphine, in some cases is beneficial. Practically all cases should be drained following operation for goiter, the tube being removed in 24 hours. Acute hyperthyroidism occurring after operation for exophthalmic goiter is an extremely serious condition and apparently no treatment is of any definite control over the intoxication which runs a short course terminated either by death or recovery within 12 to 48 hours.

The management of patients who have been operated on for lesions of the stomach and duodenum, including gastroenterostomies, resections, and plastic operations, should follow a more or less routine procedure. On returning from the operating room, the patient should immediately be placed in a sitting position in bed and this maintained as much as possible for several days. This facilitates drainage of gastric fluids, and very few patients object to the upright position. Hot water in small quantities should be given after the first few hours, and if this does not cause any ill effect, it should be gradually increased and the next day weak tea, broth, or albumin added. During the first 24 hours an average of 2 quarts of saline by bowel should be given to gastric cases. Occasionally oozing takes place into the stomach in some of these patients and the temporary paresis causes retention of secretions and old blood. This should be carefully watched for and if the patient is not able to vomit, gastric lavage should be carefully done with small quantities of warm water, adding soda bicarbonate if the contents are sour or acrid. The food in these cases should be gradually increased until about the time the patient leaves the hospital, when a full diet is allowed with a limitation of the heavier articles.

Another group of cases requiring special postoperative care are the prostatectomies. Here the most active attention is necessary during the first 24 hours to make sure the bladder is draining properly and that the catheter or tube in the bladder is not becoming plugged with clots. As soon as drainage is removed these patients are gotten up in order that they may not become bed ridden. Undoubtedly many patients recover by reason of this forced activity who would not have otherwise done so.

Realizing the impossibility of discussing in detail the treatment of all classes of operative cases, it seems wise to limit the discussion to a consideration of the more common symptoms and complications which arise during convalescence.

*Pain.*—Pain is a variable symptom depending on the operation, and, to a great extent, on the patient. We believe that convalescence is more rapid and more satisfactory if morphine in sufficient quantities to alleviate pain be given during the afternoon and night of the day of the operation. In very few instances will any opiate be necessary after the first 24 hours.

*Vomiting.*—The vomiting supposedly due to the nauseating effect of the ether is of no special moment. The vomiting which persists is of a different type and may assume serious aspects. Sometimes an enema will relieve this condition by setting up a peristaltic action in the intestines and a passage of gas. Washing out the stomach with 2 or 3 glassfuls of warm water is sometimes all that is necessary. In other cases washing with the tube may be necessary and in still another group, in which the condition becomes a dilatation, nothing but systematic lavage every few hours will avail. Undoubtedly many patients have been lost because this condition was not recognized, and, since the treatment is only mechanical and its efficiency so definite, little excuse can be made if a patient succumbs to such a complication. A useful adjunct in these cases of acute dilatation is to have the patient lie prone in bed with a pillow under the hips. Quite frequently this immediately relieves the condition.

*Thirst.*—Since the advent of the practice of giving fluid per rectum, thirst is not such a common complaint. In most instances, as soon as the postanesthesia vomiting has ceased the patient begins with a little hot water and if that is retained there is no further reason for limiting the supply of water.

*Gas.*—This word brings up painful recollections to many of those who have undergone abdominal operations. Drugs to stimulate peristalsis are uncertain in their effect and are not used with any frequency. Oftentimes the use of a rectal tube will relieve the patient and enematas of various kinds should be tried since some will be effectual where others fail. Of these remedies, the most commonly used are soap water, plain or with turpentine, salts, and glycerine, alum, etc. If there be marked rectal irritation, milk and molasses is very satisfactory.

*Mucus.*—Mucus in the respiratory tract is sometimes very distressing, the patient who has had an abdominal operation being unable to use sufficient muscular effort to cough it up. A simple expedient is to hold the patient upright in bed, firmly supporting the abdomen by encircling his waist from behind. Braced in this way, the patient can rid himself of the troublesome mucus with little discomfort.

*Inability to Urinate.*—Following certain operations; such as goiters, laparotomies with small incisions, etc., it is preferable to get the patient out on the side of the bed rather than to use a catheter. The use of the catheter should be limited as much as possible since infection of the bladder may occur in the best regulated hospitals. A patient makes a bad bargain in exchanging a chronic appendix or a hernia for cystitis.

*Paresis.*—When of a mild degree, paresis is of no serious consequence. It is best relieved by anemata. The more prolonged types, however, are a menace and require judgment in the treatment;

the main and, at times, difficult point to be determined is whether or not the patient is overcoming the paresis. Any active interference to relieve the condition means re-operating. This same problem arises in the cases of secondary intestinal obstruction due to an adherent loop of small intestine, volvulus, etc., and the decision rests between giving the patient a chance to overcome the obstruction or to re-operate to relieve the obstruction. As a last resort, Rutherford Morison advises giving an ounce or two of castor oil. A satisfactory method of administering the oil is through the stomach tube, after washing out the stomach. This procedure quickly settles the question and although somewhat drastic is justifiable. Should operative interference be considered necessary, an enterostomy is usually chosen and undoubtedly has been the means of saving many lives. The patient is usually in a precarious condition by the time such a step is decided upon, thus the shorter and simpler the procedure the better. As a rule, local anesthesia is employed. The distended loop of bowel is brought to view and, occasionally, the obstruction can be located and relieved. The enterostomy is best made by a modified Witzel method, and the bowel should be drained more or less slowly. The resulting fistula often closes without any further attention and, should it not, a closure is readily made later.

*Complications of the Lung.*—Complications of the lung vary according to the season of the year and quite frequently appear to be epidemic in character. An acute condition which closely simulates pneumonia is perhaps the most common of these pulmonary complications. It usually begins on the second day following operation with an onset suggesting pneumonia, and with the congestion of an early lobar pneumonia. This condition is maintained for two, three, or four days, without developing further than the primary stage of a true pneumonia and then is suddenly terminated by a crisis. The essential treatment for these cases is to keep up the bodily heat of the patient, giving them all the fresh air available. Even in the coldest weather the patient may be placed in front of an open window.

*Renal Insufficiency.*—Indications of renal insufficiency should be carefully noted following operations on the urinary tract. Accurate measure must be made of the amounts of urine voided and at any sign of failing secretion, fluids should be increased and, if necessary, sparteine, 3 grains, be given every 3 hours. In rare cases of total suppression, decapsulation of the kidneys has been done with relief of the condition.

*Postoperative Hemorrhage.*—As a rule, this condition is readily recognized but, if any doubt exists, one should make absolutely certain. Deeply jaundiced cases are more treacherous in this regard, the slow coagulation-time combined with the peculiar changes in the vessels themselves, making a secondary oozing very likely. In a few cases, we have observed undoubted benefit follow transfusion and in many cases questionable benefit from the use of horse serum. Means should always be at hand with which to perform a transfusion. Many methods of simplifying this procedure have been described recently.

*Shock.*—A true condition of postoperative shock not caused by hemorrhage, unnecessarily prolonged operations, or badly administered anesthetic, is rarely seen. When such shock does occur, saline solution subcutaneously with the aid of morphine, and camphorated oil every 2 or 3 hours will accomplish about all that can be done. In connection with shock the brilliant investigations of Crile have opened up a new and interesting field for study. The importance of the subject and its true valuation can only be determined by time and the experiments of various observers. The benefit to be derived from blocking the peripheral nerves which are encountered in an operation would seem slight and of practical value in only a small group of cases.

*Postural Drainage.*—In acute abdominal conditions we believe that postural drainage plays a very important part in the recovery of the patient. For example: In cases of perforated appendix, with peritonitis if the patient be kept well up in bed and lying to the extreme right side, he has a much better chance of recovery than if this principle is not followed. To render drainage efficient in these cases, frequent changes of the wet dressing are advisable.

*Phlebitis.*—Phlebitis is a very distressing complication which usually occurs about the tenth day and involves the femoral or saphenous vein. It is not amenable to treatment other than absolute rest and local heat. The importance of rest of the affected limbs is well known because of the association with embolism.

*Embolism.*—When embolism occurs, practically no opportunity is afforded for treatment and if there were time, we should be at a loss to know how to proceed since no one has as yet accomplished anything in the treatment of the condition. Undoubtedly there are patients who recover permanently from pulmonary embolism, and patients may live several hours and then succumb to an attack. Embolism is one of the bugbears of surgery. The accident occurs, as a rule, just when the patient and his family are happy in the belief that all danger is past. In this connection, the question arises of how long patients should be kept in bed? Our observations would not indicate that patients are in any way benefited by a prolonged stay in bed or that their being kept in bed will obviate the possibility of embolism.

### ADVICE TO PATIENTS.

The fourth point worthy of emphasis is the importance of explaining to patients recovering from a surgical operation just how to take care of themselves and what they should expect in the way of symptoms after being dismissed from the hospital. It is a mistake to allow patients to believe that their recovery will be complete in a month or two after an operation on the gall-bladder, stomach, or even the appendix. The post-operative treatment of these patients in the way of judicious living should continue for several months according to the type of operation. To patients who have been operated on for exophthalmic goiter should be carefully explained the possibility of a recurrence of the trouble, and all the circumstances of every case should be explained to some member of the family at the time of operation. If there is a possibility of hernia following drainage the patient should be apprised of the fact. These patients should also be told as explicitly how long to refrain from their usual work.

In conclusion, I would emphasize the fact that the basis of treatment of surgical patients is simplicity. The after-care should cause little worry except in the event of complications, since the work should be completed in the operating room. As

Rutherford Morison says, "Incomplete operations are never satisfactory and are more disastrous in their results than the most heroic, when thoughtfully planned and skillfully executed."

## THE TRAUMATIC NEUROSES, DUE TO ALLEGED OR ACTUAL INJURY, FROM THE MEDICOLEGAL STANDPOINT.*

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THE tremendous industrial and transportation development of the last few decades has given rise to an important and ever-increasing type of cases which demand a proper understanding and classification. They appear largely as the result of alleged or actual injury, either physical or psychic, and our professional relationship becomes of greatest importance when litigation is entered upon for the sake of securing indemnity.

The spirit of "acquisitive litigation" is not new. It has no doubt existed since the establishment of legal tribunals—when the individual has sought compensation for injury or suffering believed to be due to the negligence of others. Indemnity was sought, however, for material injury, such as loss of an eye, an arm or leg, or a broken skull, or spinal column, with definite objective symptoms that were unmistakable. But one must stand appalled to-day at the wholesale litigation based upon alleged or actual injury, where the physical evidences are slight or absent, yet where serious and permanent damage to the mind, health, and body are claimed. It would be difficult, indeed, to estimate the amount that is now paid annually by railroad and industrial corporations to claimants of this class. This very situation places upon the medical profession the tremendously important and responsible task of serving not only as personal physician to the claimant, but also as witness or expert in the courts of law when the justice and extent of his claim is determined.

The real genesis of this type of injury, from a medicolegal standpoint, dates back only from the time of Erichsen. His theory of concussion of the spinal cord as a pathological entity was purely hypothetical, yet he attempted to show that even after the slightest injury or shock there might develop the most serious forms of progressive nervous disease. It was explained at first upon a theory of disturbance of vascularity of the spinal cord, and later it was thought to depend upon multiple areas of inflammation disseminated throughout the cerebrospinal column. It has, at various times, been considered organic, partially functional, and wholly feigned. But the erroneous conclusions of this early work, which have been very largely controverted by later investigation, have, nevertheless, served as the basis, both in the lay and professional mind, for a vast number of absolutely fraudulent damage suits.

In the early '80's Page saw that Erichsen's work was without pathological basis, and that there was no evidence that a spinal concussion—comparable to the demagnetization of a magnet by a blow of a hammer, a favorite expression of Erichsen's—was ever caused by direct violence on the back or by a general shaking up of the whole body.

Dana, in 1884, gave a complete résumé of this class of cases, which, with few modifications, is accepted to-day as essentially correct. He states: "The term 'spinal concussion' is misleading and often incorrect, and the symptoms which are usually associated with that name are really symptoms of traumatic neurasthenia, hysteria, and hypochrondriasis, associated more or less with symptoms of injury to the vertebral muscles and ligaments and to the spinal nerves; that, in other words, concussion is mental shock and physical bruising." The evidences of violence which follow a railway or trolley car accident, for example, are many and varied. There may be anything from simple abrasions, jars, and wrenches, to muscular or tendinous ruptures, fractures or dislocations, nerve injuries, paralysis, and many injuries of internal organs. But rarely do corporations deny liability where physical evidence of injury is present, and such claims are usually settled out of court.

The widespread impression that the spine and spinal cord are liable, before all other parts, to meet with injury in cases of accident, accounts, in large measure, for the multiplicity of these cases in the courts today. The lawyers believe it, the laity believe it, and, unfortunately, many doctors believe it. Such cases are met with in the courts, but how rarely are they seen in the large clientele of private practice.

Countless accidents occur in private life, such as in football, in runaways, automobile smash-ups, falls from great distances—which give rise to broken bones and serious laceration of tissues, yet, because of the absence of liability on the part of others, either individual or corporation, it is rare indeed, though physical pain may persist for years, to find the development of the neuroses—the subjective symptoms of accident, which are here to be discussed.

Because of the predominating psychic factor in these cases, and the hope of receiving idemnity from someone, Hamilton has recently classed them under the term "litigation psychoses." This same syndrome has been variously designated as accident aboulia, railway spine, spinal concussion, Erichsen's spine, traumatic neurosis, traumatic neurasthenia, and traumatic hysteria.

The etiology of a traumatic neurosis does not depend so much upon the extent of injury or physical violence as upon its subjunctive reflection upon the mind of the person injured. Its development is almost entirely psychogenous. There are several factors in this development. An *intrinsic predisposition* may be present because of inherited or acquired disease which preexisted the accident. It is quite conceivable that chronic intoxication with alcohol, with syphilis, and with lead may form an unstable psychic background. Certain occupations under the stress of intense heat and noisy machinery may make the nervous system more sensitive to shock.

The natural mental inferiority of the injured one may, by designing lawyers, be attributed to injury. I have examined cases in which defective intelligence and hearing—due to adenoids and nasal polypi—were attributed to brain and cord injury from an accident. Another case of physical inferiority in which parasthesias, disturbances of locomotion, and mental inalertness—due to morphinism—were attributed to a nervous shock from an electric wire, and for which substantial damages were sought.

There is in all accidents, in relation to the individual, a certain phase which must be considered.

*Read before the Tennessee State Medical Society.

Hamilton calls this the sense of *preparedness;* that is to say, the attitude of the individual so far as expectation is concerned. The locomotive engineer may be thrown violently from his cab and sustain grave physical injury, but how often do we meet in them a conflicting hysteria, neurasthenia, or hypochondria? But the passenger, unconscious and unprepared for danger, may receive only slight physical injury, but serious nervous or mental shock.

Several years ago Prince took the trouble to collect statistics which show that there is a comparative absence of nervous disorder among those who are on the lookout, or who are consciously "taking their chances." He found that while football players may sustain almost any form of violent injury, they are never the subjects of traumatic neurasthenia or traumatic hysteria. Outten found that of 18,275 cases of railway injury among employees there were but eight cases of the so-called traumatic neuroses, or one in a little over 2,000; while of 884 injured passengers, there were 11, or one in about 76. It is, therefore, most essential to investigate in detail the physical, nervous, and mental condition of a claimant previous to an alleged accident.

The physical symptoms of severe primary shock are those dependent upon the impaired cardiac action with resultant anemia of the brain, and for a period an exhaustion of general nervous function. The mental symptoms are first unconsciousness, and later depression and psychasthenia. These latter may exist for a long time and finally lead to forms of neurasthenia and to psychoses of varying kinds—provided conditions be favorable for such development. However, the vast majority of cases which have sustained more or less physical injury, and months or years later bring suit for spinal injury with its variegated syndrome of symptoms, rarely suffer from primary shock. The neurosis which they present is largely a product of subsequent environment.

Following the pain and functional inconvenience due to the accident, the mind of the injured person begins to dwell upon the local injury, the accident itself, the unjust misfortune of his being a victim of such an accident, and the responsibility of another for his present incapacity and suffering. At this juncture, had he fallen from a step-ladder in his own home and wrenched his back, or twisted the ligaments of his hip, and no one responsible but himself, no nervous symptoms, no neurosis, would develop. Sleepless nights follow, during which he meditates upon his condition, his present incapacity, and predominating all is the thought that some one must be held responsible.

A favorable psychic environment at this period is usually lacking. Friends and relatives come forward with sensational tales of similar cases, with prognostic forebodings. They point out new and undreamed-of symptoms and pains, which are soon acquired and become very real. It is insisted that he is unable to work. He may attempt his former occupation, but impressed with his incapacity, he returns to his bed more discouraged and pain-stricken than ever. The moment the question of damages arises, the dominant or nearest relative usually exerts a most extraordinary and dangerous influence. A compelling sense of injury and justice leads them to seek redress. The relatives have enlarged their understanding by discussing the case with doctors and lawyers, and the conviction of injury is strengthened and intensified. Subsequent examinations by physicians and conversations with lawyers inflame his mind. He now exaggerates his symptoms. He speaks of "horrible nights," tearing pains, bloody urine, constant headaches, impotence, obstinate constipation, vertigo, frightful weakness.

There now enters the final and characteristic factor of an accident psychosis—not the pain he suffers; not the memory of the accident; not the distress at his incapacity to work, but the insatiate and thought-consuming desire for money as a compensation for it all.

The detection of the various forms of accident psychosis as differentiated from organic injury is not always of easy moment, and in many cases learned physicians will differ and appear as experts on opposing sides. But this is unfortunte. The almost mathematical accuracy with which a brain or spinal cord injury, a hemiplegia, a paraplegia, a monoplegia, a myelitis, a sclerosis, a neuritis may be diagnosed, lends little excuse for these professional bickerings on the witness stand. A differentiation between organic lesion and functional disease, when a careful examination of the claimant may be had, should be absolutely possible in the vast majority of cases.

To illustrate a few of the typical forms of traumatic neurosis, permit me to report briefly a few personal cases. Certain seemingly unimportant details are given because of their bearing upon the psychic environments.

Case I.—J. F. T., male, white, aged 42, Fort Payne, Alabama; examined Sept. 12, 1910; occupation engine hostler A. G. S. Ry.—salary $52.50 per month. First worked 5 months for A. G. S. Ry. in 1904. Previous to alleged accident he had been working for them for 8 months. Went out on a local strike twice. Alleges to have been injured between 11 and 12 P. M., November 30, 1908. He was on night duty and was assisting a wrecking crew to re-rail an engine. He states he was under the wrecked engine on his knees attempting to turn a replacer around, when the engineer threw a lever forward and an eccentric link struck him upon the lower part of the back and right hip. He states that he crawled out from under the engine by himself and in a short time went home. Dr. W. saw him next day and stated there was a bruised area over the left hip. Returned the following night to go to work, but laid up on boiler and hired two men to do his work. The following morning he stated he had to be helped off the engine and to be carried home in a wagon. He states that he couldn't walk, and that the next morning he passed bloody urine and had done so up until about a month ago, a period, you will note of nine months from the date of the accident. He was taken to Birmingham 24 days after the injury, and he states he frequently passed blood while there. Dr. S., who was present at the examination and who was attending surgeon in Birmingham, asked why it had never been found by the attendants. He replied that he did not call attention of the nurses and doctors to it. Spent several weeks at the hospital in Birmingham and was able to walk to his home from the train upon his return (a distance of some nine city blocks). Admits walking in Birmingham without a cane or crutch, but also states that he has never walked a step without a limp since he was hurt and that since his return from the hospital he has grown steadily worse. For nearly thirteen months he has now lain about the house, most of the time without a physician, but with the typical environment above described. In his own words, he now complains of pain in back and hip and nerves. Says he gets weak and shaky and nervous. Says he weighs much more now than he did in Birmingham. His appetite is good. The subsequent physical examination, which I will not detail, showed absolutely no injury to spinal column, nerves, bones, muscles, or heart. He complained of pain at any point on the body you made pressure. His face had the dogged look of one trying to deceive. In February, 1911, his suit for $15,000 was tried before a jury of his fellow-townsmen, many of whom had been forced to help support him and his

family for more than a year while he was waiting for his suit to come to trial. He had to be assisted to the witness stand by two men—with the greatest caution—and apparently with severe pain. But as the direct and cross-examinations proceeded, and he forgot himself, he crossed and recrossed his legs, stooped over and handled himself generally as a man without pain. After the facts of his simulation were presented by physicians—and after they had sworn that he was a fake—with absolutely no physical injuries or evidences of injury, a verdict was returned in about thirty minutes for $1,500.00.

This was a typical case of a traumatic neurosis, or, as Hamilton puts it, "a litigation neurosis." His predominating physical symptoms were those of neurasthenia—not caused by an accident, but by his subsequent mental environment and attitude toward the accident.

Before I leave the form of traumatic neurasthenia, let me illustrate by reciting a case where suit was not brought, where an earnest effort to regain health existed, and where recovery resulted.

Case II.—F. P., expressman, male, age 63, was in an express car when it rolled over an embankment. He was severely shaken up and bruised. After he recovered from his bruised eye and legs and arms, there persisted a dull, aching pain in the lower part of his back. He became restless, irritable, and morose. He could not sleep nights. He could not walk downstairs. He was certain he could not return to his work for months, and perhaps never. It was a typical traumatic neurosis—a neurasthenia with melancholic manifestations. He was given electric and vibratory treatment to the spine, some nerve tonics were administered, but he was constantly assured both at home and by his physicians that he would permanently recover and would be able to perform many more years of useful work. Finally, the relationship of his own mental attitude was explained to him in detail and he was urged to assist. In two months he returned to his work, and for the first few weeks he felt he could not continue, but with his own will-power and repeated assurances from his physician and family, he continued, and for nearly three months he has now performed his former duties with practically no inconvenience or suffering. This is an illustration of the usual recovery of these cases—in a reasonable period of time—when the factor of litigation for the purpose of securing indemnity is not present.

Let me now detail a typical and remarkable case of traumatic hysteria which I saw the latter part of 1910.

Case III.—J. W., colored porter, age 22, married one year. States that on March 4, 1910, while at work as porter and while dusting, he was struck by a live electric wire on the back of his head. He states that it knocked him down and he became unconscious. He says he remained in bed three days and then returned and tried to work for two days, when he found himself unable to continue. He returned home and was later carried to his mother's home, where he has remained until the date of this examination,—a period of about nine months. His physician stated that there was a discolored area on the back of his head, which disappeared upon the application of salve. He complains now (his own words) of headache all the time, eyes feel badly; states that he eats and sleeps very well, bowels move well every day; has no fever or sweats. His chief complaint is that he suffers from certain "spells"—which come on at any time, day or night. Dr. T., his physician, stated that he has seen him in probably a hundred of these spells. Upon examination the man was well nourished, with good, but slightly rapid, pulse, temperature normal, stomach, bowels and lungs normal. An area over the back of the neck—a little to the right—he stated, upon pressure, caused much pain. This was the area of the electric burn or shock. Reflexes were all somewhat exaggerated. Pupils normal. The man appears exceedingly nervous and trembles considerably. At irregular intervals he sighs deeply. During the physical examination, he had one of the "spells" already mentioned, in which he groaned, became rigid, and fell. He was caught and laid on the bed and remained there for perhaps two minutes, during which time he would not respond to questions. Within a few minutes we lifted him to his feet and he walked about the room in a dazed but belligerent condition. We then seated him in a chair, where he sat still, in a dazed condition for a few seconds, when, distorting his face and doubling up his fists, he moved indefinitely about the room. He was then sent into another room, where he lay down upon a couch. In about five minutes he responded intelligently to questions, and said he felt badly and that his head hurt.

Now, this negro never had any of these hysterical convulsions before the alleged burn, and his case was undoubtedly a traumatic hysteria. He and his entire family were greatly impressed by the seriousness of his condition, but more especially by the liability of the corporation for whom he worked. I advised settling the case out of court, for I was positive he would have an hysterical seizure on the witness stand, and yet I was likewise positive that the seizures would disappear as soon as the case was settled. It was compromised for some $1,500, and the boy's father told me only recently that he was perfectly well, working every day, and has not had a single convulsive attack since he received his money.

I have recited this case in detail, for it is so typical, and the prompt recovery after the award of damages is so very frequent. A prominent lawyer, after securing a substantial verdict in a case of traumatic hysteria, recently remarked to me that "a good round verdict does more to cure these cases than a dozen physician's prescriptions."

Some eighteen other cases, presenting various phases of the traumatic neurosis, I shall report later in a more comprehensive paper, but I believe I have sufficiently illustrated at least two very typical forms.

Another phase of intense interest is that of pure simulation. This term should be employed only when the individual purposely and consciously attempts to deceive us. He may wilfully exaggerate such symptoms as do exist, or represent disease conditions to exist which either preexisted the accident, or which do not exist at all. In fact, he may present symptoms or physical signs due to an accident which never occurred. The attempt to deceive must form an integral part of our conception of simulation.

This paper is necessarily curtailed and incomplete, but there is a wide field for thoughtful investigation in the traumatic neurosis, and the profession must more fully prepare themselves for the judicious handling of these cases. The medicolegal phases must be better understood, so that reputable physicians shall more closely agree upon diagnosis and prognosis when appearing as sworn experts before the juries and courts of the land.

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## ECLAMPSIA, WITH TOTAL ABSENCE OF ALBUMIN, BUT GENERALIZED, HARD EDEMA. (PURE CHLORIDE-RETENTION?)

By CECIL KENT AUSTIN, M.D.,
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*"Toute femme enceinte doit se soigner, et se laisser soigner."*
(Bouffe de St. Blaise.)

It is anything but easy for a rational mind to get the upper hand of the feeling that since childbearing is a normal, physiological process it ought, at any rate in the immense majority of instances, to take

place without mishap. And yet, what does experience show? That never was there conviction founded on less fact than this one. Not only is it exceptional for a physician to come through with a confinement case without something going wrong with mother or infant, but serious accidents of dystocia are of common occurrence. It is true, cases of infection can now be almost ruled out—certainly in the better classes of the community; thus personally, in a practice of now over twenty years I have never seen any puerperal fever, and have only had one breast abscess. This occurred in a patient who was confined in the country, and whom I had to leave in charge of an elderly and quite ignorant nurse—practically the only typical Gamp with whom I have ever had to deal. But the other forms of dystocia, eclampsia, incoercible vomiting, contracted pelvis, placenta prævia, fibroids, hydramnios, breech-presentation, velamentous insertion, cord pressure, phlebitis, infantile malformation, uterine inertia, etc., etc., present themselves with a frequency that is absolutely disconcerting. I am quite willing to admit that my own experience in this connection must have been exceptional. I have never made any special bid for confinement cases, and have always practised in a social aggregate in which childbearing is looked on with pronounced disfavor; my obstetrical range has, consequently, been by no means extensive. Yet my dystocia percentage, if added up, would certainly reach 25 to 30 per cent. I almost hesitate to give the figures, so unnatural do they appear. I have often wondered in what particular I can have so grievously offended the Gods, to have been so vindictively pursued by their malevolence as this. There was actually a period, not long ago, when I had five serious cases of dystocia in succession! In fact, the only accident that I seem to have escaped is that crowning calamity of all, sudden death from embolus during postpartum, due to unsuspected periuterine phlebitis, although this has occurred twice in my immediate *entourage*, one relative falling back dead on the doctor who was auscultating her for pulmonary symptoms caused undoubtedly by lesser, premonitory emboli. If every physician's experience in obstetrics were to resemble mine, the grounds would be sufficient for deserting this noble profession and returning to humanity's original occupation, tilling the soil. Fortunately such is not the case, and most practitioners manage to get along fairly well in their obstetrics, in one way or another. But still, the truth remains that which is expressed in the maxim at the head of this article, and which medical men will do well never to lose sight of, otherwise they may be exposed to disagreeable surprises similar to the one now to be reported.

It is probable that the majority of physicians, with a primipara under their charge—healthy, well put-up, surrounded with every comfort, pelvic conditions normal, child well-placed, and urine tested every two weeks—would feel quite easy in mind. My patient presented all of these points, and never felt better in her life than the day before labor; yet right in the middle of it, luckily when dilatation was nearing completion, she suddenly had a typical attack of eclampsia, which was followed by a second before I could get hold of a confrère to help extract the fetus. Trouble began at 3:30 p. m., and labor was over by 5:30; but the patient had four more attacks before midnight. After that time, however, recovery went through its course without incident, and to-day mother and child are in excellent health, the only traces left being certain lapses of memory in the mother. This event destroyed my last particle of trust in the *mulier parturiens*, whom I henceforth look on as capable of *anything*.

This patient, however, presented one feature, to which reference has not yet been made, but to which the attention of brother practitioners is earnestly drawn, as I believe it to be practically unknown to the general medical world. The urine had, as mentioned above, been carefully tested every two weeks, and no sign of albumin had ever been found; and I may say at once that all tests made subsequently to the eclampsia-period proved likewise negative. She had enjoyed the very best of health during the weeks that immediately preceded labor, and, in particular, on the day before the birth of the child, had taken quite a long walk, upwards of two miles, though she admitted having been somewhat incommoded by her increased size and weight. Questioned later on, she could recall neither headaches, disordered sight, sleeplessness, unusual dyspepsia or constipation, nose-bleed, skin symptoms—in short, none of the minor warning-signals of the autointoxication of pregnancy. Her arterial tension had naturally not been taken, as she seemed so well; but after the confinement it was found to be normal. But she had appeared, toward the end of pregnancy, to put on weight in a markedly unusual manner. The fact had struck me; but as the increase in dimensions was absolutely evenly distributed over head, body and limbs, as there was this *total* absence of symptoms of intoxication and albumin, and as there were no apparent signs of ordinary edema—the surface of the lower limbs remaining absolutely elastic and the finger leaving not the slightest impression—I had laid the condition to a real augmentation of tissue (the patient was at an uncertain age, about 35, and had previously been rather thin, but with a very large frame, almost that of a man).

It was in this particular that my knowledge was deficient; I did not know that cases of this sort, though very rare, have been reported before—cases of generalized, hard edema, without albumin, ending in eclampsia. So it is with a view of calling attention to this pitfall that I have made this frank confession of shortcoming. This question of eclampsia has changed altogether since the days when I was a student, and the whole duty of man in the circumstances consisted in letting a few drops of nitric acid slide down the side of an inclined glass; the physician who limits himself nowadays to these maneuvers exposes himself to dire awakenings, since in addition to the form of autointoxication without albumin just mentioned, there are also others where the albumin is lacking before the attack, or only appears after it, and where even this quite peculiar edema is not present to warn the medical attendant, who has then nothing but the minor symptoms and increased arterial pressure to put him on his guard. When I first began to practise it was considered ample to make a urine test once a month; now it is cited as "very frequent" to test twice or three times a month; yet the same writer warns the reader that some cases of eclampsia develop very rapidly, *even between two tests!*

The conclusion that imposes itself is, that to look on a pregnant woman as a woman carrying out a normal function and to be interfered with as little as possible, is neither more nor less than a mockery; she is, on the contrary, a woman surrounded

by risks of all sorts and descriptions, one that cannot be too closely watched and studied. This wide subject of the autointoxication of pregnancy is one that the busy practitioner, who has been in the field for a certain number of years, should familiarize himself with afresh in some recent and trustworthy monograph; it is probable that therein he will find not a little that will prove new to him.

About three hours after delivery my patient recommenced her attacks of eclampsia. I thereupon bled her, and was never more generous in my life; I had never lost a patient in labor, and was not anxious to begin with the one in question. She had one more attack after that, but that was the last one. The next three days we kept her on a water diet, and she passed perfect *floods* of urine, her body steadily decreasing in size and her outlines resuming their normal appearance—though it was ultimately seen, two months after the confinement, that her weight had increased considerably since marriage, as is so common.

Subsequent reflection on this case—which naturally made an indelible impression on me, as I have, I believe, never been so absolutely thunderstruck in my existence as when I saw this woman, whom I looked on as in perfect health, go off into an eclamptic fit—has led me to wonder whether cases such as this do not in reality consist in *chloride-retention* purely and simply.

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## THE CAUSATION OF DREAMS.

By H. RAHMET, M.D.,
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There are many theories for the interpretation and causation of dreams. Professor Ladd says that the dots, lines, and splashes that appear in the field of vision when the eyes are closed determine the form and character of a dream. Montaigne holds that dreams are the true interpreters of our inclinations. Freud of Vienna maintains that a dream expresses the fulfillment of a wish. The theory of Ladd can modify but cannot explain all dreams, for the latter depend for the creation of their images on all the senses combined and not on the sense of vision alone. Montaigne's theory and that of Freud are allied; the corollaries of both are more or less similar, for the fulfillment of a wish and the interpretation of the inclinations are almost the same. However these theses do not explain all dreams; they explain a certain class only. The horrible dreams and nightmares, when one feels hurled from high cliffs into bottomless chasms, or terribly mutilated from accidents, surely cannot be the fulfillment of one's desires or the interpretation of his inclinations; no sane person will have such desires unless he is in a suicidal mood, and when he is in such a state he is not in the normal or rational condition. Again we have dreams that are prophetic in tenor; they also cannot be explained by the said theories. Hence the causation of dreams may well be studied under the following headings, viz.: (a) the discordant activity of isolated brain cells and centers during sleep, and (b) the telepathic influence of individuals or objects exerting a specific affinity on the sleeper.

In studying the class of dreams the causative factor of which is the discordant activity of isolated brain cells and centers, it is well to have a cursory glance at the psychophysiological processes of the mental phenomena. The mental phenomenon comprises the intellectual, emotional, and the volitional phases; the former two come under the domain of sensation, the emotional being the more complex; these two phases form the basis of all feelings, for the latter are the final stage of the sensory impressions. Volition, on the other hand, is the starting point of all motor activities. Feeling is the sum-resultant of the impressions transmitted by the peripheral nervous system to the brain; volition is the outcome of the elaboration of these feelings and the execution of the results in an objective sense.

The sensorimotor or kinesthetic areas are the site of these elaborations; our mental faculties depend on the impressions derived from without through the senses for the material for the intellectual phenomena. Sensation is the simplest mental operation; it is the conscious reception in the brain of the impressions communicated from the external world. Perception is the result of the different sensations thus obtained; in other words, it is the grouping together of the different sensations. Mentality is further carried on in a more complex nature to give rise to conceptions. It will thus be seen that a concept is built up of perceptions and a percept is made up of sensations. Every mental process leaves an indelible effect on the brain cells affected; from these unerasable marks representative imagination or memory is obtained.

One clearly sees that all our actions in the waking state are the outcome of the volition which in turn is the fructification of the impressions from without; we rely on memory as a faithful reservoir for the reproduction of any past event. In the state of sleep the functions of life are partially dormant, although the heart, respiration, and metabolism go on on a reduced scale. In this latent condition the sleeper and his component structural cells are reduced to a state of unconsciousness. Now and then not all the brain cells are in an unconscious state; this condition gives rise to the category of dreams under consideration whereby varied images and phantasmagoria are invoked. Matter is indestructible; energy is a product of matter hence it also is indestructible. The effects of energy are indelible, though transformation is possible; the production of images and impressions on the brain cells and centers, is an effect of energy; hence these impressions are likewise indelible so long as the receptacle, the cells, exists, though they might lie in a dormant state in the backgrounds of memory. In dreams different cells of different centers are in either a conscious or semi-conscious state; the dormancy of many previously received impressions is temporarily suspended; the activated cells reflect their stored impressions.

A complete image in the waking state is received by different cells and centers, the more complex the image is the more cells and centers are required. To reproduce the same or its prototype, the different cells and centers are appealed to under the efforts and harmonious control of our intellectual capacity. But in dreams only a part of the cells and centers concerned in the reproduction of the complete image are awake; hence they reflect only a part of the whole and give an incomplete image of the original. If different cells and centers of different images are simultaneously awake and active, they produce through this combination a new picture composed

of sections of the different images previously perceived but corresponding to none. The more the cells and centers of a real image participate in the creation of the dream picture, the more the attributes of that image preponderate in the new picture and vice versa. Suppose that the images (*a*), (*b*), (*c*), (*d*), (*e*), etc., are separately perceived by a person through the five senses modified by heat, cold, form, weight, quantity, and density. Again suppose that in a dream the same person sees only a part of the attributes of each of the said images; these different attributes which he sees combine to generate a new picture; this conglomeration of partially reflected impressions forms the network of the dream the distortion of which is the direct consequence of the proportional activity of each image-center and its cells. The more variegated and distributed are the cells and centers participating in the dream-picture, the more distorted the latter will be.

Drug visions and hallucinations fall into this category. The sedatives inactivate special cells and centers, *i.e.* put them in an unconscious state; the unaffected cells and centers reproduce only a part of the original image; hence a condition similar to that of dreams is induced. Stimulants, on the other hand, excite dormant cells and centers; the impressions of these evoked cells and centers combine disproportionately with others and give rise to conditions similar to those of dreams. Heavy, indigestible meals before going to sleep, often give rise to dreams; their action is after the drug theory. Anemia and congestion of the brain might bring about dreams in a similar way to drugs. The auras, visions, and hallucinations of epilepsy belong to this category; the prodromal effects of the coming storm excite some of the cells and centers thereby giving rise to the aura; the effects of the same brain storm in the height of the attack and in the subsiding stage bring about the illusions.

Telepathic dreams differ entirely from the others in their causes and effects. They portray actual events, the effects of which might be realized only later; their prophetic trend is sometimes fulfilled to the letter. These dreams are objective and not subjective; their contents are communicated to the dreamer through the propagation of ethereal waves of some sort, in the same way that light is transmitted from the different heavenly bodies. In all motions we must have a proper stimulus and a medium to transmit the waves; for the perception of the same, there must be a receptacle to intercept and interpret the waves expedited by the original stimulus. Hypnotism exhibits these traits to perfection; the hypnotized, though with closed eyes, sees and reads through the hypnotizer; he also sees and interprets the thoughts of others than the hynotizer; crimes and hidden cadavers have been discovered through Mesmerism. The hypnotized is in one place and sees, with eyes closed and with no visible medium of communication, things away from him; it is because he is in a favorable condition to propagate certain waves to the outside world through certain media and to receive and interpret waves passing through space. One might safely assert that every existing cell, molecule, and atom emits specific waves; the emanation of radium rays exemplifies this argument. Occult science might similarly be explained. Somnambulism is an allied condition.

Wireless telegraphy and telephony are a modification of this principle; a certain apparatus receives and transmits our thoughts by creating and propagating certain waves of specific length and vibrations; these same waves are intercepted and interpreted by a specific apparatus. Thus we see that our thoughts are transmitted from our brains through the motor tracts to the wireless apparatus to be transmitted to another from which the thoughts are transmitted by the sensory tracts to the sensorimotor areas of another person.

Can there be no other channels to transmit our thoughts to the external world other than our known motor tracts? Are there no other media for conveying these thoughts except the wireless apparatus? Surely there is, for hypnotism, occult science, and somnambulism are perfect examples. The physiological functions of the frontal lobes of the cerebrum are but vaguely known; some day they may be developed and reveal hidden wonders; at present they are likely in a latent state. A day might dawn when we might easily read the thoughts of each other by applying a special mask or apparatus to intercept and interpret the waves emitted from the brain as a sequence to the activity thereof.

The existence of telepathy is indubitable; it has appeared in history in many guises, such as witchcraft, magic, augury, etc. As previously supposed, every cell emits specific vibrations; these are propagated by ethereal waves; the interception and interpretation of these waves require a specific medium. Sleep under special influences (probably some chemical affinity) renders the sleeper a favorable medium to intercept and interpret the telepathic waves. The latter may travel from non-living to the living; these waves may likewise pass between living organisms of different classes, such as between a dog and his master. Elements in the nascent state have greater affinity to combine than those in other states; this affinity is selective, *i.e.* elements have greater affinity for some than for others; this affinity might play an important rôle in the interception and interpretation of the telepathic waves.

Why cannot a person when asleep be in a state similar to that of hypnotism? Once in that state, he is a fit receptacle to intercept and interpret the telepathic waves. A person at a distance concentrates his thoughts on another; this concentration generates specific vibrations which travel as ethereal waves; the person (the object of the thought-concentration) is by some imperceptible currents rendered a favorable medium to intercept and interpret the special telepathic waves that give rise to the telepathic dreams. By the same strong concentration of mind the image of the person or object thought of might be conjured; this process entails the sending of special waves to the object of the thought-concentration; from this a reflection is made to the seat of the original stimulus where the object is seen.

In conclusion, it will be seen that the two theories advanced above are at the root of all dreams. The theories of Ladd, Montaigne, and Freud come within the compass of the theory discussed under (A), for they are but a phase of the partial brain activity in the unconscious state. A person longs in the waking state after something beyond his reach; the image of that something is indelibly imprinted on the cells and centers of the brain; these same cells and centers might become

active while the person is asleep, the link of association filling up the gaps as a complement; by the activity of these cells and centers a dream is produced, which, modified by the links of associations, more or less corresponds to the desires evoked in the waking state. This process, however, clearly comes under that part of theory (A), which runs thus: The more the cells and centers of a real image participate in the creation of the dream picture, the more the attributes of that image preponderate in the new picture and vice versa. The image of the desires evoked in the waking state corresponds to a real image. The dreams sometimes referred to as prophetic come within the domain of the telepathic theory. There are dreams of a mixed nature; these are composed of the elements comprised in (A) and (B). Among the laity there is a variety of dreams called apparitions; these the common folks attribute to spirits or ghosts; however, they can easily be explained by a combination of the theories adduced under (A) and (B).

## LICHEN PLANUS OF THE GLANS PENIS: ITS TREATMENT WITH ROENTGEN RAYS.

By FRED WISE, M.D.,

NEW YORK.

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THE *x*-ray treatment of lichen planus in general, and of the hypertrophic, horny, and verrucous types of the disease in particular—the latter usually circumscribed and limited in extent, is not a new therapeutic suggestion. The great majority of cases of ordinary lichen planus respond to the usual internal and external therapeutic measures, the time required for a cure varying from weeks to months. Frequently we encounter unyielding, circumscribed patches of the disease, which persist in spite of all our efforts with appropriate medication, both external and internal. Such patches may be located on the shins, on the back of the neck, on the wrist—in fact, on almost any part of the body. These persistent patches usually respond, readily enough, to radiotherapy. As in the medicinal treatment of the disease, the time required to bring about the complete resolution of the patches with the *x*-rays, is very variable.

It is a well-known fact that the glans penis is one of the areas of predilection for lichen planus. In this locality the disease has been known to persist for months and even years.

Recently I have had occasion to observe, in private practice, three cases of lichen planus on the glans penis. In one of these the eruption disappeared under external treatment and arsenic. The other two cases, however, proved quite refractory to ordinary measures, necessitating the employment of *x*-rays to bring about a cure. Brief histories of these cases follow.

CASE I.—Mr. N. S., aged 36, referred by Dr. J. J. Asch, applied for treatment on June 25, 1912. For several months past he had had an eruption on the dorsal surface of the glans penis, which, aside from the cosmetic effect, caused but little inconvenience. At times there was moderate pruritus. The lesion consisted of a patch composed of an aggregation of closely set, reddish-violet, glistening, irregularly rhomboidal, flat topped papules. The prepuce being absent, the surface was quite dry. No other evidence of lichen planus was present on the body or on the mucous membranes, at the time. But a few weeks after his first visit, the patient presented a few small, shiny papules on the back of the hand, near the thumb, which proved to be typical papules of lichen planus. After a somewhat prolonged course of arsenic, together with external applications, the lesions disappeared.

CASE II.—Mr. J. F., aged 72, referred by Dr. J. J. Asch, consulted me on April 4, 1913. The entire glans penis was the seat of a glistening, diffusely colored, dark red patch, smooth and free of scales. It had persisted for six months. This patch was rather sharply circumscribed; close inspection showed evidence of a confluence of numerous large flat papules, the edges of which had coalesced, resulting in a smooth plaque which resembled chronic, circumscribed eczema. Pruritus was slight. The rest of the skin and the mucous membranes were free. A month's treatment with the usual external and internal remedies failed to make any impression upon the lesion. I then gave the patient five short *x*-ray exposures, resulting in a complete disappearance of the patch.

CASE III.—Mr. J. S. F., aged 53, consulted me on April 17, 1913. The left half of the glans penis, as well as a small area behind the corona, presented a glistening, dark red area, which was smooth and free of scales. This patch closely resembled that of Case II, excepting that I was unable to discover any signs of the confluence of pre-existing papules. The rest of the skin and the mucous membranes were free. I made the diagnosis of chronic circumscribed eczema in this case, prescribing the usual remedies. The patient was compelled to leave for Chicago on the following day and I advised him, should he see no improvement after a lapse of a week or so, to consult Dr. Pusey of that city, and suggested that *x*-ray treatment might be advisable. Dr. Pusey wrote me that the patient had consulted him and that he considered the lesion to be lichen planus, not chronic eczema. A few weeks later, under date of June 2, 1913, Dr. Pusey again communicated with me and I take the liberty of quoting from his letter. "Our patient, Mr. F., is free of the eruption and I write to you again about him, because of the lichen planus question. It seems to me to be a case of lichen planus, as I think a good many similar cases of sharply defined patches of balanitis are lichen planus. He has gotten well under a few *x*-ray treatments and an ointment of phenol, mxv; hydrarg. ammoniat., gr. xx; zinc oxide, 5i; vaseline, 5i. Mr. F. told me that he had seen you only once, but the case is of enough interest, I trust, to allow me to impose upon you with it, once more." This letter speaks for itself.

In the light of our present-day knowledge of radiotherapy, enabling us to administer exact dosages of *x*-rays, this brief report cannot be said to possess much of scientific value. At the time these cases came under observation I was still administering the unmeasured, divided dose *x*-radiations, so that even exact data regarding the quality and quantity of *x*-rays, based on the treatment of Case II alone, would be of no value. Still, it is of interest to note that such cases get well even with the cruder methods of repeated and divided exposures; that good results are obtained far more rapidly than with the older methods of treatment, that the use of disagreeable applications is obviated, and, finally, that the cosmetic results, if sufficient caution be exercised, leave nothing to be desired.

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## A STANDARD EDUCATIONAL QUALIFICATION FOR THE ANESTHETIST

By RAYMOND C. COBURN, M.A., M.D.,

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THE last word has not been spoken on the anesthetic. In practically every medical as well as surgical periodical anesthesia, anesthetic, or anesthetist is given continually increasing space. Recently, lay publications have also entered the field, and in the writing of articles on this subject there

is no end. Twenty years ago the question was considered practically settled; to-day it is one of the most muted of the hour—the most diversified in theory, in practice, and in results. Certainly this is not as it ought to be, but verily as it is. As a consequence, often the patient, the physician, nay even the surgeon himself, dreads the anesthetic more than the knife. Anesthetic results have not kept pace with achievements in other fields, and so they are now projected in the limelight. Both strange and startling are the disclosures! Little or no instruction in the administration of anesthetics in medical colleges, and the meagre instruction that is there so sparingly and sporadically dispensed is usually by specialists in *other* fields. No such instruction nor experience in internship in an increasing number of non-interne anesthetist hospitals. To-day, many a young surgeon, using the non-medical anesthetist, finds himself, as the only licentiate, in the anomalous position of being, both in the eyes of the law and before the bar of public opinion, responsible for that in which he has had neither instruction nor experience. Yes, in one of the most learned of the professions, a member legally and literally supervises and instructs, although he himself has had neither instruction nor experience. If this were politics the cry would be Tammany, yet, since it is science, it is only history. But, it is often pertinently asked, is it not *legal* for the *nurse* to administer the anesthetic? Yes, says the Attorney General of the State of New York, *provided the surgeon is present in the room and supervises its administration, thereby becoming the responsible party.* On the other hand, it is just as relevant to ask, is the surgeon usually present in the room during induction—the most dangerous stage—and what percentage of proficiency does it add to, or detract from, the actual surgery, if he supervises the administration of the anesthetic while he is operating? And if the administration is not so supervised throughout both the induction and operation are even the mild exactions of the law fulfilled?

Side by side with this development of the non-medical anesthetist another, the senior member—if you please—the Captain of the surgical team, presents an antithetical, yet highly interesting and relevant development. Surgery has long since been regarded as a specialty, and great has been the reward, both in fame and finance, justly bestowed on those who neared the pinnacle. Here instruction, training and experience have been considered absolutely essential. The non-medical surgeon belongs to a bygone age. In fact, so basic and fundamental are considered the indoctrinated and experiential qualifications that an extra year's work is now proposed for the embryonic surgeon. Truly, if it is for the protection and best interest of the patient to elevate the scientific qualifications of the Captain of the surgical team, it is inconsistent, to say the least, to lower simultaneously those of a team-mate.

It is unfortunate that there has been such a widespread and persistent advocacy of a certain method of administering ether because, writers allege, that even in the hands of the unskilled it is safe, for, as a consequence, a part of the profession, at least, has now come to look complacently upon the matter of entrusting the anesthetic to those from whom not even any appreciable degree of skill is exacted. Nor is this all; these same writers condemn nitrous oxide, not because of its physiological, anesthetic effect, but because *its* administration requires skill. They seem entirely oblivious of the fact that the law of supply and demand operates here as elsewhere, and, if there is not a sufficiency of skilled anesthetists, it is only because there has not been a sufficient demand for such. The non-medical anesthetist, having spent less time and capital in preparation, can render service for less remuneration than the medical anesthetist. Accordingly, the economic factor has become dominant in this development. A new standard is being established for the anesthetist, and, it is said to the shame of the whole profession, that standard is an absolute abolition of the educational requirement—the very standard the Captain of the team is seeking to elevate for his peers. The standard herewith proposed is not economy, but proficiency; its foundation is not sex, but science.

It would matter little, indeed, if the evil effects of the present stage of this development were confined to the profession, but—there is the patient whose interest is supposed to be paramount. If one is to believe the literature of the day it requires only a cursory examination to show that the selection of both the anesthetic and the anesthetist is not always based upon that consideration. If your credibility concerning this statement is aroused, search the literature yourself and learn how frequently it is recorded there that the surgical patient is weighed in the balance with much less than "thirty pieces of silver!" It is a matter of commendation that so many have the courage to state it so frankly!

Since, on final analysis, the patient's interest *is* paramount, and since there are so many open confessions that it is not always so treated as regards the anesthetic and the anesthetist, and since the anesthetic and the anesthetist are so indissolubly bound together that it is practically impossible to disassociate them, is the time not meet for the different factions of the profession to confer and formulate a plan whereby the patient's interest may be as well safeguarded in this, as in the other fields, and, at the same time, give all who are competent to anesthetize a fair and free hand to pursue this calling without molestation or degradation? Let us lay aside our prejudices, and, if needs be, our personal interests, and view this in the same light and through the same glasses, that we do other professional fields, for there appears no valid reason, necessity, or even excuse, for making this specialty a unique exception.

Our present system of professional education does not tend to qualify the medical anesthetist adequately. To repeat: deficient collegiate instruction, and often no training in internship, so that even the graduates of many of our largest hospitals are wholly unqualified, both theoretically and practically, to administer anesthetics or supervise their administration. This does not meet the demands of the hour. Recently the Ohio State Medical Board requested the legislative committee of the various state medical societies to take some definite action regarding an effort "to amend the Medical Practice Act so that the state board will be able to pass upon the qualifications of licensed physicians who elect to practice in any of the specialties." If special licenses or degrees are to be the future requirements within the profession, that of the anesthetist ought to be among the first.

For the non-medical anesthetist there should also be a standard, educational requirement, for this a recognized specialty. On this view there ought not

to be a dissent. Just what this requirement should be is a matter of great diversity of opinion. Some strongly affirm that it should be nothing less than the full medical course, while others just as firmly adhere to the belief and practice that the nurse's training, plus some anesthetic instruction, is all-sufficient. Some adhering to this latter practice claim to base it upon sex. But, if the anesthetic mask in the hands of a man, *per se*, tends to produce a detrimental effect, what must be said concerning the distorted vision of the patient contemplating his grim-visaged surgeon, standing over his prostrate body, eager for his gory task, brandishing in one hand a keen cutting knife and in the other a glistening saw! Would not the logical and consistent arrangement be to place the most dangerous weapons in the hands of the gentle nurse, who, by nature and appearance, has a greatly mollified tendency towards inflicting physical injury? And would not this idea, completely and consistently executed, entirely eliminate the male surgeon as well as the male physician? Seriously speaking, science and skill produce results at the head of the operating table, just as they do everywhere else!

It is not only following the practices of the profession in all the other fields, but it is absolutely essential that a standard of scientific learning be exacted of the anesthetist, if the interest of the surgical patient be properly safeguarded. The time is long since past when "ether by the open drop method is good enough." Other methods and other anesthetics must be administered, not occasionally, but frequently, if the patient's interest is the supreme factor. The unknown response of the patient to the influence of the anesthetic precludes an exact determination in advance of the preferred anesthetic and method in each individual case, and a change is, therefore, frequently advisable or necessary during the operation. The anesthetist, who is incompetent to administer the standard anesthetics by the various approved methods, and adapt the depth of the anesthesia to the physical condition of the patient, or who does not possess a good knowledge of physiology and of the action and uses of the drugs and means ordinarily used in the work, is unworthy of the name specialist, and should not be considered a member of the properly equipped surgical team. If, of the Captain of the surgical team of the future an extra degree is to be exacted, thereby requiring, in a continually increasing number of instances, a total of three degrees, ought not this sub-member of his team be required to furnish just one? But if the view is approved that anesthetists "are born, not made," then let us at least keep a registry of their births, so that all may know who they are!

The physician, as well as the surgeon, is concerned in the anesthetic and the anesthetist, as this is a matter that ultimately ramifies the entire profession, and whenever the consensus of opinion of its members demands a standard, educational qualification for the anesthetist, it will be written in the organic law. May that day soon dawn!

NOTE.—After the foregoing was in type the case of Nations vs. Ludington, Wells & Van Schaick Lumber Co. was reported. Here the patient, a laborer, died from the effects of the anesthetic before the operation was begun. The Supreme (Appellate) Court of the State of Louisiana holds that employing a non-medical anesthetist, with no emergency existing, constituted negligence, and increased the damages awarded by the trial court to the plaintiff to $10,000. This Supreme Court was emphatic in its declaration that in the case adjudicated, one contemplating minor surgery only, a physician should have been employed to administer the anesthetic, although the officiating anesthetist was experienced in this line of work, and administered the anesthetic in the presence, and under the direction, of the surgeon.

BRETTON HALL, EIGHTY-SIXTH STREET AND BROADWAY.

## Medicolegal Notes.

**Accident Insurance Against Blood Poisoning—Sufficiency of Notice.**—Action was brought upon an accident insurance policy which insured a surgeon against loss of sight caused by blood poisoning during a professional operation. The uncontradicted testimony showed that the plaintiff contracted an infectious disease from a patient while delivering her in childbirth in October, 1909. He was subsequently treated and attended by experienced physicians and specialists down to April 4, 1911, when the disease resulted in the loss of sight of both of his eyes caused by blood poisoning from the wound suffered in the professional operation. All of the six medical experts who attended the plaintiff testified that the loss of his eyesight was a direct result of the syphilitic infection, by reason of the injury he had received in the professional operation; that there are different varieties of blood poisoning, and any of them will produce blindness if attacking the eye; and that syphilitic infection such as the plaintiff suffered from produces blindness. It was held that the plaintiff's claim was one provided for and his loss was insured against in the policy.

Notice was not given to the insurance company until March 14, 1911. Testimony was given by the medical experts that the kind of blood poisoning from which the plaintiff was suffering did not usually manifest itself for a long period, and might occur after one, two or three years. It was held that the plaintiff was not required to give notice, under the clause in the policy requiring notice to be given as soon as might be reasonably possible, until he learned that his sight was destroyed.—Maryland Casualty Co. of Baltimore v. Ohle, Maryland Court of Appeals, 87 ad. 763.

**Practising without Authority.**—On the prosecution of a person charged with violating the medical practice act on the ground that he does not possess an unrevoked valid certificate from the State board of medical examiners, the Oklahoma criminal court of appeals holds that the production at the trial and the introduction in evidence of such certificate is a complete defense to such charge. This rule, however, is not intended to, and does not, protect such person from prosecution if he aid and abets another to violate the medical practice act in so far as his connection with such other unauthorized person is concerned. A person who does not possess a valid, unrevoked certificate from the State board of examiners is held not entitled to practise medicine under the laws of the State, and is not authorized to render medical aid except in emergencies and such other cases as are specifically exempted by the statute. And this is true even though he worked with or under the directions of a duly authorized practitioner; and it is immaterial whether he works for a fee or percentage, or whether he is employed on a salary.—Gobin v. State, 131 Pac. 546.

# MEDICAL RECORD.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR

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## MEDICINE AND THE MONOPLANE: A LESSON IN THERAPEUTICS.

THE daring with which modern enterprise and inventive genius have conquered the seemingly insuperable difficulties of aerial flight is fully equaled by the zeal with which many apparently baffling problems of medicine have been attacked. This simile is suggested by the important case reported in the *Lancet*, January 31, 1914, by V. E. Negus, late House Surgeon to King's College Hospital, London. This case brings to a focus some of the ultra-modern methods of medicine and surgery, methods which are fully in keeping with the aggressiveness of science and human achievement. In further agreement with the above simile the case was one that resulted from an accident in aerial flight.

The patient was a young man nineteen years of age who had sustained a compound fracture of the left tibia and fibula, when his monoplane struck the ground after diving from a height of about 60 feet. The bones were at once wired together and the wound was partly stitched up. Three days later when the heroic aviator was admitted to the hospital the tissues about the wound were edematous and the discharges were offensive. Under anesthesia the stitches were removed, the wound was cleaned out and left open, and the leg was fixed in a box splint. The next day Sir Watson Cheyne removed the wires and fixed the bones by means of a Lane's plate, at the same time establishing thorough drainage.

Up to this point the case epitomizes the current attitude with respect to the treatment of compound fractures and the limitations and failures of the latest methods. But the patient was destined to summon other resources of modern medicine and surgery. The hospital staff had no easy problem on their hands. Their patient was not merely a case of infected compound fracture. In a few days he was a fully developed case of acute tetanus. On the eighth day after the accident the patient complained that he could not open his mouth well while taking his tea, and he had pain in the back, and a slight rise in temperature. The following day the symptoms of tetanus were pronounced and unmistakable. Chloral was administered in 20-grain doses every four hours. Tetanus antitoxin was injected subcutaneously, by lumbar puncture, and into the great sciatic nerve. Smears from the wound showed the presence of tetanus bacilli, and in view of the short incubation period and the prospect of further absorption from the wound, it was decided to amputate the leg. This was done under the intravenous method of anesthesia, 1½ drams of hedonal and 5 c.c. of ether being injected in 1½ pints of saline solution.

The further treatment of this patient illustrates the happy results that follow persistent therapeutic endeavor. The painful and spasmodic symptoms of tetanus continued unabated. Morphine and atropine and chloral in heroic doses were administered. At one time the patient was comatose from the large doses of chloral used; he was then given strychnine and inhalations of oxygen bubbling through absolute alcohol. For a general spasm with cessation of respiration he was given chloroform on a mask. Paraldehyde in doses of 12 c.c. was administered per rectum, and later was given intravenously in doses of 5 c.c. together with 5 c.c. of ether and 150 c.c. of saline solution. Potassium bromide, morphine, atropine, hedonal, and repeated doses of tetanus antitoxin were also used. On the tenth day following the first manifestations of tetanus the patient showed signs of improvement. During the course of this day he received as much as 10 drams of paraldehyde in addition to morphine, bromides, and chloroform inhalations. During the next twelve days the symptoms of tetanus gradually yielded to the persistent use of antispasmodics and the injection of the specific antitoxin, while the patient's strength was fortified with oxygen and champagne. A secondary operation on the stump was required two weeks later. The patient left the hospital, cured, eight weeks after the accident, drove about in his motor-car, and signified his intention of again braving the perils of the air.

This case is reported in detail because it illustrates in many ways the trend and successes of modern medicine and surgery. The one patient had experienced in the course of his eight weeks of illness the following up-to-date modes of treatment: Wiring of bones, Lane-plating, amputation for tetanus, intravenous anesthesia, antitoxin therapy by lumbar puncture and intravenously, and the intravenous injection of antispasmodics. The ultimate lesson which this case brings home is the need of therapeutic persistence and above all of therapeutic heroism in the presence of a dangerous and apparently hopeless situation.

## CHILDREN'S SERVICES IN MUNICIPAL GENERAL HOSPITALS.

BECAUSE of its applicability to similar conditions that exist in many cities both in this country and abroad, the Report on Children's Services in the Municipal General Hospitals in Manhattan and the Bronx, recently published by a Committee on Inquiry appointed in New York City, is of considerable importance. With a realization of the defects that exist in the facilities for the care of sick children, there can be no excuse for the proper authorities failing to provide adequate means for the removal of these defects. New York has made vast strides during the past few years in the improve-

ment of its public hospitals. Much remains to be done and it is creditable to the city that it perceives its own shortcomings and publishes these to the world.

It is first of all noted that the ratio of nurses to sick children is much smaller in the municipal hospitals than in the best private hospitals. Bellevue alone has a room in which the temperature can be forced to 95° so that premature infants can be suitably cared for. The detention rooms in all of the hospitals, with the exception of Bellevue, are inadequate. It is important that sick children entering a hospital should be isolated either in a small ward partitioned off into cubicles, or in separate rooms until there is no fear that these children will develop an infectious disease that may be transmitted to other children in the hospital. Cross infection is one of the greatest evils of children's wards and children's hospitals. It is a scandal to hospital administration that a child should contract in a hospital from another child a disease in addition to the one it already has. Vaginitis is the great opprobrium of children's wards, and its eradication requires separate baths for suspected children, the use of liquid soap, the use of gauze diapers which can be burned, the use of separate thermometers, and, above all, scrupulous cleanliness on the part of the nurse. The lack of suitable detention wards or rooms has resulted in hospital epidemics of infectious diseases, which have closed the wards for the reception of new cases until the end of quarantine.

It is pointed out that mothers will take their children long distances to a children's service in which they have confidence. For this reason the report recommends that the aim should be to centralize some of the children's services rather than to develop a complete service at each of the smaller hospitals. Bellevue is cited as an institution in which such a complete service has already been established. The smaller hospitals should be able to care for the general run of cases, but the case that requires special apparatus, facilities, or treatment should be sent to the centralized hospital. There should also be a children's hospital devoted largely to the care of "long term" cases, and of convalescent children.

In nearly all of the municipal hospitals surgical and medical cases are treated in the same ward. In one of the hospitals 77 per cent. of the acute surgical cases developed complications owing to faulty sanitary precautions. Children who are dying or who are in pain should be removed to a separate ward or room. Only too frequently does the sick or convalescent child hear the groans or watch the death agony of a child in a neighboring bed. Everything conducive to the peace and comfort of the little patient should be provided by a city which does not hesitate to spend its income lavishly in other directions. The safety and happiness of sick children demand adequate hospital equipment, including ample isolation and auxiliary rooms. There should be rooms for children recovering from an anesthetic, rooms for very sick and for dying children, and a special ward for convalescents.

## URIC ACID IN RELATION TO CHRONIC ARTHRITIS.

THERE is still a good deal of speculation regarding the actual status of uric acid in relation to chronic diseases of the joints. In gout the etiological rôle of uric acid has been clearly established. There are certain cases of atypical gout which resemble so closely other types of chronic multiple arthritis that a differential diagnosis between the two forms is next to impossible. For this reason considerable hope has been entertained that the quantitative determination of the uric acid in the blood and in the urine would enable one to differentiate between the two conditions. The following changes have been regarded as characteristic of gout: an endogenous uric acidemia, or the presence of uric acid in the blood even when the patient is living on a purin-free diet; a relatively low production of endogenous uric acid; and a delayed excretion of exogenous uric acid, whose production is also relatively diminished. These characteristics have been pointed out as a means of enabling one to classify properly the cases of chronic arthritis that lie on the borderland between gout and other conditions. The validity of this test has been subjected to careful scrutiny by M. Ljungdahl, who reports his results in the *Zeitschrift für klinische Medizin*, Vol. 79, Nos. 3 and 4. The observations were made on twelve cases of chronic polyarthritis, which were clinically of a non-gouty character. His conclusions are directly at variance with the views generally accepted.

Thus, it is pointed out that the peculiarities in uric acid excretion which are supposed to be characteristic of gout are not sufficiently marked to enable one to use these peculiarities as a differential criterion in the borderland cases. Moreover the low production of endogenous uric acid is found both in gouty and in non-gouty polyarthritis. The variations in the production of exogenous uric acid are so pronounced as to deprive this factor of any importance in the differential diagnosis. The rapidity of the excretion of uric acid is often greater in the non-gouty types of arthritis than in the gouty types, nevertheless this distinction is neither so regular nor so common as to be of any diagnostic value, when considered alone.

The investigations of Ljungdahl show that it is impossible to differentiate between the two types of arthritis by means of an estimation of the excretion of the endogenous and the exogenous uric acid.

## SUICIDE IN CHILDREN AND ADOLESCENTS.

THE self-inflicted death of an individual of tender years shocks the heart of humanity as one of the most pathetic and discordant notes of modern civilization. The suicide of a child or adolescent is as inexplicable as it is distressing. That an individual at the threshold of existence, when joy and hope impart the keenest zest to life, should seek self-slaughter, is a problem for the psychologist and social student to solve. Child suicide has shown a tendency to increase within recent years. The con-

centration of people in large cities, with all the evils of abject environment and of suggestion, may be assigned as a partial explanation of this increase. But the more immediate causes are an inherited psychic inferiority coupled with a faulty home and school training.

Professor A. Eulenburg of Berlin has studied this subject for many years, and in a small brochure* he now permits the results of a special analysis of the cases of child and adolescent suicide that have occurred in Prussia during years 1903, 1904, and 1905. During the last-mentioned year there were 603 suicides of individuals less than twenty years of age. Of these 403 were males and 200 were females. Under the age of fifteen there were 69 suicides, of which 57 were boys and 12 were girls. From the age of sixteen to the age of twenty there were 534 suicides of which 346 were males and 188 were females. From these figures it is observed that there are twice as many suicides among males under twenty as there are among females. This proportion is not merely true of any one year but occurs with such uniformity from year to year as to acquire the force of an underlying law. The excess of male suicides is still greater under the age of 15, when there are four times as many self-inflicted deaths among boys as among girls. After the age of puberty the number of girl suicides gradually increases, so that from sixteen to twenty the ratio of male to female suicides is as 2 is to 1.

Certain interesting facts are gleaned from a study of the immediate causes that are assigned for the particular instances of suicide in young people. In the female sex the most common cause is disappointment in love and associated factors, such as paternal opposition, seduction, etc. Fear of punishment is the next common cause of suicide in the girl. There are a great many other miscellaneous causes assigned for particular instances, as remorse, shame, incurable disease, etc. On the other hand, in young males the predominating impulse to suicide is the fear of punishment, chiefly for failures at school. This impulse is assigned in 40 per cent. of the cases of suicide in males under twenty. There is also a marked distinction in the mode of suicide adopted by young males and females. In the former shooting and hanging predominate, while in the latter poisoning and drowning are the most common modes of self-slaughter. Suicide pacts are particularly frequent in the young, the author's statistics showing no less than 66 instances.

The recital of these facts and figures is a grewsome commentary on the darker side of civilization. The subject is an unpleasant one in the extreme, nevertheless it cannot be ignored by physicians and sociologists. The remedy for child suicide is closely bound up with the prevention of psychic inferiority and of its transmission to the next generation; with the improvement of home conditions and of home training; and with the adoption of sane pedagogical methods which will eliminate some of the adverse stresses to which many children and adolescents are subjected.

*"Kinder- und Jugenselbstmorde, von Geh. Medizinalrat Professor Dr. A. Eulenburg, Berlin. Halle a. S.: Carl Marhold, 1914.

## LATENT AND MASKED DISEASES OF THE RENAL PELVIS.

THERE are many diseases in which the atypical and larval cases exceed in number the typical cases as set forth in the textbooks. According to T. Hausmann (*Zeitschrift für klinische Medizin*, Vol. 79, Nos. 3 and 4) the affections of the renal pelvis are to be included in the above group. In his experience a large proportion of the cases of disease of the upper urinary passages run an atypical, larval, or masked form, parading under the guise of other diseases, such as appendicitis, rheumatism, sciatica, neuralgia of the abdominal wall, intestinal catarrh, hysteria, etc. Disease of the renal pelvis is much more common than is generally believed, and occurs with especial frequency in women. The chief manifestation is urinary stasis resulting from nephroptosis with dilatation of the renal pelvis and subsequent pyelitis. Nephrolithiasis is less common.

In only some of the cases of pyelitis is the condition a suppurative one. Very often the urine is clear and contains only a few leucocytes, erythrocytes, or pathologically transformed epithelia, and is free from albumin. In nephrolithiasis red blood cells are often the only pathological finding in the sediment. But sometimes a few red blood cells in the sediment are the sole evidence of an albumin-free nephritis. A gelatinous sediment indicates an affection of the renal pelvis. Bacteriuria, which may even exist with a clear urine, is the objective evidence of an infection of the upper urinary tract.

Lumbar succussion pain and pain along the psoas muscle, particularly if unilateral, may arouse a suspicion of inflammation of the renal pelvis, a suspicion that may be confirmed by the urinary findings or by cystoscopy, or radiographic examination of the kidney or renal pelvis.

## TUBERCULOSIS FOLLOWING TYPHOID FEVER.

IN an article read before the Medical Association of the Greater City of New York, January 19, 1914 (*American Medicine*, January, 1914), Dr. Charles E. Woodruff makes the claim that tuberculosis follows typhoid fever far more frequently than has hitherto been suspected. Matson of Portland, Ore., who was the first to notice the phenomenon, and the only one who has searched for the facts, finds a record of typhoid fever in 17 per cent. of his cases. We have long known that typhoid fever is frequently followed by a chain of more or less serious sequelæ, but these new facts show that they are worse than we suspected.

The explanation is to the effect that many if not all adults harbor latent tuberculous foci, which serve the purpose of autovaccination to develop antibodies rendering them immune to virulent infection from without but not sufficiently so to drive out their own parasites. If anything happens to check this process of immunization, such as undernutrition, bodily or mental fatigue, exposure to wet, or a new infection, the latent lesions may take on activity

until we again develop antibodies to arrest the process, which a certain percentage of us fail to do. Hence it follows that where typhoid fever is prevalent so is tuberculosis, and that if we reduce typhoid fever by any means whatever tuberculosis automatically follows. This fact has been proved as to purifying water supplies.

The statistics presented seem to show that there is a definite ratio between typhoid fever and tuberculosis the world over. When the former is reduced to a minimum the other causes which activate latent tuberculosis keep the admission rate up to 1.5 to 2 per 1,000 in all armies except the Dutch and our own, for which exceptions the causes have not yet been found. When typhoid fever is reduced there is of course a coincident reduction of other intestinal infections, and a general improvement in all morbidity rates except in the senile diseases which are necessarily in greater ratio. Hence the reduction in tuberculosis is generally more than the reduction of typhoid fever alone would account for.

The facts presented seem destined to modify current ideas as to tuberculosis and the crusade against it, for it looks as though general sanitary measures have reduced the death rate far more than the specific measures directed against consumptives. Considerable interest has been aroused by the men who are quoted as saying that typhoid vaccine acts like tuberculin. These cases must be very mild and the immunity quickly restored unless some other factors like exposure to wet or fatigue prevent. The tuberculosis rate in the army has not changed materially since inoculations became compulsory, although it is still double what it ought to be. The cases should be studied to see what relation they bear to the inoculations.

## A NOVEL TELEPHONE SERVICE FOR PHYSICIANS.

THERE has been inaugurated in Paris a new form of telephone service which is of special value to physicians. In each central office there is an operator whose special duty it is to receive and record telephonic messages that are meant for those who subscribe to this particular form of service, and who may or may not be at home or at the office at the time that these messages are received. The subscriber, at his leisure or on his return to his home or office, calls up the special operator and is given the messages that may have been received during his absence or while he was otherwise kept busy. This mode of recording and transmitting messages has already been adopted in Norway and in Austria. In the latter country it has been in successful operation since 1912.

The advantages of this service are obvious. It enables the practitioner who may be compelled to leave his office in the absence of an attendant to keep in touch with his patients. This is no small boon to the young physician of limited finances. On the other hand, to the busy practitioner who does not wish to be interrupted by the frequent summons of the telephone during his office consultations, the service above described affords a distinct advantage, for he may arrange to have all of his calls and messages received by the special operator, so that he may at any time get these messages or calls in one batch. There can be little doubt that the adoption of this novel plan in the larger cities of this country would meet with immediate success. The loss of time which every practitioner suffers on account of being held up by many of his patients over the telephone either for advice, or, alas, for idle gossip, is not inconsiderable. Under the present system the physician or his attendant is practically at the mercy of everyone who chooses this means of gaining audience. The special operator who receives the physician's calls and transmits them to him at his convenience may become a potent means of checking the extent to which unnecessary and flippant demands on the physician's time have been practised.

## News of the Week.

**Operations on Tonsils.**—The Public Health, Hospital, and Budget Committee of the New York Academy of Medicine recently adopted the following resolutions:

"Resolved, That it is the sense of this Committee that all operations on the tonsils should be performed in hospitals or in such dispensaries as are provided with operating rooms and with recovery ward facilities.

"Resolved, That private hospitals of the city be requested to cooperate with the Health Department of the city in the operative care of children with enlarged tonsils and adenoids; that these hospitals provide proper and adequate facilities for such cases and that the city compensate the hospitals for this special service; and, further, that the public hospitals be requested to provide similar facilities, without special compensation."

**Alien Insane Bill Signed.**—Governor Glynn of New York on February 19 signed the Blauvelt bill which gives to the Governor the power to appoint a commission to endeavor to obtain Federal legislation which will relieve New York State from the support of the alien insane. The Governor at once appointed Senators Blauvelt and Brown and Dr. Spencer A. Dawes as members of the commission. They will go to Washington to urge the passage of a measure which will place upon the Federal Government the burden of caring for the insane who reach this State from foreign countries. It is estimated that the desired legislation would save the State about $3,000,000 a year.

**Ehrlich to Sue.**—It is reported in the German newspapers that Professor Ehrlich has decided to bring suit for criminal slander against a Berlin physician who recently made the assertion that the administration of salvarsan was so deadly that it might be prohibited in Germany by law, and that 275 deaths had occurred as a result of the use of salvarsan, besides numerous cases of blindness, deafness, lameness, etc. Professor Ehrlich replied that it was at present impossible to determine how many deaths had occurred from this cause, but that even 275 was an infinitesimal number when compared with the number of cases which had been treated. It is said that he will call upon the medical fraternities of Europe and of America to give evidence as to their experience in the use of the drug.

**Sale of Mercury Restricted.**—The Board of Health of New York City at a recent meeting passed in its final form a resolution restricting the sale of bichloride of mercury. The resolution, which will become effective on March 1, reads as follows: "No person shall sell or offer for sale at retail bichloride of mercury, otherwise known as corrosive sublimate, in the dry form except upon the prescription of a duly authorized registered physician or veterinary surgeon, and then only in tablets of a particularly distinctive form and color, labeled 'Poison' upon each tablet and dispensed in sealed glass containers conspicuously labeled with the word 'Poison' in red letters."

**New York's Ambulance Service.**—The Board of Ambulance Service of New York City has compiled statistics for the year 1913, which show that at the public hospitals the ambulance calls averaged 117 a day; that at the private hospitals they averaged 200 a day; and that the total during the year was 114,453. An average monthly compilation has also been made giving the different causes for which the ambulance was called; thus, the average number of cases of alcoholism for which ambulance calls were sent was 500 a month, the minimum for a month being 417, and the maximum 570. The lowest number of calls for persons with fractured skulls was 117, and the highest 148. Other figures are: Cerebral hemorrhage, lowest, 30; highest, 44; average, 36; bullet wounds, lowest, 53; highest, 82; average, 66; stab wounds, lowest, 61; highest, 97; average, 79. The average number of unnecessary calls per month was 175.

**Honor Panama Physicians.**—The medical fraternity of the Canal Zone gave a farewell dinner at the University Club, Panama, on February 22, in honor of Dr. William Deeks, chief of the medical clinic, and Dr. James Perry, chief quarantine officer, who will leave the service on April 1 for a trip around the world.

**Prize for Ehrlich.**—The Cameron Prize of the University of Edinburgh has been awarded to Professor Paul Ehrlich in recognition of his discovery of salvarsan and other contributions to medical science. The prize was established as a reward for highly important and valuable additions to practical therapeutics.

**Sea View Hospital.**—The Medical Board of the Sea View Hospital, Staten Island, gave a dinner at the Union League Club, New York, on February 20, in honor of Dr. Richard Kalish, Commissioner Kingsbury, and ex-Commissioner Drummond of the Department of Charities.

**Bertillon's Brain.**—The brain of Dr. Alphonse Bertillon, the creator of the system of criminal identification by means of exact measurements, has been found to weigh 1,525 grams, or 165 grams more than the average. This is the more remarkable as Dr. Bertillon had suffered from anemia for some time before his death, and the brain showed evidence of shrinkage.

**Women Internes Appointed.**—The Trustees of Bellevue and Allied Hospitals, New York, have voted to admit as internes Dr. Helen Palliser and Dr. Ana Tjohnlands, who, as reported last week, successfully passed the examinations. This is the first time that this institution has had women internes on its service.

**Causes of Infant Mortality.**—A systematic study of the causes of infant mortality in New York State, including a survey of the infant welfare service and a census of the infant population, will soon be begun by the New York State Department of Health. Commissioner Biggs plans to have the State undertake the instruction of mothers as to the proper care of infants and of themselves before and after the birth of the child, and in this way hopes to effect a reduction of the alarming death rate among babies in the State.

**Charitable Bequests.**—St. Luke's Hospital, New Bedford, Mass., receives a bequest of $50,000 by the will of the late Mrs. William Abbe of that city.

By the will of the late Mrs. Augusta Chapin of New York, St. Luke's Hospital, New York, receives $10,000; St. Mary's Hospital for Children, $3,000; St. Mark's Hospital, $5,000, and the College of Physicians and Surgeons, Columbia University, $1,000. A portrait of the testator's father, the late Dr. Thomas F. Cook, is bequeathed to the New York Academy of Medicine.

St. Luke's Hospital, Philadelphia, will receive $82,000 from the estate of Mr. Asa Packer, who died in that city in 1879, leaving his money in trust to his three children until their deaths, when it was to be divided among various institutions in which he was interested. His directions have been contested by his grandchildren, but the bequest to the hospital has been sustained.

**Low Infant Mortality.**—Montclair, N. J., claims a remarkably low death rate among infants under one year of age during 1913. A recent report of the city health department places the rate at 64 per 1,000 births, the previous low record of the town being 79 per 1,000. Between 1880 and 1894 the infant death rate in Montclair was 136 per 1,000 births; from 1895 to 1904, 130; 1905 to 1909, 96, and 1910 to 1913, 86.

**Nurses Graduate.**—The graduation exercises of the Mount Sinai Hospital Training School for Nurses were held at the hospital on February 17 and fifty graduates received diplomas from the president of the school.

**New Radium Field.**—A Canadian engineer has reported the discovery of a vein of carnotite in New Zealand. The ore will be mined and worked for radium.

**Vivisection Inquiry Requested.**—The Vivisection Investigation League of New York has recently been in communication with the District Attorney's office seeking to have an investigation made of complaints preferred by them against some institutions in this city. The District Attorney has declared that such investigations properly belong to the Department of Health, but that if any evidence of crime is submitted he will act promptly. An investigation on similar lines made a month ago by one of the assistant district attorneys disclosed no material for a Grand Jury.

**Louisville Hospital.**—The new City Hospital of Louisville, Ky., was formally presented to the city by the Board of Hospital Commissioners on February 7, and was accepted by the Mayor and the Board of Public Safety. The removal of 187 patients from the temporary hospital on Center street to the new building was accomplished on February 11. The new structure cost about $1,000,000.

**Washington Emergency Hospital.**—Plans for the construction of a new emergency hospital on New York avenue, between Seventeenth and Eighteenth streets, Washington, D. C., have been prepared, and the work of clearing the ground

has begun. The structure will be nine stories high, with a frontage of 125 and a depth of 130 feet. It will contain three operating rooms, up-to-date laboratories, *x*-ray rooms, and a roof garden.

**St. Vincent's Emergency Ward.**—The new emergency ward in St. Vincent's Hospital, New York, which has been equipped as a memorial to Dr. Francis Norman O'Loughlin, surgeon on the *Titanic*, who lost his life at the time that vessel sunk, was dedicated on February 16. The ward contains three rooms, one with nine beds for general usage, one with three beds for patients in delirium, and the third with five beds for an overflow or for women patients when necessary.

**Report of St. John's Guild.**—During the summer of 1913, according to the annual report of the president of St. John's Guild, 2,134 patients were admitted to the Seaside Hospital at New Dorp, Staten Island, for treatment. Of this number, 2,088 were discharged as cured or improved. There were only 21 deaths. The number of hospital days treatment was 23,827. The Floating Hospital of the Guild also did full duty. From June 30 to August 30, fifty-two trips were made, and a total of 57,887 persons were carried; of these 15,252 were women, 28,254 were children of about six years and under, and 14,381 were babies. The total number carried was 2,270 in excess of those carried in 1912.

**The East Side Homes.**—The New York Association for Improving the Condition of the Poor has recently made a report on the Home Hospital which it established in 1912 in the East River Homes, otherwise known as the Vanderbilt Model Tenements, for the treatment of tuberculosis. The experiment was carried out under the general direction of Dr. Linsly R. Williams. Twenty-seven families, seventy-nine members of which were tuberculous, were provided with sanitary homes, ample sunshine, fresh air, freedom from undue work and worry, skilful medical care, reasonable segregation, and constant nursing supervision. Eleven of these families, containing twenty-three tuberculous patients, twelve of whom were wage earners, were discharged during the year. Six of the eleven families had been rehabilitated physically, socially, and economically. The other five had to be dismissed because of persistent intemperance or refusal to follow advice; their condition, however, was improved. Of the 135 individuals treated in the hospital, fifty-four were consumptive and twenty-five were suspicious cases. The results obtained with the adult patients compared very favorably with those of the best sanatoria, one of the most marked results being that no new cases developed after admission. Of the adult patients, 61 per cent. were apparently cured, 22 per cent. were arrested, and 11 per cent. were much improved. In only four cases was there no progress. The improvement of the sixty-five children and sixteen infants was also most satisfactory. Economically and socially the experiment also proved successful, the average income of the six families discharged as "rehabilitated," having been increased from $6.42 to $15 a week. The actual cost of caring for tuberculous families in the Home Hospital was found to be less than that of caring for them in other institutions.

**Vital Statistics for 1913.**—The United States Census Bureau places the indicated national death rate for 1913, as estimated from returns in the "registration area," at 13.8 per 1,000. For 1912 the estimated rate was 13.6. Of the States in the registration area New York State led in the number of deaths, the rate being 15.2 per 1,000. Minnesota was apparently the healthiest State, the rate being only 10.7, while Wisconsin was a close second with a rate of 10.9. Of the cities in the registration area Memphis, Tenn., led with a death rate of 22.9, and Richmond, Va., was second with a rate of 22.4. Portland, Ore., showed the lowest rate, only 11 per 1,000, Minneapolis and St. Paul were second with 13, and Milwaukee was third with 14.2. Death rates per thousand for other cities were also announced, as follows: Los Angeles, 14.9; San Francisco, 16.7; Denver, 14.5; Chicago, 17.1; Indianapolis, 16.3; Baltimore, 19.4; Grand Rapids, Mich., 13.4; Kansas City, Mo., 16.3; St. Louis, Mo., 16.2; Omaha, Neb., 15.3; Newark, N. J., 15.7; Aubany, N. Y., 19.2; Buffalo, N. Y., 17.2; New York City, 16.2; Rochester, N. Y., 15.3; Syracuse, N. Y., 16.3; Cincinnati, 17.2.

**International Congress on Diseases of Occupation.**—The third International Congress on Occupational Diseases will be held in Vienna in September, 1914, and in this country a committee, of which Hon. William B. Wilson, Secretary of Labor, is chairman, Dr. George M. Kober, vice-chairman, and Dr. Alice Hamilton, Hull House, Chicago, secretary, has been formed for the purpose of inviting the attention of those interested. Membership fees, amounting to $5, may be sent by postal money order to the General Secretary of the Congress, Dr. Ludwig Teleky, No. 23 Türkenstrasse IX, Vienna, Austria. Among the topics to be considered are: The physiology and pathology of fatigue, with special reference to vocational work and to the effects of night work on the nervous system. Work in hot and damp air. Occupational anthrax. Pneumoconiosis. Injuries caused by electricity. Industrial poisons. Injuries of hearing caused by industrial pursuits.

**The Late Dr. Richard Van Santvoord.**—At a regular meeting of the Harlem Medical Association held on Wednesday evening, February 4, 1914, the following resolution on the death of their late president was adopted by the members of the society:

"The members of the Harlem Medical Association view with profound regret the death of one of its members and ex-presidents, Dr. Richard Van Santvoord. In his death we have lost an active and respected member, who was admired both as man and as physician.

"Resolved, That the Association spread upon its minutes this record and that a copy of this resolution be forwarded to his bereaved family.

Dr. John Remer,
Dr. John F. Connors,
Dr. William H. Luckett."

**The Late Dr. Turner.**—At a meeting of the Medical Board of the Norwegian Deaconesses' Home and Hospital held on February 4, 1914, the following resolutions were adopted:

"Whereas we have learned with regret of the death of Henry Cushman Turner, M.D., founder and dean of the Norwegian Deaconesses' Home and Hospital Staff,

"Resolved, That the Medical Board record the sentiment of its members, especially those who have worked with him in his hospital service, that a worthy, conscientious, painstaking, cultured physician has passed away. Be it further resolved, that a copy of these resolutions be sent to his

family, and the medical press, appear in the 'Yearly Report,' and be entered in the minutes.

Robert E. Coughlin, M.D.,
*Committee Chairman.*"

**Obituary Notes.**—Dr. James Joseph Burns of New York, a graduate of the University and Bellevue Hospital Medical College, New York, in 1902, and a member of the New York State and Broome County Medical Societies, the Physicians' Mutual Aid Society, and the Society of the Alumni of Bellevue Hospital, died at St. Francis Hospital on February 19 after a short illness from appendicitis, aged 33 years.

Dr. Charles E. Froelich, of Hartford, Conn., a graduate of the University of Copenhagen, Denmark, in 1870, died at his home on January 31, aged 69 years.

Dr. Garwood Harvey Attwood of Waterbury, Conn., a graduate of Yale University in 1840 and of the Medical Department in 1844, and said to have been in point of years the oldest, and in point of classes, the second oldest living graduate of Yale, died at his home from apoplexy, after a short illness, on February 1, aged 95 years.

Dr. William L. Wilson of Nashville, Tenn, a graduate of the Medical Department of the University of Pennsylvania, Philadelphia, in 1857, died at his home, on February 1, aged 80 years.

Dr. Robert C. Moon of Philadelphia, a graduate of the Jefferson Medical College, Philadelphia, in 1886, and long interested in the publication of books and charts from embossed type for the use of the blind, died at his home, from heart disease, after a long illness, on February 13, aged 70 years.

Dr. Lewis Y. Grubbs of Topeka, Kan., a graduate of the Medical College of Ohio, Cincinnati, in 1871, one of the organizers of the Jane C. Stormont Hospital, Topeka, and president of its surgical and medical staff since 1895, and a member of the American Medical Association and the Kansas and Shawnee County Medical Societies, died at his home on January 25, aged 75 years.

Dr. J. A. McCallum of Clinton, Ky., a graduate of the Bellevue Hospital Medical College, New York, in 1873, and a member of the American Medical Association and the Kentucky State and Hickman County Medical Associations, died suddenly in his office on January 26, aged 78 years.

Dr. Richard Gallego Crouch of Richmond, Va., a graduate of the University College of Medicine, Richmond, died at his home on January 27, aged 85 years.

Dr. James D. Fulton of New Orleans, La., a graduate of the Medical Department of the Tulane University of Louisiana, New Orleans, in 1902, and a member of the Louisiana State and Orleans Parish Medical Societies, died in the Truro Infirmary, after a brief illness on January 26, aged 42 years.

Dr. William H. Lincoln, of Wabasha, Minn., a graduate of the Rush Medical College, Chicago, in 1882, died at Mondovi, Wis., on January 25, aged 57 years.

Dr. James Edgar Banks of Prentiss, Miss., a graduate of the Medical Department of the Tulane University, La., in 1886, and a member of the Mississippi State and Jefferson Davis County Medical Societies, died at his home on January 28.

Dr. Roscoe C. Sprague of Liberty, N. Y., a graduate of the University of Louisville, Medical Department, in 1910, died in Louisville, Ky., from heart disease after a long illness on February 6, aged 27 years.

## Correspondence.

### HYPODERMIC INJECTIONS OF SALICYLATES IN RHEUMATISM.

To the Editor of the Medical Record:

Sir:—In the article on "Intravenous Injections of Sodium Salicylate," published by Dr. L. A. Conner in the last issue of the Medical Record, the following statement is made: "Attempts have been made to use it (sodium salicylate) by subcutaneous injection. This latter method has been found impracticable because of the painfulness of such injections, the local irritation, and the large quantity of solution required. A modification of the hypodermic method was introduced by Bouchard, who sought to obtain a local effect by the injection of a weak (3 per cent.) solution of the drug into the periarticular tissues of the inflamed joints. This method has had some vogue in France, but has gained no widespread popularity."

Since devising and publishing "the hypodermic method" of using salicylates dissolved in water or in oil (Medical Record, March 11, 1911), I have relieved my patients of their rheumatic infections, otherwise intractable. Many other physicians have had success with this plan of treatment, to my knowledge, and as yet no reports have appeared in medical literature condemning this method as "impracticable." As Dr. Conner has not reported the number and the histories of the cases in which he tried "the hypodermic method," and does not cite others who employed it without success, I challenge his dictum that it "has been found impracticable" as not based on fact.

That Mendel's method of injecting sodium salicylate intravenously, which was first mentioned in American literature in my article and which Dr. Conner has employed successfully in twelve cases (with 130 injections and occasional thrombosis at the site of puncture), has its advantages, there can be no doubt, but also that it can only be used by men specially killed in such work without serious danger to the patient, in hospital and private cases. Conscientiously I have never hesitated to order the most inexperienced assistant in my hospital service to give hypodermic injections of salicylates in severe chorea, rheumatic sciatica, and stubborn rheumatic arthritis, knowing that at the worst an occasional subcutaneous abscess might develop, on account of his imperfect asepsis, but I would not order him to give intravenous injections unless he were an expert and unless I knew that the solution to be absolutely sterile.

In severe chorea, usually maltreated for months by Fowler's solution before admittance to the hospital, four to six hypodermic injections of a 15 per cent. solution of salicylate of sodium (10 c.c. for every 100 pounds of body weight given every 24 hours) will quiet the patient so that appropriate doses of aspirin by mouth (15 grains twice daily for every 100 pounds of body weight) will practically cure the case in two weeks. In such cases the "intravenous" method of Mendel could only be used after anesthetizing the patient completely, while the pain caused by the "hypodermic method" can be reduced to a minimum by a previous hypodermic injection of cocaine, as detailed in my article mentioned above.

Another curious fact about Dr. Conner's publication is, that although he cites the articles of eight Germans and two Frenchmen, the name of his fel-

low townsman who devised "the hypodermic method" and the publication in which his article appeared are not mentioned at all.

NEW YORK. A. SEIBERT.

## OUR LONDON LETTER.

(From Our Regular Correspondent.)

LONDON AS A HEALTH RESORT—INFANTILISM—ROENTGEN SOCIETY AT LONDON HOSPITAL—VISCOUNT KNUTSFORD—OBITUARY.

LONDON, February 6, 1914.

LONDON is not named in lists of health resorts, but that it has some claim to the distinction has long been held by a few and last week the claim was boldly set forth at the Royal Society of Medicine (Section on Climatology) by Dr. S. D. Clippingdale. Of course, you know our death rate of 14.2 per 1,000 challenges comparison with all large cities. It has been described as the healthiest and, on the other hand, as the ugliest in the world, but that was prejudice or want of taste may be retorted. FitzStephen in the twelfth century was enraptured with its sanitary condition, due, he thought, to its good water supply. Sir Thos. Moore, three centuries later, made it the site of his Utopia. A libel was once current to the effect that a native London family did not survive beyond the third generation. To this Dr. Clippingdale replied that he himself was of the twelfth generation of a family living in London from Elizabeth's time, but he admitted that might be due to their healthy occupation, until recently, for his forebears mostly "found their bread on the living waters of the Thames." Elizabeth to prevent overcrowding ruled no new houses should be built within three miles of the city and only one family should occupy a house. Henry VIII, to stay infection, ordered a white wand to be put out from the window of every house infected. But Dr. Clippingdale attributed the healthiness of London to such natural advantages as situation, soil, open spaces. It received air, he said, straight from the North Pole, its site is on an inverted basin of clay, its acreage of open spaces (excluding royal parks and private squares) 5,000 compares favorably with the 540 of Paris and the 1,222 of Berlin. Its average rainfall 22 inches, but a set off to this is the great daily variations of temperature. Evelyn dedicated a treatise on the fog which prevented him and other loyal subjects seeing "your Majestie's handsome face." Dr. Clippingdale gives credit to gas fires for diminishing fogs but suggests they may not be so detrimental as supposed, the air being laden with carbon, an antiseptic, and carbonic acid had a soothing effect on the senses! There were enthusiasts who regarded the autumnal exodus as a modern fad, it being never necessary to leave London for health's sake. He admitted the absence of medicinal springs, those so reputed being closed, so we cannot set up as a balneological center. Possibly rheumatic patients may benefit from the well-drained soil. His grandfather living at Blackwall found his children when they had whooping cough were benefited by being sent to London. Bronchitis, asthma, and hayfever did well in London, as they do in other large towns. Still more, psychopathic and neuropathic cases were suited in London owing to its great size and many diversions. "Londonophilia" was seen in Johnson, Lamb, & Meredith. Some silly people, too, had done extraordinary things about it, as the wit who paved the front of his country house with cobbles to remind him by the rattle of traffic of the London streets. Then there was also "Londonophobia" which affected Heine, Grant, Ruskin, and many more. But there was no doubt it suited in many nervous cases, such as hypochondria, insomnia, neuralgia, drug habits, alcoholism, all cases requiring the opposite of the rest-cure. To treat such by hypnotic suggestion he considered degraded alike practitioner and patient. Submit such a patient to London's numerous diversions and send him for a tour around it. Set him to watch from the Tower Bridge the passing craft and think of the scene when Elizabeth's ships started to meet the Armada. Send him to study the customs and costumes of the East End. Let him visit the heart of the city and consider its historic associations and buildings. If a few days of London did the neurasthenic no good his case would be hopeless. In concluding his paper, the author quoted Horace Walpole, who said if he were a physician he would prescribe only 365 doses of London a year. "R. CCCLXV drach. Londin per an."

Infantilism was the subject of Professor Hastings Gilford's two Hunterian Lectures at the Royal College of Surgeons. He said many so-called dwarfs or midgets are not really the result of arrest but rather of protracted delay of development. The subjects of this retarded growth remain infants all their lives and when they grow old—they often do—their infantile characteristics persist, in spite of their wizened appearance. So extreme is their slowness in passing through the stage of childhood that in one case the lecturer found it took 20 years to grow as much as an average child grows in 5 years. This slow growth continues until over 30 years, when the little "man" may be no bigger than a 6 year old child. One of these "infantilates" passed as a child until nearly 30 and traveled on railways with half tickets. Another, a boy of 14, could pass as a baby in arms and, in fact, took the leading rôle in a theater, acting alternately as a baby and a diminutive man about town. The abnormal condition of these little people is called ateleiosis and "there are two kinds of ateleiotics" said the lecturer. One kind remain infantile always, so that their bones are grisly like those of children. In the other kind the bones harden but growth stops and the little beings are, as it were, stereotyped in the proportions and size of young children; they are mingled adults and children and often rejoice in beards and moustaches; some have actually become fathers or mothers of little creatures like themselves, *e.g.* the celebrated Tom Thumb married an ateleiotic lady who presented him with a daughter. They were on their traveling rounds at the time. Their baby, "Minnie Tom Thumb," died from inflammation of the brain in 1866.

In the second lecture, delivered on Wednesday, Professor Gilford advanced the theory that the fairies of folk lore were man's ancestors. He said the common notion that scientists believe we are descended from brutes like some apes of tropical forests was quite erroneous. There was, however, reason to believe that our ancestors were akin to the intelligent, lovable baby chimpanzees, orangs, or gorillas—much like human babies in appearance and disposition. Fossils had been found which throw much light on our ancestry. Skeletons of a big, coarse, brutish type were not necessarily those of our remote forefathers, but more likely off-shoots from a main stock. Other bones found belonged to the more elegantly formed, shorter people with big heads and features like those of modern children.

Such dwarfs had existed over large tracts of the earth and might represent the childhood of our race. Some had left pictures carved on rock or bone in many respects wonderfully like present-day children. Tradition, too, tells of pixies, fairies, elves, etc., simple, quaint, shrewd little people, active, good-natured, roguish, capricious, fond of dancing, music, and processions. In appearance, habits, and tastes they were always childish. In legends we heard also of giants, brutish, coarse, often cannibals, enemies of the little people—representing the brute-like fossil bones. The little people were spoken of as having died out ages ago, but the lecturer said there was reason to believe they lingered still in remote places and were the dwarfs in Central African forests or in deserts, islands, or mountainous regions of Asia or Africa. Their size, form, habits and general appearance were similar in many ways to the fairies of modern children's talk. The child of civilization, playing with bows and arrows, dancing, delighting in music, living animals, bird's nesting, bonfires, and dreading the dark, make one think of the children of the race whose small bones, pictures, and legendary records showed that the manhood of yesterday was the childhood of today. So the racial children, still living in the remote forests and places. Finally there is the modern show-dwarf, affected with "ateleiosis," not only a form of stereotyped childhood but an imperfect, rough copy of our ancestors as they lived upon earth 100,000 years ago.

The Roentgen Society met on the 3d inst. at the London Hospital where there is a department including *x*-ray and electrotherapeutic work. Dr. Scott gave a demonstration of the Wilson portable coil and showed some interesting *x*-ray plates. This apparatus is very light and so used in the wards for patients who are not fit to be taken to the *x*-ray rooms for examination. It makes use of a condenser before the current reaches the primary coil with the result that when the condenser discharges it delivers a high-frequency oscillating current of such a character that a secondary coil is not needed. Other points were stated, making the apparatus suitable for clinical work and it has been in use for some time in the hospital. *X*-ray photos were shown illustrating the application of steroscopic methods to medical purposes. They are made by taking them in pairs, the *x*-ray tube being placed a little more than an inch, first on one side, then on the other of the central line. On combining the pair it is possible to see the position and shape of a foreign body or a tumor, and it was said such photos were prepared in the department for the surgeons to see before operating. Another exhibit illustrated the use of *x*-rays for diagnosis. Collargol injection into the pelvis of the kidney had made it possible to discern the cause of suffering in some cases and the possibility of relief by operation. The first *x*-ray tube used at the London Hospital was shown. It was employed in 1896. The first photo taken with it showed a needle in the foot. Members of the society were shown the methods adopted to prevent the operator being ever exposed to the rays. Also to the mode of regulating dosage and to the filters employed in the application of the rays to deep-seated tissues.

Lord Knutsford, the former Colonial Secretary, who died on the 29th of January in his 89th year, was the eldest son of the late Sir Henry Holland, Physician to Queen Victoria and a leader of the profession, who was made a baronet in 1853 and died in 1873. Lord Knutsford is succeeded in the peerage by his son who has long had intimate relations with the profession as the Hon. Sydney Holland, chairman of the London Hospital for which he was so active in helping its finances as to have earned with some the title of "the greatest beggar in London."

Lt.-Col. O. T. Duke, M. B. of the Rifle Brigade, has died at the age of 70. He took his degree at the London University in 1867, entered the Indian Medical Service in 1869. In the Afghan War he was mentioned in dispatches and awarded the medal. Retiring in 1887 he was gazetted captain in the militia. In 1889 he was senior major in the Rifles and lieutenant-colonel in 1891.

Major E. D. F. Bringhurst, F. R. C. S. Ed., late of the army medical service, has died in his 60th year. He had studied in Paris and London as well as Edinburgh.

## OUR PARIS LETTER.

(From Our Regular Correspondent.)

ANNUAL PRIZES OF THE ACADEMY OF MEDICINE—EPIGASTRIC PUNCTURE IN THE TREATMENT OF FERICARDITIS—TREATMENT OF SYPHILIS OF THE NERVOUS SYSTEM—THE INTRASPINAL INJECTION OF NEOSALVARSAN—SUBDURAL CEREBRAL INJECTIONS OF THE SERUM OF SALVARSAN-TREATED ANIMALS—EMETINE IN AMEBIC DYSENTERY—OBITUARIES: HÉRARD, EMPIS—MONUMENT TO DIEULAFOY.

PARIS, February 1, 1914.

THE annual public meeting of the Academy of Medicine was held December 16, 1913. The order of the day was the announcement of the prizes for 1913. Among the winners was Georges Luys of Paris, who received the Ricord prize for his "Treatise on Gonorrhea." M. H. Vallée of Alfort received the Louis Boggio prize for his efforts in the prevention and cure of tuberculosis. M. Dopter of Val de Grace received the Adrien Buisson prize for his investigations in cerebrospinal meningitis.

Epigastric puncture in the treatment of pericarditis with effusion was the subject of a discourse before the Academy of Medicine by M. Marfan, who has employed this method with success since 1911. He pointed out the dangers of intercostal paracentesis, which dangers consist in injury to the internal mammary vessels, the pleura, and the heart. The technique of epigastric puncture is as follows: The patient is placed in a half reclining position on the bed, and a small trocar is inserted on the median line just below the xiphoid cartilage. The trocar is introduced obliquely in such manner as to glance over the posterior surface of the xiphoid cartilage. In this manner the pericardial sac is easily entered at the anterior position of its inferior surface, at a point where the effusion usually collects. Marfan has employed this method in 26 cases. There are only two contraindications: Excessive abdominal tympanites, and the funnel-shaped thorax.

The treatment of syphilis of the nervous system by means of the newer arsenical preparations has recently engaged considerable attention. This form of treatment has particularly been resorted to in tabes and general paralysis. Legendre and Juquelier reported at the Clinical Society of Mental Medicine, November 17, 1913, that they employed neosalvarsan by the intravenous method in doses varying from 0.15 to 1.50 grams. They had no untoward results, and obtained a certain degree of

improvement, particularly in one case of general paralysis. M. A. Marie in his service at Villejuif has observed similar results. Leredde similarly obtained good results. By beginning with very small doses, he found that one could attain doses as large as 1.5 centigrams of neosalvarsan for each kilo of body weight. The more recent the case the better are the results.

The intraspinal route has also been essayed. August Marie of Villejuif and Levaditi reported at the December meeting that they had instilled 1 to 6 centigrams of neosalvarsan dissolved in cerebrospinal fluid removed by lumbar puncture into the subarachnoid space. In 14 cases the above observers obtained 8 remissions. Paul Ravaut injects into the subarachnoid space one to four drops of a hypertonic solution of 0.60 gram of neosalvarsan in 10 c.c. of distilled water; the dose of neosalvarsan injected is 3 to 12 milligrams. These injections are well borne, and have given good results in two cases of secondary syphilitic nephritis, two cases of tabes, and one case of recent general paralysis. Jeanselme, Vernes, and Bloch inject by the spinal route a 1 to 1000 solution of neosalvarsan, of which they inject at first ¼ of a cubic centimeter, containing ¼ of a milligram of neosalvarsan. The injections are repeated every 8 days, and the doses are increased, without passing the limit of 5 milligrams. No accidents have been observed, and the serological changes have been favorable.

Finally, subdural cerebral injections have been resorted to. Levaditi, Martel and Marie have performed bilateral trephining in the parietal regions, and have injected about the frontal and parietal fissures 5 c.c. of the blood serum of animals into whom salvarsan has already been injected intravenously.

Chauffard was the first in France to use emetine hydrochloride in the treatment of abscess, amebic dysentery, and amebic abscess of the liver. He employed the technique of Rogers. M. Morestin reports an observation made by Leroy of Barres on a patient in whom an injection of emetine produced a rapid disappearance of amebæ from the stools. This, however, did not prevent the development of an abscess of the liver, which had to be opened but which healed rapidly. The fluid evacuated did not contain the thick and rosy pus characteristic of these cases, but a slightly turbid and slightly colored fluid which contained immobile amebæ.

Professor Hérard died recently at the age of 95 years. He was an honorary physician of the hospitals, a professor emeritus of the Paris faculty, a former president of the Academy of Medicine, of which he was also the dean. He became a Chevalier of the Legion of Honor at the early age of 35 years for his unselfish devotion during an epidemic of cholera in 1855. In 1865 he published in conjunction with Cornil a treatise on pulmonary tuberculosis. He was among the first to declare that tuberculosis is curable. He was a most zealous advocate of social measures in the campaign against tuberculosis.

Professor Empis died at the age of 89 years, a few days after Hérard. He also had been a president of the Academy of Medicine. Among his numerous writings may be mentioned his treatise on "Granulation," published in 1865. Since the appearance of this volume gray tuberculous granulation has been given the name "granulation of Empis."

On November 28 at the Hotel Dieu of Paris there was unveiled the monument to Dieulafoy, in the Amphitheater of Trousseau, where for 14 years he had attracted crowds of students from all parts of the world. Widal, Landouzy, and Mesureur delivered the eulogies. They referred to his matchless skill as a clinician, his love for work, and his eloquence and purity of diction.

## OUR LETTER FROM HAVANA.

(From Our Regular Correspondent.)

ABANDONMENT OF THE REGISTRATION OF PROSTITUTES —SMALLPOX ON THE "OHIO"—ANTITYPHOID VACCINATION—ASEXUALIZATION OF CRIMINALS AND THE INSANE—MEDICAL MATTERS BEFORE CONGRESS —PERSONAL.

HAVANA, January 4, 1914.

THE presidential resolution annulling the long established "Zone of Tolerance," went into effect on December 30. For the past 200 years a large part of Havana's prostitutes have been confined to a limited section of the city. In that quarter, designed as the "zone of tolerance," all criminal industries associated with and depending upon prostitution thrived and vice and the trade of the procurer flourished. The "business of prostitution" was a well regulated affair, and the women were registered and a license was given to them, while frequent medical examinations were made. But as the unlicensed or clandestine prostitutes were ten times more numerous than those with license and registration, and as the special department created in order to control prostitution was, with the exception of its medical officers, an organization that thrived upon what they could force from all Havana prostitutes, licensed and unlicensed, the Government decided to suppress official regulation. Therefore there will be no more licenses or registration and the "red light district" has been abolished, its inmates having migrated to all sections of the city; they will now have the regular police force to contend with.

Some apprehension has arisen in the eastern part of the island with the coming of the U.S.S. *Ohio*, with more than twenty-five cases of smallpox on board. The battleship is at present at quarantine at the Guantanamo Coaling Station and no cases have appeared on shore. Vigorous and extensive vaccination is being practiced in all places on the north coast of Oriente Province and there is every reason to believe that the outbreak will be limited to the *Ohio*.

Antityphoid vaccination of all members of the Cuban Army and Navy will soon begin. This work was started by Dr. Ferrer, an army surgeon, about three years ago, he having vaccinated about 3,500 men. Ten thousand remaining men will now be immunized. The procedure will probably be extended to the employees of all our large hospitals.

Asexualization or sterilization of habitual criminals is likely to be established in Cuba, a bill to that effect having just been introduced into the House of Representatives by Dr. Francisco M. Fernandez. The bill provides for the sterilization of habitual criminals, of persons suffering from chronic hereditary insanity, and of all rapists. A big cry has been raised on that account, sentimentalism trying to oppose the passage of the bill.

Other matters pertaining to medicine are being discussed in the Congress; funds providing for the celebration of the next Cuban National Medical Congress will soon be granted by the House, and a bill reorganizing the School of Medicine was re-

cently read by another medical man who is also a Congressman, Dr. Andres García of Santiago; he wants to abolish the long-standing custom of one professor having two or three different things to teach, and of course getting an extra salary for each.

Dr. Felix de Vera, a physician of long standing and good reputation, died at his home in Matanzas, on January 2, from angina pectoris.

A large number of Havana physicians attended a dinner given to Dr. R. Gutierrez Lee to celebrate his appointment as Minister from the Republic of Colombia, his native land, to our country. Dr. Gutierrez Lee has practised in Cuba for over thirty years and is well beloved by all his colleagues.

## Progress of Medical Science.

### Boston Medical and Surgical Journal.

*February* 12, 1914.

1. Observations on Peptic Ulcers. C. Graham.
2. Certain Phases of the Psychoneuroses and Their Possible Trend. G. L. Walton.
3. Suggestive Treatment in Diseases of Childhood. W. W. Howell.
4. Leprosy: The Pulse as a Possible Indicator of the Progress of the Disease. (A Preliminary Note.) J. A. Honeij.
5. Ileal Stasis. H. W. Baker and D. V. Baker.

**1. Gastric and Duodenal Ulcers.**—C. Graham points out the typical diagnostic symptoms of peptic ulcer as follows: (1) The periodicity of the attacks and the perfect intermission or marked remission of attacks; (2) the almost exact similarity of symptoms occurring for days during the period; (3) the marked relation of symptoms to food intake (one-half to four hours); (4) the control of the symptoms by food, alkalies, lavage, posture, and rest. The types of cases in which it is particularly difficult to reach a correct diagnosis, or in which it is quite impossible to differentate from other lesions causing gastric symptoms may be divided into four groups: Group 1—This group comprises those patients with ulcers who give the classical symptoms of gallstones, and in whom no other gastric symptom can be elicited. Group 2—In this group may be found patients in whom the ulcer must have been latent for weeks or months, and whose first manifest symptoms were those of chronic ulcer with complications (hemorrhage, perforation, etc.). The symptom-complex in these cases is irregular and quite excludes the pathognomonic picture of ulcer. Group 3—In these cases the present chronic symptoms are very severe. The early symptoms were so mild that they may have been quite forgotten or overlooked by the patient. The patients will not allude to the early trouble unless carefully questioned, because nothing is of so much importance to them as the present, or recent years of distressing pain. Group 4—In the fourth group are those patients whose symptoms are of a more or less malignant type —marked loss of flesh and strength, pain or distress quite continuous, gas rather annoying, and vomiting of large amounts at irregular periods.

**2. Certain Phases of the Psychoneuroses.**—G. L. Walton states that it would be desirable in the subclassification of "neurasthenia," "psychasthenia," or "psychoneurosis" (preferably the latter) more freely to use the terms "brain fag" and "obsessive psychosis," and to recognize the fundamental difference between them. While the sufferer from obsessive psychosis may drift into chronic hypochondria, or into manic depressive insanity, he will become a case of dementia præcox only if he has the inherent brain defect which limits development and predisposes to deterioration. Prognostic injustice may easily be done by making the diagnosis dementia præcox on the basis of a single psychopathological outbreak with symptoms suggesting that disease.

**4. The Pulse Rate in Leprosy.**—J. A. Honeij notes that in all febrile diseases and especially in tuberculosis, there is an evening rise in temperature, pulse rate, and respiration. In leprosy this usual condition is reversed, so far as the pulse rate is concerned. In the morning the pulse rate is higher than at evening; often markedly so. That this condition is not due to the greater morning activity of the patient or to atmospheric changes has already been determined.

### New York Medical Journal.

*February* 14, 1914

1. The Positive and Negatice Diagnosis of Gastric Cancer by Means of Serial Roentgenography. L. G. Cole.
2. Notes on Some Aneurysms. R. A. Keilty.
3. Intestinal Resection. R. C. Turck.
4. Some Scientific Aspects of Inoculation Therapy. W. Walter.
5. Besredka's Sensitized Vaccines. F. E. Stewart.
6. Amebic Dysentery. Frank C. Yeomans.
7. Magnesium Sulphate and Glycerine in the Treatment of Infections. E. M. Freese.
8. Two Remarkable Cases of Obesity. J. Weiss.
9. The Technique of Outlining the Thyroid Gland. M. S. Woodbury.

**1. Serial Roentgenography in Gastric Cancer.**—L. G. Cole has made a negative or positive diagnosis of gastric cancer in each of the 616 cases examined by means of serial roentgenography, and in not a single case (to the author's knowledge), in which he had made a negative diagnosis of gastric cancer or indurated gastric ulcer, has surgery or autopsy proved the existence of such lesion, nor has surgery or autopsy failed to reveal a definite organic lesion, requiring surgical procedure, in any case, where a positive diagnosis of carcinoma or indurated ulcer had been made. Six hundred and sixteen cases have been examined by serial roentgenography. Ninety-seven cases have been operated upon. In ninety-four of the cases the roentgenological diagnosis was proved absolutely correct. In three cases the surgical findings were more or less at variance with the roentgenological findings. Gastric cancer at any stage of development or indurated gastric ulcer may be detected by the use of serial roentgenography with as great a degree of accuracy as renal calculi or bone fractures may be detected by plain roentgenography. The time has come when a surgeon has no more right to operate on a chronic gastroduodenal lesion without a thorough roentgenological examination than he has to operate for a kidney stone or to treat a fracture without an *x*-ray examination.

**2. Intestinal Resection.**—By R. C. Turck. (See MEDICAL RECORD, February 21, 1914, page 364.)

**5. Sensitized Vaccines.**—F. E. Stewart enumerates the advantages following the use of Besredka's sensitized vaccines: (1) They produce but slight local reaction (inflammation at site of injection). (2) They cause no general reaction (malaise, increased temperature, etc.). (3) They may be given in much larger doses and much more frequently than the unsensitized bacterins (every twenty-four hours). (4) The immunizing effect is almost immediate (manifesting itself within from twenty-four to forty-eight hours). (5) They sometimes give successful results in very late stages of a disease, when no response is secured from the ordinary bacterins and even serum treatment is ineffective.

**6. Emetine in Amebic Dysentery.**—By F. G. Yeomans. (See MEDICAL RECORD, February 14, 1914, p. 315.)

**7. Magnesium Sulphate and Glycerine in the Treatment of Infections.**—E. M. Freese has obtained excellent results in the treatment of infections such as cellulitis, lymphangitis, etc., by means of external applications

of equal parts of glycerine and a saturated solution of magnesium sulphate. The latter has for a long time been used in sprains and inflammations to allay pain and abate swelling, and glycerine has likewise been used in the treatment of pelvic inflammations.

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**Journal of the American Medical Association.**

*February* 14, 1914.

1. Origin and Present Status of the Emetine Treatment of Amebic Dysentery. E. B. Vedder.
2. The Functional Metrorrhagias. Their Nature and Control. A. Sturmdorf.
3. Neosalvarsan from the French Point of View. B. B. Beeson.
4. Effect of Lactic Acid Bacilli on Diphtheria. S. T. Nicholson, Jr., and J. F. Hogan.
5. The Precipitation of Colloidal Gold. A Specific Reaction in the Spinal Fluid. D. M. Kaplan and J. E. McClelland.
6. An Improved Technique for the Doremus-Hinds Ureometer. C. J. Robinson and J. H. Mueller.
7. An Etiologic Study of Hodgkin's Disease. Second Note. C. H. Bunting and J. L. Yates.
8. The Correction of the Fixed Structural Type of the Spinal Lateral Curvature. R. O. Meisenbach.
9. Hygroma Cysticum Calli and Hygroma Axillare. V. C. Smith.
10. Action of the Nitrates on the Isolated Surviving Pulmonary Artery. Preliminary Note. D. I. Macht.
11. The Energy Index. Cardiovascular Energy as Indicated by the Arterial Pressure per Minute. J. H. Barach.
12. The Practical Side of Deratization with Flue-Gas, with Special Reference to the Port of Philadelphia. M. E. Berkowitz.
13. Basic Fuchsin in Surgery. Its Wide Range of Usefulness. W. H. Donnelly.
14. Significance of Elevated Blood-Pressure in Pregnancy. F. A. Faught.
15. Experiences with Noguchi's Luetin Test for Syphilis. H. L. McNeil.
16. Hemorrhagic Hypernephritis, with Report of Case. J. O. Walkup.
17. Detection of Mercury in the Excretions. K. M. Vogel.
18. A Case of Amebic Dysentery of Thirteen Years' Duration Cured by Emetine Hydrochloride. G. W. McCaskey.
19. A Case of Mercuric Chloride Poisoning Due to Vaginal Douches. F. Beekman.
20. Defaced Type of Addison's Disease. A. O. Holmes.
21. Empyema with Calcareous Pleura. A. R. Hoover.

**1. Emetine Treatment of Amebic Dysentery.**—E. B. Vedder finds that emetine is a true specific in amebic dysentery and hepatitis, and the results obtained by its use compare very favorably with the results obtained with salvarsan in syphilis. The hypodermic use of the hydrochloride salt is the preferred method of treatment. A large percentage of the cases so treated continue to harbor *Entameba histolytica* (often in the encysted and most dangerous form) in the feces for some time. While in view of this fact it is impossible to state at present that patients treated by emetine will remain permanently cured, yet the prospects of obtaining permanent cures by this method are encouraging. The presence of a considerable number of these chronic ameba carriers constitute a sanitary menace to the community. It is possible that the amebas may be removed from these carriers by a course of irrigations of quinine or silver nitrate. Experiments have failed to show that emetine possesses any marked therapeutic virtue in bacillary dysentery, syphilis, rabies, or trypanosomiasis.

**2. The Functional Metrorrhagias.**—By A. Sturmdorf. (See MEDICAL RECORD, February 14, 1914, page 317.)

**5. The Precipitation of Colloidal Gold.**—D. M. Kaplan and J. E. McClelland describe the results they have obtained in the examination of the cerebrospinal fluid with the aid of the goldsol or gold chloride precipitation test which was first worked out by Carl Lange. The latter says that in order to ascertain the exact nature of the globulin in the cerebrospinal fluid he has made use of the most delicate known method in the field of protein analysis, namely, the determination of the gold number (*Goldzahl*) according to the method worked out by Zsigmondy. In Lange's article it is apparent that the sole purpose of the investigation was to determine the chemical nature of the substance in the cerebrospinal fluid commonly spoken of as globulin, and obtained *in vitro* by Nonne's half saturation with ammonium sulphate solution and known as "Phase 1" reaction. This substance has been subjected to the large number of reactions usually employed in the analysis of proteins, as well as to the determination of the gold number. The results obtained with the latter method, with fluids from patients with syphilitic diseases of the nervous system, suggested to Lange the possibility of using it as a specific test for syphilis of the nervous system. The technique, according to Lange, depends chiefly on the proper preparation of the reagent. He describes a color-scale to correspond with varying degrees of gold precipitation; this scale reads from a clear watery white, which is obtained with complete precipitation, through the partial precipitations giving, respectively, white-blue, light-blue, dark-blue, violet, blue-red and red-blue, to the original red of the indicator. Besides these color changes Lange considers as important the dilution in which the precipitation takes place. In his experiments the dilutions varied from 1 : 10 to 1 : 40,000. The authors have been unable to corroborate fully the results obtained by the other workers who have asserted that this reaction can be obtained in all cases of syphilitic disease of the nervous system. The most marked reactions and typical curves are obtained only in cases of general paralysis and taboparesis. A positive reaction occurs in most cases of cerebrospinal syphilis, but the curve is not characteristic. In the majority of the cases of tabes either no reaction occurs or only a weak reaction in the 1 : 10, 1 : 20 or 1 : 40 tube.

**7. Etiology of Hodgkin's Disease.**—C. H. Bunting and J. L. Yates in a preliminary note recently published, have reported that by repeated injection of the diphtheroid organism cultivated by them from cases of Hodgkin's disease, there had been produced in monkeys lesions of the lymph-nodes showing all the essential features of early Hodgkin's disease in man. Up to that time they had been unable to demonstrate that the organism could survive in the monkey for any great length of time, and therefore they felt that they could not assert that they had produced Hodgkin's disease in the monkey, or that they had even demonstrated any great pathogenicity of the diphtheroid organism for that species. Since making that report, however, the course of their experimental work has demonstrated fully the pathogenicity of the culture they were using, and has further shown that the virulence of the organism to the monkey may easily be increased even to the point of producing death of the animal after a relatively acute illness. While the histological picture of the enlarged lymph-nodes of the monkey taken three months after the successful inoculation leaves no question as to the relation of the lesion to that of human Hodgkin's disease of the same duration, the great difficulty seems to be to secure infection and at the same time to avoid so great virulence as to produce extensive necrosis and softening and even suppuration. The working space between these two limits seems very narrow. Extensive necrosis and leucocytic infiltration of the glands may seem foreign to the usual chronic picture of the lymph-nodes in Hodgkin's disease, yet a recent clinical case has demonstrated that even in man the virulence of the organism may be such as to lead to these features. Thus, since the author's experiments demonstrate that the diphtheroid organism is pathogenic for the monkey, that it produces a progressive enlargement of the lymph-nodes, with lesions similar to those of Hodgkin's disease in man, and further that the blood-changes in the monkey are similar to those in man, they feel fully assured of the etiological relationship of the diphtheroid organism (*Bacterium hodgkini*) in the production of Hodgkin's disease in the human being.

### The Lancet.

*January* 31, 1914.

1. Tuberculosis as an Infective Disease. W. Cecil Bosanquet.
2. The Present Position of Acute Appendicitis and Its Complications. H. Lett.
3. Trauma in Relation to Certain Aspects of Nervous Disease. C. M. Hinds Howell.
4. The Precutaneous Tuberculin Reaction. Observations on 400 Cases. A. J. Bruce Leckie.
5. A Case of Postoperative Osteomyelitis of the Frontal Bone. Recovery after Wide Removal of the Diseased Bone. W. G. Porter.
6. A Case of Acute Tetanus with Recovery. V. E. Negus.
7. Vaccines from the Standpoint of the Physician. T. J. Horder.

**1. Tuberculosis as an Infective Disease.**—W. Cecil Bosanquet concludes from his observations that infection with tuberculosis is very widespread and takes place largely in infancy and early childhood. It is partly due to bacilli derived from human sources, partly of bovine origin, but the former type greatly predominates. Direct communication from one human patient to a healthy individual does not occur in adult life under good sanitary conditions, with the possible exception of a few instances in which there has been very close and prolonged contact. Under bad hygienic conditions direct infection may occur, children being specially susceptible. The exact mode of transmission of the bacillus is unknown, but that inhalation affords the simplest explanation, although the localization of the chronic form of the disease in the lungs is not in itself evidence of direct implantation there. The chronic form of the disease met with in adults is due to their increased resistance, as compared with children who suffer from the acute variety of tuberculosis, and this increased resistance may be the result of early inoculation with sublethal doses of the bacilli. The outbreak of tuberculosis in later life may be due either to reinfection from without or to recrudescence of a latent focus of old infection. A general rise in resistance has been brought about owing to the wide dissemination of the disease among European nations, and the fall in the death rate is largely due to this factor and to improved hygienic conditions. From these conclusions one may further deduce the practical moral that the most hopeful measures which can be taken with a view of combating the disease are such as are directed toward improving the general well-being, and especially the housing conditions, of the poorer classes.

**6. Acute Tetanus with Recovery.**—By V. E. Negus. (See MEDICAL RECORD, page 391.)

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### Münchener medizinische Wochenschrift.

*January* 20 *and* 27, 1914.

**Radiotherapy in Gynecology.**—Henkel's summary is as follows: (1) *X*-rays are contraindicated in sudden, life threatening hemorrhages; whenever the site and size of a tumor cause pressure symptoms; in strongly bleeding polypi; in malignant and other degenerations; in myoma in young subjects, and finally in cases in which diagnosis is not absolutely clear; (2) the rays are to be used with great caution when in the midst of treatment complications arise, such as fever, bowel disturbance, etc.; (3) at present the rays are best suited to the treatment of climacteric and other surely benign hemorrhages in elderly women. A microscopic examination of the endometrium should first be made. A certain number of myomata are also eligible to *x*-ray treatment.

**Combined Treatment of Carcinoma.**—Klein refers to the combination of mesothorium, *x*-rays and intravenous injections. He has now treated thirty-nine cancers in this fashion, all strictly inoperable, during four months past; so that he refers to his results as primary. The large majority of these were gynecological cases. When the knife was used, the same combined treatment was used afterward as prophylactic. The small quantity of mesothorium available makes the question of overdosage out of the question. The *x*-rays, however, may be readily overdosed. By the intravenous route a formula by Merck comprising radium, barium, and selenium was used, with other substances, one apparently of secret composition. The technique for such treatment is naturally very elaborate. While much was learned the author admits that no chance is furnished for comparison with older methods. One starts out with no idea of curing all cancers, like the surgeon with the knife. Metastases, together with a certain degree of local extension, render cure impossible. Much is being done to stay the growth of inoperable cancers and radiotherapy is still in its infancy. There is also much difficulty and risk to be overcome. One important claim (of Döderleins) the author thoroughly endorses, to wit: that an operable carcinoma of the cervix may be cured with rays alone, in the absence of the knife. It will take four or five years to decide this possibility, for men will not feel quite justified in abandoning the chance of a knife cure. The prognosis in regard to cancer uteri has, is, in fact, showing notable improvement at present.

**Cause of Acute Anterior Poliomyelitis.**—Lust and Rosenberg have studied this subject very extensively upon fowls and conclude that fowls are not sensitive to the virus of this affection as found in men and apes, whether exposure is natural or artificial. The occasional occurrence of a paralyzed chicken in the neighborhood of an epidemic of acute poliomyelitis is not sufficient to identify the disease in fowls with that in man, so that anatomical and histological studies must be made in the diseased fowl. The latter have revealed various abnormal conditions in the fowl's spinal cord, as might have been expected; but acute poliomyelitis as seen in man and apes is not included. Nevertheless, but a few chickens have thus far been examined in this respect. But even if the histological finds are ever found to be the same, the failure of the virus to take still will furnish an obstacle to identity. Fowl paralysis is not the only disease of fowls which attacks the nervous centers. In fact, if we take the domestic animals as a class, centers are involved in a number of severe affections—Borna's disease in horses, the dog plague and rabies canina, guinea pig paralysis, and perhaps the fowl pestilence—are all evidently due to an ultrafiltrable virus, and all prevail in the form of epidemic diseases, just as does acute poliomyelitis in man.

**Is Diabetes Due Simply to a Primary Overproduction of Sugar?**—Rolly and David after some citations from the labors of predecessors along these lines give some results of their own. In regard to acidosis the authors find the maximum increase of the respiratory quotient several hours after injection of monosodium phosphate, etc. Porges, who sought chiefly to determine the period at which acidosis develops after intravenous injection of acids did not consider the respiratory quotient. Some of Porges' and the authors' experiments were made after elimination of the liver, this condition also tending to raise the respiratory quotient. If, however, strychnine convulsions are induced, with resulting increase of respiration, the injection of acids does not affect this quotient. The authors' final conclusion is that in human diabetes the rationale is an imperfect utilization of carbohydrates rather than an overproduction. Nothing advanced by other experimenters can controvert this view. This, however, applies only to recent diabetes, for a confirmed diabetic in addition to his non-utilization of sugar, also produces sugar which it cannot decompose.

**Retroduodenal Versus Transduodenal Choledochotomy.**

—Von Fink having performed three operations of each sort, seeks to draw conclusions as to relative indications, merit, etc. He seems but little versed in the literature of the subject, or at least cites but few authorities, and they old. His conclusions are that the retroduodenal method is indicated only when all inflammatory symptoms have run their course. The transduodenal method, on the contrary, is indicated in all cases in which any degree of inflammation is present of the choledochus, pancreas, etc. In routine the author first tests as to the practicability of the retroduodenal route in accordance with the above maxims. We must next determine whether the stone can be removed by the other method without injury. In two of the transduodenal cases of the author, the stone was expressed without the necessity of incising the fold, while in the third the latter step was required, and readily and safely effected. In connection with the retroduodenal method, it is often possible to mobilize a concrement and eventually, if thought best, remove it by the transduodenal route.

**Benzine Poisoning.**—Jaffé describes cases in man and animals, including experiments. Cases in man are becoming more frequent. Death seldom results. The symptoms pertain to the central nervous and respiratory systems. Aside from workers in benzine, cases not infrequently occur in children, from carelessness. The toxic dose is hard to fix, since in certain cases a mere swallow has caused death, while individuals have swallowed 50 c.c. without feeling the least discomfort. One of the author's cases in a strong male child, age 21 months, ended fatally after a sip of benzine. The symptoms were cyanosis, collapse, and vomiting of bloody mucus. Autopsy showed hemorrhages in both lungs and left pleural cavity. The child was a thymico lymphatic. Hemorrhages of the lung are in fact characteristic of benzine poisoning. This is accounted for by the action of the drug, however administered, on the vasomotor center. Benzine can also injure the pulmonary mucosa if directly aspirated. When inhaled it is also exhaled by the lungs. When this occurs *en masse* pulmonary hemorrhages occur. But when it is absorbed into the blood from the stomach alone, this absorption being gradual, a pneumonia may result (animal experiment). Benzine poisoning in the typical case, especially in children, appears to be due both to inhalation and ingestion, and the former may preponderate.

## Deutsche medizinische Wochenschrift.

*January 22, 1914.*

**Conduct to Pursue in Acute, Threatening Diseases of the Cord and Medulla.**—Grober, who has long been writing a series of articles on emergency treatment of acute diseases, sums up one of these very briefly, as follows: in all acute affections of the cord, unaccompanied by special indications—such as artificial respiration in Landry's paralysis, sluicing in again in caisson disease, exercising the swallowing muscles in bulbar paralysis, etc., etc.—the treatment should include rest, proper position, removal of all difficulties, prevention of complications, along with the best of nursing and diet. Of medical treatment there is hardly anything to be said save removal of subjective symptoms.

**Action of Papaverin.**—Pal, so well known for his studies of the smaller blood vessels, claims to have found in this long-known substance new properties, and speaks of it as a recent addition to our resources in certain directions. He finds its action identical with that of "narcotin." The new virtues claimed are the ability to oppose the contraction of the smooth musculature, not only of the arteries, but also of the intestine. It is superior by far to amyl nitrate for relaxing the tension of blood vessels, is useful in hemoptysis, has neither a narcotic nor constipating action, and is a local anesthetic. It is almost nontoxic. Many toxic bodies possess activities similar to those of papaverin and "narcotin"; but their toxicity is marked. The name "narcotin" seems to have been a misnomer.

**Bromide Treatment of Neurasthenia, Especially of Nervous Insomnia.**—Bodenstein does not refer to the fact that Beard, who first described neurasthenia, recommended a "home treatment" with bromide as better than no treatment at all. Large doses were recommended, enough to keep the patient in bed during some three-quarters of the day. Bodenstein writes from another viewpoint, recommending a synthetic (?) proprietary, containing sodium bromide, in cachets. This synthetic or mixture was devised for the treatment of epilepsy and contains no other active specific. He has thus far treated sixty cases of neurasthenia which comprise nervous irritability, gastric and cardiac neuroses, and insomnia. Some of his patients were arteriosclerotics. There is no claim made as to cure. The distressing symptoms are said to vanish promptly. In certain cases the treatment is carried out for months, and the nutrition improves in proportion, naturally indirectly, as the consequence of improved sleep and digestion. Each dose contains a gram of sodium bromate, and that it may be taken safely over months, the patients do not receive over two tablets daily.

**Thermotherapy of Gonorrhea.**—According to Bromberg, the knowledge that the gonococcus begins to feel a degree of heat above 40° C. has naturally led to attempts at its distinction by heat as high as 55° C. The early efforts doubtless failed, but recently have been revived in connection with scattering reports of cures. Aside from the simple measure of heating an ordinary sound and introducing it in both acute and chronic gonorrhea, others are claiming good results from diathermy. Several Germans report good results from electrically heating sounds placed *in situ*. These widely different forms of cure have not, of course, been analyzed and standardized. The result of all methods must be to submit the urethra to a heat of from 45° C. upward, the lower the temperature the more prolonged the exposure. The author used an electrically heated sound, and to render this tolerable cold was momentarily substituted for heat. The maximum high temperature used was 52°, the latter alone for fifteen minutes. Since in theory some six hours are necessary to kill the gonococcus, and no one refers to any such exposure, the treatment can only be regarded as an approximation. The initial temperature is 38°. increased not too rapidly to 52° C.

**Case of Osteogenesis Imperfecta, Illustrating High Fever after a Fracture in Which the Fragments Were Not Displaced.**—F. J. Poynton reports the case of a girl aged eleven years who was admitted to University College Hospital suffering from fractured left tibia and fibula. The girl had been admitted three times to this hospital and many times to the Great Ormond Street Hospital suffering from fractures of the legs. It took a very slight blow to break them, and this time the fracture was caused by a blow from the fist of a child. Her bones had been soft and easily broken from birth, and she had never been able to walk alone. The case is reported to illustrate the fever that may occur with the occurrence of a fracture not sufficient to disturb the fragments. In this case the temperature rose to 103° F. and kept up, with general malaise, for nearly a week.—*Proceedings of the Royal Society of Medicine.*

## Insurance Medicine.

**The Insurability of Women as Shown by Industrial Insurance.**—Louis I. Dublin, Statistician Metropolitan Life Insurance Company, New York City, presented the following ideas on this subject before the Medical Section, American Life Convention, August, 1913. Taken as a whole, insured women have been a source of considerable loss to the large number of companies doing business among them on the ordinary plan. The conditions influencing this loss he divides into three: First, is the difficulty of making a satisfactory medical examination of female applicants. The vital organs, such as lungs and heart, the condition of which determine insurability, cannot be as thoroughly examined, and few examiners insist upon the requirement that the chest be completely bared. As a result, some heart and lung conditions escape scrutiny and the applicants are passed as first-class risks. Also, at the present time, pelvic examinations are rarely made, thus allowing serious conditions peculiar to women to be passed unrecognized. Second, is a peculiar psychic constitution of women which manifests itself in an intuitive premonition of impending disease. This same instinct expresses itself in other forms, such as the misstatement of age, the concealment of important facts pertinent to the medical examination and even in the giving of evasive answers to the examiner. Third, is the element of speculation that enters into the insurance of women. The consideration of insurable interest is often lacking. Until recently women were not important factors economically, and such insurances as were written were not effected by actual canvass, but were rather the result of the request of the parties concerned—husband or children. These individuals realize the physical condition of the insured and risk a few years of premium paying on the chances of receiving the larger benefits of the insurance. That this factor is the most important of the three is generally conceded. For these reasons the attitude of the companies toward the problem of insuring women has been a simple one. Restrictions in some form have been placed upon the business. Women have not been insured at all, or limited to what seemed to be desirable applicants to certain plans only and at extra premiums.

The results, until recently, have been far from satisfactory and the business as a whole did not come up to the standard. The experience of the few companies whose results were favorable has a special significance here. Of these are the New York Life and the Metropolitan Life, in both of which it was early anticipated that the mortality conditions among women generally noted were due largely to speculation. Their method to overcome this difficulty consisted in eliminating most of the harsh restrictions formerly imposed and in making increased active efforts to get a fair representation of female risks. Both companies insure women at the same rates and on the same conditions as men, provided that there be an absolute insurable interest shown in every case. Thus, the Metropolitan welcomes for insurance and actively canvasses women who are economic producers; those who follow a profession or a business of their own, or those enjoying an income of their own which would, at their death, involve a financial loss on dependents. On the other hand, certain necessary restrictions have been maintained in order to eliminate more effectively the possibilities for speculation. Thus, unmarried women under 23 who are not self-supporting and women married less than five years without children are not considered for more than limited amounts, and then usually on the endowment plan. In such cases it is usually required that the husband be insured in her favor for at least an equal amount.

It is fair to conclude that the mortality experience of women insured in ordinary plans can be made to present as favorable an aspect as that which is now observed among insured men. To do this there must be an appreciation of the changing status of women in the social and economic world. Women are becoming economic producers, and even housewives are so recognized. It is, therefore, a narrow policy which would put unnecessary and harsh restrictions on the insurance of women on the score of sex alone. To obtain satisfactory experience on female lives, their applications must be secured in large numbers by active work on the part of the insurance agent, and not, as heretofore, through the voluntary effort of interested parties having reasons for desiring such insurance. There should be a greater equalization of the sexes from the viewpoint of insurance medicine.

**Cancer in Relation to Life Insurance.**—R. Kingston Fox says that during the past thirty years the mortality from this disease in England and Wales has risen in the case of males 150 per cent. and in the case of females 60 per cent. Cancer now accounts for one in every nine deaths among all adults of twenty-five years and upwards. In women between the ages of forty and sixty years it accounts for one in every five deaths. As regards the insurance of women, the liability to malignant disease of the uterus and breast during the middle period of life has become so great that it is a question whether female lives in whose family histories there is a single such record among parents or brothers and sisters should ever be taken without a rating. The increase of cancer dictates also special care in dealing with evidence of slight derangement of various organs and especially of the digestive system, for it is in this tract that the increase of mortality has been most marked.—Life Assurance Medical Officers' Association, January 7, 1914.

**Causes of Death in Women.**—According to the report of the Medico-Actuarial Investigation as to the causes of death among women, it is found that there are four under which the proportion of deaths increases with the duration of the policy, doubtless largely because of the advancing age of the insured, namely: Cancer and malignant tumors, cerebral hemorrhage and apoplexy, organic diseases of the heart, nephritis and Bright's disease. The mortality from suicide is not materially higher in the first than in the second or third policy year. The proportion of deaths from tuberculosis is comparatively low in the first policy year, increasing to a maximum between the third and fifth year, then gradually decreasing. Spinsters show a lower mortality than other classes of women from the following causes: Tuberculosis of the lungs, pneumonia, nephritis, cancer, cerebral hemorrhage, organic heart disease.—Medical Section, American Life Convention, August, 1913.

# Book Reviews.

Fruchtabtreibung und Praeventivverkehr, in Zusammenhang mit dem Geburtenrückgang. Eine Medizinische, Juristische und Sozialpolitische Betrachtung. Von Dr. Max Hersch, Frauenarzt in Berlin. Price, 6 Mk. Würzburg: Curt Kabitzsch, 1914.

The author amplifies in this pamphlet his ideas on the subject of abortion and preventives of conception which have been already published in the leading German periodicals. He addresses his treatise to the gynecologist with the remark that the share of woman in the social and economic governments and her entrance into the bread-winning classes make it necessary for the gynecologist to keep apace with criminalistic and juristic medicine, trade hygiene, heredity, Socialism, sociology, and the new sanitary systems as well as modern theories on psychology and psychiatry.

Die Heliotherapie der Tuberkulose, mit besonderer Berücksichtigung ihrer chirurgischen Formen, von Dr. A. Rollier, Leysin; mit 128 Textabbildungen; Preis M. 6.60. Berlin: Verlag von Julius Springer, 1913.

Rollier and his disciples for some years past have published in various medical journals the results of their treatment of surgical tuberculosis by exposing the naked body to the air and to the direct rays of the sun. The volume under consideration, of 119 pages, puts these results into book form. The work has attracted great attention, for it challenges flatly many ideas and beliefs which pass for accepted truths, and if Rollier can establish his contentions he will cause a revolution in the treatment of those tuberculous lesions now grouped under the title of "surgical," viz., arthritis, osteitis, tendo-vaginitis, adenitis, dermatitis, etc. After a preliminary review of the history of heliotherapy, the author takes up the theoretical consideration of the identity of the sun's rays which possess healing properties, and the manner in which they exercise them. His thesis is that the ultra-violet rays cause a pigmentation of the skin, and thus permit its penetration by the longer waves. Hence, the sun's rays act curatively not only in superficial but also in deep-seated tuberculous disease. In addition to the direct effect of sunlight on the lesion, the author ascribes to the indirect effect of the mountain climate upon the blood, a share in the healing process. Minute directions are given for the dosage of fresh air and sunshine in the various regions and organs of the body. All apparatus preventing access of light and air is discarded. The book closes with a comprehensive bibliography. It is profusely illustrated with photographs and skiagrams showing the remarkable effect of treatment, but contains no proof as to the correctness of the diagnosis in any case. In other words the importance of the author's conclusions seems to rest upon the correctness of his premises, and these he has neglected to prove.

A Manual of Otology. By Gorham Bacon, A.M., M.D., Professor of Otology in the College of Physicians and Surgeons, Columbia University, New York. New (6th) edition, thoroughly revised. 12mo, 536 pages, with 164 engravings and 12 plates. Cloth, $2.25 net. Philadelphia and New York: Lea and Febiger, 1913.

In this new edition of Bacon's manual the chapters on suppurative labyrinthitis, the submucous operation, and otosclerosis have been revised and enlarged. There is some question as to the advisability of attempting to introduce so much nose and throat work into a textbook of otology, since the former field has become too wide to do it justice, and the result is likely to be sketchy and inadequate. If one discusses tonsils, adenoids, and the septum, he should also discuss accessory sinus disease, hay fever, and new growths; for these conditions are quite as important causative agencies in aural difficulties as those described in this book.

In describing the tests the author fails to mention several ordinarily given for unilateral deafness, notably the Stenger test. He says that some cases of labyrinthitis "have no special symptoms and are discovered only on performing the radical mastoid." Labyrinthitis always gives rise to symptoms which in many cases are violent and can be discovered by careful questioning when taking a history. This is a matter of prime importance. Again, sufficient stress is not placed upon the aural significance of nausea, vomiting, vertigo, and nystagmus. Too frequently these symptoms are ascribed to a stomach disorder, and the modern otologist must do all in his power to teach the general physician not to overlook a possible labyrinthine cause of these reflex acts.

The value of Bacon's work is too well known to need comment, but the worth of the book would be greatly increased, in the reviewer's opinion, by a correction of the imperfections noted.

Diseases of the Heart. By James Mackenzie, M.D., F.R.C.P., LL.D. Ab. and Ed., F.R.C.P.I. (Hon.) Third Edition. Price $5.50. London: Henry Frowde, Oxford University Press, Hodder & Stoughton; New York: Oxford University Press, 1913.

More than three years have elapsed since the last edition of the work under notice was issued. In this period much advance has been made in the knowledge of the heart, which has necessitated the rewriting of the greater portion of the book. It is needless to say that this advance is chiefly due to Mackenzie himself and a great deal of the progress was only rendered possible by the invention of instruments of precision for the purpose of recording accurately heart movements and, of course, especially abnormal movements. Mackenzie and his followers have revolutionized the study of heart movements, in so far that they have made a study of the physiology of diseased hearts and especially of those with abnormal rhythm, whereas formerly this study was merely based on what happens to normal hearts with normal rhythms. By the application of scientific principles and apparatus a few conditions such as auricular fibrillation and auricular flutter can be treated intelligently. As, however, the author points out later investigations have shown how helpless we are in the face of many conditions, and emphasizes the state of comparative ignorance which has existed and still exists, although to a lesser extent, as regards accurate and scientific knowledge concerning diseased conditions, for it must be borne in mind that only recently the fact that in hearts affected by disease their reaction to stimulation is profoundly altered has been recognized. This last edition of Mackenzie's work is well worthy of the author. It is written clearly and without redundance, and ought to be in the hands of all those who wish to keep in touch with scientific progress in the direction of diagnosis and treatment. The book is well printed and the text is illustrated where necessary with a number of illuminative cardiograms.

Gonorrhea in Women. Its Pathology, Symptomatology, diagnosis, and treatment; together with a Review of the Rare Varieties of the Disease which occur in Men, Women, and Children. By Charles C. Norris, M.D., Instructor in Gynecology, University of Pennsylvania; Assistant Gynecologist to the Hospital of the University of Pennsylvania; Physician to the Maternity Hospital, Philadelphia. With an introduction by John G. Clark, M.D., Professor of Gynecology, University of Pennsylvania; Gynecologist-in-Chief to the Hospital of the University of Pennsylvania. Illustrated by Dorothy Peters. Price $6.00 net. Philadelphia and London: W. B. Saunders Company, 1913.

This is by far the most complete work on gonorrhea that has yet been published in English. The first chapter deals with the history of our knowledge of the infection, and is a most interesting and fairly complete account. The references to some of the classical authors are vague and unsatisfactory, and compare most unfavorably with the admirable bibliography which is given with the later and more distinctly medical items. Then follow chapters on bacteriology, pathology, and pathogenesis. The two succeeding chapters are on sociology and prostitution, and contain a wealth of material not to be found in any other single volume. Prophylaxis is dealt with at some length, and chapters follow on the examination of patients; gonorrhea of the external genitals, metritis, vaginitis, salpingitis, and ovaritis; treatment and complications; gonorrhea in pregnancy and labor, and the puerperium; gonorrhea in children and the aged; non-genital gonorrhea, and gonorrheal therapy. The author has produced a most thorough study of the subject, and one which will prove of incalculable service to the practitioner, the specialist, and the student of sociological problems. The references to the literature are very numerous, and it would seem that no published case has escaped the author's eye. The book is well printed and handsomely bound.

# Society Reports.

## NEW YORK ACADEMY OF MEDICINE.

*Annual Meeting, Held January 15, 1914.*

THE PRESIDENT, WILLIAM M. POLK, IN THE CHAIR.

**Edward N. Gibbs Memorial Prize.**—Dr. HERMAN OTTO MOSENTHAL was awarded this prize.

**Appropriation for the Library.**—It was moved, seconded, and carried that the sum of $3,500 be appropriated for the needs of the library.

**Report of Names of Deceased Members.**—The following names of Fellows of the Academy who had died during the year 1913 and had been reported at the Stated Meetings of the Academy were as follows: Drs. Algernon T. Bristow, Elsworth Eliot, Sr., Cleveland Ferris, George Fisher, Richard Pierce Francis, Walter C. Gilday, Frank Hartley, Archibald Ezekiel Isaacs, Nathan Jacobson, Francis Parker Kinnicutt, Charles McBurney, Prince Albert Morrow, Edward Leroy Oatman, Kingman Benjamin Page, Charles Hermann Reinsberg, James Percival Tuttle, Richard Van Santvoord, and Joseph Caddington Young.

**A Critical Study of Intestinal Stasis, Including New Observations and Conclusions Respecting the Causes of Ileal Stasis.**—Dr. JAMES T. CASE of Battle Creek, Mich., presented this paper. He declared that the fact of the common occurrence of intestinal stasis must be recognized and its importance conceded. The essential theme in Lane's teachings related not so much to kinks or colectomies, or short circuitings, as to the danger of continued stasis in the human drainage system and the necessity for doing something, medically or surgically, to relieve it. Great credit was due to Lane for the wave of interest in intestinal stasis which had swept over England and America. Apparently it was not the poisons themselves that concerned them, but the failure of the defenses of the body which should be constantly active against these poisons, and the rational course was to discourage the formation of the poisons in every possible manner, particularly through lessening the sojourn in the intestine of the material from which the poisons were formed. The relation of pyorrhea alveolaris and other forms of mouth infection to infectious processes within the bowel had been well established. The consensus of opinion brought out in a recent debate before the Royal Society of Medicine in England seemed to be that the poisons of alimentary toxemia were in many instances chemical protein derivatives of comparatively simple formula. There was evidently a certain relation between alimentary toxemia and diseases of the eye, certain skin manifestations, and various other constitutional symptoms. These things were generally accepted. The part of the subject still under controversy related to peritoneal bands and their relation to kinks, intestinal stagnation, increased putrefaction, increased formation of poisons, etc. The essayist stated that through his institutional connections he had had unusual opportunities for the roentgenological study of intestinal stasis. About four years ago the tentative rule was made that every case for which laparotomy was recommended should be subjected to a thoroughgoing roentgenological examination before being sent to the operating room. The results in the way of help to the surgeon, especially in connection with the problems of intestinal stasis, had warranted the continuance of this rule. Not only had the *x*-ray findings been checked up by the report from the operating room, but the roentgenologist had made it a point to be present as one of the assisting surgeons at as many of the laparotomies as possible. It was extremely interesting to study the operative findings relating to kinks and torsions of the ileum and colon in connection with the motor function of the bowel, and particularly to note the frequency with which adhesions of the terminal ileum and colon were present in cases in which, from the bismuth meal examination or other clinical investigation, intestinal stasis had not been suspected, and in which there was no reason to believe the existence of ileal stasis. Relatively few of the patients were operated upon directly for the relief of intestinal stasis. There were exceptional cases in which dietetic and other non-surgical means had been tried thoroughly and in which short-circuiting, especially when an artificial ileocecal valve was made, as first advocated by Dr. J. H. Kellogg, had resulted in most marvelous improvement. The real pernicious stasis, the intestinal stagnation which was really damaging, was not colonic stasis, but ileal stasis. Within the last four or five years Lane had dwelt more on ileal stasis and agreed that it was of far greater importance than colonic stasis. In every single case in which an *x*-ray examination had been made by him following the short-circuiting operation, he had observed retrograde peristalsis in the colon. In many of these cases there was also a reflux of colonic contents through the anastomotic opening into the small intestine, and the resulting stasis in the small intestine converted the terminal ileum into a veritable colon so that the patient, instead of having a colon five feet long, possessed a colon of indefinite length. In some such cases the terminal ileum was found to have a calibre of the colon itself, so that it was not easy to differentiate ileum from colon. After discussing the embryology and his findings in regard to ileal kinks at operation he concluded that (*a*) there did exist certain forms of obstructing Lane's ileal kinks. But (*b*) there were numerous other cases which had come to operation in which kinks had been found where a carefully conducted *x*-ray examination had shown the absence of ileal stasis and where there were no other clinical evidences upon which to base a belief that ileal stasis existed; (*c*) there had been a certain other class of cases in which ileal stasis had existed and no adhesions had been found. Study of these cases led to the conclusion that a large proportion of cases of ileal stasis was due, not to kinking or adhesions of the terminal ileum, but to incompetency of the ileocolic valve, or to spasm of the ileocecal sphincteric mechanism, or to a combination of the two factors. The behavior of certain striking cases which had passed under roentgenological and surgical observation strongly supported the idea that the normal ileal stasis was increased in all conditions leading to spasm, probably most marked in acute appendicitis, less marked in chronic appendicitis. It was probable that other conditions, perhaps even adhesions of the terminal ileum, might also produce stasis which, up to a certain degree, was normal in the terminal ileum. As a new and additional cause of ileal stasis, the writer had suggested incompetency of the ileocolic valve. Kellogg, Groedel, Dietlen, Rieder, and others had since agreed on the importance of recognizing this condition. Their observations gave confirmation of the belief that the normal ileocecal valve was thoroughly competent. Without exception, when the ileocolic valve was found incompetent to the enema on one occasion, it had been found incompetent at all subsequent observations. Ileocecal valve incompetency had been observed not only after the clysma, but also after the ingestion of the bismuth meal. In more than fifty cases the writer said he had definitely proven the regurgitation of ingested bismuth from the colon back into the ileum, no new bismuth meal having been taken in the interim. In every instance in which the ileocecal valve proved to be incompetent to the enema, at operation the surgeon found gas or fluid distension of the terminal ileum in spite of thorough efforts at preoperative bowel cleansing. In cases in which the ileocecal valve had proven competent to the enema, the surgeon had in the great majority of cases confirmed this observation by the author's method. Still further proof of the normal competency of the ileocecal valve was presented in the fact that the incompetency thus shown by the *x*-ray study and proven at operation had been cured in a number of cases by a simple surgical procedure. This ingenious operation for restoring the competency of the ileocecal valve had been described in a recent paper, read before the American Roentgen-Ray Society at its annual meeting, held in Boston, October, 1913. This operation consisted in placing several sutures in such a manner as to restore the invagination of the bowel without narrowing its lumen. The operation was practically bloodless, did not involve opening the peritoneum, and was quickly accomplished. The operation was primarily devised and performed for the relief of marked ileal stasis, but it had been found applicable to cases in which no ileal kink was found, and Dr. Kellogg felt that the operation had a more extensive field than was recognized, and he had performed it up to the present writing in just one hundred cases. In the majority of instances ileocecal valve repairs had been done in the course of operations for other causes, where the routine *x*-ray examination had shown ileal stasis to exist and in which it appeared that the ileocecal valve incompetency was the cause of the stasis. The most convincing argument as to the efficacy of this operation was that in all these operated cases

in which ileal stasis existed before operation post-operative studies have shown that in every instance the emptying time of the terminal ileum had been markedly diminished and in the majority of cases it had been reduced to seven or eight hours, while other clinical evidences of ileal stasis had disappeared.

The Practical Application of the Roentgen Method to Gastric and Duodenal Diagnosis.—Dr. ARIAL W. GEORGE of Boston, Mass., read this paper, in which he reviewed what he had found of practical value in the study of gastroduodenal lesions. He stated that while the fluoroscope had its valuable applications, the careful production of serial plates frequently gave more important evidence than one could find on the fluoroscopic screen. Insufficient technical experience and a tendency to allow the clinical evidence and the clinical diagnosis to bias the Roentgen diagnosis were the source of many errors and had led to a charge of inefficiency of the method. The greatest value in the Roentgen diagnosis of the gastrointestinal diseases was the possibility of classifying cases seen into medical or surgical categories. It was only in the cases which might be classified as surgical that the writer felt that they were able to obtain really positive Roentgen evidence. With regard to acute, simple peptic ulcers, if one relied upon the Roentgen evidence alone a considerable number would be overlooked. If one had "good luck" he might find the so-called "incisura," or sharp incutting of the bismuth contour. Some investigators were willing in such cases to make an inferential diagnosis of gastric ulcer from the presence of tender points and six-hour residue alone. The more evidence that he had collected on this subject the more he had felt convinced that six-hour gastric stasis was the least important factor in Roentgen bismuth diagnosis. In his opinion six-hour bismuth stasis was in itself merely a symptom; any attempt to make a diagnosis from its presence was little more than inferential. It was against their method of inferential or indirect diagnosis against which he wished to protest. The presence of gastric spasm was one of the most potent sources of error with which one had to contend. It might be due to gastric or duodenal ulcer, gall-bladder disease, appendicitis, renal calculus, diseases of the nervous system, chronic morphine and nicotine intoxications, the vague clinical symptom complex, known as vagotonus, and other causes. With such a variety of causes it was obvious that spasm was merely an inferential bit of evidence. The positive diagnosis of acute, simple, peptic ulcer was frequently impossible. With chronic gastric ulcers the situation was quite different. Here there was a production of scar tissue, or the presence of considerable erosion and penetration. In these cases the bismuth outline would show excrescences, out-pocketings, niches, and hourglass contractions. With regard to the last, one must always be on guard against a purely spastic pseudo hourglass formation. Usually repeated examinations would clear up the diagnosis. The evidence of perigastric adhesions was usually best obtained by fluoroscopic examinations. Likewise the fluoroscopic method was of value in observing chronic ulcers when found in the cardiac or median portions of the stomach. When one came to the region immediately adjacent to the pylorus, positive pathological changes could be seen constantly on the plates, which were too small to be seen on the fluoroscopic screen. By means of plates taken in the lateral position, views might be obtained of the anterior and posterior walls of the stomach, and a lesion detected which could not be observed in any other way. In regard to syphilis of the stomach, the writer said that as yet he had failed to find a single case of gumma of the stomach, still one must guard against its possibility. Cancer of the stomach was still the most deplorable condition of the gastrointestinal tract. Patients were often made so comfortable by medical means under a mistaken diagnosis that they easily passed far beyond the operative stage. They must try to diagnose cancer before a positive diagnosis could be made by clinical methods if the patient was to have the advantage of an early and radical operation. In the employment of the bismuth Roentgen method they had a positive aid. This method was especially important in that large number of cases in which the carcinoma was situated in the fundus of the stomach. Here there was no pyloric obstruction and positive clinical evidence was usually entirely lacking. They were discovering many of these overlooked cases and as the technique of Rotentgenology advanced they would find more and more. It was possible to demonstrate on the plates a cancer as small as an average ulcer would be. This type of lesion was so small and so early that in the majority of instances there was no marked change in the gastric secretions. The next important and most easily diagnosed condition was duodenal ulcer. Of all duodenal ulcers 95 per cent. appear on the superior surface of the duodenum with the cicatrix extending either posterior y or anteriorly, or both; but rarely on the inferior surface. Anatomically the first portion of the duodenum in normal individuals always presented the same smooth, regular appearance, and this could be demonstrated in every normal individual as a regular smooth bismuth shadow, of a characteristic shape and outline. If a normal condition could be demonstrated in every normal individual, then the presence on the plates of a constant defect in the cap meant a real pathological condition. No case of duodenal ulcer should be operated upon unless the bismuth examination showed a definite, constant deformity of the "bishop's cap." Every duodenal ulcer which was more than a simple peptic erosion had a sufficiently deep callous to deform the bismuth contour. Every case which finally came to a physician for help already had an abundant cicatrix. In this connection the negative diagnosis was as valuable as the positive. Every patient in whom a normal duodenal cap could be demonstrated had no indurated or surgical ulcer of the first portion of the duodenum. This fact had been demonstrated time and again. In most cases where there had been repeated infections of the gall-bladder, adhesions would usually form, and these would be frequently demonstrated by their attachments to the antrum of the stomach, the first or second portions of the duodenum, the hepatic flexure, or the transverse colon. Occasionally, but not often, the shadow of an enlarged gall-bladder could be seen, but this was not definite enough to warrant any positive diagnosis. The most positive condition they had demonstrated was that of the gallstones themselves. He believed with the further development of this field of work they would be able to demonstrate stones in nearly every case in which there had been repeated infection. In conclusion Dr. George believed that by means of the Roentgen bismuth examination of chronic gastrointestinal diseases one could often obtain positive diagnostic evidence which was unobtainable by any other means. The Roentgen examination should always be preceded by a thorough general physical and laboratory examination.

Dr. WILLIAM H. STEWART said that after seeing this beautiful demonstration he felt that the end of exploratory laparotomy was at hand. They must, however, be conservative and advance slowly, as this was a comparatively new field and invited considerable criticism. The fact that their mistakes and not their successes were heralded near and far was evidence that the importance of the work was being recognized and given a prominent place among their means of diagnosis. The speaker said that he was a firm believer in considering the Roentgen diagnosis as only one of the means toward reaching their conclusions and that it should always be combined with the clinical findings and laboratory reports; this was particularly true of diseases of the gastrointestinal tract, and was well illustrated in the necessary associated knowledge of gastric analysis. One of the greatest obstacles with which they had to contend, as Dr. George had mentioned, was the use of the Roentgen examination before sufficient experience had been obtained to make correct interpretation, and right here he wished to send out this warning. The general use of the *x*-ray for fluoroscopy, such as was occurring in this country to-day, without proper protection was bound to lead to disaster. While he believed in the direct positive method in acute peptic ulcers, or erosions of the stomach, one must be guided by the "symptom complex" if one hoped to make a correct diagnosis; in chronic ulcerations one was not confronted by so great a difficulty, as here one could obtain direct ocular evidence. There was one thing that the Roentgen ray had done and that was in the diagnosis of carcinoma. The speaker made an urgent appeal for the earlier use of the Roentgen ray in this suspected lesion. The recognition of the presence of duodenal ulceration was now within the grasp of the roentgenologist. Hypermotility, when not caused by carcinoma of the fundus, or achylia gastrica, or chronic gastritis, associated with actual persistent deformities in the bulbous duodeni, made the diagnosis comparatively easy, and should be more readily taken advantage of by clinicians in any questionable case. There seemed to be considerable

difference of opinion as to when ileal stasis was present. Some writers claimed that no case was one of ileal stasis unless the bismuth meal was retained in the ileum at least twenty-four hours. He believed, however, that no hard and fast rule could be made, as it depended in a great measure upon the amount of obstruction. As a matter of fact the important point to be cleared up was what was causing the retention. Chronic appedicitis, with accompanying adhesions, was in his experience the most common cause of ileal stasis. Competent roentgenologists had now reached the goal where they could demonstrate a patent appendix and ascertain whether it was bound down in an abnormal position by adhesions and whether these accompanying adhesions were causing an obstruction of the ileum.

Dr. Byron Clary Darling said that they had all been impressed with the advances that had been made and they had the feeling that the possibilities were great. They were all developing technique. Dr. Case's work showed a certain percentage of error, and the source of these errors had not yet been discovered.

Dr. Louis Gregory Cole said that in 1906 he detected his first case of ileocecal insufficiency, and he believed this to be the greatest cause of ileal stasis.

Dr. Albert Charles Geyser said that from the various roentgenograms thrown upon the screen it was evident that the *x*-ray picture was a thing of the past. Instead they had not quite so ornamental but certainly much more useful clinical evidence of the pathological lesion. The practice of medicine had made great strides of late, but could such advancement have been brought about without the intervention of the refined diagnostic technique. The roentgenogram of to-day, when interpreted by a competent individual, especially if he was given all the clinical findings, was the most valuable asset the physician and surgeon possessed. From what had been seen and heard it must be self-evident that no one but a thorough physician, surgeon, and roentgenologist, all combined in one man, could or ought to undertake either the production or the interpretation of a plate. Dr. Cole had laid great stress upon the insufficiency of the iliocecal valve. Personally, he had not been convinced of the seriousness of such a defect, if a defect it really was. The very fact, as Dr. Cole had stated, that 10 per cent. of all valves examined were defective led him to take a rather optimistic view of it. Other things being equal, he said he could see a conservativeness in such a weakness and it might act occasionally as a real safety valve.

Dr. Anthony Bassler said it was one thing to make a diagnosis, but another to make one that was right. In the hysteria of intestinal stasis that Mr. Lane had set off it was a delight to hear Dr. Case bring some sensible balancing data. His point that these kinks and bands but rarely had to do with actual stasis was an important one for surgeons to remember. In his experience the so-called ileal kinks were a most common finding and yet they but seldom caused stasis mechanically. To the added theory of ileal stasis that Dr. Case had mentioned due to the incompetence of the ileocecal valve he said he would add that of primary toxemia in the alimentary canal wherein the stasis was caused by degeneration in the sympathetic nerves and ganglionic cells. In this way the nerve balance of tonus was interfered with so that deficient motility and some degree of dilatation with attenuation of the gut was responsible for the delay in transit of its contents. Some three years ago he presented his belief that diagnosis of gastrointestinal conditions by the *x*-ray should not be made on the basis of the so-called indirect method and suggested that there should be a definite change in the anatomy in pathological ways. He met with a tremendous opposition on the part of roentgenologists, but he was glad to see his idea, which was the only safe standard, was now coming about. He was definite in the belief that one could not make a diagnosis of gastric or duodenal ulcer along such lines as rapid emptying of the stomach, reverse peristalsis, and so forth, and he was pleased that Drs. George and Cole have accepted his belief that the safe way of diagnosing these conditions was along the lines of pitting, diverticula, or filling defects. He said that recently a very well-known roentgenologist and serious worker featured the diagnosis of gastric and duodenal ulcer along the lines of stasis in the stomach. In 120 cases of proven duodenal ulcer, stasis was observed by Dr. Bassler in 35, making 28 per cent. From the Mayo clinic Dr. Eusterman had just reported 776 cases of duodenal ulcer, also proven by operation, with stasis present in only 26 per cent. In Dr. Bassler's experience stasis was present in gastric ulcer in 34 per cent., whereas in 324 cases in the Mayo clinic it was present in only 29 per cent. It was important to state in the cases of the Mayo clinic and his own that the diagnosis of stasis was made by test meals, the only sure way to do it. Therefore, one set of men feature the diagnosis on the basis of rapid exiting, another by delay in exit, and the truth was that neither one were characteristic of ulcer, although either one might be present. He did not desire to throw any cold water on the *x*-ray means of diagnosis, for the *x*-ray had been a good friend to him, but he did desire to chill the extreme enthusiasm, which was liable to carry men afield. They should be conservative and with such tremendous advantages in gastrointestinal diagnosis that the *x*-ray gave they could afford to be conservative. Lastly, in diagnosing the *x*-rays were a good cane, but they were not crutches, because history, physical examination, laboratory, and a brain skilled in the deductive ability of gastrointestinal conditions were important too.

## MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

*Stated Meeting, Held December* 15, 1913.

The President, Dr. Reynold Webb Wilcox, in the Chair.

**Chronic Intestinal Stasis, Medically Considered.**—Dr. William Van Valsah Hayes read this paper. He said there were some who believed that practically all chronic illness has its origin in the intestine, and among these was Sir Arbuthnut Lane. That one whose life had been spent chiefly in surgical work should advance such a claim was certainly startling; yet we would be foolish indeed if we did not carefully weigh all the evidence brought forward by him. His views were misunderstood and disregarded by many, but that the conditions described by him actually existed could be readily confirmed by any well-trained physician having the opportunity of studying his cases thoroughly by modern methods, and of following those requiring surgical relief to the operating table. It was his own belief that, after duly weighing Lane's work in this line the profession would agree that his contribution to medicine was of the greatest possible value. In a recent address he (Lane) had stated that by chronic intestinal stasis he meant that the passage of the contents of the intestinal canal was delayed sufficiently long to result in the production, in the small intestine especially, of an excess of toxic material, and in the absorption into the circulation of a greater quantity of poisonous products than the organs which converted and excreted them were able to deal with. This stagnation of the intestinal current might be brought about in different ways; either with or without the presence or formation of the "evolutionary bands" and membranes described in the literature of the subject. The delay of the contents of the small intestine, also of the stomach and duodenum, resulted, according to Lane, in their infection by microorganisms and in the development of chemical changes in the stagnating material. These changes, in addition to existing mechanical effects, brought about an engorgement of the mucous membrane about the pylorus and along the lesser curvature of the stomach or in the duodenum, which might terminate in ulceration, perforation and, later, cancer; or an infection of the ducts of the pancreas, which might produce degenerative inflammatory changes and their consequences. The speaker gave a long list of the chief symptoms and signs of intestinal stasis as described by Lane, and then said that the marked symptoms in his own cases had been weakness, loss of weight, headache, nervous irritability and emotional states, lack of concentration, drowsiness, numbness, palpitations, poor circulation, soreness of joints, constipation, and in cases with gastric complications, bad taste, belching, regurgitation of food and acid fluid, erosion of the teeth, pain between the shoulder blades, nausea, and vomiting. Ulcer near the pylorus had been a rather frequent complication. The marked physical signs had been pallor, with or without anemia, a sallow color or slight pigmentation of the skin, cold, moist hands and feet, and the following abdominal signs, which were very constantly present and, taken with the toxic symptoms, made the diagnosis extremely simple: (*a*) Dilated duodenum, shown by a marked tympanites in the area behind the right

rectus muscle, to the right of the pylorus and situated between the gall-bladder above and the transverse below. The dilated duodenum was readily mapped out by percussion with pressure. (*b*) Pressure paradox. In cases showing a dilated duodenum pressure was made backward and upward for about thirty seconds by the hand placed just below the umbilicus, with the patient in a semi-recumbent or reclining position. This would usually result in the undoing of the duodenojejunal kink present, permitting the duodenum to empty itself. It was often possible to hear and feel the gas escape as it rushed into the jejunum. (*c*) Inflated ileum, as shown by a marked tympanitic note to the left of and below the cecum. (*d*) Corded colon. Frequently the left iliac colon was felt as a rope-like body directly beneath the abdominal wall, and this condition was apparently due to spasm of the portion of bowel just above the sigmoid flexure. To what degree it should be considered abnormal was debatable. Jordan, who had done such invaluable *x*-ray work in conjunction with Lane, had made the statement that the occurrence of duodenal distention was so constant in the subjects of intestinal stasis that he had come to regard it as a trustworthy indication, equally valuable whether positive or negative. In the treatment of chronic intestinal stasis the diet should be suited to the state of the gastric and intestinal digestion. In general, it should be gently laxative, without being coarse or irritating, and should not contain an excess of protein or a large percentage of readily fermenting elements. Exercise of various kinds was of great value. Correct poise or carriage should be insisted upon—the patient should learn to stand and sit with chest thrown forward, chin and shoulders back, and abdomen drawn upward. A suitable belt, corset, or spring support was indispensable in most cases, the aim being to prevent, as far as possible, duodenal and iliac delay, and to equalize and increase somewhat the intraabdominal pressure. In the way of medication bland laxatives were chiefly required, liquid paraffin or Russian mineral oil of superior quality holding the first place in usefulness. This had the property of rendering the stools soft and of hastening the movement of the food through the small and large intestine. It was not always sufficient by itself, however, and so had to be assisted by other laxatives or suitable cathartics. Colocynth, podophyllin, and similar drugs should not be used, because of their irritant action. An occasional dose of calomel, followed by a bitter mineral water might be necessary. Surgery should not be thought of in the great majority of instances, but was indicated in the marked cases failing to respond to persistent competent medical treatment, provided that the patient had sufficient resistance to render success probable. The paper was concluded with the recital of six cases, studied conjointly by Dr. Hayes, Dr. Quimby and Dr. Bainbridge, which illustrated certain types of stasis.

**Roentgen Examination in Chronic Intestinal Stasis.**—Dr. A. JUDSON QUIMBY said that the Roentgen examination of the intestinal tract to determine stasis or chronic constipation involved the administration of an opaque material, such as bismuth subcarbonate or barium sulphate, in the form of a meal, which was followed in its normal course through the bowel at such time periods as would elicit the functionating of the organ and such anomalies as existed. In his own cases he so arranged the time periods for the numerous examinations as to enable him to roentgenograph such places as it was expected to find causes for stasis in, and at the same time avoid overlooking unusual departures from the normal. In about 50 per cent. of the cases the entire amount of the meal would be evacuated in 54 hours; of the remainder, 30 per cent. in 78 hours, 15 per cent. in 102 hours, and 5 per cent. in a longer period. These percentages were not applicable to the human race in general, but only to the most pronounced cases of constipation. Intestinal stasis might be regarded as beginning in the first portion of the duodenum. Having described the mechanics at this and other points, he said that the normal suspension points of the bowel were the first ones to be subjected to stress when ptosis occurred. In some individuals we might observe abnormal supports at a very early age, and the question had arisen whether such supports were congenital or acquired. We had to-day no proof that they were acquired, while we had evidence that the new-born might have mesenteric bands, short mesenteries, and various kinks of the bowel such as were found on the operating table in adults. He had had the opportunity of examining children of all ages, and in them had found the same roentgenographic evidences of anomalous conditions which occurred in the adult. Those found in the adult, however, had as a rule been more accentuated. A study of a number of cases with post-operative adhesions and adhesions following acute and chronic inflammatory processes in the appendix, gall-bladder, stomach, etc., had led him to conclude that the conditions which arise in the intestine in this class of cases, as compared with those inherited and acquired adventitious obstructive lesions are, with some exceptions, the same. The obstructions might be broadly divided into simple mechanical obstructions, simple, combined with organic changes, and organic obstructions without mechanical phenomena. Obstructions the result of ptosis and adventitious formations commonly occurred, first, along the lesser curvature of the stomach, chiefly near the pylorus. The lesser omentum might contract to such an extent as to pull the stomach upward at this point and materially interfere with the discharge of its contents. The next point at which there was mechanical obstruction, very often of the simple type but sometimes combined with organic changes, was at the juncture of the first and second portions of the duodenum, and, according to his observation, more cases of gastric delay occurred as a sequela of this obstruction than from all other causes combined. The stomach might be so prolapsed as to lie at the brim of the pelvis, yet be equal to the task of elevating its contents to a sufficiently high level for them to pass through the pylerus and fill the first portion of the duodenum; but, if careful observation was made when this occurred it would be seen that a very small amount of material, if any, passed into the second portion of the duodenum. If such a patient were placed in a horizontal position the gastric contents would be rapidly discharged and within the normal period the stomach would be emptied. This was an important point in the diagnosis of the various causes of gastric delay, and one which by many had been overlooked. Such organic changes might occur at the first and second portions of the duodenum as to produce a stenosis which could not be overcome by means of position drainage. The next point at which simple mechanical obstructions, or this combined with organic changes, occurred was at the juncture of the third portion of the duodenum with the jejunum. This resulted in dilatation of the second and third portions of the duodenum, and the difficulty of demonstrating it on the radiograph was greater because of such flexure of the small bowel. Having described conditions affecting the jejunum, the speaker said that as the lowermost cells of the ileum in the normal subject lay below the ileocecal valve, there was a tendency for the material which passed upward through the terminal to mass together, so that we might have, even where there was no stasis, a column-like collection of bismuth passing from below upward into the cecum. When the terminal ileum ascended almost to the hepatic flexure before entering the ileocecal valve this was always the result of adhesions. The cecum might lie in the pelvis, and the ileum descend directly into it. In the last type gravity did not play a part, but backward pressure from the distended colon might maintain an iliac stasis. The obstructions occurring here were of the simple mechanical variety and this combined with organic changes within the wall of the ileum, frequently complicated by a twisted ileum; also of the third type, where there had occurred organic changes such as a tightly bound appendix which, resulting in connective tissue formation and contraction, constricted the ileum. On examination of the terminal ileum with the fluoroscope, with the subject in the horizontal position, peristalsis could be observed and would frequently lead one to believe that there was no iliac kink or other obstruction. In this position the iliac contents would pour through the ileocecal valve so rapidly that as short a period as one hour might serve to empty an ileum which would not clear itself under five hours when the patient was erect. When we realized that even on the operating table, with the abdomen open and the ileum before us, a mechanical ileal kink might be unrecognizable unless special methods were pursued to prove its presence, we could see the difficulties which attended the diagnosis of iliac obstruction of this character without the aid of the *x*-ray. He next passed to the colon, and stated that some time ago he had read a paper on angulations of this portion of the intestinal tract. In it he had described five points at which these commonly occurred as the result of contracted meso-

colon and mesenteric or peritoneal bands. In speaking of the latter he had referred to new-formed supports usually found on the outer side of the ascending and descending colon and commonly assuming the functions of a suspensory ligament. He regarded them as having primarily originated from the mesocolon, and therefore had designated them as mesenteric bands. Dr. Quimby here presented a theory regarding a process of evolutionary development taking place in the formation of these bands, and went on to say that there was a law of physics to the effect that the resistance of a tube, bent at an angle, to a liquid or gas passing through it is proportionate to the degree of this angle. Applying this principle to the onward propulsion of the contents of the bowel, we had a demonstration of what could occur to maintain the element of stasis. In addition to this mechanical obstruction the distortion of the wall of the intestine resulted in interference with the motor power of the bowel by inhibiting the muscle fibers. While he had described five points in the colon at which a contracted mesentery and mesenteric bands were commonly found, these occurred also in other regions; but that it was exceptional that these should produce angulation might be proved by inspection, with the aid of the fluoroscope and roentgenograph, of a patient having them, with such patient in either the erect or horizontal position. He had also described six varieties of angulation occurring in the transverse colon. Stasis in the cecum was very frequent, and was primarily the result of several mechanical factors. The first of these was ptosis of the cecum, and the next was the angulation of the colon which followed ptosis of the hepatic flexure. Later on, mesenteric bands and adhesions intensified the obstruction and increased the stasis. The common location for obstructive conditions was in the sigmoid, and these were the result of contracted mesosigmoid, mesenteric bands, and pelvic inflammation. Several difficulties attended the *x*-ray inspection of the sigmoid, especially that portion of it in the pelvis, the bony walls of which prevented shifting the intestine about sufficiently to determine the adhesions. Stereoscopic plates were an aid in this region, but the most efficient procedure was the manipulation of the lower bowel contents with the patient in the knee-chest and the Trendelenburg position. A very common location for obstruction of the sigmoid was at the level of the pelvic brim, acute angulations occurring here because of the short mesentery, which bound down the sigmoid at this point. Such angulation might be accentuated by a distended rectum forcing the pelvic sigmoid upward and pressing the apex of the angle to the left; thus squeezing it against the bony wall.

**Chronic Intestinal Stasis Surgically Considered—Some Types Illustrated.**—Dr. WILLIAM SEAMAN BAINBRIDGE said that just how far the admirable pioneer work of Lane would lead us, time and further study must determine. We no longer questioned the far-reaching relationship of chronic intestinal stasis to many conditions formerly considered distinct disease entities. Lane, as was well known, had repeatedly emphasized a long series of affections brought about by the enfeebled resistance which the tissues offered to the invasion of microbes. Intestinal stasis presented a wide field for research on the part of the physician and surgeon; at the same time such work opened the door of hope for many a person who would otherwise be doomed to chronic invalidism. Adopting the definition of this stasis which Lane had given, we had practically a question of body drainage to deal with. The great central canal, the gastrointestinal tract, with its side passages leading to reservoirs which we called organs, might be compared to a great drainage or sewage system. Obstruction and retention in one part of the sewage system meant, sooner or later, contamination of the entire area drained by the system; and so with the body, when there was abnormal retention in one part, the entire system eventually became contaminated, for here there were present just the conditions—warmth, moisture and bacteria—which favored the development of toxic materials. There might be not only development of more toxic matter than under normal circumstances, but the absorption into the body-tubes of more poisonous material, and the bathing of the tissues with it. The parts thus affected in time suffered disturbed function, disease and ultimate death. The prevention, therefore, of chronic intestinal stasis, with its aftermath of disturbed function, disease and death, was our prime object in the study of this subject. The vast majority of cases should have been prevented, while hygienic and medical treatment, if instituted sufficiently early, would cure a large proportion. Certainly 9 out of 10, or 19 out of 20, of all cases should not reach the stage calling for surgical intervention. In many instances, unfortunately, there came a time when the plumbing must receive direct attention; when the surgeon, as the expert plumber, must be called in. Whether he should patch and mend, so to speak, the defective drainage system, thus warding off trouble, or whether he should employ more radical measures and eliminate defective parts, was a fine point to be decided according to the exigencies of the individual case. We therefore heard of the conservative and the radical treatment of intestinal stasis; but it should be borne in mind that there was no hard-and-fast distinction between the two terms, for what in one case might seem radical treatment might, in another, be extremely conservative. The physician who waited, fearing to resort to surgery, and by this delay rendered necessary, ultimately, a severe operation, was less conservative than one who, by employing milder surgical measures at first, obviated the necessity for the severer operations. In many cases the drainage system had been neglected until a part of the human plumbing must be removed—that was colectomy; in others it was possible to sidetrack the damaged part—that was short-circuiting. In still others the parts could be patched up; the tubes could be straightened, the angles corrected. It was often difficult to determine to just which type an individual case belonged. In fact, it had to be freely admitted that to-day we were feeling our way along; endeavoring to profit by experience in order to more accurately place the border-line cases. For over seven years, the speaker said, he had been in personal touch with Lane, studying many of his cases with him before, during and after operation, supplementing this observation by actual experience in a large number of cases, and to-day he did not hesitate to short-circuit or colectomize where he felt that less radical measures might not suffice; for, as Lane had shown, to cut bands and to disturb many adhesions gave, in markedly toxic cases, as great a mortality as short-circuiting, if not even greater than this. In a broad way we might classify cases of chronic intestinal stasis under three groups. The first, in which surgery was unnecessary, might be called the medical group, and in the third either a short-circuit or a colectomy was necessary. Between these two there was a group in which it was possible to "patch up" the drainage system and thus effect a cure. The cases which he would present belonged to this second group. It was a question whether some of the cases would not have done better if the short-circuit operation or colectomy had been performed; but at all events we had here a group of patients with all the symptoms attributable to chronic intestinal stasis who had been literally made over through surgical intervention based upon the mechanical causes of intestinal obstruction, as described by Lane. He desired to present briefly the histories of a few cases which had been worked out with Dr. Hayes and Dr. Quimby. After all, the surgeon must substantiate on the operating table the predictions which he had made from clinical observation and *x*-ray examination. In order to do this and to put into indisputable and permanent form the actual conditions found upon laparotomy, it was his practice to have an artist skilled in medical and surgical work stand beside the operating table to study the conditions, step by step, and depict on paper exactly what was seen. In addition, he had present a stenographer, to whom he dictated the conditions found and the procedure employed to correct them. The first case described was that of a male, aged 49, who when first seen by Dr. Bainbridge was in very poor condition and practically starving to death. The clinical diagnosis was almost complete pyloric stenosis; gastric dilatation; duodenal ulcer; ileal stasis; and the radiographic, incomplete pyloric obstruction; organic involvement of the first portion of the duodenum, probably malignant; ileal stasis. The conditions found on laparotomy December 25, 1912, were dilatation of the stomach; almost complete pyloric obstruction; diverticulum of duodenum, with a mass of inflammation about it; marked duodenojejunal kink; adhesions between neck of gall-bladder and duodenum; pronounced ileal stasis; marked Lane's bands; some enlarged glands about the pylorus and back of liver. Operative treatment: (1) Gastroenterostomy, posterior; (2) ileal band cut transversely and sutured longitudinally; appendix removed, though normal; (3) small fibroid of right lobe of liver, at free

margin, excised; liver sutured. After-treatment: Liquid paraffin and supporting abdominal belt. This patient was presented perfectly well; having gained 45 pounds. In case 2, that of a physician aged 40, the procedures were: (1) Pyloroplasty (Ileinke-Mikulicz); (2) duodeno-jejunal bands severed and loop of jejunum fastened to under surface of transverse mesocolon; adherent omentum detached and raw surfaces turned in; appendix, which was long, wound around the caput coli to the extent of four inches, and adherent to a typical Lane's band, removed. Lane's band, two inches from ileocecal valve and constricting ileum, severed transversely and sewed up longitudinally. Mobile cecum fastened into right ileac fossa. In case 3, that of a female aged 52 many adhesions were divided, and longitudinal bands of cecum shortened, and head fixed in normal position; retroversion and retroflection of uterus corrected. This patient was also presented in good health. The histories of four other cases were given; after which Dr. Bainbridge went on to say that it had been his endeavor to demonstrate in a concise manner the existence of the various conditions caused, and the results produced by, chronic intestinal stasis. It should be borne in mind that the *x*-ray plates and the drawings made at the operation must be studied with an appreciation of mechanical conditions. When the subject was in the reclining position, as at on the operating table, these kinks and angulations might not be apparent, and this fact perhaps explained the difficulty many surgeons had in "seeing the kinks." Added experience, however, with due allowances for changes resulting from change of position, had practically eliminated the former doubt concerning the existence of these "crystallizations of lines of strain," as Lane had called them, and the resultant showing of the passage of the contents of the great drainage system of the body.

Dr. Edward L. Kellogg said that the diagnosis of intestinal stasis, when presenting active symptoms, was usually not difficult, as the history, general appearance, and results of physical examination were all quite characteristic. In its treatment, however, it was important to determine the location, character and degree of the mechanical interference; and this was more difficult. In some instances the *x*-ray was essential, but not infrequently we could determine the origin of the trouble with accuracy by means of physical examination. He had repeatedly used Hayes' method of diagnosticating duodenal stasis, and believed it to be a distinct addition to our methods of diagnosis. In applying it he often placed the patient in the Trandelenburg position, finding that thus it was much easier to relieve the kinking when exerting upward pressure upon the lower abdomen. Dilated ileum and dilated and movable cecum were easily recognized, in favorable cases, by the physical examination alone. The "corded colon" seemed to him less probably a pathological condition, for, though it could be palpated, it appeared, sometimes at least, to be merely in a state of collapse, while the real trouble was at the hepatic flexure. Right movable kidney was usually found with prolapsed cecum, and he considered it strong presumptive evidence of that condition. Sometimes fixation of the kidney would relieve stasis due to angulation at the hepatic flexure. Certain cases of ileac stasis were due to prolapsed but movable cecum, and sometimes this condition might be recognized by employing the Trendelenburg position and pressing the cecum upward, so that the gas in the lower ileum would be expelled into the cecum; an adaptation of Hayes' duodenal method. The series of cases reported by Dr. Hayes had been cured surgically, and the speaker said he regretted that he had not told of some of his brilliant results from medical treatment, as some might carry away the impression that he was more inclined to resort to surgical treatment than was really the case. It was certainly most important that we should have clearly fixed in our minds the various non-surgical therapeutic resources at our command, and that in any given case we should be quite sure that the possibilities of each line of treatment had been exhausted before giving it up. Frequently he had known advice to be given in a general way, without definite instructions as to details; with the result that the patient reported no benefit, and that particular line of treatment was considered of no use. In this way one after another our therapeutic resources might be given up without having exhausted the possibilities of any one of them. Personally, he considered abdominal massage of such importance that in many instances he applied the treatment himself, and in many instances, when this was given thoroughly, with an exact knowledge of the points producing stasis, it yielded excellent results. Various exercises which brought the abdominal muscles directly into play were also decidedly beneficial. Sleeping without a pillow, and with the foot of the bed elevated, often relieved the kinking sufficiently to cause marked improvement in the stasis. To control the toxemia he frequently prescribed, with excellent results, large doses of animal charcoal. He also made use of the transduodenal lavage described by Jutte in March, 1912, the effects of which were excellent, and sometimes remarkable. Where in the examination of the stools he had found a marked preponderance of anaërobic bacteria, he had occasionally found it of service to use oxygen, introducing it through the duodenal tube and also into the rectum. In a few cases of profound anemia resulting from infection of the colon with the *Bacillus aerogenes capsulatus* he had found autogenous vaccines advantageous.

Dr. Walter A. Bastedo said that while some doubted the existence of such a thing as chronic intestinal stasis, convincing proof that it was a real condition had been shown here to-night. The diagnosis of such stasis could not be made simply from the fact that the bowels did not move, for in some instances where the condition undoubtedly existed diarrhea was actually present. Again, there were many cases of chronic constipation, which had often lasted for many years, in which none of the evidences of intestinal stasis, in the way of bad effects, were found. In cases of chronic intestinal stasis there were symptoms of poisoning which, in the great majority of instances, were relieved by proper regulation of the bowels. In some cases of such intoxication, however, the regulation of the bowels, mechanical support, and other medical and physical means entirely failed to cure or relieve, and a resort to surgery was required. Last summer he had spent some time with Lane, and he had then become thoroughly convinced of the absolute necessity for operative interference in such cases, and of the complete relief which this afforded. He agreed with previous speakers that always before operation was resorted to, thorough *x*-ray examinations should be made.

Dr. Arthur F. Holding said that in the symposium this evening two commendable features were especially noteworthy. The first was the admirable example of "team work" shown by the representative of internal medicine, the representative of roentgenology, and the representative of surgery. The second was the fact that in each case the entire gastrointestinal tract was carefully examined. In relation to the statements of Dr. Hayes regarding the prevalence of physical signs indicating dilatation of the duodenum, he would say that roentgenological examinations had proved that in many instances there was not a dilated duodenum, but one which was thrown into reflex spasmodic contractions by the stasis elsewhere in the intestinal tract.

Dr. J. Bion Bogart said that he found himself not altogether in accord with the previous speakers. Lest he might be thought ignorant of the subject, he would say that if he was not fairly well informed it had not been for lack of opportunity. He had spent last March at the Mayo Clinic in Rochester, in the daily company of Mr. Schlessinger, lately Sir Arbuthnot Lane's house surgeon at Guy's, and while acting as chairman of the Surgeons' Club he had organized a "stasis" discussion, which was introduced by Mr. Schlessinger and participated in by Dr. W. J. Mayo, Dr. Lund of Boston, and others. Moreover, impromptu discussions were daily and nightly occurrences. On his return to New York he had been present at a "stasis" symposium, on the invitation of Dr. Bainbridge, at which, after addresses by the latter and by Mr. Schlessinger, illustrated by lantern slides, there was a long informal discussion by the gentlemen present, in which he himself had taken part. On November 28 he had had the pleasure, through the courtesy of Dr. Bainbridge, of attending his "stasis" clinic at the Polyclinic Hospital, at which Sir Arbuthnot Lane made an address and operated on two patients, in one case doing an ileosigmoidostomy and in the other a colectomy; while, later, Dr. Bainbridge also did an ileosigmoidostomy. Furthermore, he had had the opportunity of discussing the subject to a limited extent with Lane himself. To all this he would add his own operative experience, which had not been inconsiderable. He had seen, and demonstrated to others, many of the various conditions to which Lane and others had called attention. That there was such a condition as "stasis" he had not the least doubt; but what to do about it was the thing which

puzzled him. Of all those with whom he had discussed this, the crucial phase of the subject, he had found no one so discouraging as Lane himself. He told us that we must cease thinking of Lane's kinks, Jackson's membranes, duodenal and gastric ulcers, gall-bladder and pancreatic diseases, joint infections, etc., etc., and attack the Goliath at its source—the "ileal effluent," and that if the symptoms were unrelieved by a course of the genuine "liquid paraffin" there was nothing left but ileosigmoidostomy, with or without colectomy. These, he informed us, were simple operations, and that the magical cure was certain: and Dr. Bainbridge had shown us half a dozen patients to prove it. Now, he had the most profound regard for the opinions and statements of Sir Arbuthnot Lane, for his past achievements were such as to entitle his claims in the present instance to our most thoughtful attention. He would not say he might not yet prove his case, but that it was at present fully proved he was still unconvinced. In our own country alone there were, as was well known, thousands of enthusiastic surgeons who never lost an opportunity to test any new operation, and the work of these must at the present time have resulted in thousands of ileosigmoidostomies. But where were the reports of these cases? He himself had done one ileosigmoidostomy for "stasis," and his patient was a poor Russian Hebrew woman in most wretched condition—an undoubted case, with all the symptoms we had so often heard related. After the operation she insisted that she was no better than before, but he did not think she told the truth, for it was a fact that her mottled brown skin cleared up and she looked better. Still, however, she complained of alternating constipation and diarrhea, and of much pain, until she left the hospital, four weeks after the operation. Of course, one case proved nothing, but it was a fact, attested by many observers, that reverse peristalsis persisted after ileosigmoidostomy, and we must in many cases have a never-ending vicious circle unless we resorted to colectomy. And here he would say that, while ileosigmoidostomy might be a simple operation, with only a trifling mortality, colectomy was not a simple operation, and in the hands of even the most skillful surgeons must yield considerable mortality. He thought we might all follow Sir Arbuthnot Lane at a respectful distance; by which he meant that we should reserve our ileosigmoidostomies and colectomies for the most desperate cases, though even here one should remember that the more desperate the case, the more doubtful was the outcome. In the meantime what were we to do for that very much larger number of patients, illustrating lesser degrees of stasis, who were not relieved by liquid paraffin and who, in our present state of knowledge, we hesitated to submit to either of the major operations? Lane offered us no other alternative.

Dr. HAROLD D. MEEKER said that the more one studied intestinal stasis—the existing pathological conditions and the etiological and end-result possibilities—the more was one impressed with the vastness of the subject. It had been his privilege to observe most of the cases which had been presented, and the results seen in these, as well as in other cases in which the more radical operations had been done, had dissipated the skepticism in regard to the matter which he had formerly believed justified. Whether or not we accepted the theories of Lane as to the formation of evolutionary bands, the conditions did exist, and the fact remained that when the mechanical interference with the drainage system had been properly dealt with, patients did get relief, if not absolute cure. Dr. Bainbridge had spoken particularly of a middle type of cases in which one or more less radical operative measures were sufficient to effect the desired result. Procedures of this kind, such as dividing bands transversely and suturing longitudinally, anchoring a mobile cecum, relieving fixed points, etc., were assailed by many, who maintained that the old bands and adhesions were promptly replaced by new ones. As evidence that this was not the case in instances uncomplicated by inflammatory bands many patients could now be produced who had been cured or greatly relieved. It was needless to say that careful technique was absolutely essential for success. The kind of abnormal conditions met with in this arbitrary class was bound to be recognized and surgically dealt with by a large number of operators who would not countenance or attempt the more radical procedures, and the fact that so many surgeons were willing to believe in the existence of adventitious bands, yet did not know how to locate or recognize them, suggested that it might be of service to point out the usual situation of those abnormal structures which tended to bring about evolutionary stasis, a condition which should not be confounded with inflammatory stasis. (1) There might be developed a band extending from the pylorus to the under surface of the liver. If it were not too long it would serve a good purpose by affording an additional support for the stomach, but frequently it extended forward in front of the transverse fissure of the liver, involving not only the gall bladder and cystic duct but even the transverse colon. Serious disturbances might thus be caused in any or all of the organs concerned. (2) An abnormal band might cause a kinking at the duodeno-jejunal angle, and render the emptying of the duodenum more or less difficult. (3). A collection of inelastic fibres might develop on the under surface of the last few inches of ileum, and, later, form a distinct ligament, which, contracting, caused more or less deformity of the ileum, the Lane kink. (4). Peritoneal adhesions frequently became fused into a broad band spread out along the outer aspect of the cecum and ascending colon; attaching the latter to the adjacent abdominal wall. Various portions of this band, as well as the varied stages of its evolutionary development, had been given special names by different observers. Thus, we heard of Jackson's membrane, Jonnesco's fold, Reid's band, Treeve's bloodless fold, and the like. (5). Both the hepatic and splenic flexures of the colon might be held at exaggerated angles by contracting evolutionary bands. (6). In the effort to keep the sigmoid out of the true pelvis, nature might bring about the formation of bands on the outer surface of the mesosigmoid; a mobile loop being thus converted into a fixed tube, with more or less variation in its lumen. Very often the left ovary was involved in the adhesions which fixed the lower pelvic colon. There might perhaps be other evolutionary bands, which had been overlooked, but the time would soon come when these types at least must be generally recognized.

A number of lantern slides showing radiographs of various intestinal conditions were presented by Dr. Meeker and also by Dr. James T. Case, of Battle Creek, Michigan.

## Books Received.

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MATERIA MEDICA: PHARMACOLOGY: THERAPEUTICS PRESCRIPTION WRITING. For Students and Practitioners. By WALTER A. BASTEDO, Ph.G., M.D. Illustrated; cloth; price $3.50 net; 602 pages. W. B. Saunders Company, Philadelphia and London.

THE AMERICAN ILLUSTRATED MEDICAL DICTIONARY. By W. A. NEWMAN DORLAND, A.M., M.D. Seventh Edition, Revised and Enlarged. 1107 pages; illustrated; flexible leather; price $4.50 net. W. B. Saunders Company, Philadelphia and London.

THE SURGICAL CLINICS OF JOHN B. MURPHY, M.D., at Mercy Hospital, Chicago. December, 1913. Vol. II, No. 6. 186 pages; illustrated; paper; price, per year, $8.00. W. B. Saunders Company, Philadelphia and London.

THE TREATMENT OF RHEUMATIC INFECTIONS. Cloth; 134 pages. Park Davis & Company, Detroit, Mich.

BIBLIOGRAPHY OF THE EDUCATION AND CARE OF CRIPPLED CHILDREN. A Manual and Guide to the Literature Relating to Cripples, Together with an Analytical Index. By DOUGLAS C. MCMURTRIE. First Edition. Cloth; 99 pages. Douglas C. McMurtrie, New York.

THE DANDRIDGE VOLUME. Being a series of papers presented at various times in the meetings of the Cincinnati Research Society and dedicated by it to the memory of its distinguished member—Nathaniel Pendleton Dandridge, M.D. Cloth; 330 pages; illustrated. The Lancet-Clinic Press, Cincinnati.

DENTIST'S DIARY 1914. The Book That Breathes the New Spirit in Dentistry. Cloth. Published by Lehn & Fink, New York.

CLINICAL DISORDERS OF THE HEART BEAT. A Handbook for Practitioners and Students. By THOMAS LEWIS, M.D., D.Sc., F.R.C.P. Cloth; illustrated; 116 pages. Second Edition. Shaw & Sons, London.

LEHRBUCH DER FORENSISCHEN PSYCHIATRIE. By Prof. Dr. A. H. HUBNER. Paper; price 28 mks.; 1066 pages. A. Marcus and E. Webers, Bonn, 1914.

THE CAUSE OF THE SOCIAL EVIL AND THE REMEDY. By ALBERT W. ELLIOTT. Paper; 144 pages. Webb & Vary Company, Printers, Atlanta, Ga.

CLINICAL DIAGNOSIS AND URANALYSIS. A Manual for Students and Practitioners. By JAMES RAE ARNEILL, A.B., M.D. Second Edition, Revised and Enlarged. Illustrated; cloth; 270 pages; price $1.00 net. Lea & Febiger, Philadelphia and New York.

LECTURES ON TUBERCULOSIS TO NURSES. By OLLIVER BRUCE, M.R.C.S., L.R.C.P. Cloth; illustrated; 134 pages; price $1.00 net. Paul B. Hoeber, New York.

LECTURES ON MEDICAL ELECTRICITY TO NURSES. By J. DELPRATT HARRIS, M.D., M.R.C.S. Illustrated; cloth; 88 pages; price $1.00 net. Paul B. Hoeber, New York.

THE HEALTHY MARRIAGE. A Medical and Psychological Guide for Wives. By G. T. WRENCH, M.D., B.S. Cloth; 300 pages; price $1.50 net. Paul B. Hoeber, New York.

THE PATHOLOGY OF GROWTH TUMORS. By CHARLES POWELL WHITE, M.D., F.R.C.S. Illustrated; cloth; 235 pages; price $3.50 net. Paul B. Hoeber, New York.

DISEASES OF THE HEART. By JAMES MACKENZIE, M.D., F.R.C.P., LL.D., Ab. and Ed., F.R.C.P.I. Third Edition. Cloth; 502 pages; illustrated. Oxford University Press, London.

TRANSACTIONS OF THE AMERICAN GYNECOLOGICAL SOCIETY. Vol. XXXVIII. For the Year 1913. Cloth; illustrated; 630 pages. Wm. J. Dornan, Printer, Philadelphia.

MANUAL OF SURGERY. By ALEXIS THOMSON and ALEXANDER MILES. Vol. III. Operative Surgery. Second Edition. Illustrated; cloth; 620 pages; price $3.75. Henry Frowde and Hodder & Stoughton, Edinburgh, Glasgow, and London; Oxford University Press, New York.

DEFECTIVE OCULAR MOVEMENTS AND THEIR DIAGNOSIS. By E. and M. LANDOLT. Translated by ALFRED ROEMMELE, M.B., Ch.B., and ELMORE W. BREWERTON, F.R.C.S. Cloth; illustrated; 99 pages; price $2.00. Henry Frowde and Hodder & Stoughton, London; Oxford University Press, New York.

COXA VARA. Its Pathology and Treatment. By R. C. ELMSLIE, M.S., F.R.C.S. Paper; illustrated; 35 pages; price 60 cents. Oxford University Press, New York.

PROSTITUTION IN EUROPE. By ABRAHAM FLEXNER. Introduction by JOHN D. ROCKEFELLER, JR. Cloth; 455 pages; price $1.30 net. The Century Company, New York.

AMERICAN RED CROSS ABRIDGED TEXTBOOK ON FIRST AID. Woman's Edition. A Manual of Instruction. By Major CHARLES LYNCH. Illustrated; paper; 148 pages; price 30 cents net. P. Blakiston's Son & Company, Philadelphia.

AMERICAN RED CROSS ABRIDGED TEXTBOOK ON FIRST AID. Miners' Edition. A Manual of Instruction. By Major CHARLES LYNCH and First Lieut. M. J. SHIELDS. Illustrated; paper; 186 pages; price 30 cents. P. Blakiston's Son & Company, Philadelphia.

AMERICAN RED CROSS ABRIDGED TEXTBOOK ON FIRST AID. Railroad Edition. A Manual of Instruction. By Major CHARLES LYNCH. Illustrated; paper; 150 pages; price 30 cents net. P. Blakiston's Son & Company, Philadelphia.

AMERICAN RED CROSS ABRIDGED TEXTBOOK ON FIRST AID. Police and Firemen's Edition. A Manual of Instruction. By Major CHARLES LYNCH. Paper; illustrated; 150 pages; price 30 cents net. P. Blakiston's Son & Company, Philadelphia.

ANATOMY AND PHYSIOLOGY. A Textbook for Nurses. By JOHN FORSYTH LITTLE, M.D. Illustrated; cloth; 483 pages. Lea & Febiger, Philadelphia and New York.

SKIN AND VENEREAL DISEASES—MISCELLANEOUS TOPICS. Vol. IX. The Practical Medicine Series. Edited by W. L. BAUM, M.D., and HAROLD N. MOYER, M.D. Series 1913. Cloth; illustrated: 228 pages; price $1.35. The Year Book Publishers, Chicago.

NERVOUS AND MENTAL DISEASES. Vol. X. The Practical Medicine Series. Edited by HUGH T. PATRICK, M.D., and PETER BASSOE, M.D. Series 1913. Cloth; illustrated; 244 pages; price $1.35. The Year Book Publishers, Chicago.

SCIATICA. By WILLIAM BRUCE, M.A., LL.D., M.D. Cloth; illustrated; 175 pages; price $1.75 net. William Wood & Company, New York.

ÉTUDE CLINIQUE DU SERUM ANTITUBERCULEUX DE VALLÉE. Par le Docteur BOUREILLE. Paper; 49 pages; illustrated. At Maloine's, Publisher, Paris.

## Therapeutic Hints.

**The Treatment of Gastric Vertigo.**—A. Robin recommends the following as an effective remedy in cases that do not respond to the use of simple carminatives and antacids:

℞ Magnesium hydroxide, 0.3 gram.
Prepared chalk,
Sodium bicarbonate, āā 0.2 gram.
Powdered nux vomica, 0.03 gram.
Powdered belladonna root, 0.02 gram.

This powder is to be taken after each meal, and at bedtime.—*Bulletin Général de Thérapeutique.*

**The Treatment of Chlorosis.**—Albert Robin points out that one of the primary indications in this condition is to check the excessive functional activity of the stomach. This is accomplished by the administration of extract of belladonna before meals, and of antacids after meals. The malnutrition is combated with the aid of arsenic administered per rectum or subcutaneously. In the former case the following solution is used:

℞ Fowler's solution, 6 c.c.
Distilled water, 94 c.c.

Of this 5 c.c. are injected into the rectum every morning, following a cleansing enema. For hypodermic use cacodylate of sodium is administered in doses of 5 centigrams daily for eight days, with an intermission of four days, followed by a second series of injections.

Of the preparations of iron Robin prefers the iron and potassium tartrate and the reduced iron, the latter being especially indicated in cases in which a rapid effect is desired. If there is gastric irritability lactate of iron is given. Chloride of iron produces the best results in cases in which there is a hemorrhagic tendency.—*Bulletin Général de Thérapeutique.*

**The Management of Acute Bronchitis in Children.**—G. A. Sutherland states that if in the early stages, as often happens, there is a dry, irritating cough, the indication of increasing bronchial secretion by the inhalation of steam may give great relief. If there is dyspnea from bronchial spasm hot fomentations to the back and front of the chest are indicated. In mild cases of bronchitis no other treatment is necessary than to apply to the chest some stimulating liniment. In more pronounced cases the bowels should be freely opened at the onset of the attack and a simple febrifuge mixture should be ordered, such as the following:

℞ Potassium citrate, 5 grains.
Tincture of orange, 5 minims.
Solution of ammonium acetate, 15 minims.
Camphor water, ad 1 dram.

As regards cough mixtures, it is pointed out that these tend to upset the digestion. If bronchial secretion is defective and there is a harsh, irritating cough iodide of potassium and carbonate of ammonium may be given in doses of two grains each. If bronchial secretion is over-abundant the following may be given:

℞ Tincture of belladonna, 4 minims.
Dilute nitrohydrochloric acid, 3 minims.
Glycerine, 10 minims.
Compound infusion of gentian, ad 1 dram.

If special sedatives seem called for, a convenient form of administration in children is the use of pastilles containing one-fiftieth of a grain of codeine. In the convalescent stage cod-liver oil and hypophosphites give the best results.—"The Treatment of Disease in Children."

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## Original Articles.

### X-RAY OBSERVATIONS ON COLONIC PERISTALSIS AND ANTIPERISTALSIS, WITH SPECIAL REFERENCE TO THE FUNCTION OF THE ILEOCOLIC VALVE.*

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According to our present conception the prevailing movement in the proximal colon is antiperistalsis, or, more briefly, anastalsis (Cannon'), consisting of a movement of waves backward towards the cecum. These anastaltic waves do not run continuously for a long time, although a series of waves at the rate of perhaps five a minute can be seen continuing for four or five minutes. Cannon has shown that the condition for the appearance of these waves is normally the pushing of fresh material from the small intestine into the colon.

The distal colon (beginning at the middle of the transverse colon) exhibits as its characteristic activity an onward wave called by Cannon "diastalsis," of which there have been observed in man two kinds—the mass movement, first described by Holznecht,[2] and the slow propulsion of small thumbsize fragments first described by Fischl and Porges.[3]

Haustral churning, according to Elliott and Barclay-Smith,[4] and especially Schwarz and Rieder, is occurring constantly in the distal colon, serving to keep the material in this region thoroughly mixed with the digestive fluids, maintaining its plasticity and thus assisting in its onward progress through the bowel.

Roentgen studies concerning movements of the large intestine have been reported by Holzknecht,[5] Fischl and Porges,[3] Cannon,[5] Rieder,[6] Barclay,[7] Stierlin,[8] Schwarz,[9] Von Bergmann and Lentz,[10] myself,[11] and others.

The extended paper of Professor Rieder published in the *Fortschritte auf dem Gebiete der Roentgenstrahlen*, February, 1912, contains an excellent bibliography and gives extended historical references which it will not be necessary to repeat. My purpose in this paper is rather to describe my own roentgen observations on colonic peristalsis and antiperistalsis and to discuss a number of important related questions, especially concerning the ileocolic valve.

*Colonic Antiperistalsis.*—C. Jacobi[12] first accidentally discovered the evidence of antiperistalsis in dogs under the influence of colchicum poisoning.

Antiperistalsis was later studied in cats by Cannon, who first used the *x*-ray method for this purpose, and in the exposed intestine of certain animals by Elliott and Barclay-Smith.[4] Gruetzner[13] Swiezenski and Riegel confirmed these studies of antiperistalsis. Hemmeter[14] went so far as to claim that small particles traveled as far as the stomach in the course of seven to twelve hours. Boehm[15] by orthodiagraphic means demonstrated that during filling the cecum becomes deeper.

Most of the observers have described antiperistalsis in the proximal colon only, basing their observations on animal experimentation, although it is admitted that it might appear in any portion of the large intestine.

The report of Roith[16] on clinical observations of peristalsis and antiperistalsis of the large intestine in twenty-two surgical cases is most interesting and most convincing. Only one of these was observed by means of the *x*-ray. Roith's work was done with special reference to the length of time material remains in the large intestine. There were five cases of fistula of the ascending colon. An escape of colonic contents began two to four hours after eating and lasted ten to sixteen hours. The stream was steady and there was no means of recognizing the type of peristalsis. There were two cases of fecal fistula at the center of the transverse colon, one of which was observed for more than a year. Fecal discharges occurred once or twice and occasionally three times during twenty-four hours, occurring at the same hour each day and lasting only a short time. The discharge was of a semi-fluid character. In five other cases observed during one and a half years there was a left inguinal colostomy. The results obtained were the same as in the case of the transverse colon fistulæ, the material being semi-fluid. Roith concludes that the normal delay of the contents of the colon in the cecum, ascending and right half of the transverse colon is due either to lack of peristalsis or antiperistalsis which constantly returns material toward the cecum. He believes that the weight of the contents of the colon can have but little effect upon the progress since the specific gravity of the abdominal organs and their contents is practically the same.* The large peristaltic waves which occur at infrequent intervals and transfer the material a long distance serve to move the contents of the colon from the proximal half, where the predominant activity is antiperistalsis, into the distal half where onward peristalsis is the prevailing type of movement.

In three cases reported by Roith, where the ileum was joined to the colon close to the hepatic flexure, bowel contents found their way into the cecum and ascending colon. In one case a cecal fistula of one year's standing persisted after transplanting the

*Read in the Section on Radiology, Seventeenth International Congress of Medicine, London, August 6-12, 1913.

*I shall later report observations which seem to indicate that gravity may be a factor of some importance in the movement of material along the colon.

ileum 20 cm. distal to the fistula, but closed spontaneously after the ileum was reimplanted into the distal half of the transverse colon. In two cases, after resecting the cecum and implanting the ileum 10 cm. beyond the point of resection, there developed a fecal fistula of the stump of the colon; but in the nine following cases in which the ascending colon was excluded, the ileum was implanted into the left half of the transverse colon and no retrograde peristalsis was noted—not even in two cases where the stump of the ascending colon was left open with a drainage tube sewed into it.

FIG. 1.—Roentgenogram showing the banking up of the bowel contents into the proximal colon. Actual antiperistaltic waves were seen in this case.

Roith concludes from the above observations that between the hepatic flexure of the colon and the middle of the transverse colon there is a zone on the distal side of which antiperistalsis does not occur, but on the proximal side both peristaltic and antiperistaltic waves may occur.

Cannon, Elliott and Barclay-Smith, and Jacobi all describe a tonic constriction ring at about this point in the colon which, when stretched as the result of distention of the colon, begins to pulsate. With each pulsation there is sent off an antiperistaltic wave. (See Fig. 1.)

As far as I am aware, these observations have not been, until now, definitely verified in man. According to Cannon, "a variety of *x*-ray observations have been interpreted as indicating anastalsis in the human proximal colon. Thus Stierlin[8] found that the cecum and nearby colon retain longer than any other part of the alimentary canal the mixture used to produce *x*-ray shadows. Furthermore, the sacculi or haustra are in this region often absent or only slightly developed. Bloch[13] and von Bergmann and Lentz[10] have seen in man, by means of *x*-rays, the contents of the cecum and ascending colon quickly forced onward to the beginning of the transverse colon; and then after a short period a definite retrograde movement of the contents which again filled the proximal portion. This to-and-fro shifting may recur rhythmically for some time, and although appearing spontaneously, can be stimulated by palpation. Von Bergmann and Lentz[10] have suggested that the backward movement, or 'retrograde transport' of the contents may result simply from relaxation of the proximal portion after the contraction which forced the material onward. They admit, however, that this return may be hastened by contraction of the transverse colon.

"Although the escape through cecal fistulæ of material introduced distally into the colon clearly demonstrates a backward current in the human large intestine, although the long retention of material in the cecum is good evidence of retarded progress, and although the retrograde transport of material in the proximal colon can be interpreted as due to a backward pressure, nevertheless these facts do not prove the presence of anastalsis in the sense of visible waves passing backward over the intestinal contents. And Hertz[11] has testified to having watched with the *x*-ray the shadows of the human colon for various periods in a large number of individuals without seeing this phenomenon. Even the introduction of an enema (containing bismuth) under a pressure which rendered the entire colon visible did not call forth any anastaltic activity. Rieder[6] has recently been able to bring evidence, however, on the basis of his *x*-ray studies that anastalsis actually does occur in the human colon. While it appeared in the main along the cecum, ascending and proximal transverse colon, it might appear in any portion of the large intestine.

FIG. 2.—Colon filled by bismuth clysma. Note the incompetency of the ileocolic valve, permitting the terminal ileum to fill. Considerable peristaltic activity in the terminal ileum. This roentgenogram was made while actual antiperistaltic waves were being watched in the ascending colon.

These observations on man are wholly in accord with those of myself and Elliott and Barclay-Smith on lower animals."

As roentgenologist to the Battle Creek (Michigan) Sanitarium and to St. Luke's Hospital (Chi-

cago) I have had the opportunity to examine a large number of of individuals by means of the *x*-ray, following a bismuth test meal. In the last thirteen months (June 1, 1913), during which time I have made a roentgen examination after a bismuth meal in approximately fifteen hundred individuals, I have, by means of memoranda dictated at the moment, by roentgenograms, or by tracings, recorded the findings in over sixty cases in which I have actually seen peristaltic waves occurring during the fluorescent screen examination. In thirty-seven cases, antiperistalsis was observed.* The relative frequency with which peristalsis has been observed in these cases may be partially accounted for by the fact that each individual was examined on from six to ten different occasions, in accordance with my method of routine examination elsewhere described.[15]

FIG. 3.—Roentgenogram at the twelfth hour, p.c., showing anastalsis in the large bowel. (Patient has had ileosigmoidostomy.)

In the majority of cases in which I have seen antiperistalsis there have been successive waves originating in the transverse colon near the hepatic flexure at a point corresponding to the seat of the tonic contraction ring referred to by Cannon and others. These waves have not been seen to proceed clear to the tip of the cecum, but only to a point corresponding approximately with the ileocecal junction. The rate at which these waves travel is much slower than the peristaltic waves in the stomach, yet easily and definitely seen on the screen. I have seen at one time as many as five antiperistaltic waves between the middle of the right half of the transverse colon and the cecum. The indentation in the colon shadow produced by these waves has varied from a fraction of an inch to three-quarters of an inch. In six cases this phenomenon of several antiperistaltic waves at one time has been definitely seen. One patient had, a few hours previous to the examination, a dose of seltzer. In the other cases laxatives had been rigorously excluded.

The rhythmical to-and-fro shifting of the contents of the cecum and ascending colon described in man by Bloch[13] and by von Bergmann and Lentz[19] has been seen and verified roentgenographically and fluoroscopically in a number of cases following bismuth injection of the colon. I have also recorded my observations in this type of movement in twelve individuals after bismuth meal, where the existence of antiperistaltic waves may be presumed and yet where actual waves were not discernible. As von Bergmann and Lentz have suggested, it is possible that the backward movement of the contents may result from relaxation of the proximal portion hastened by contraction of the transverse colon. In addition to these twelve cases of antiperistalsis following bismuth ingestion, I have made numerous observations of antiperistalsis following injection of a bismuth or barium clysma.

The existence of a tonic contraction ring in the right half of the transverse colon has been a matter of considerable discussion. It is likely that the exact location of this tonic contraction ring varies with the tonicity of the proximal colon. In most of the cases in which I have observed antiperistalsis the movement began at or proximal to a point near the middle of the right half of the transverse colon.

Boehm[18] states that by means of the *x*-ray he has seen in human beings a narrowing of the transverse colon usually to the right of the midline with undivided contents between it and the cecum, and with segmented masses between it and the sigmoid. Aside from my own records, the above observation by Boehm is the only *x*-ray study on this point in man concerning which I have found a published statement.

FIG. 4.—Roentgenogram made fifty-two hours p.c., illustrating a mass movement in progress.

Inferential evidence of the existence of this tonic contraction ring is afforded by numerous clinical observations among which the following may be especially noted:

*In my earlier work I recorded my observation of antiperistalsis both after bismuth meal and after bismuth injection. Later only bismuth meal observations were recorded.

Roith has measured very carefully the capacities of the several portions of the colon after death. His measurements confirm his observations made during abdominal operations, viz.: that on an average the cecum and ascending colon contained

Fig. 5.—Shows the same case a few seconds later.

more than twice as much as an equal length of the transverse colon and three and one-half times as long as an equal length of descending colon.

(b) The content of the cecum and ascending colon is soft and mushy. The content of the distal colon may be firm and it may be even of the same consistency as the content of the sigmoid.

Boehm, experimenting on cats opened under Ringer's solution, saw a definite contraction ring corresponding to the ring of Cannon. From this ring peristaltic waves traveled toward the rectum and antiperistaltic waves toward the mouth. The antiperistaltic waves were livelier than the peristaltic waves. This ring disappeared and reappeared from time to time.

By means of the *x*-ray I have seen this tonic contraction ring in a number of instances, perhaps twenty. One of the clearest cases was that of Mrs. N. W. (see the appendix for full details). Figure 1 shows the appearance of the colon shadow in this case, which I have interpreted as indicating the presence of a tonic constriction ring. In this instance there was a persistent constriction at about the junction of the right and middle thirds of the transverse colon, seen repeatedly in the same case. Occasionally it relaxed, but then only for a short time. This patient had a mild form of chronic bowel obstruction, but that no organic hindrance was present was shown later during an operation for another cause.

Notwithstanding the statements of various observers would seem to indicate that antiperistalsis does not exist except to the right of a certain point in the transverse colon, I have made several observations which clearly show evidence of antiperistalsis in the distal colon. I have, on one occasion, seen a bolus of ingested bismuth the size of a banana carried from the pelvic colon backward into the left half of the transverse. This occurred in a patient who suffered from chronic constipation for which no other cause could be found than a very severe colitis. The appearance of this bismuth bolus corresponded in all but direction to the mass movement first described by Holzknecht and later to be discussed at length in this article. On four other occasions I have seen smaller boluses of bowel content, varying in size from a filbert to a walnut, carried from the iliac colon backward as far as the splenic flexure. The rate of progress approached that of peristaltic waves in the stomach. These cases had no symptoms of serious bowel obstruction.

Anschütz,[19] Kreuter and Roith[16] have observed that in patients with obstructing tumors of the pelvic colon, gangrene of the walls of the cecum may occur. It was noticed in several cases that the distal part of the large intestine near the tumor was contracted, whereas the cecum was very much distended, sufficiently so to even cause gangrene of its walls. This condition must have been due to stasis, the result of exaggerated antiperistalsis. In other cases, enemas containing lycopodium were given an hour before appendectomy and lycopodium was found in the cecum at the time of operation. In still other cases colored enemas were administered and later the colored fluid appeared in the fistulous openings in the cecum.

At the midwinter meeting of the American Roentgen Ray Society, Western Section, February 22, 1913, Chicago,[20] I called attention to exaggerated antiperistalsis as a sign of serious bowel obstruction. In every case of carcinoma of the colon in

Fig. 6.—Roentgenogram made within a few seconds after Figure 5.

which I have made roentgen studies, I have been able to demonstrate the presence of this exaggerated antiperistalsis. I have seen it occur in all parts of the colon and have presumed that the presence of antiperistalsis under these conditions was

analogous to the presence of antiperistalsis in the stomach, as first roentgenographically described by Jonas. Exaggerated antiperistalsis in the colon has also been recognized in spastic constipation.

Another evidence of antiperistalsis is the frequently observed filling of the large intestine after ileosigmoidostomy as will be illustrated by the following cases:

FIG. 7.—A mass peristaltic movement occurring in the left half of the colon.

Mr. B., examined October 1912. Three years previously the patient had undergone an ileosigmoidostomy for benign obstruction of the colon in the region of the hepatic flexure. The bismuth meal passed out of the stomach within six and one-half hours, passing rapidly to the lower right quadrant of the abdomen, where it filled the sigmoid loop and distended the rectum before the end of twenty-four hours. The patient was very anxious for a bowel movement, but had resisted until an observation could be made. After the evacuation I again observed him and found that only the rectum and ampulla had been evacuated; nothing above. At the end of thirty-six hours, bismuth-mixed contents had backed up into the blind end of the colon further than the splenic flexure. There was still bismuth in the dilated lower end of the ileum. At the end of forty-six hours all the bismuth had been discharged except that which had backed up into the descending and transverse colon. Repeated enemata were given in the attempt to rid the colon of the remaining bismuth, but without success. Later, however, after still further enemata, the colon having been cleared, a bismuth clysma was injected which passed clear around the colon as far as the hepatic flexure. Following the clysma, the patient was able to evacuate the colon completely.

Case of Mrs. A. E.—Three months previous to the present test, the patient had an end to side ileosigmoidostomy after division of the ileum. By the fourth hour after the meal, some of the bismuth had already entered the colon and had begun its retrograde movements. The stomach was just emptying. At the seventh hour, the small intestine was empty; the rectum and ampulla were widely filled. The iliac colon was empty. The descending colon was filled. At the tenth hour the head of the bismuth column had backed up as far as the splenic flexure. At the twenty-fifth hour the colon was filled from the middle of the transverse to the rectum. At the thirty-fifth hour, the patient's bowels having meanwhile moved, the left half of the transverse, the splenic flexure, and the descending colon were still well filled. Below this point, the bowel had been evacuated. At the fifty-first hour, the colon was entirely empty except for a residue in the left half of the transverse and in the splenic flexure. After cleansing enemas, the bismuth clysma was then injected. The head of the bismuth column reached the cecum without hindrance. Immediately following the patient was able to expel the enema almost *in toto*, only a few traces being left in the cecum.

The two cases just cited are only two of the many examples that might be quoted.

In every case in which I have made an examination following ileosigmoidostomy (three months to three years following the operation), I have observed this retrograde peristalsis in the left half of the colon. Although I have not seen in any case actual definite waves, that the retrograde movement is not due simply to an overflow of material from the pelvic colon is shown by the fact that frequently a small bolus of bismuth-mixed bowel content will find its way up into the transverse colon before the distal colon has had time to fill. (See Fig. 3.)

Summarizing my own *x*-ray observations, (1) I have seen in man the tonic constriction ring in the transverse colon just to the right of the midline, described by Cannon and others in animals. From this tonic ring slowly moving antiperistaltic waves have been definitely seen to pass rhythmically toward the cecum. (2) Definite rapid antiperistaltic movements resembling in every respect but direction the mass movements described by Holzknecht have been seen in the iliac and descending colon. (3) Following ileosigmoidostomy, retrograde peristalsis in the colon has been observed in every case examined, without exception. (4) Exaggerated antiperistalsis may be regarded as a sign of serious bowel obstruction and may be expected in spastic constipation and obstruction from benign or malignant processes. It is especially valuable as an accessory sign in carcinomatous obstruction in the bowel.

FIG. 8.—This case illustrates a ring peristaltic movement traversing the colon from ileocolic junction to splenic flexure.

The relation of antiperistalsis to the function of the ileocecal valve will be discussed later.

*Mass Peristalsis.*—Mass peristaltic waves were first seen by Holzknecht,[2] who described two cases. In the first case the haustral segmentation was seen

to disappear, after which the contents of the transverse colon passed on into the descending colon, where the appearance was that of a sausage-shaped mass with perfectly smooth edges. Very soon segmentation was seen again and the haustral markings showed. He continued the observation for some time, during which the transverse colon remained empty. In another case, the ascending and descending colon being filled before the observation, he observed the contents of the ascending colon suddenly pass into the transverse colon and remain there. Basing his theory upon these observations, Holzknecht declared that the movement of large intestinal contents in this manner occurred three or four times daily, at perhaps eight-hour intervals, each movement occurring within a few seconds. Observations on these movements have also been published by Schwarz,[9] Barclay,[7] Stierlin,[8] and myself.[11]

Fig. 9.—This case illustrates the large pendulum movements of Rieder.

Within the last sixteen months I have observed in thirty-seven different individuals mass peristalsis following a bismuth meal, as first described by Holzknecht. I have seen a similar phenomenon in numerous unrecorded cases following bismuth injection of the colon. The majority of them have been observed in the transverse and descending colon. The bowel contents suddenly lose their haustral markings and are formed into an ovoid, sausage-shaped mass, with perfectly smooth edges and rounded at the ends. This mass travels at about twice the rate of peristaltic waves in the stomach. In the appendix to this paper will be found a description of a number of instances of mass peristalsis. After the mass comes to rest the haustral indentations reappear, the time required for the reappearance depending upon the consistency of the bowel content—quickly if the content be semi-fluid, more slowly if the bowel content is of a firmer consistency. (See Figs. 4, 5, 6, 7.)

In connection with my various observations on colon peristalsis I have dictated careful notes to a stenographer either during the occurence of the mass movement or immediately afterwards. I have carefully studied and compared the memoranda made in each of these cases with reference to the taking of a meal, the occurence of massage, electrical treatments, the drinking of cold water, manipulation under the fluorescent screen, previous movement of the bowels, etc., and it has seemed to me that the most constant artificial factor which might be considered as bearing a causative relation to mass peristaltic movements has been manipulation of the colon through the abdominal wall. This has occurred as kneading of the abdomen or of the colon intended as a definite massage treatment or as manipulation in connection with the examination.

The immediate effect of massage and mechanical vibration has been carefully studied under the fluorescent screen. (See the detailed case reports below.) The immediate effects observed have been a deepening of the haustral contractions and sometimes the appearance of antiperistaltic waves. On only one occasion have I been able by any mechanical manipulations to produce a visible movement of the colonic contents distalwards. On one occasion I was able to move a bolus of bismuth from the cecum through the gas-filled ascending colon to the hepatic flexure. The well-recognized favorable influence of massage and mechanical vibration must therefore be produced indirectly through increasing the tone of the bowel muscle, rather than through any actual mechanical pressure of the bowel contents onward.

To determine the influence of electrical stimulation a patient was given a silk string seven meters long, one end of which he swallowed. At the end

Fig. 10.—A case of ileocolic valve incompetency of rather marked degree.

of twelve hours the string had traversed the entire gastrointestinal tract. A special olive-tipped bougie, kindly loaned me by Dr. M. M. Portis, Chicago, was then threaded over the distal end of the string and passed up the colon as far as the splenic

flexure. Although repeated efforts were made to pass the electrode around the splenic flexure I did not succeed, the flexure being very sharp in this case. A litre of a gummy suspension of bismuth oxychloride in water was then injected, filling the

Fig. 11.—An unusually marked case of ileocolic valve incompetency. This patient was examined once a month for five months and the same degree of incompetency was found at all examinations.

colon throughout. Faradic, sinusoidal and interrupted galvanic stimulation was then applied, the olive-tipped bougie serving as one electrode and a pad upon the lower abdomen completing the circuit. Although careful and repeated observations were made no actual contraction of the muscle coat of the bowel was recognized. One must conclude, therefore, that electrical stimulation with a unipolar electrode within the bowel does not suffice to produce actual contraction of the bowel wall.

J. H. Kellogg[21] has secured excellent clinical results by stimulating the pelvic colon by means of a bipolar electrode which was used with the idea that a tonic constriction ring might be formed which would give rise to peristaltic waves, thus aiding in overcoming constipation, due to inertia of the lower bowel. This condition must be particularly common in persons suffering from chronic constipation.

In a future communication I shall report the results of experiments to test radiologically the effect of a bipolar electrode high up in the colon in an effort to produce a tonic constriction ring in the transverse colon.

Braam-Houckgeest[22] suggested that these movements were stimulated by the passage of strongly acid food from the small intestine into the cecum. These movements are often accompanied by gurgling sounds, the so-called borborygmi. Nothnagel[23] believes that these movements approach the pathological. That these large, stormy movements are frequently seen in pathological cases there is no doubt. The diarrheal cramps of man are often accompanied by these large peristaltic waves. Nevertheless, in many cases subjective sensations during the progress of the mass movements are not recognized by the patient.

It may be inferred from the evidence before us that the large colon movements have a relation to bowel evacuation. They are regularly seen before or during bowel evacuation, but, as has been shown by Rieder and Schwarz, they are not necessarily associated with the emptying of the bowel. It appears that these mass movements are the chief means by which food progresses along the colon.

The above remarks have all had reference to observations made after the *ingestion* of bismuth. Following the bismuth clysma, one frequently sees a large ring constriction passing along the colon distalwards. (Fig. 8.) Whether or not the ring constriction appears depends upon the tonus of the bowel. In cases of spasticity, a relatively small enema will suffice to evoke these ring constrictions which in speed and depth resemble the mass movements first described by Holzknecht and are probably identical with them. These waves are definitely the result of distention. They have been seen to begin in many cases at the junction of the cecum and ascending colon, opposite the ileocecal valve. Often the cecum itself has been seen to be emptied. In every case in which these peristaltic waves have been seen to begin not at the tip of the cecum, but at the level of the ileocecal valve (operative proof furnished later) the cecum and appendix have been found involved in adhesions. In other words, I believe we may conclude that when these ring constrictions, the result of over-distention of the bowel, persistently fail to empty the tip of the cecum, it may be inferred that the cecum is fixed by adhesions, frequently associated with appendix disease. This finding suggests that it is the fixed rather than the freely movable cecum, which is likely to give rise to stasis and it would indicate

Fig. 12.—Marked ileocolic valve incompetency *with dilatation* of the terminal ileum.

that undue importance has been attached to the condition known as mobile cecum; that adhesions and fixation of the cecum, rather than excessive mobility, are likely to give rise to evil consequences, and that possibly harm, rather than good may be done

by operations for fixation of the cecum. These ring constrictions have been seen to traverse the bowel from the cecum to the middle of the descending colon and are usually accompanied by subjective sensations on the part of the patient, varying from a mild distress to painful cramps.

*Haustral Churning.*—Haustral churning is believed to occur in the distal colon constantly, serving to maintain plasticity of the material in this region and thus assist in its progress along the colon. I have nothing new to add concerning this form of colonic activity, although I have almost daily confirmation of its existence.

The "large pendulum" movements described by Rieder I believe are the precursors of the mass movements just discussed. These large, churning movements, the forerunners of the large peristaltic waves, are well illustrated in Figure 9. They have been seen in the transverse, descending, and pelvic colon and were followed, in nearly every instance, by a mass movement.

*Ileocolic Valve Incompetency.*—I have for a number of years observed incompetence of the ileocolic valve in a certain percentage of cases. Looking back over my statistics, I find this percentage very constant. Before the American Roentgen Ray Society in September, 1912,[11] I reported that out of a series of two hundred gastrointestinal cases referred for Roentgen examination, thirty-three, or one in six, showed incompetency of the ileocolic valve, as determined by the barium clysma. I am now able to report two hundred and fifty cases of ileocolic valve incompetency out of a larger series of about fifteen hundred individuals.

Through the courtesy of Dozent Dr. Holzknecht I had the pleasure of demonstrating several roentgenograms of incompetency of the ileocolic valve before the Gessellschaft für innere Medizin, Vienna, November, 1914.[24] At the time, I also had the pleasure of demonstrating my method of testing the competency of the ileocolic valve in the Roentgen clinic of Dr. Gottwald Schwarz, attached to the service of Professor von Noorden. I also gave a demonstration of stereoroentgenograms before the Royal Society of Medicine in London, Electrotherapeutic Section, January 19, 1912.[25] (See figures 10-12.)

Kraus[26] found in 150 autopsies after death from all causes, 12 cases of incompetency of the ileocolic valve. Singer and Holzknecht[27] remarked upon the relative frequency of insufficiency of the ileocolic valve, 3 out of 15 cases examined by clysma presenting this condition. Haenisch[28] calls attention to the frequency of this condition. Groedel[29] has reported on the pathological changes in the region of the ileocolic valve in cases of ileal stasis, believing that the incompetency is often due to chronic perityphlitis.

I am now able to report that in my much more extensive series of cases (1,500) in each of which the competency of the ileocolic valve was tested by the bismuth enema, I have found incompetency of the valve in nearly 250 cases, or 1 in 6, the same proportion observed in the smaller series first reported. It should be noted that since these were gastrointestinal cases referred for bismuth meal examination, including cases of suspected gastric carcinoma, gastric ulcer, duodenal lesions, gallbladder disease, chronic appendical disease with or without fixation of the cecum, kinks, torsions, spasms, and tumors of the colon, the presence of ileocolic valve incompetency might be expected in a relatively large proportion of cases. Since the importance of ileocolic valve incompetency has been recognized and its symptoms more definitely studied, a number of cases have been clinically diagnosed by my colleagues as ileocolic valve incompetency and the patients have been referred for roentgenographic study with special reference to this point.

Determination of ileocolic valve incompetency is surely a matter of considerable importance. It is generally agreed among anatomists and physiologists that the valve is normally competent, both to gas and fluid. The proof of the existence of antiperistalsis, especially the proof that it occurs in man, increases the probability that the ileocolic valve should be competent under normal conditions.

The observations of Kellogg and other surgeons during various abdominal operations, gives abundant confirmation of my belief that the normal ileocolic valve is thoroughly competent.

I have found the ileocolic valve of the pig and the dog competent, withstanding enormous gas or fluid distention of the colon.

The following surgical operation on a dog is further proof of the competency of the normal ileocolic valve. In a dog, the pelvic colon was divided. The ileum was also divided about 10 inches from the ileocolic valve. The proximal end of the divided ileum was inserted into the proximal end of the divided pelvic colon, the distal end of the ileum and the distal end of the pelvic colon being joined. Thus the course of the food was from the ileum into the descending colon, then into the transverse, the ascending, through the ileocolic valve, and the last 10 inches of ileum, into the pelvic colon and rectum. The dog died of intestinal obstruction 36 hours later, the intestinal contents having accumulated on the distal side of the ileocolic valve which had remained thoroughly competent.*

Bull[20] stated in 1878 that one liter of water injected into the bowel was sufficient to reach the cecum. Bull's experiments convinced him that in the living body fluid could not be forced beyond the ileocolic valve, but when the bowel was distended by air, the valve was rendered incompetent and air entered the small intestine.

Dawson,[21] in 1885, after experiments upon the cadaver, concluded that the ileocolic valve, when normal, effectually guards the small intestine from gas and fluid from below.

Ziemssen[22] recommended inflation of the rectum as a means of diagnosis and treatment *by special procedure*, the patient being placed under anesthesia. He states that as a rule, the small intestine is usually closed to the return of material from the colon into the ileum by the ileocolic valve. Under deep chloroform anesthesia, however, this resistance is decreased and fluid can be forced into the small intestine. Heschl,[23] after a number of experiments, concluded that the ileocolic valve acts as a safe and sufficient barrier to the entrance of fluids from the colon into the ileum.

On the other hand, Cantani[24] firmly believed that the ileocolic valve was permeable to fluid injection and suggested that the small intestinal tract be utilized in cases of rectal alimentation and in cases requiring the use of medicinal enemata. In one instance, he treated a case of bowel obstruction by the injection of oil. Half an hour later, part of the oil was vomited.

*The operation on this dog was kindly done by Dr. D. B. Phemister.

Battey[35] was convinced from clinical experience that the whole alimentary tract was permeable to the enema.

Illoway[36] reports four cases of intestinal obstruction treated by forcing water beyond the ileocolic valve. Three of these cases recovered.

Senn,[37] in discussing the use of the rectal injection in overcoming bowel obstruction due to invagination, states that when the obstruction is located beyond the ileocolic valve, no reliance can be placed upon this method.

Senn based this theory upon the following experiments:

"While completely under the influence of ether, the abdomen of a cat was opened and an incision was made into the ileum just above the valve. By gently retracting the margins of the wound, the valve could be distinctly seen. Water was then injected per rectum and after the cecum became well distended it could be readily seen that the valve became tense and appeared like a circular curtain, preventing effectually the escape of even a drop of fluid into the ileum. The competency of the valve was then overcome by overdistention of the cecum, which mechanically separated its margins, allowing a fine stream of water to escape into the ileum. The incompetency of the valve was clearly caused by the great distention of the cecum. That such a degree of overdistention is dangerous is proved by this experiment, as the cat was immediately killed, and examination of the colon and rectum showed a number of longitudinal rents of the peritoneal coat."

In another experiment, a cat was etherized, and while the body was inverted water was injected per rectum in sufficient quantity and with adequate force by means of an elastic syringe to overcome the resistance offered by the ileocolic valve. After the competency of the valve was overcome, the water rushed through the small intestine, traversed the entire alimentary tract, and issued from the mouth. About a quart of water was forced through the valve in this manner. The cat was killed and on examination two longitudinal lacerations of the peritoneal coat of the bowel over an inch in length on opposite sides of the bowel were found.

In experiments in which fluid was forced beyond the ileocolic valve, post-mortem examination revealed in two cases longitudinal lacerations of the muscular coat of the rectum. A third animal died immediately after the experiment, from the effects of the injection. "The forcible injection of water beyond the ileocolic valve must therefore be recognized as a dangerous expedient and should never be resorted to." (Senn.)

However, Senn states that under normal conditions, the ileocolic valve in a healthy adult person is overcome by rectal inflation under a pressure of 1½ to 2¼ pounds (0.7 to 1.1 kilo), and that this amount of pressure is not sufficient to injure the tunics of the intestine. The inflation should be made slowly and steadily to avoid injuring the intestine. It requires a pressure of only 1 to 2½ pounds (0.4 to 1.1 kilo) to force air through the ileocolic valve and out of the mouth, while even the weakest portion of the gastrointestinal tract effectually resists a pressure of 8 to 10 pounds (3.6 to 4.5 kilo). The experiments of Behrens[38] agree with those of Senn.

According to Senn, the escape of air through the ileocolic valve from below upward is attended by a blowing or gurgling sound heard most distinctly over the ileocecal region and by a sudden diminution of pressure. The incompetency of the valve is caused by a lateral and longitudinal distention of the cecum, which mechanically separates the margins of the valve.

Débièrre[39] experimented on the cadaver and found the valve more often permeable in cases where the lower lip was smaller, contracted and shorter than the upper. If both lips of the valve were equal in length, the valve was usually impermeable.

Piersoll[40] calls attention to the fact that under anesthesia the tonicity of the muscular fibers of the gut is less and in the open abdomen the pressure of the viscera on the end of the ileum is less than normal. Hence, if the experiments are performed *in situ*, the closure is more likely to be perfect than if the parts have been lifted out of the abdomen.

In 35 or 40 individuals, I have examined the ileocolic valve on more than one occasion to determine whether or not the competency observed was transient or whether it was permanent. In some cases, the patients have been examined a third time. The interval between the two examinations in several instances was as long as three months. Without exception, when the ileocolic valve has been found incompetent to the bismuth enema on one occasion, it has been found incompetent on all examinations. In one patient in particular (Fig. 11) who was examined once a month for five months, the ileocolic valve was found incompetent at all examinations and the degree of filling of the ileum was approximately the same on all five occasions.

A very strong evidence in favor of the normal competency of the ileocolic valve is the fact that when incompetent, its competency may be restored by a simple surgical procedure. Dr. J. H. Kellogg, chief surgeon of the Battle Creek Sanitarium, whose interest in this matter was enlisted through the great frequency with which I was discovering incompetency of the ileocolic valve in the course of my routine bismuth examination work, agreeing in the belief that the ileocolic valve incompetency must be an important factor in the production of intestinal stasis, has devised an operation for restoring the competency of the ileocolic valve which he has performed in more than 30 cases.[41] In every single case, the Roentgen diagnosis of the ilecoceal valve incompetency was confirmed at operation and that the valve competency was restored by the operation performed was determined not only by testing the valve *in situ*, before the abdomen was closed, but by later roentgenographic tests. In every single case, the barium clysma test has later proved the competency of the valve. The influence of this operation upon the emptying time of the ileum has also been tested by the usual bismuth meal. Thus far no evidence has been secured which would lead us to believe that there has been the slightest hindrance to the passage of ingested food from the ileum into the colon. On the contrary, the length of time required for the ileum to empty has been distinctly shorter than before the operation, more nearly approaching the normal. It should be remarked that the operation for repair of the ileocolic valve was, in each of the cases above referred to, performed in connection with some other operation requiring opening of the abdominal cavity. As stated by Dr. Kellogg in a recent paper,[42] he is firmly convinced that in certain cases it may be perfectly justifiable to operate definitely to restore the competency of the ileocolic valve. In a few instances in which the ileocolic valve had appeared to be competent to the bismuth enema, at subsequent operation, the competency of the valve appeared to be open to question, at least in relation to gas, since slight pressure upon the cecum was found sufficient to cause a reflux into the ileum, after the latter had been thoroughly emptied. In accounting for such cases, I have borne in mind the experimental evi-

dence above quoted that under anesthesia the tonicity of the muscular fibers of the gut is less and have assumed that the valve itself was incompetent even at the time of the bismuth enema, but with the patient awake and the bowel tone normal, the activity of the ileocolic sphincter was sufficient to prevent a reflux of the clysma into the small intestine, even though the valve lips did not closely approximate. It should be further noted that at operation, the test of the valve competency is made with gas and not with fluid. The experiments of Senn and others would indicate that one may overcome the competency of the ileocolic valve much more easily with air than when employing fluid, especially with the patient under anesthesia.

A case of special interest is that of the young man above mentioned into whose gastrointestinal tract I introduced a silken thread, 7 meters long, traversing the entire length of the tract. I tested the ileocolic valve competency on two separate occasions before introducing the thread, and again after the thread was in place and found that the valve was still thoroughly competent. Then using the thread as a guide, I introduced a metal electrode as far as the upper end of the descending colon, incidentally making more or less traction upon the thread in the effort to pass the sound around the splenic flexure. The traction upon the thread rendered it taut in the region of the valve, producing an incompetency as demonstrated by roentgenograms made a few moments later, showing the terminal ileum filled for a considerable distance. After the experiment was concluded and the thread withdrawn, another examination was made and the valve again found to be normally competent.

It is frequently stated in literature with reference to rectal alimentation that if the nutriment be given in saline solution, it is more likely to be carried past the valve. In order to test this point, in a series of 50 colon injections, I added enough salt to the clysma to give it the strength of normal saline solution. Comparing these 50 consecutive cases with the preceding 50 and the 50 succeeding colon injections made without salt, I was unable to see the slightest difference in the percentage of ileocolic valve incompetencies.

I also made several series of experiments to test the influence of the composition of the bismuth clysma. I found that using barium sulphate, bismuth oxychloride or bismuth subcarbonate in a gummy suspension in water with or without saline solution and in buttermilk suspension with or without the addition of salt, I obtained constant results, the same percentage of cases, one in six, holding practically constant.

In reviewing the notes of my large series of cases of ileocolic valve incompetency, the most striking fact learned is that, in the majority of cases, ileocolic valve insufficiency is associated, not with diarrhea, but with constipation. Our present knowledge of the antiperistaltic phenomena in the colon makes it easy to understand why we find ileal stasis and constipation rather than hypermotility, when reflux from the colon into the ileum is no longer prevented by a competent ileocecal valve.

A discussion of the clinical symptoms and pathology of the ileocolic valve would not be in place in this paper. The clinical aspect of this subject has been fully discussed by J. H. Kellogg.[42]

It is generally recognized that rectal alimentation is, on the whole, unsatisfactory, although there are enough cases of successful rectal alimentation to warrant the continuance of the practice. In the light of our present knowledge concerning the ileocolic valve incompetence, it seems to me reasonable to believe that those cases in which rectal alimentation has proved successful were cases of ileocolic valve incompetence. Under ordinary conditions the valve acts as a sufficient barrier so that any attempts, either for diagnostic or therapeutic use to introduce fluid beyond the ileocolic valve are unsafe and unjustifiable.

In the text I have recorded several of the observations upon which this paper is based. I will close by appending the observation notes in a few interesting cases, which were dictated to a stenographer as the patients were being examined. Space permits the publication of only a few of the 67 very interesting observations thus recorded.

## OBSERVATION NOTES.

Case IX.—(Miss I. C.) Observation at 9:30 A. M., fifty-two hours after the Rieder meal. It was seen that the colon was well filled from cecum to splenic flexure, the first half of the colon being well filled. It was also noticed that there was in the pelvic colon near the rectum a bolus of bismuth having the appearance of having just come to rest after a mass peristalsis. The edges were smooth and the shadow was regular and round, the size of a hen's egg. I noticed this mass in the pelvis making an onward movement, which excited my interest. The transverse colon was so prolapsed that it hung down over the pelvic colon, so I manipulated with my hand in order to displace it upward. Immediately after my manipulations I saw the bismuth occupying the middle of the transverse colon suddenly lose its haustral markings and bunch up into a mass, the size and shape of a small banana. This at once started on its way toward the splenic flexure. The distal end of the mass was broader and tapered off toward the proximal end. Its progress was about twice as rapid as a peristaltic wave in the stomach or perhaps a little faster. The onward progress of this mass is illustrated in Figs. 7, 8, 9. About half of it was left in the descending colon. The remainder went on into the pelvic colon and was added to the mass already there, above referred to. After this there was a slight movement of smaller masses, but no other large mass movement. The patient said she had no sensation that there was peristalsis in progress. She did not have any desire to defecate. The patient had a glass of water with breakfast, but no water since. Observation at 9:30; breakfast at 7:30; no bowel movement. The patient has always been constipated. She stated she did not think the bowels moved three times in the past year without assistance.

Case XV.—(Mrs. N. W.) At the eleventh hour, bismuth was seen evenly distributed throughout the cecum, ascending, and transverse colon. I made considerable manipulation of the cecum to determine the presence of the bismuth shadow in the appendix and to test the mobility of the cecum. I also made manipulations to separate the two legs of the hepatic loop. Just as I was about to close the examination I caught a glimpse of a blotchy, sausage-shaped shadow, which told me either of an impending mass movement or one just at an end. In this case it proved to be one just ending, bismuth having been carried from the cecum around the hepatic flexure into the first part of the transverse colon. The borders of the mass were still perfectly rounded and smooth. During further observation the contraction of the circular muscles slowly and increasingly indented this shapeless mass until it took on the appearance of haustral segmentation. The appearance of the rest of the bowel showed a state of peristaltic unrest—the large, pendulum movements of Rieder. In at least two places, a small sausage-shaped mass was in motion at about the same rate as peristaltic waves in the stomach. It seemed that respiratory movements aided in the onward progress of the small bismuth masses. Manual vibration was then made over the cecal shadow in the effort to stimulate another large peristaltic movement, but instead of producing an onward wave distinct antiperistalsis was observed. The haustral indentations became deeper. During the next half hour a number of observations were made, showing clearly that peristalsis and antiperistalsis were occurring in the right half of the colon. It was also seen

that the pelvic colon was gradually filling up, small boluses the size of a pigeon's egg traveling slowly down the descending colon into the pelvic colon. Mechanical vibration was then employed, first over the cecum and then over the whole of the ascending and transverse colon. The only observable result was an increase in the depth of the haustral segmentation and a general, more even distribution of the contents of the colon throughout its entire extent. In this case there was a persistent constriction at about the junction of the right and middle thirds of the transverse colon. This constriction was seen at nearly all observations, although occasionally it relaxed, but then only for a short length of time.

Case XXII.—(M. V. S.) At the observation made twelve hours p. c., the same appearance of bismuth figure, as heretofore described, was noticed. In this case a sausage-shaped mass occupied the first part of the descending colon. The head of the bismuth column reached within three inches of the crest of the left ilium. During the observation, which lasted fifty minutes, the head of this bismuth column traveled at least seven inches. At no time could I say that I saw an actual movement of the bismuth except that caused by respiration. The movement was quite imperceptible, yet observations made from time to time at intervals of three or four minutes showed the unmistakable onward progress. After ten or fifteen minutes a small bolus of bismuth the size of a filbert was separated from the head of the bismuth column, and during one of the intervals between observations was carried from the level of the crest of the ilium clear down into the pelvic colon. The bismuth in the region of the hepatic flexure also exhibited active antiperistalsis, definite waves being seen in the first two or three inches of the transverse colon. In this instance, following the above observation, careful massage was given very thoroughly, the masseur having first carefully noted under the screen the position of the transverse colon. Massage was given under the most favorable circumstances possible, but aside from the increased depth of the haustral markings no appreciable change could be noticed during five minutes. Following the massage, antiperistaltic waves were observed.

Case XXXI.—(Mrs. J. M.) When examined twenty-two hours p. c. the appendix region was carefully searched and the cecum palpated to determine its mobility, after which I glanced at the rest of the colon to determine the extent of filling. It was seen that the bismuth filled the transverse colon and onward as far as the middle of the descending colon. Further search, accompanied by manipulations, was made in the region of the cecum, after which the diaphragm was opened for a final look at the whole abdomen before closing the observation. At this time my attention was attracted by the peculiar configuration of the contents of the descending colon. The haustral indentations were no longer present. A large segment of the bowel contents, probably five inches in extent, was pinched off by a single contraction, very similar to that seen in the stomach. While observing, this ring contraction was seen to pass at about twice the rate of peristaltic waves in the stomach, distalwards, carrying before it this large mass of bowel contents, five inches in length. The bowel behind the peristaltic wave was left empty except for a faint trace of the bismuth leaving a shadow about the size of a small lead pencil from the splenic flexure downward. This wave traveled from the splenic flexure to the iliopelvic junction without hindrance. While making further examination a second collection of bismuth, about four or five inches in length was seen to round the splenic curve on its way downward. The patient stated that just before the observation she had had an inclination to empty the bowel. The observations were made three hours after breakfast. Just before coming into the examining room the patient drank one glass of cold water.

Case XL.—(Mrs. D.) Observation twelve hours p. c. I noted that the bowel presented the appearance of peristaltic unrest (Fig. 9), characterized by Rieder as the large pendulum movements. The head of the bismuth column had reached the middle of the descending colon. The cecum was in normal position and not unusually large. The terminal ileum was filled by a considerable mass of bismuth, evidently a case of ileal stasis. I had the patient drink a glass of cold water, after which thorough colon massage was administered. The massage appeared to have a most pronounced effect in emptying the terminal ileum. I then observed once more the position of the head of the bismuth column and it was seen to have moved onward at least five inches in the descending colon. During this study, although a number of observations were made during the course of the massage, I did not at any time see the mass actually move, but from the observations it was evident that the head of the bismuth column was moving onward. In the first part of the transverse colon an isolated mass of bismuth was seen to move backward toward the cecum, showing definitely the presence of antiperistalsis.

Case XLIV.—(Mrs. M. C.) Observation twelve hours p. c. On beginning the observation bismuth was seen in the terminal ileum and in the colon from the cecum to the first third of the transverse. I manipulated the cecal region for a few moments, using the Holzknecht palpatorium. My attention was diverted for a moment and when I again illuminated the screen I saw that the cecum and ascending colon were empty and that there was a large, smooth-bordered collection of bismuth occupying the right half of the transverse colon at about its middle. A large bolus about four inches in length and one and a half inches in diameter, rounded at the ends, was separated off and carried across the transverse colon, down the descending, into the iliac colon. Twenty minutes later the patient was again observed and it was noted that the colon was uniformly filled from the cecum to the middle of the descending colon. A very thorough, carefully directed massage was then administered in this case to induce, if possible, another mass movement. No portion of the bismuth was disturbed by the massage, but, as previously observed, the haustral indentations became more pronounced during the last fifteen minutes. The sausage-shaped mass which had been carried from the hepatic flexure into the descending colon made no further progress.

Case LVII.—(Mrs. M. B.) Observation twenty-eight hours p. c. The patient had a chronic duodenal ulcer with marked gastrectasis. At the twenty-eighth hour there was still a considerable residue in the stomach. The entire colon was seen to be filled from cecum to rectum, the shadow being of small caliber and not very dense, especially in the pelvic colon. The cecum was manipulated to study the appendix and test its mobility, but the appendix was not visible. I then glanced at the stomach to study the pylorus further. My eye was caught by the characteristic blotchy shadow in the ascending colon, indicating an impending or just ending mass movement. In this instance the bismuth was seen to move rapidly onward through the entire length of the prolapsed transverse colon at, at least, twice or three times the rate of speed of peristaltic waves in the stomach. This bolus of bismuth was seen to pass into the very rectum itself, having originated in the hepatic region.

Case LX.—(Mrs. A. J.) Observation ten hours p. c. The colon was seen to be filled as far as the middle of the transverse colon. The bismuth collection looked suspicious of peristaltic unrest and at once aroused my attention. While observing a bismuth mass the size of a small lemon was moved backward half way around the hepatic flexure. This observation had been preceded a few moments before by manipulation of the cecum and ascending colon. While watching for still further movement, this bolus of bismuth was seen to travel clear across the transverse colon and down into the sigmoid. During the first part of the observation the progress of the bismuth cecalward and the reversion in the direction of the bolus toward the sigmoid took place at about the same rate as peristalsis in the stomach. After that the progress was slow and could only be noted by observation from time to time. At the twenty-eighth hour the patient reported a copious bowel movement, a rather unusual occurrence with her.

Case LXII.—(Mr. S.) Observation following bismuth injection. Normal filling of the colon. Ileocecal valve competence. Following the injection, the patient was able to empty the colon completely except for a bolus of bismuth in the cecum the size of a goose egg. For perhaps two minutes my attention was diverted, after which the observation was renewed. There was at once observed the characteristic, smooth-edged, blotchy appearance of the bismuth shadow which means an impending or just ending large pendulum movement. The shadow was smooth-edged and was clearly cut off at both ends except for a track (trail) of bismuth on the proximal side. This bismuth bolus traveled from cecum to iliac colon in one rapid peristaltic movement, less than two minutes being required to traverse the entire distance. A retrograde movement was observed in this case, a bismuth bolus traveling from the iliac

colon back to the splenic flexure, after which it flattened out and the haustral markings began to show. The bolus became progressively thinner and longer.

CASE LXVI.—(H. R. T.) Observation ten hours p. c. Bismuth still showed in the small intestine for about four inches. The appendix was visible. The cecum was freely movable. The head of the bismuth column reached as far as the last third of the transverse. The cecum was manipulated considerably. Shortly afterwards there was a mass movement in the left third of the transverse colon, carrying a bolus into the descending colon down as low as the crest of the ilium, where it soon again took on its haustral markings.

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# A SIMPLE SUBCUTANEOUS CUT TO CURE "TRIGGER-FINGER" OR "SNAP-FINGER."

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MOST physicians have occasionally encountered a case of trigger-finger and have been puzzled to account for its cause, or to cure it.

The patient grasps a brush, or closes the finger over any medium sized object, and on releasing it, finds the little finger or one of the others refuses to open. The victim uses his other hand to raise the finger, when it suddenly jumps up with a snap and sometimes a little pain.

This has been variously explained by surgeons of many countries as due to a supposed swelling, due to a congested point somewhere along the flexor tendon where it catches under a restricting bridge of fascia covering the tendon sheath. This tumefaction has not been well demonstrated or uniformly located at any point. My first five cases reported assumed this explanation.[1] After studying many subsequent cases[2] I operated at last on the annoying case in the hand of my revered master in surgery, Dr. Robert F. Weir.

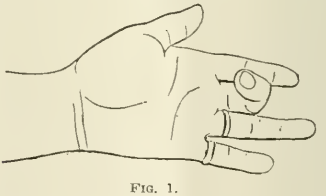

FIG. 1.

He wrote extensively of this topic in reporting his own case.[3]

I operated under cocaine anesthesia by a long incision beginning near the distal joint of his finger, finding no relief to the repeated snapping tests with the tendon exposed in the open wound until I had cut nearly to the middle of the palm. Then, by division of the constricting transverse fibers resting on the tendon sheath, the relief was instant and has endured for years.

I then decided to try a simple subcutaneous cut with a fine knife at this point in the next case pre-

senting itself for my care. I located this bridge *exactly under the extreme flexure crease of the palm.*

Recently a distinguished artist sought relief from this distressing condition. He had been

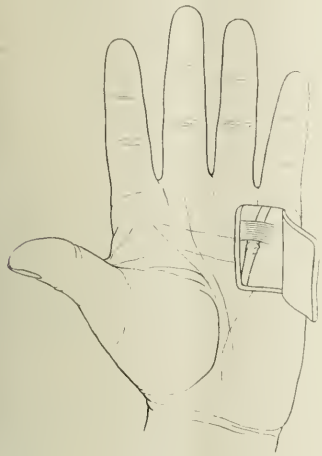

FIG. 2.

obliged to paint with his palette on a table, because when holding it and his brushes in the grasp of his left hand, the little finger stuck tight down and only admitted relief with a painful snap. I at once painted the part with iodine, inserted a fine bistoury in the flexure crease, and pressing the point down to the tendon, drew it along for a half inch. The relief was instantaneous and final. The finger now closed into the palm and played naturally without catching. A small pad of boracic gauze made pressure for two days and the trouble was cured.

The tendon is easily located by thumb pressure at the crease, and is not covered by nerve or vessel. Cutting the tendon fibers lengthwise (if one wished to cut deeply, which is not necessary) would in no wise damage the tendon.

I offer this as the simplest and most perfect operation for the cure of this distressing condition.

The trouble is explained, not by a rheumatic tumefaction of the tendon, but by a crumpling up of the conjoined flexor tendon at the point indicated in the drawing, very much as a tape might crinkle when slack, above a slot and refuse to pull back easily.

This simple operation not only solves the riddle but cures the malady.

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13 WEST FIFTIETH STREET.

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**A Case of Jaw-Winking.**—F. G. Crookshank reports the case of a girl, aged nine years, who had congenital unilateral ptosis. When the muscles of her face were at rest this ptosis was considerable. When she depressed her jaw or moved it sideways, not only did the ptosis disappear, but the sclerotic became visible on the affected side, above the cornea.—*Proceedings of the Royal Society of Medicine.*

# A CAUSE OF PERITONEAL ADHESIONS IN A NEW BACILLUS; THE BACILLUS ADHÆSIOFORMIS.

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THE right half of the abdomen is peculiarly liable to perienteric adhesions. Most of these are found from the lower end of the ileum to the sigmoid, mainly, the ascending colon, hepatic flexure, and the right half of the transverse colon. They are also found in the stomach, duodenum, and gall-bladder. The terms "pseudo-peritoneal adhesions," "Jackson's membrane," "Lane's kink," "gallspider adhesions," "membranous periocolitis," and "membranous perienteritis" seem part of a same process, namely, a reaction on the part of the parietal peritoneum to irritation, protection from irritation, or both. Frank irritation is seen in the posterior adhesions of the cecum and ascending colon in the agglutinizing form and the anterior fan-like adhesions of firm consistency that pass directly from the gut to the parietal peritoneum or to other portions of the gut; protection against the production of such stiffer and thicker adhesions is seen in the formation of the pseudoperitoneal membrane which Jackson described in 1909.

The etiology of the production of these adhesions is held by many as not yet settled. Some believe that they are non-inflammatory, among these, Lane and Mayo; the former, that they are secondary to enteroptosia with chronic constipation, and the latter, that they are a congenital condition. Leander

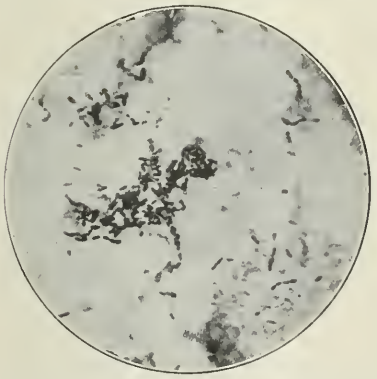

FIG. 1.—Case I. Photomicrograph of the bacteria. Gram differential stain, not counterstained so that only the Gram positives are visible. X 1000. At each of three operations performed for obstruction due to adhesions it was noted that, beginning with them only at the sigmoid, they successively involved the descending colon, the splenic flexure, the ascending colon and the cecum, and finally the lower ileum. The operations were performed each time for a slowly developing stenosis at one of these sites, the intestine having become impassable. At present there is definite stenosis at the sigmoid, splenic flexure, ascending colon, and the lower ileum. The adhesions are fibrous in type. (Patient, Dr. G. A. S. Referred by Dr. Robert T. Morris.)

believed them due to colitis in infancy, and Binnie and others that they are secondary to chronic colitis. Recently, suggestive argument has been advanced that they mostly are secondary to certain unknown toxic processes primarily taking place

within the gut. The study of the bacteriology of stools in my cases, and the findings at operation and postmortem at which the parts are visually examined and the contents of the gut studied bacteriologically, prove to me that they

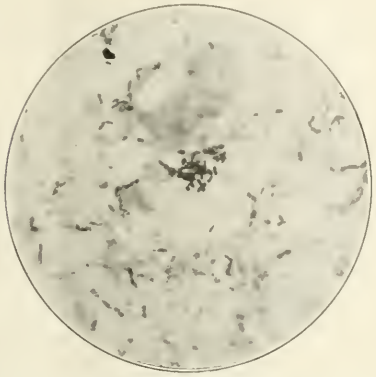

Fig. 2.—Case IX. Same bacteria as Fig. 1. At operation, Lane's Kink; extensive Jackson's membrane generally involving the right abdomen from the lower cecum to the proximal transverse colon; chronic appendicitis and several bands of perienteric adhesions. (Patient, A. G. Referred by Dr. Francis P. Kinnicutt.)

are commonly due to changes in the bacteriology of the intestinal canal in its most active part, namely, from the lower ileum to the mid-transverse colon, and that the resulting adhesions are reactions of the peritoneum from bacteria-food toxins resorbed by the lymphatics and venous radicals as they emerge from the gut—notably those that emerge from the anterior band of the ascending colon. The event of adhesion formation in my postmortem experience may take place without evidence of ulceration or active inflammation in the gastro-intestinal tract or in other peritoneum covered viscera. It appears that a mild degree of productive fibrinous peritonitis is set up and organization of the exudate forms adhesions or a membrane according to whether the process is active or slow. When slow, time is allowed for the development of an endothelial membrane freely movable on the surface of the gut for its protection, but later on, with the persistency of the toxemia, this membrane may thicken into truer adhesions by the organization of additional tissue, these adhesions forming contracted fibrous bands. There are, however, postmortem findings suggesting that some of the adhesions are undoubtedly of frank inflammatory origin.

In the earlier stages of Jackson's membrane the colon presents a thickened or edematous appearance and, on close inspection as well as microscopic examination, the viceral peritoneum seems to be raised from the bowel-wall by reason of the presence of a subendothelial, hyaline-looking substance or exudate. This endothelial layer of the peritoneum gradually becomes separated from the bowel as a distinct layer, and beneath it, covering the bowel-wall, there forms another layer of endothelial cells. This is a protective process, but when it continues the newly formed endothelial cells on the surface of the gut are successively raised off and the process in this way forms thicker bands of adhesions, particularly when the resorption is active. The original membrane then is no longer protective, because now the adhesions are thick and firm and cannot be separated from the gut without leaving a raw and bleeding surface during life and a raw surface at post-mortem.

There is operative and post-mortem reason for the belief that this formation of membrane begins early in adult life, and very probably in the child. These are the years in which infections of the bacteriology of the intestinal canal are almost as often met with as in the older, and further than that, the process beginning in young life usually means a more virulent one, with, not only a greater liability of reaction locally, but also a more marked effect upon the system generally.

In the hope that investigation in this connection would add something to our limited knowledge of the subject, I have made studies in eleven cases that had been operated upon in which extensive colonic adhesions were observed, and seven autopsies in which various parts of the gut were carefully sectioned, in all of which the bacteriology of the contents were studied. Without going into detail of the large amount of work done, I desire to present these beliefs:

The upper part of the intestinal tract being comparatively free from microorganisms, such adhesions as are encountered in the stomach and duodenum are distinctly inflammatory in cause; those from gall-bladder infections most probably from the portal system and indirectly into the liver and toxic directly from the gall-bladder; while those from the intestines are due almost always to the resorption of soluble toxins from the site. I believe that the presence of the colon bacillus in cases of appendicitis or gall-bladder infections cannot be taken as a cause when anaerobic bacteria can always be grown from these same specimens. The colon bacillus in itself is essentially a non-pyogenic organism, and in each instance, whether it be considered responsible for an inflammation (such as in pyonephrosis, abscess of the kidney, perinephritic abscess, subphrenic abscess, and abscess of the liver) other bacteria, generally anaerobes, growing perhaps only scantily with them, are more responsible for the production of the infection than is the associated *B. coli.* The colon bacillus is symbiotic with all of the forms of intestinal anaerobes and also with most of the Gram positive saprophytes. It appears that the Welsh bacillus is the only important intestinal anaerobe capable of culturing itself easily outside of the gut. Even here, in the presence of a mixed infection, certain of the other organisms of the intestines may be found if examined for carefully.

It is known that the organisms most frequently found by the use of proper cultural methods are the anaerobes seen in all inflammatory conditions having their origin in or about the appendix. Runeberg and Heyde mention these as the *B. fusiformis* VII., *B. thetoides, B. ramosus, B. ramosoides, B. perfringes, B. butyricus, B. parapneumococcus, B. pseudotetanus,* and *B. streptococcus anaerobicus.* While these organisms, most of which are designated under other names in this country, are practically never found alone but always in symbiotic relation of two or more varieties, to which the colon bacillus and ordinary pus-producing organisms are only associates, I desire to add what I believe is an organism first described here. The various organisms mentioned are all possible of cultivation in the majority of instances having adhesions, but my investigations have led me to the belief that

neither one or any combination of them is as common a finding in these cases as the organism drawn attention to, which also is commonly associated with them.

The organism I desire to describe is a Gram positive, which may be morphologically met with in three shapes, fusiform, sausage-shaped, and a few with square ends. In raw stool specimens a few of them show a spore at one of the ends, and some show a spore at both ends. It is about as thick as the Gram positive cocci and not quite the diameter of the Gram positive diplococci. It is about half of the size of the *B. aërogenes capsulatus* and unlike that organism is not capsulated. Some of the forms, particularly those having rather square ends, are shorter and resemble those of the coccal type. Most of them have straight sides and cannot be confused with the saprophytic nodulated organisms nor the *B. putrificus* which is narrower and longer. They occur singly but are only significant in a diagnostic sense when found in groups of a dozen or more, or in great numbers; in some instances there may be as many as a hundred to a field. In every specimen they never represent the predominant organism of the stools or even those of the Gram positive forms, and are easily overlooked unless a search for them is made. When possible of being grown in culture, they never show a capsule or produce the acidity that the *B. aërogenes capsulatus* do. The fact that they have no capsule sharply distinguishes them from the Welsh bacillus in addition to the above-mentioned morphological observations, together with the fact that the Welsh bacillus is easily grown while these are not. Further than these, they are usually met with in groups and chains while the *B. aërogenes capsulatis* is usually detached except when met with in blood cultures. Further than the aforementioned, the spores of the gas bacillus are more commonly observed. A point in differentiation is that in raw stool specimens the spores may be seen while in culture specimens they are not; this suggests that they only sporulate when in the intestinal canal. If a feces extract is made to which peptone and maltose has been added they grow best, but even here with great difficulty. They are not cultivatable by ordinary laboratory methods whatever medium is used and however it is manipulated, neither by the aerobic nor the anaerobic means. Either they are mostly dead when excreted, or, like many of the other intestinal bacteria, are not cultivatable by artificial means. The bacillus is not of the colon or Gram negative group and is non-motile. It occurs in definite sizes and does not vary in size as the *B. aërogenes capsulatus* does. It resembles the *B. aërogenes capsulatus* in not possessing flagella. It is a most exacting anaerobe, decidedly more so than the *B. aërogenes capsulatus*, and in culture does not produce the amount of gas that the Welsh bacillus does.

Various media have been tried to cultivate this bacteria and all have failed but one. In two of the post-mortem specimens and one of the operative cases the bacillus isolated from the region of the head of the cecum was more possible of cultivation than that obtained from the stools. As was stated before, one can rarely grow this bacterium from the stools. There is a method, however, employed by me in studying it which answers to fair purpose, and that is to make a fluid mush of the stool in question with a normal saline solution by thoroughly macerating the stool in considerable normal saline solution. After a few hours, usually three, this fluid is centrifuged for the purpose of throwing down the solid particles of feces. The supernatant fluid is then passed through a Berkefeld filter until it is sterile of bacteria. Peptone and maltose are then added to it and the media rendered neutral in reaction with sodium carbonate. In this medium, under strictest anaerobic conditions, a sparse growth may be obtained, but no other medium, not even the Cohendy, answers the purpose. As incomplete as a Gram differential stain of raw feces is for the designation of any of the intestinal organisms, it nevertheless is the only means clinically possible here, excepting the means of the medium suggested. It must be mentioned that unless one is thoroughly familiar with the bacterial pictures of stools, other bacteria may be designated as the one drawn attention to. In my opinion, it is the most active adhesion former of any or all of the organisms known and described before, and for the purpose of advancing it still further, I have taken the liberty of giving it the clinical distinction of the name, the *B. adhæsioformis* (adhesion former.)

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## SPRAIN FRACTURE OF THE OS CALCIS.*

By A. O. Wilensky, M.D.,
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A solution of continuity in that portion of the extensor apparatus of the foot, comprising the tendo

Fig. 1.—The plate was taken about two weeks after the injury took place. It is probable that the size of the upper fragment is much exaggerated, owing to its convexity, and to a slight formation of new bone.

*From the surgical service of the Mount Sinai Hospital Dispensary.

Achilles and the os calcis, is a fairly common injury. The line of division is most frequently present in the os calcis, through a line which crosses the point of fixation of the heel bone between the ground and the overlying astragalus. Next in order the

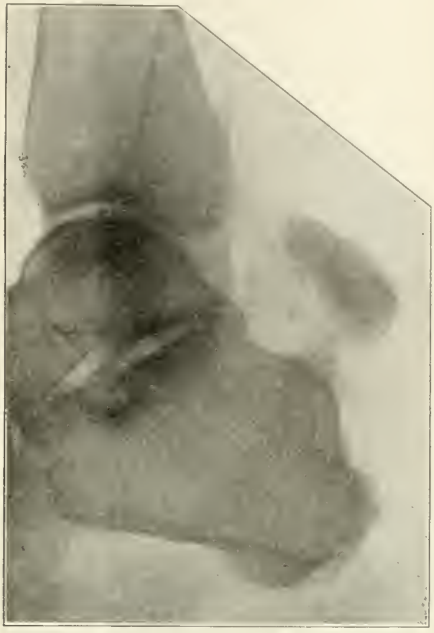


Fig. 2 shows the condition six months after the occurrence of the injury.

line of fracture will pass through the bone, between this point and the insertion of the tendo Achilles; and lastly a tearing of the tendon itself may occur.

It is uncommon for a fracture to take place, so that a thin plate of bone, corresponding to the insertion of the tendo Achilles, is torn away from the cortex of the os calcis. This would correspond to a sprain-fracture.

Case No. 971 (series of 1913).—An Irish woman, forty-two years of age, a housekeeper by occupation, fell down a short stairway into a cellar, injuring her foot. The patient is not certain as to the exact manner of falling, but remembers distinctly that the foot and leg were doubled under her. She was treated at home for about ten days, during which time she was unable to walk. When she came to the clinic she had a very pronounced limp and was unable to rise on her toes. There was marked ecchymosis, together with much edema, over the entire foot and leg as high as the knee. The *x*-ray demonstrated that a sprain-fracture had occurred, the tendo Achilles together with a thin bony segment having been torn from its attachment to the os calcis. The separation between the two torn surfaces was over an inch and there was indication that an attempt at callus formation was being made. This interval could be distinctly felt. Deformity of moderate degree was present and visible. Operation was advised, but, the patient refusing, the injured limb was treated by strapping, and by persistent massage, and passive and active motion. Two months later the patient walked with a limp, which was distinctly less than when first seen, and began to show some increase in the power of extension of the foot. She could rise on her toes, but could not maintain herself in that position. The interval between the two torn surfaces was just as large and deformity persisted, and had not grown less. There was no evidence in the *x*-ray photograph that satisfactory union by bony tissue would take place. Operation was again advised, but was refused. Four months later the patient walked with a sliding gait combined with a slight limp. She could rise on her toes more easily and could maintain that position for about one minute. The interval between the torn surfaces was filled with a hard, dense fibrous scar, and the *x*-ray substantiated that fact by showing the absence of callus formation. On the whole, it seems that the woman obtained a very satisfactory result without operation.

Fractures of the os calcis may occur by direct or indirect violence. In the former event, we have what has been called a "compression fracture." In these cases the subject usually has fallen from a great height and has landed on his heels. The os calcis is fixed between the malleoli, the astragalus, and the ground. The energy of the fall is expended directly at the point of fixation, and the fracture results. It corresponds very closely with the manner in which a stone is broken by a hammer, and the imitation is carried still further by the fact that frequently the bone is broken into more than two fragments or shows extensive comminution. In the fractures due to indirect violence, the so-called "avulsion type" of fracture, the same fixation occurs, but in attempting to prevent the injury, at the moment of falling, the patient unconsciously contracts his calf muscles so powerfully that the posterosuperior portion of the os calcis is torn away. In some cases the bone is stronger than the tendo Achilles, and the tendo Achilles itself is ruptured. This is the much more uncommon lesion. The case reported belongs somewhere between the two last conditions. It should not be considered as a fracture of the os calcis, nor as a ruptured tendo Achilles, but as a lesion intermediate between the two.

1200 Madison Avenue.

## AN APPLIANCE FOR THE INTRODUCTION OF INSTRUMENTS INTO THE STOMACH.*

By Max Einhorn, M.D.,

New York.

Professor of Medicine at the New York Postgraduate Medical School.

Several of my instruments have to be swallowed by the patient. They consist of thin, long pliable tubes, which present very little resistance and do not annoy the patient when in the digestive tract (deglutible stomach electrode, duodenal pump, etc.). Others are attached to a silk thread with the same object in view.

While in the great majority of cases there is no difficulty in their introduction, the patient usually being able to swallow them easily with water, we meet in rare instances with exceptions to this rule.

To this class of cases belong patients who never can swallow a pill or capsule, and highly neurotic individuals, who cannot apparently do what they are instructed to perform. Again, there are instances in which a cardiospasm appears and prevents the entrance of the instrument into the stomach.

Not long ago I had occasion to use the duodenal pump on a patient, and here the instrument remained probably just above the cardia for two to three days without budging, notwithstanding that the patient took liquid food and that the food entered the stomach all the time. In this patient, where the pump failed to enter in two days I introduced it into the stomach by means of the new

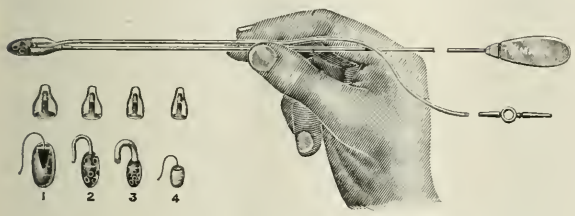
*Demonstrated at the New York County Medical Society, on January 26, 1914.

instrument—to be described in the following—in a few seconds.

To obviate just such difficulties an appliance was constructed which makes it possible to introduce the instrument desired directly into the stomach without any effort at swallowing on the part of the patient.

The instrument consists of a whalebone stem (which can be arranged in the divisible form), at the end of which is attached a hollow metal cap with a wide incision on one side and rounded off edges.

This cap fits loosely over the top of the capsule of the instrument to be introduced, the incision serving for the reception of the tube or thread attached. Caps of various sizes can be screwed on to the whalebone stem (see figure), fitting the various instruments.




The Gastric Pusher or Introducer. The top line shows the Introducer with the deglutible electrode ready for use. The middle line illustrates the different caps (1) for the stomach bucket, (2) for the deglutible electrode, (3) duodenal pump, and (4) duodenal buckets which are represented in the third line underneath their corresponding caps.

When introducing the instrument desired, the capsule top is lodged in the metal cap, and the thread or the tube of the instrument kept taut along the whalebone stem. The latter is then pushed through the throat and esophagus into the stomach of the patient. When there the tube or thread is released, the whalebone pushed a little further down, slightly shaken—this serves to separate the instrument from the cap more efficiently—and then slowly retracted. This instrument may be termed "Gastric Instrument Introducer," or "Gastric Introducer,"* or "Gastric Pusher," and can be used for the introduction of the gastric deglutible electrode, the duodenal pump, the hard rubber radium capsule, stomach bucket, duodenal bucket, etc.

## THE FIRST OBSERVED CASES OF FRIEDREICH'S ATAXIA IN AMERICA.

By J. H. KELLOGG, M.D., LL.D.
BATTLE CREEK, MICH.

THIS peculiar affection was first described by Friedreich of Heidelberg, Germany, after whom the disease was named, in a paper in Virchow's Archives in 1863. (Vol. XXVI, pp. 391 and 433). Other publications were made by Friedreich in 1864, 1876 and 1878. Friedreich regarded the disease as a hereditary form of locomotor ataxia. In 1883 an important paper in which a different view of the nature of the disease was presented was published in Germany by Rutimeyer (Virchow's Archive's, 1883, XCL, 106), and ten years later Pierre Nearie published in France a study of a large group of cases to which he gave the name hereditary cerebellar ataxia.

The following article was published by the writer in the *Archives of Electrology and Neurology*, edited by Dr. George M. Beard, New York, 1875, and republished in *Modern Medicine* for December, 1898:

"*Locomotor Ataxia in Children*—The patients, two brothers, were first seen by me about the first of May, 1875, and were under treatment and daily observation during the months of May, June, July, and August. They were aged, respectively, seven and ten years, and were of average development for their age. The younger of the two, when not in motion, gave every appearance of perfect health, and was a very mirthful, intelligent child. The symptoms of the disease were most marked in the older boy. The ataxia of his lower limbs was so great that he was unable to walk, yet there was very little loss of muscular strength, or of electro-muscular contractility, with slight decrease of sensibility in the lower limbs. He could only move about by creeping on his hands and knees. The ataxia symptoms were quite apparent, though less strongly marked, in the head and upper extremities. Speech was slow, indistinct, and difficult. Sight and hearing were both appreciably impaired, and there seemed to be difficulty in controlling the eyes. The face wore an expression of stupid imbecility; yet when aroused, the intellect did not appear to be greatly impaired. In the younger boy, the ataxic symptoms were almost wholly confined to the lower extremities. He could walk without much difficulty, though clearly manifesting the peculiar gait characteristic of the disease. His speech was distinct, and both sight and hearing were acute.

"The mother of the boys stated that the disease was first observed in the older one about four years previously, when he was a very sprightly, well-developed child, having been healthy from infancy. He could then speak distinctly, and could see and hear as well as others. The disease had progressed steadily from that time. Only about one year and a half had elapsed since the first symptoms were marked in the younger child; but the advance of the disease had been much more rapid than in his brother.

"In endeavoring to discover, if possible, the exciting cause of this grave malady, at so unusual an age, I was unable to fix upon anything which could be considered at all sufficient to account for it. Both parents were healthy and of good character and habits. I elicited, however, what seemed to me to be fair presumptive evidence that the predisposition to the disease at least was hereditary. The facts upon which this opinion was based, are these: (1) The same disease appeared in another child of the same family, a boy, and at about the same age. In this latter case it continued until it resulted in death from inanition, the muscles of deglutition being paralyzed at the age of twenty years. (2) The same disease also affected several children in the families of two sisters of the mother of the boys, pursuing the same course as in the last case referred to. In each of the three families there were other children who enjoyed perfect health.

"In all these cases various modes of treatment had been tried without the least apparent benefit. Magneto-electricity had been used, but without effect. I decided, in order to test the value of electricity as a remedy in this disease, to use no drugs,

*The "Gastric Introducer" can be obtained at Tiemann & Co., 107 East 28th St., New York City, N. Y.

especially as the latter had been faithfully tried without effect, but to confine the treatment wholly to electricity and simple measures for improvement of the general health. The plan of treatment followed during the whole time the patients were under treatment, was this:

"'Central galvanization, with prolonged application to the spine, every other day, with a current of ten or twelve Stöhrer cells; general faradization once a week; frequent sun baths, sponge baths, and daily friction of the whole skin with the dry hand, together with systematic active and passive movements of the lower extremities. The only additional measures were abundance of exercise in the open air, and a generous diet.'

"*Results of Treatment.*—For several weeks there was no apparent change, except that the progress of the disease was checked. This was especially noticeable in the younger boy. During the next few weeks there was a manifest improvement in both cases, which was remarked by all who saw them (they were much noticed). The improvement was decided in the younger boy, but the older one improved so much that he could walk with canes. During the last month there was no further improvement, and treatment was discontinued, as the parents were unable longer to bear the necessary expense, being some distance from home. From my observation of the effects of electricity in these cases, I am encouraged to believe that if it could be employed at an early period in this disease, it would not only check its further progress, but would effect a cure."

Directly after the appearance of the republication in *Modern Medicine* the writer received a letter from Dr. Charles L. Dana, of New York City, in which the cases above described were recognized as the first observations of Friedreich's disease made in this country. It is scarcely necessary to add that the hope expressed as to the curability of the disease by the use of electricity was not realized. The two cases described died two or three years later. A considerable number of cases treated since have seemed to be very materially benefited by systematic training of the muscles by exercises similar to those recommended by Fraenkel in the treatment of locomotor ataxia. In one case, that of a girl of twelve years, such marked improvement was made that the patient became able to swim and was greatly improved in walking and other movements.

## QUANTITATIVE COLORIMETRIC ANALYSIS IN AID OF CLINICAL DIAGNOSIS.

By RICH. WEISS, Ph.D., M.A., F.C.S.,
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Clinical laboratory investigation is pursued as a matter of routine by almost all the medical institutions in the world, but only a limited number of private practitioners attempt to have all measures for the precise diagnosis in their own hands, and do not fear the tedious nature of many of the processes and the amount of time necessary for the performing of chemical tests required for the thorough diagnosis.

Recently considerable importance has been attributed to the quantitative analysis of cholesterin and uric acid in the blood, and particularly those medical men who are interested in the study of infantile disease have tried to work out fairly accurate methods for the quantitative estimation of the aforementioned substances. It is only quite recently that in the University laboratory of Freiburg Professor Autenrieth and his assistants have discovered methods which are easily carried out, and which are at the same time absolutely accurate. They are of great importance to the general medical practitioner, inasmuch as they can be carried out without recourse to expensive instruments or complicated chemical methods. I have modified them in order to bring them within reach of the general practitioner, and will describe them briefly here.

*Cholesterin in the Blood.*—Two c.c. of serum or 0.1 to 1 c.c. of fresh or dried tissue are placed in a 100-c.c. beaker and 20 c.c. of a 25 per cent. aqueous solution of caustic potash are added. The mixture is boiled in the water bath for 2 to 3 hours, cooled, and without being diluted, is placed in a separating funnel and thoroughly shaken for a few minutes with 2 or 3 times its volume of ether (about 40 c.c. ether are required for each shaking operation). After a deposit has formed and the ether solution is separated the remainder is again shaken up with the same quantity of ether. This is repeated about five times. The combined ether extracts are allowed to stand for a short time, the ether is filtered, and the filtrate distilled off. The residue, which consists of cholesterin, is dissolved in a definite amount of chloroform and used for the colorimetric determination.

Five c.c. of this chloroform solution are placed in a 10-c.c. graduated cylinder, and 2 c.c. of glacial acetic acid, and 0.1 c.c. concentrated sulphuric acid are added. The cylinder is now shaken and placed in warm water at 30° to 35° C, and kept in a dark place for 15 minutes. A small quantity of this solution which is green colored is then colorimetrically compared with a normal solution of cholesterin freshly prepared from pine cholesterin. The comparison is best performed in a colorimeter, for which purpose the instrument designed by Professors Autenrieth and Königsberger will give the quickest and most accurate results, and with which a normal cholesterin wedge is supplied.

The liquid to be examined is placed in the little trough which forms part of the instrument and is compared with the standard wedge also fixed into the instrument. The observation is made through a small window, behind which a Helmholz double plate is fixed. This plate is the essential part of the instrument, for by it the liquids, *i.e.* the standard and the specimen liquids are joined and seen together so closely that the slightest difference in the colors of the liquids can be observed. The position of the trough is fixed, but by a mechanical device the standard solution, which is provided in a suitable wedge, can be moved up and down, thereby with the least movement comparing different quantities of the standard solution with, of course, varying intensities of color before the eye of the observer. This shifting up and down is continued until the exact point is found at which the standard wedge shows identically the same color intensity as the specimen liquid in the trough which, it must be remembered, is seen simultaneously with the standard liquid. At the same time as the wedge a scale of figures is made to travel along a pointer, so that exactly at the point where both liquids show the same color a certain figure can be read off the scale. This figure is applied to a comparison scale, such as is provided with the instrument for any kind

of clinical examination—which will give direct readings of the quantity contained in the specimen, thus obviating all calculations.

*Uric Acid in the Blood.*—Two, five, or still better 10 c.c. of blood are mixed with a few milligrams of ammonium oxalate to prevent coagulation and the mixture is added to five times its volume of boiling 10 per cent. acetic acid, and reheated to the boiling point. The mixture is filtered and the coagulum mixed again with 200 c.c. of boiling water to which 1 gram of sodium acetate has been added. After five minutes it is again filtered. The collected liquids are evaporated until the volume approximates 3 c.c. and twice washed with 2 c.c. of a 0.1 per cent. solution of lithium carbonate into the glass tube of a centrifuge. Thereafter 5 drops of a 3 per cent. silver lactate solution, 2 drops of a magnesia mixture and 10 to 15 drops of ammonium hydroxide are added, and the mixture is centrifuged. The clear liquid is then poured off, the residue mixed with 5 drops of sulphureted hydrogen solution, and 1 drop of concentrated hydrochloric acid. The sulphureted hydrogen is driven off again by immersing the tube in boiling water until a 0.5 per cent. solution of lead subacetate does not produce a cloud. Water is now added and the mixture is again centrifuged. The clear liquid is poured into the separating cylinder, the residue twice washed again with hot water, the liquids being each time poured into the separating cylinder. Two c.c. of diluted sulphuric acid and 5 c.c chloroform are added and finally 1 c.c. of a 10 per cent. hydriodic acid, the mixture being gently shaken. The iodine liberated and dissolved in the chloroform is estimated as outlined above by means of the colorimeter.

## PATHOLOGY, ETIOLOGY, AND DIAGNOSIS OF TYPHOID FEVER.*

By G. A. RUECK, M.D.,

NEW YORK.

THE purpose of this paper is to review briefly the facts concerning the pathology, etiology, and diagnosis of typhoid fever which have been established by the researches of the pioneers of modern medicine, and which the busy practitioner has no time to read up in the original articles.

1. Pathology.—The cause of typhoid fever is the *Bacillus typhosus.* It was discovered in 1880 by Eberth, in the spleen and mesenteric glands of typhoid fever patients who had come to autopsy. The final proof of the etiological connection of this bacillus to typhoid fever was shown by Gaffky in 1884. The typhoid bacillus is a short rod, 1 to 3.5 microns in length, with a width varying from 0.5 to 0.8 microns. Its ends are rounded, but never club shaped. It forms no spores, is actively motile, and has twelve or more flagella, which are peripherally arranged. It stains with ordinary aniline dyes, and is Gram negative. In appearance it has nothing absolutely distinctive which could serve to differentiate it from bacilli of the typhoid-colon group. The typhoid bacilli are present in the circulating blood of all the patients during the entire course of the disease. According to Hiss they do not appear in the feces until the intestinal lesions are well advanced and ulceration is occurring (second week and later). In the urine the bacilli are present in about 25 per cent. of the cases during the early days of convalescence. In these cases albumin is present in the urine in considerable quantities. The bacilli usually appear and disappear with the albumin. In general the bacilli have not been found before the fifteenth day of the disease and examinations of the urine, therefore, can be of little early diagnostic value. He did not find the bacilli in 75 cases before the fourteenth day of the disease. They have been found for weeks, months and, in isolated cases, for years after convalescence, the examination thus having much hygienic importance. It is noteworthy also that in the course of and following typhoid fever there often occurs voiding of *B. coli* with the urine. The bacteriemia in these cases is due to two organisms, *B. typhosus* and *B. coli communis.* The typhoid bacilli are found in the gall-bladder at autopsy and at operations for cholecystitis months and years after the occurrence of typhoid fever. Miller of Johns Hopkins found it 7 years, von Dungern 15 years, Dowd of the General Memorial Hospital, New York City, 37 years after an attack of typhoid fever. In such cases the typhoid bacilli may be discharged from the intestine and prove a menace to the health of the community. An interesting example of such a typhoid carrier has been carefully studied and reported by Park. This typhoid carrier was within five years the cause of 26 cases of typhoid fever. Another remarkable case discovered by an investigator of the Department of Health of New York City on a dairy farm which shipped milk to a New York City dealer was found to have been an active typhoid carrier of forty-six years standing. A large milk-borne outbreak of typhoid fever in New York City was traced to this source. Neufeld found the typhoid bacilli in the rose spots in thirteen out of fourteen cases. In the sputum it occurs in rare cases complicated by bronchitis, bronchopneumonia, and pleurisy. It may be found in empyema usually accompanied by a mixed infection. The typhoid bacilli are probably also present in the cerebrospinal fluid of all the cases of typhoid fever, but there is at present not enough laboratory evidence to confirm this statement absolutely.

At autopsy the typhoid bacilli may be obtained from the blood, feces, urine, gall-bladder, rose spots, sputum, pus of empyema, and other suppurative lesions, from the ulcers in the intestines, the spleen, and often from the liver, kidneys, and cerebrospinal fluid.

*Lesions.*—In typical cases of typhoid fever the mucous membrane of the intestine is swollen and congested, presenting all the signs of an acute catarrhal inflammation. The characteristic lesions, however, are to be found in the Peyer's patches and solitary follicles. The lymphoid structures are invaded by the specific microorganism, become inflamed and proliferate actively. The Peyer's glands therefore are enlarged, soft, and intensely reddened, and project above the general surface as flattened plaques. The solitary follicles also may be so much swollen that they appear like little polypes on a slender pedicle. At the height of the first stage the surface of the affected plaques presents a curious grooved "beard-like" appearance. This appearance is due to the unequal swelling of the connective tissue stroma and the lymphoid elements. At the beginning of the second week portions of the affected follicles undergo a form of coagulation necrosis. The central parts slough away, leaving superficial erosions, which often as-

*Paper read before the Bronx Medical Association, September 3, 1913.

sume a brownish color from bile straining. In the course of the next few days the sloughing process gradually extends until well-defined ulcers are produced, having a fairly smooth base and swollen and infiltrated edges. The ulceration tends to penetrate into the depths, and usually extends as far as the muscularis mucosæ which may be recognized by its clear ribbed appearance. The well-defined, typical typhoid ulcer is somewhat oval, the long axis corresponding to the long axis of the bowel; the base is smooth, the edges comparatively thin and undermined. Small ulcers may be irregular, especially when they do not involve the whole extent of the Peyer's patch, or again, may be small and round, when involving a solitary follicle. As a rule, the most advanced ulcers are to be found in the region of the ileocecal valve and become less marked as one passes up the ileum. In very severe cases the last foot or so of the small bowel together with the head of the cecum may be converted into a large gangrenous eschar. The typhoid ulcer may heal without leaving any trace of inflammation at all, or, it may be replaced partially or entirely by scar tissue. Healed typhoid ulcers in which the lymphoid tissue has been entirely replaced by connective tissue may often be recognized as oval patches which are smooth, pigmented and somewhat depressed below the general surface of the bowel.

Coincidently with the intestinal involvement, the mesenteric glands and spleen are swollen, hyperplastic and inflamed. They may, as a consequence, be greatly softened. Spontaneous rupture of the spleen has occurred but is rare. Operations for this condition have been followed by death of the patients. There is only one case on record in which a patient was operated upon successfully for a ruptured typhoid spleen and recovered. The operation was done by William Downes upon his associate visiting surgeon, Dr. Hitzroth, in the New York Hospital, February, 1913. The mesenteric glands may undergo necrosis or suppurate. Perforation of the bowel is not uncommon and unless early recognized leads to a fatal peritonitis. Because of the peculiar asthenic type of the typhoidal infection and the fact that leucocytes are scanty and the exudate is poor in fibrin, adhesions do not readily form. Adami saw only two cases with adhesions in typhoid peritonitis. Perforation of the gut occurred according to Adami in 2.66 per cent. of 2,036 cases of typhoid fever treated at the Royal Victoria Hospital, Montreal.

Another dangerous complication is hemorrhage due to the erosion of some vessel in the ulcerated area. This accident occurred, quoting Adami again, in 6.04 per cent. of cases.

In the course of typhoid convalescence or during the later weeks of the disease suppurative lesions may occur in various parts of the body. The most frequent localization of these is in the periosteum, especially of the long bones and joints. They usually take the form of periosteal abscesses often located upon the fibia occurring either late in the disease or even months after convalescence and are characterized by very severe pain. Osteomyelitis may also occur but is comparatively rare. Typhoid spines are not uncommon. We had a case in St. Francis Hospital in 1909. The patient was put in a plaster-of-Paris jacket and recovered. Subcutaneous abscesses and deep abscesses in the muscles due to the typhoid bacillus have been described by Pratt. Synovitis may also occur. Meningitis due to the typhoid bacillus is not infrequent during convalescence. A case of primary meningitis has been reported by Farnet. Obstinate cystitis caused by typhoid bacilli may follow in the path of typhoid fever. Suppurative processes in the kidneys are less frequent. Peritoneal abscesses due to the typhoid bacillus have been reported. Zinsser has reported a case in which typhoid bacilli were found free in the peritoneal cavity during typhoid fever without perforation of the gut. In his thesis H. Woimant has collected from the literature a number of cases of peritonitis without intestinal perforation and reports in addition one such case personally observed. Isolated instances of typhoid bacilli in abscesses of the thyroid and parotid glands and in brain abscesses have been observed. Phlebitis due to typhoid fever is not infrequent. There are a few cases on record where the typhoid bacillus was found in the wall and endometrium of the uterus. Ricketts has collected from the literature 134 cases of typhoid gangrene of the lower extremities cured by surgical and spontaneous amputations. Typhoid fever without intestinal lesions may occur. An excellent summary of such cases, together with several personally observed has been given by Flexner.

*Definition:* From all the above mentioned findings of the different observers it is evident that typhoid fever is a general blood infection, a septicemia, due to the *B. typhosus*, with a most constant and characteristic localized process of acute inflammation in the intestines, and occasional suppurative lesions in various parts of the body.

*Etiology.*—Typhoid fever occurs in almost all parts of the world and is endemic in character. In the larger communities of the temperate zones epidemic exacerbations take place chiefly in the autumn. These epidemic increases are usually distinctly limited by the distribution of a particular water supply, and are the consequence of some defect in the system of sanitation. The disease is acquired by ingestion of the specific bacteria. Infection by any other channel than that of the alimentary canal has not, so far, been satisfactorily demonstrated. The bacilli leave the body chiefly in the feces and the urine, and there is great danger of contamination of all objects coming in contact with these substances. In the majority of cases typhoid fever is transmitted by the agency of the water. This was the case in the epidemic in Ithaca, N. Y., in 1903. In an analysis of 650 typhoid epidemics Schüder found 462 reported upon reasonable evidence as originating from water. In the statistical summary by Schüder, 110 of the 650 epidemics recorded, were attributed to milk. When contamination of milk has occurred it has often been traceable to the water used in washing the cans or to attendants employed at the dairies, who had been in contact with typhoid cases or who were convalescing from or actually suffering from the infection themselves. Excluding water and milk, all remaining causes of typhoid dissemination constitute about 12 per cent. and are found chiefly in the use of vegetables contaminated from infected soil and from the use of other food products. Conn found that oysters grown in waters close to sewage discharges may be the means of typhoid transmission. An epidemic occurring at Wellesley College was attributed by him to this cause. Foote demonstrated experimentally that typhoid bacilli may be found alive within oysters for 3 weeks or

more after they have disappeared from the surrounding water. Indirect contamination of food and water by flies and other insects has been emphasized by Veeder as one of the methods of typhoid transmission. He observed that in camps during the Spanish-American War flies in large numbers traveled to and fro between the sinks and cook-tents and he concluded that at least some of the typhoid fever occurring at that time may have been caused in this way.

*Diagnosis:* The chief symptoms of typhoid fever are the peculiar temperature curve (gradual rise, maintenance, slow descent); the pulse, which becomes early dicrotic; the comparatively slow respiration; the rose spots; the enlarged spleen, a distinct diazo-reaction in the urine, a positive Widal blood-serum test and cultures demonstrating the presence of the *B. typhosus* in the blood. Of some diagnostic value also are epistaxis, headache, and the absence of leucocytosis. Ordinarily a positive Widal reaction in dilutions of the patient's serum of 1:40 and more is considered to be specific, but a distinct agglutination appears in typhoid fever rarely before the beginning of the second week. It may then continue during convalescence for 6 to 8 weeks and in chronic infections of the gall-bladder due to *B. typhosus* for years. A blood-culture is therefore the most scientific way of making an early diagnosis in typhoid fever. The great majority of cases of typhoid fever are correctly diagnosed as such by competent observers within the first week or ten days; only in a small proportion the diagnosis remains uncertain for a longer period.

In conclusion, I believe that all cases of typhoid fever give the agglutination reaction at some time during the disease. Cases in which this diagnostic reaction is absent are caused by other organisms. I personally advocate for routine work the macroscopic instead of the microscopic agglutination test and in doubtful cases (1) the macroscopic agglutination test of the serum of the patient with different organisms, and (2) blood cultures of the organisms with the following necessary tests for identification.

1070 Tiffany Street.

## Medicolegal Notes.

**Agreement Not to Compete—Validity—Extent of Relief.**—A contract by which a physician employed as assistant for one year provided that it might terminate at any time when desired by either party, in which event the assistant would not open an office within the same town for the practice of his profession, was continued by a renewal from year to year by general agreement or acquiescence of the parties. It was held, in an action for an injunction to restrain the assistant from practicing medicine in the town, that all the provisions of the contract, so far as applicable, including the assistant's agreement not to open an office upon the termination of the employment, remained in force, and such provision applied upon a termination of the employment after the expiration of the period of one year. The continuation of the contract continued the restriction.

It was claimed by the defendant that the contract was invalid because it was (1) an agreement in restraint of trade; and (2) so inequitable, oppressive, and contrary to public policy as to be unenforceable in a court of equity. It was not claimed to be a contract in general, but only in partial, restraint of trade. It was held that a contract of this character, if not against public policy, is valid if it be founded upon a legal consideration and be reasonable. A contract in partial restraint of trade will not, as a rule, be held to be against public policy, unless it unduly interferes with the interests of the public. If its restrictive features be so large as to be likely to injure the public, it must be held contrary to the public welfare. A contract of sale restricting one entering a similar business in a limited area might not injuriously affect the public, while a contract restricting the exercise by one of his ordinary avocation might. In determining whether the public interest be involved in contracts restricting employment, we must keep before us the necessity of preserving inviolable the agreements of men so far as they be reasonable, and of maintaining the freedom of individuals to pursue their ordinary avocations. There is no attempt by this restrictive provision to restrain the defendant from pursuing in an extended territory his avocation for either an indefinite or a limited time.

The test of the reasonableness of the present contract was met by answering the question, Does it afford a fair protection to the interests of the employer in whose favor it is made? The area of restriction was limited to the place of practice. Without the aid of the restriction, the defendant having won the confidence of the plaintiff's patients, might breach his contract, and take away from him the very patients whose confidence he had gained while in the plaintiff's employ. There was no other effective way by which the plaintiff could protect himself in his livelihood except by preventing the defendant from wrecking his practice. The defendant insisted that there was a distinction between a business and a profession; that, while the period of restriction as to a business may be unlimited, the rule should not apply to a profession, since it is a purely personal relation whose benefits cease upon death or the cessation from practice.

The court did not think the distinction tenable. A profession partakes on its financial side of a commercial business, and its good-will is, it was held, often a valuable asset. While it is true that the profession has its personal side, the court considered that it is not true, except under exceptional circumstances, that a professional man is indispensable to any community. The distinction sought by the defendant is made in a few cases but generally the courts do not recognize it. The facts of the complaint—and each case must be governed by its own facts—showed no circumstances of hardship attendant upon the making of the contract and no advantage taken of the employee and no wider restriction than was reasonably necessary for the protection of the employer; therefore, it was held that the restrictive covenant could not be held to be unreasonable.

The restriction, though in specific terms not limited to time, was held to be, by the fair construction of other provisions of the contract, limited to the lifetime of the plaintiff. It was held to be proper for the court to anticipate the probability that the plaintiff might cease to practice, and to limit the period to the time during which he might be practicing.—Styles v. Lyon, Connecticut Supreme Court, 86 Atl. 564.

MEDICAL RECORD.

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## CANCER AND PRECANCEROUS CONDITIONS.

THIS title was chosen by Rodman for the annual oration which was delivered before the Academy of Surgery of Philadelphia, October 6, 1913, and published in the January number of the *Annals of Surgery*. In it are contained a brilliant general review of some phases of the cancer problem besides some startling, but undoubtedly true, statements that should be given wide circulation among the general practitioners of this country. It is pointed out that in spite of the world-wide study of the subject in recent years, but little additional information has been given to the clinician to enable him to detect cancer in its early and curable stage, when it is believed to be a local affair and the diseased focus can be permanently eradicated. But, it is also suggested, "are we not * * * neglecting valuable means already at hand, facts proved to the hilt, which if employed rightfully and in time, would undoubtedly save thousands where hundreds are now being saved?" And then follow the startling statements, backed up by statistics, that 90 per cent. of the cases of cancer of the cervix and stomach are inoperable when first seen by the surgeon, and that the same thing is true of 29 per cent. of cancers of the breast, and of a larger number of the cases of cancer of the tongue and mouth. By this he does not mean that these cases "are unfavorable or fairly late ones but are actually inoperable, in other words, without a reasonable chance of removing the disease." What is the reason for such delay in getting these cases to the surgeon? In gastric cancer the physician usually "waits until he can by symptoms, signs, test meals, skiagrams, etc., make a *positive* diagnosis. When this can be done the case is no longer operable." Operations in such cases are at the best only palliative and often of doubtful benefit to the patient "while their deterrent effect upon others with operable conditions is far-reaching and permanent. To them their friend or acquaintance died, not from cancer, but from an operation; hence they themselves will have none of it." The situation is similar in cancer of the mouth, tongue, uterus, and breast.

Rodman lays considerable stress upon the harm that is done to the practice of surgery and, reflexly, to the early cancer patient by operating in cases where extensive metastasis has already occurred, and he believes that operations upon advanced cases "should neither be practised nor sanctioned, unless for the best of reasons." There is far from being unanimity of opinion, however, as to the limit of operability. Rodman says: "By inoperable we mean a condition no longer local but general and one which cannot, therefore, with reasonable certainty be extirpated on account of metastases to adjacent or distant tissues or organs." Strictly speaking, this would seem to rule out operation on the breast when the axillary glands are palpably enlarged; and yet, in these cases the enlarged axillary glands often, microscopically, show no sign of cancerous involvement. Deaver (*Jour. A. M. A.*, March 15, 1913) in 200 operations for cancer of the breast found the axillary glands palpable in 74 cases and of these 13 were found to be non-cancerous. There was certainly no way of determining before operation whether these glands harbored metastatic cancer cells or not, and the outcome proved that the patients were entitled to their chance. Again, we may sometimes suspect but cannot be sure that metastasis has taken place to distant and inaccessible regions. These patients are entitled to a chance, for our suspicions may turn out to have been based upon an incorrect interpretation of the symptoms. The limit of operability will long remain debatable, but Rodman certainly is right as to the harm that is done by operating in those cases in which there can be no question as to the extensive dissemination of the disease.

Rodman quotes as follows from the latest report of the Pennsylvania Cancer Commission: "In 3 per cent. of the cases of cancer of the breast the physician first consulted failed to make a local examination, and in 13 per cent. advised local applications or 'waiting to see what develops.' In gastric cancer the first physician consulted made no local examination in 9 per cent. and gave bad advice in 20 per cent. In cancer of the cervix no local examination was made in 10 per cent. and bad advice was given in 20 per cent. In cancer of the ovary no local examination was made in 14 per cent. and non-intervention was advised in all. * * * As a general average, cancer patients have been under the care of their family physician more than a year before they applied for a radical cure." Since, in many regions, the average time of appearance of lymphatic involvement is within one year, one can readily see what this delay on the part of the general practitioner is apt to mean to the patient; and this too without taking into account the much greater rapidity of involvement if it happens to be the medullary type of cancer, and the danger of metastases to the osseous system, especially to the vertebræ, or to other inaccessible regions. Operations for mammary cancer with axillary involvement yield 25 per cent. of cures, and 80 per cent. if operation is done before the disease has spread to the nearest lymph nodes, while a larger percentage of early, strictly local carcinomata of the lip and larynx yield to excision. Taking the cases as they come at the present time "carcinomata of the alimentary tract from mouth to anus are permanently

curable in about one-fourth of the cases; whereas carcinomata of the mammary gland give upward of 50 per cent. of 5-year cures."

Regarding precancerous conditions, Rodman remarks that we "should aim at something which will save nearly all instead of half our patients. There is but one way in which it can possibly be done and that is by operating in the precancerous stage. * * * Such precancerous conditions are inflammatory, inasmuch as a mild, low-grade, chronic inflammation, due to long-standing irritation and resulting in either ulceration, hyperplasia, or cicatricial tissue, is present in all of them. This, in turn, means diminished arterial supply with lessened physiological resistance of the cells undergoing metaplasia. While there may be in addition something more necessary, extrinsic or intrinsic, to initiate the cancer process, this much is always present, a suitable soil, if you please, and would seem enough in itself to cause cancer." The true cause of cancer is as yet undiscovered, but Rodman's suggestion as to the danger of leaving a suitable soil is well worthy of serious thought on the part of surgeon and practitioner alike. It is a matter of common knowledge in the profession that the sites of predilection of cancer are those situations that are most liable to traumatism of one kind or another; the cervix of the uterus, the breasts, the constricted portions of the alimentary tract, the tongue, the smoker's lip, the gall-bladder that is allowed to remain irritated by gallstones. Early removal or repair of the lacerated cervix is prophylactic surgery, surgery in what may well be a precancerous stage; and the same may be said of the removal of fibroadenomata of the virgin breast; the removal or drainage of a calculous gall-bladder. These are some of the points that every member of the profession should constantly bear in mind.

## DENTAL SEPSIS AND ITS RELATION TO THE GENERAL HEALTH.

It is only within recent years that the importance of oral and dental asepsis has been fully recognized. Possibly, in days gone by, a matter of fifty or one hundred years and more ago, teeth were sounder than they are now. The manner in which we live and the food we eat at the present time account to some extent for the frequently unhealthy state of the mouth, gums, and teeth. In any event, a thorough appreciation of the fact that a person with carious teeth carries within himself foci of infection which may terminate in serious disease, is of only comparatively recent date. Dr. William Hunter of London has been among the most insistent concerning the menace of oral sepsis. He has preached the gospel of the clean mouth with the greatest persistency for many years, and his crusade has had very beneficial results. The late Dr. Kinnicutt of New York was also very active in the same direction, and it may be now said that the public has become alive to the danger of the dirty mouth as a source of infection.

In the *American Journal of the Medical Sciences*, February, 1914, is a paper by C. N. B. Camac which he read at the meeting of the Association of American Physicians held in Washington, D. C., May, 1913. Camac in this paper discusses dental sepsis and its relation to the system. The necessity for careful radiographic examination of teeth and gums by an expert is emphasized as is also the need for loyal cooperation between the internist and dentist. Without such cooperation Camac points out the opportunity for treating a person afflicted with arthritis, brought about by infection from the teeth, is lost. Stress is laid upon the likelihood that vaccines are the only certain means of combating these destructive pyogenic infections in their advanced stages, and it is argued that the loss of the opportunity to procure this important therapeutic agent would be a serious and culpable omission. Setting aside the question as to whether the dental involvement is the cause or effect of a general sepsis, the clinical fact remains that the material procurable from such foci frequently offers the only chance of identifying the invading organisms and of procuring material from which vaccines may be made. The histories are given of several cases which were studied by Camac in cooperation with Drs. M. I. Schamberg, Alexander Currie, W. D. Tracy, and Harold S. Vaughan, dentists of New York City. The histories of these cases supply further direct evidence of the intimate relationship between dental sepsis and certain systemic conditions and strongly support the contention of the writer that a realization that one is dealing with abscess cavities, due possibly to the most virulent organisms, with the inevitable absorption of destructive toxins, is essential to the prompt and radical cure of such cases. Camac recommends that cultures should always be taken at the time of the removal of the tooth or the operation for draining the pus, and in the event of a positive culture, vaccines should be prepared and stocked in case they may be needed at some later date.

It really matters little whether intestinal stasis, as many say, is the primary cause of dental sepsis or whether the root of the trouble is in the teeth and gums and the alimentary tract is infected secondarily. Of course there is no doubt that when the vicious circle is established one condition reacts on the other, and the intestinal and digestive disorders *pari passu* with the dental sepsis become worse until a systemic toxemia is established with its long train of physical and mental ills. It goes without saying that both the digestive disorders and the oral sepsis should be treated as effectively as possible as it also stands to reason that so long as infection is present in the oral cavity little progress will be made in the treatment of the other complaints. It is an excellent augury for the future that dentists are taking a scientific and not merely mechanical interest in the condition of the teeth, and the plea of Dr. Camac that internists should cooperate with dentists in the effort to stamp out dental sepsis should be taken to heart by the medical profession.

## PUBLIC HEALTH WORK IN PORTO RICO.

A conspicuous feature of American rule in, or perhaps it would be more fitting to say protectorate over, tropical countries, has been the manner in

which hygienic conditions have been improved. Panama has become the classical example of how modern methods of sanitation intelligently and conscientiously carried out will convert a sink of disease into almost a health resort. The results in the same direction in the Philippines, although they have not been so much in the public eye, have been as noteworthy as those in Panama. Of the public health work done in Porto Rico little has been heard, in spite of the fact that a large number of carefully thought-out plans for coping with various tropical diseases and especially with uncinariasis have been brought or are being brought to a successful issue.

Dr. W. W. King, Surgeon U. S. Public Health Service, describes in "Public Health Reports" December 12, 1913, the work in which he has been engaged as a member of the Institute of Tropical Medicine and Hygiene of Porto Rico. The Institute was organized under the provisions of an act of the Legislative Assembly of Porto Rico, dated March 13, 1913. It was planned and organized by Maj. Bailey K. Ashford, Medical Corps, U. S. A.; Dr. W. F. Lippitt, director of sanitation of Porto Rico; Dr. Pedro Gutierrez Igaravidez of San Juan, and Dr. Isaac Gonzalez Martinez, director of the biological laboratory, service of Sanitation of Porto Rico. At the solicitation of the members of the institute, the governor of Porto Rico requested the Surgeon General of the Public Health Service to detail Dr. King as chief quarantine officer of Porto Rico and later as a member of the Institute.

The plan of the Institute work has three distinct periods: (1) Three months of instruction of sanitary official inspectors, etc. (2) Three months of expeditionary work in the interior mountainous districts. (3) Six months of research work at the laboratory and hospital at San Juan, including the study and examination of data and specimens collected during the expedition. The expedition had three aims: (1) Study of the diseases prevailing in the interior. (2) Establishment of a rural ambulant medical service. (3) Education of both planter and peon in elementary hygiene and sanitation.

The second object is one of immense importance to Porto Rico. The rural population of the Island, according to the census of 1910, was 79.9 per cent. of the whole. Of this number it is estimated by various observers that from 50 to 70 per cent. are in need of medical attention. Owing to various circumstances efficient medical attendance cannot be obtained in the country districts and the consequence is that the greater part of the rural population rely upon home remedies or upon the ministrations of some person in the neighborhood who has acquired a reputation for treating the sick. Dr. King explains the work of the expedition in detail and ends by stating that in the work of the technical commission special attention is at present being paid to the following diseases: *Schistosomiasis*, of which disease careful clinical and epidemiological notes are taken with a view of determining means of infection, intermediate host, and cure. King says that at the present time it seems rather difficult to reconcile Loos' theory of infection through the skin with conditions in Porto Rico. "*La Bonita*," a name given by some of the country people to an affection whose chief symptom is anasarca. It seems to be limited to the country districts and sometimes occurs epidemically. *Nephritis* is present in a large proportion of cases, and it is considered by some physicians to be an acute nephritis due to ordinary causes. It remains to be seen whether it is a disease entity or not. There have been a number of cases of *sprue* recorded from a part of the country where it was not believed to exist. In *Amebic dysentery* emetine hydrochloride has given excellent results. *Malaria*: so far only two barrios, or wards, of San Juan have been found infected. One focus is of the estivoautumnal type. *Venereal disease* is rarely found in the country districts. The cases of *uncinariasis* have not yet been counted, but it is estimated that this disease is still widely prevalent. The type of the disease is milder than that encountered formerly. Severe cases with less than 10 per cent. hemoglobin are, however, the commonest cause of grave illness. The presence of *trachoma* in Porto Rico is well known, but there are widely divergent opinions as to its prevalence and distribution. The work of the expedition was finished on December 15 and a further report will be issued later.

## SOME PHASES OF DISPENSARY WORK.

THE advantages of cooperation are perceived in the Association of the Out-Patient Clinics of the City of New York. The first annual report of this organization has just appeared. A wealth of data pertaining to the common interests of the dispensaries has been gathered, and a strong impetus has been given in the direction of improving the efficiency of dispensary service. Among the aims of the Association are the coordination of the activities of its members, the elimination of unworthy applicants for treatment, the creation of proper standards for treatment, and the promotion of economy in dispensary management.

The above report, detailing the progress that has been made during the first year of existence of the associated clinics, has appeared just at the time when a bill has been introduced into the Assembly of New York State, having for its object the abolition of all dispensary fees from patients. In other words, the aim of this bill is to make all dispensaries absolutely free to the poor. The apparent object of this measure, by wiping out the source of income from dispensary patients, is to reduce all dispensaries to a purely charitable basis, to make them more scrupulous as to the eligibility of their applicants for treatment, and to remove an important obstacle to the economic welfare of the medical profession. The claim may be made by those who advocate the abolition of the dispensary fees, that the various out-patient clinics vie with one another in increasing this source of their income, and that they are anxious to treat as many patients as they can, and in this way do not exercise sufficient care in weeding out unworthy applicants. This claim is, however, to be met by the answer that the associated clinics have already taken steps to limit the number of patients according to the facilities and size of the medical staffs

of the various institutions, and have furthered the long-established campaign of investigation as to the eligibility of all candidates for dispensary relief. It is believed by many that the abolition of the small fee which is charged to patients would be a mistake, and it is to be hoped, therefore, that the bill will not come to a vote without a full and free discussion.

One of the greatest evils in dispensary work at the present day is the careless and slipshod manner in which the treatment of patients is frequently carried on. There is an almost utter lack of standardization of efficiency. The pioneer labors in this direction of Michael Davis of the Boston City Dispensary should receive the hearty commendation of all who are interested in this subject. "Whatever is worth doing is worth doing well" finds its fit application in dispensary work.

Another serious evil of our dispensary system is the irregularity and tardy attendance of the physicians. This can be avoided by increasing the numbers of the members of the medical staff, or by duplicating the separate services in the dispensary. That is, instead of having only one children's service on any day, there should be two children's services which may be operated either simultaneously or in succession. This would, of course, prolong the hours of the clinics but it would make for more efficient work. There should be no reason why all the work of the dispensary is concentrated in the two or three morning or afternoon hours. The series of morning clinics and the series of afternoon clinics would prevent undue waiting, would serve the needs and convenience of a greater number of people, would extend the usefulness of the dispensary, and would utilize to the fullest extent the dispensary plant and equipment. It would require a greater expenditure for clerical and janitor help, but this expenditure would be small compared to the advantages that would be derived.

There should be a system whereby all dispensaries may obtain efficient laboratory aid in carrying on their work. There should be a clinical laboratory attached to at least one dispensary centrally located in every borough. The advantages of this are obvious. In cases in which such laboratory work has been attempted the lack of time and the stress of other work have prevented the physicians in attendance from devoting as much attention to it as they would like. Some dispensaries are attached to hospitals, and in these the hospital laboratory in some instances has undertaken the work of examining specimens sent to it from the different services in the dispensary. The result has been rather inefficient, for the hospital laboratory has done the work for the dispensary in a more or less stepmotherly fashion, and the dispensary physicians have hesitated to overburden the already overworked laboratory of the hospital.

Another matter that requires the close attention of all those who supervise dispensary work is the proper segregation and isolation of patients in the clinic waiting room. In many dispensaries it is not uncommon to see men and women in the same line awaiting their turn for medicine—mothers with babes in arms, genitourinary patients, young girls, children—no regard being paid by the dispensary attendants to the dictates of ordinary propriety. But this is not the most serious evil of the waiting room. It is only too frequent that the physician finds a case of diphtheria, measles, or scarlet fever among patients waiting for him, in some instances from two to four hours. If someone connected with the dispensary made a cursory examination of the people waiting their turn, he would pick out all suspicious cases and these could be kept in suitable isolation rooms, during the arrival of the physician. Such examinations should be made by one of the physicians who happens to arrive earliest at the dispensary, or by the different physicians in the dispensary in rotation. Happily, this mode of isolation has already been practised in a number of dispensaries, but it should be made compulsory in all institutions.

### Proposed Tax on Wood Alcohol.

THE fatalities resulting from the use of wood alcohol are numerous, and it is time that effective steps were taken to prevent its indiscriminate employment. The Secretary of the American Industrial Alcohol Association writing to the *New York Times* suggests that a simple and effective check to its indiscriminate use would be to place it under the rigid supervision of the Internal Revenue Bureau of the Federal Government and make it subject to an internal revenue tax varying from 2 cents to 10 cents per gallon, according to the degree of refinement. There is no necessity to guard against the use of crude wood alcohol, as its disagreeable smell is sufficient to prevent even those of very strong stomachs from taking it internally. A very different case is that of completely refined and deodorized wood alcohol, as this can be distinguished from pure grain alcohol only by expert tests, and in the opinion of the writer to the *Times* should be subjected to the maximum tax and a supervision as rigid as that governing the sale of taxed grain alcohol. It is suggested, moreover, that the law should provide that wood alcohol must be labeled poison, be sold in distinctive packages plainly marked, and its illegal use made subject to heavy penalties.

## News of the Week.

**Marriage Restrictions.**—A bill recently introduced into the New York State Legislature provides that before a marriage license shall be issued in the State both parties to the prospective marriage must file physicians' certificates to show that they are not afflicted with any physical or mental disease which is contagious or likely to become hereditary.

**Beth Israel Hospital.**—At the annual meeting of the Beth Israel Hospital Association in New York on February 26, the plans for the construction of the new building were discussed. The structure will be fourteen stories high, and will contain 500 beds. It is estimated that it will cost approximately $1,000,000. The report of the hospital showed that during the previous year 46,959 cases were treated.

**Hospital for Contagious Diseases.**—As a site for a hospital for contagious diseases, the City of New York has acquired an option on thirty-two

acres of land in the Edenwald section of the Bronx, just south of the Mount Vernon city line. This site has been selected because of the present undeveloped condition of the neighborhood, and because the large area will make possible the erection of many low buildings instead of a few high ones. The cost of land further south and the objections of residents in the populated neighborhoods have made it necessary to select for the hospital a site at the northern end of the city.

**Antivivisection Again.**—For the seventh consecutive year the attempt to secure legislation restricting vivisection in New York City was made before the Senate and Assembly Judiciary Committee in Albany on February 24, when representatives of numerous societies opposed to vivisection appeared to ask for the passage of two bills, one establishing a regulative commission and the other authorizing the appointment of an investigating committee. In opposition to the bills, Dr. Simon Flexner, Prof. Frederic S. Lee, and Dr. William P. Northrup appeared before the committee.

**Samuel D. Gross Prize.**—The Philadelphia Academy of Surgery announces that the Samuel D. Gross Prize of $1,500 will be awarded next year, and that essays in competition for it will be received until January 1, 1915. The conditions made by the giver of the prize are that it "shall be awarded every five years to the writer of the best original essay not exceeding 150 printed pages, octavo, in length, illustrative of some subject in surgical pathology or surgical practice, founded upon original investigations, the candidates for the prize to be American citizens." The essays, which must be by a single author and in English, should be sent to the "Trustees of the Samuel D. Gross Prize of the Philadelphia Academy of Surgery, care of the College of Physicians, 19 South 22d Street, Philadelphia," on or before January 1, 1915. Each essay must be typewritten, distinguished by a motto, and accompanied by a sealed envelope bearing the same motto, and containing the name and address of the writer. The committee reserves the right to make no award if the essays submitted are not considered worthy of the prize.

**Health of the Canal Zone.**—The report of the Department of Sanitation of the Isthmian Canal Commission for the month of December, 1913, gives the total number of deaths from all causes among employees during the month as 29, making an annual average death rate per 1,000 for the month of 6.91. The annual average death rate per 1,000 in the cities of Panama and Colon and the Canal Zone, including both employees and civil population, for the month was 26.92, which is nearly 6 points higher than for the same month of 1912. In segregating according to race, the annual average death rate per 1,000 from disease for employees was: For white, 1.33, and for blacks, 6.10, giving a general average for disease of 5.24. For the same month of 1911 the rate among whites was 5.71, and among blacks, 5.68, giving a general average of 5.68; and in 1912 among whites, 3.74, and among blacks, 5.56, giving a general average of 5.13. No cases of yellow fever, smallpox, or plague originated on or were brought to the Isthmus during the month.

**Civil Service Examination.**—The Connecticut State Civil Service Commission will hold an examination this month for the position of assistant in the State Hospital Service, there being at present a vacancy at the Connecticut Colony for Epileptics, at a salary of $900 per annum and maintenance. Candidates must be single, male, and graduates of a Grade A medical school, and have had at least six months' hospital experience. Application for further details should be made to the Civil Service Commission, Room 55, Capitol, Hartford, Conn.

**Col. William G. Gorgas**, who left South Africa for England on February 28 en route to the United States, will be entertained while in London by the British medical profession, as a mark of appreciation of the excellent work done in Johannesburg by him and his assistants.

**Food Inspectors Dine.**—The first annual dinner of the Food Inspectors' Association of New York was held in this city on February 28. Addresses were made by Health Commissioner Goldwater, Dr. M. B. McMillan, and Dr. Herman Betz.

**Jersey City Hospital.**—Plans are being made for the erection of a $250,000 addition to the Jersey City Hospital. The addition will be larger than the present hospital building.

**New York Milk Committee.**—The annual report of the New York Milk Committee states that the lives of 41,000 babies have been saved in this city during the last seven years through the cooperation of public and private welfare agencies. The report says: "During that time 950,000 babies have been born in New York City. If the infant death rate of the five years previous to the beginning of this work had prevailed there would have been 150,000 infant deaths instead of the 109,000 which actually occurred. On the other hand, if New York's low death rate of 1913—101.9 per 1,000 births—had prevailed throughout the seven-year period only 96,000 babies would have died of the 950,000 born." That this record is not due to favorable weather conditions or other accidental causes is shown by the increase in the number of infant deaths in Chicago, Philadelphia, and other large cities. A bill providing for uniform State regulation of the milk supply, which was defeated in the Legislature last year, will be reintroduced this winter with, the committee believes, strong prospects of success.

**Hospital Trustees.**—Gov. Glynn of New York has recently nominated the following persons for managers and trustees of various State institutions: The Rev. William H. Garth, Islip, Central Islip State Hospital; William D. Wolff and Edward J. Ward, Rochester, Rochester State Hospital; James M. Wells, Ogdensburg, St. Lawrence State Hospital; John C. R. Taylor, Middletown, Middletown Homeopathic State Hospital; Lizzie Wilhelm Constable, Utica, Utica State Hospital; Andrew J. Shipman, New York, Mohansic State Hospital; Daniel B. Murphy, Rochester, Craig Colony for Epileptics; the Rev. Chrisenberry A. Ritchie, Binghamton, State Hospital for the Treatment of Incipient Pulmonary Tuberculosis; Peter Sheridan, Rochester, State Soldiers' and Sailors' Home.

**City Death Rate.**—During the week ending February 21, there occurred in New York City 1,768 deaths, making a rate per 1,000 of 16.52, which is a decrease as compared with the same week of last year, when the total number of deaths was 1,836, and the death rate 17.83 per 1,000. There was a decreased mortality from diphtheria, influenza, pulmonary tuberculosis, and pneumonia, and an increased mortality from measles, scarlet

fever, digestive diseases, organic diseases of the heart, and nervous diseases. There was an increased mortality, also, in the age period below one year, a decrease between 1 and 5, and between 5 and 65, and an increase over 65.

**Charitable Bequests.**—By the will of the late Samuel K. Felton of Philadelphia, the sum of $10,000 is bequeathed to the Methodist Hospital of that city.

The Episcopal Hospital of Philadelphia receives $5,000 by the will of the late Countess Clara Roberts Galli, who died in Paris in 1911.

The will of the late Charles E. Dana of Philadelphia provides for the following contingent bequests: Wilkes-Barre Hospital, $10,000, and Children's Hospital of Philadelphia, $5,000 for the endowment of a free bed.

**New York Neurological Society.**—At the last regular meeting of the society the following officers were elected: *President*, Dr. Smith Ely Jelliffe; *First Vice-President*, Dr. E. G. Zabriskie; *Second Vice-President*, Dr. F. Kennedy; *Corresponding Secretary*, Dr. J. Ramsay Hunt; *Recording Secretary and Treasurer*, Dr. C. E. Atwood; *Councillors*, Dr. L. P. Clark, Dr. A. S. Taylor, Dr. F. Tilney, Dr. C. L. Dana, and Dr. I. Abrahamson.

**Tri-State Medical Association.**—At the annual meeting held at Wilmington, N. C., on February 19, the following officers were elected: *President*, Dr. E. C. Register, Charlotte, N. C.; *Vice-Presidents*, Dr. I. Allison Hodges, Richmond, Va.; Dr. Charles T. Harper, Wilmington, N. C., and Dr. F. H. McLeod, Florence, S. C.; *Secretary-Treasurer*, Dr. Rolfe E. Hughes, Laurens, S. C.

**Obituary Notes.**—Dr. Ralph Lyman Parsons of Ossining, N. Y., died February 26. He was born July 30, 1828, at Prattsburgh, Steuben County, N. Y., and was educated at Amherst College, from which he was graduated in 1853. He was graduated from the New York Medical College in 1857. He was the Medical Superintendent of the New York City Asylum for the Insane from 1865 until 1877. He was the Medical Superintendent of the Kings County Asylum for the Insane from 1877 to 1878. In 1880 he established a private hospital for mental and nervous diseases at Ossining, N. Y., of which he was the Physician-in-Charge at the time of his death. Dr. Parsons was the author of numerous papers dealing with the care and treatment of the insane. He was a Fellow of the New York Academy of Medicine, the New York Neurological Society, the New York State and County Medical Societies, the Society of Medical Jurisprudence, the American Medico-psychological Association, and the American Neurological Association. He is survived by a son, Dr. Ralph W. Parsons, and a daughter.

Dr. Ira D. Hopkins of Utica, N. Y., a graduate of the University of Buffalo, Medical Department, Buffalo, N. Y., in 1859, died at his home on February 23, aged 81 years.

Dr. Gilford E. Young of Forest City, N. C., a graduate of the Jefferson Medical College, Philadelphia, in 1870, died at his home, from paralysis, on January 30, aged 69 years.

Dr. Bliss S. Thorne of Havelock, New Brunswick, a graduate of the New York University Medical College in 1864, died at his home, on January 26, aged 78 years.

Dr. Stanley Howard MacGillvary of Brooklyn, N. Y., a graduate of the Bellevue Hospital Medical College, New York, in 1890, and a member of the New York State and Kings County Medical Societies, and the Associated Physicians of Long Island, died at St. Mary's Hospital on February 17 following an operation for appendicitis after a short illness, aged 45 years.

Dr. Marshall R. Glenn of Asheville, N. C., a graduate of the Jefferson Medical College, Philadelphia, in 1909, died at his home, after a long illness, on January 24, aged 31 years.

Dr. Lewis A. Snell of Charlotte, Mich., a graduate of the Chicago Homeopathic Medical College in 1886, died suddenly, at Los Angeles, Cal., on January 21, aged 72 years.

Dr. Lazarus Schoney of New York, a graduate of the University of Pennsylvania, Department of Medicine, Philadelphia, in 1867, chief contract surgeon in the United States Army during the Civil War, and formerly professor of pathology at the New York Eclectic Medical College, died at his home from heart disease on February 17, aged 76 years.

Dr. Albert H. Tompkins of Jamaica Plain, Mass., a graduate of the Boston University School of Medicine, Boston, in 1875, and a member of the Massachusetts Homeopathic Medical Society, died at his home after a short illness, on February 14, aged 70 years.

Dr. James S. Watson of Aurora, Ill., a graduate of the University of Michigan, Department of Medicine and Surgery, Ann Arbor, in 1881, died at his home suddenly on February 12, aged 62 years.

Dr. Gaius J. Jones of Cleveland, Ohio, a graduate of the Cleveland University of Medicine and Surgery in 1872, professor of medicine and physical diagnosis in the Cleveland-Pulte Medical College and formerly dean of the college, a member of the American Institute of Homeopathy, and attending physician to the Cleveland Homeopathic Hospital, died at his home on February 7 after a lingering illness, aged 71 years.

Dr. Robert C. Moon of Lansdowne, Pa., a graduate of the Jefferson Medical College, Philadelphia, in 1886, died at his home on February 13, aged 70 years. Dr. Moon had long been known for his work among the blind. He was a son of Dr. William Moon of London, England, who was himself blind and the inventor of an embossed type, and Dr. Robert Moon began early to assist his father in preparing geographical and astronomical maps for the blind as well as by transcribing with embossed type a considerable amount of literature in various languages. He continued the work in this country after completing his medical course, and served as secretary of the Home Teaching Society and Free Circulating Library for the Blind, as president of the Chapin Memorial Home for the Aged Blind, as treasurer of the Blind Relief Fund, and as a member of the Advisory Board of the New York and the Pennsylvania Associations for the Blind.

Dr. Matthew James McKinnon of York, Pa., a graduate of the University of Maryland, School of Medicine, Baltimore, in 1853, a surgeon in the United States Army during the Civil War, dean of the York Hospital Board, and a member of the Medical Society of the State of Pennsylvania, and the York County Medical Society, died at his home on February 23, aged 82 years.

Dr. John Pringle of Harrison, N. J., a graduate of the University of Glasgow, Scotland, in 1875, president of the East Newark Board of Health, and

a member of the Medical Society of New Jersey and the Hudson County Medical Society, died at his home from pneumonia on February 25, aged 67 years.

Dr. Frederick Farnsworth of New London, Conn., a graduate of the Bellevue Hospital Medical College, New York, in 1867, died at his home after a long illness, on February 23, aged 71 years.

Dr. W. Edson Apple of Philadelphia, Pa., a graduate of the Jefferson Medical College, Philadelphia, in 1898, and formerly a surgeon in the United States Army, in which capacity he had served in Porto Rico and in China, died at the Episcopal Hospital, Philadelphia, from blood-poisoning, on February 15, aged 36 years.

Dr. Frank A. Sharp of Philadelphia, Pa., a graduate of the Jefferson Medical College, Philadelphia, in 1872, and for thirty years physician to the Moyamensing County Prison, died at his home on February 16, aged 63 years.

Dr. Herbert F. Heilner of Scranton, Pa., a graduate of the Hahnemann Medical College and Hospital, Philadelphia, in 1887, died at his home on February 19, aged 50 years.

Dr. E. E. Klutz of Troutmans, N. C., a graduate of the Medical College of Virginia, Richmond, in 1884, and a member of the Medical Society of the State of North Carolina and the Iredell-Alexander Counties Medical Society, died at his home from peritonitis on February 16, aged 58 years.

Dr. Clemens Fulda of Brooklyn, N. Y., a graduate of the New York University Medical College in 1879, died at his home on February 26, aged 65 years.

Dr. Storm White, director of the pathological laboratory at the Metropolitan Hospital, Blackwell's Island, New York, and a graduate of the New York Homeopathic Medical School and Hospital in 1878, died at the Metropolitan Hospital, after a short illness on February 26, aged 56 years.

## Correspondence.

### OPEN-WINDOW SCHOOLS.

To the Editor of the Medical Record:

Sir:—In the issue of August 2, 1913, the Medical Record quoted an article from *American Journal of Public Health*, Vol. III, No. 2, relating to "Open-Window School Work in Philadelphia," and the editorial comment on the same concluded with the following remark: "It will be interesting to know the result of a second year's trial of the fresh-air school for healthy children."

The first class was organized at the Alexander Dallas Bache school in September, 1912. From the beginning it was very popular with both pupils and parents. In September, 1913, a second class was organized. One class is made up of first and second grade children and the other of third and fourth grade.

These classes have been composed of anemic, undersized or undeveloped children. Because of their weakened physical condition such are generally the first to contract colds and various children's diseases. That the cool fresh air treatment has partly prevented this will be shown by the percentage of attendance since the organization of open-window classes, in comparison with that of children of the same grades in the balance of the school.

| | Percentage of Attendance | |
|---|---|---|
| | School 3rd Grades (Warm Air) | 3rd Grade Open Window |
| Sept., 1912 to Jan., 1913 | 84 | 83.2 |
| | School 3rd & 4th Grades (Warm Air) | 3rd & 4th Grades Open Window |
| Feb., 1913, to June, 1913 | 89.2 | 88.5 |
| | 3rd & 4th Grades | 3rd & 4th Grades |
| Sept., 1910, to Jan., 1914 | 90.9 | 87.4 |
| | 1st & 2d Grades | 1st & 2d Grades |
| | 89.0 | 89.6 |

As a rule it is irregular attendance, not poor mind quality, that causes delicate children to fall behind in their studies. The following percentages of *promotions* show that the open-window children at the time of promotions compared favorably with pupils of parallel grades in warm-air classes in the same school.

| | Percentage of Promotion | |
|---|---|---|
| | 3rd Grades (Warm Air) | 3rd Grades Open Window |
| January, 1913 | 75 | 88.1 |
| | 3rd & 4th Grades | 3rd & 4th Grades |
| January, 1914 | 76.4 | 82.8 |

"I am convinced," says the school principal, "that cold fresh air is more stimulating to mind and body than air generally found in school rooms heated to 65° to 70° Fahr.

Walter W. Roach, MD.,
Supervisor of School Medical Inspectors,
5th & 6th Dist., Philadelphia.

### OUR LONDON LETTER.

(From Our Regular Correspondent.)

HISTORY OF MEDICINE—DEBATE ON VACCINE THERAPY—DR. ADDISON AND THE INSURANCE ACT—ST. GEORGE'S HOSPITAL DISPUTE ITEMS.

London, February 13, 1914.

When the Royal Society of Medicine resolved itself into a number of sections, there were not a few who thought there was no occasion for one on the history of medicine. So far, however, this may be said to have succeeded in providing interesting subjects to talk over. Take an example or two—Sir Ernest Clarke has adduced some new facts about Oliver Goldsmith. The origin of his medical degree has puzzled many. In his first book with the name on the title page, it stood as "Oliver Goldsmith, M.B." Whence the M.B., asked his biographers, and as they could not find out guessed it must be foreign. Now Goldsmith was B.A. of Dublin (1749) and would have been entitled to M.B. at the end of his medical education on completing some formalities. But part of his curriculum was taken in Edinburgh and part abroad, and the university records at that time seem all to have been carelessly kept. Goldsmith was known to have visited Oxford in February, 1769, but there, too, the university records seem defective.

Recently at the instigation of Sir Wm. Ogle a search in the local newspapers of the time has revealed the following entry in the *Oxford Journal* February 18, 1769: "Yesterday Oliver Goldsmith, Esq., Bachelor of Physics in the University of Dublin, author of 'The Traveler, a Poem,' of 'The Present State of Polite Learning in Europe,' and of several other learned and ingenious performances, was admitted in congregation to the same Degree in this University." That surely will be accepted as evidence that Goldsmith was given an Oxford *ad eundem* degree on the ground that he was a medical graduate already of the Dublin University.

"Roman Medicine and Roman Medical Inscriptions found in Britain" was the subject of a contribution to the Section by Dr. H. Barnes, who thought a new order of practitioners appeared under the Empire and mentioned a number of names that have

come down to us. Illustrations of inscriptions and sculptures he shows on the screen. Several appeared to have been dedications to Æsculapius; some of them having been found on the Roman wall and some in Greenwich park. Dr. Barnes also showed some Donaria, one a votive offering concerning a case of goiter, another a feeding cup for invalids. He gave, too, a description of Roman medicine stamps found in Britain and quoted Camden's statement as to the foresight of Roman soldiers who "did plant everywhere in old time for their use certain medicinal herbs for to cure wounds."

"Two Early Eighteenth Century Treatises on Tropical Medicine" were the subject of a contribution to the Section by Dr. Chalmers and Captain Archibald.

Nor can I omit to mention Dr. J. D. Rolleston's paper on the "Medical Aspects of Greek Anthology," showing by means of numerous allusions to medicine and diseases that the subject deserved more attention, and one must admit that it offers abundant scope for the scholarly medical man's study of everything in the life of the ancient Greeks which is concerned with medicine.

Another paper with a classical tone was "Martial and Medicine" by Dr. Crawford, who quoted references to medicine in the epigrams and gave us versified translations.

The discussion on "Vaccines from the Standpoint of the Physician" from which much was anticipated by some was elaborate enough, occupying two evenings at the Medical Section (R. S. M.), but does not seem to have contributed appreciably towards a definite result. The president, Dr. S. West, announced at the opening that the special points for consideration were: (1) the contraindications; (2) cases in which vaccines had been used and had failed, and were abandoned, and the reasons for this; (3) cases in which definite ill-effects had been produced by them. In the opening paper Dr. Horder said there were three types of vaccines: (1) autogenous, (2) stock vaccine, and (3) phylacogens—representing in this order their efficiency. But the merits of vaccine-therapy rested almost entirely on the final class. He admitted failures to be more common than successes, though he did not doubt the efficiency at times. The collection should not be entrusted to others. The limitations of the treatment were many. Cases of general infection seldom yielded. In typhoid it was some help, but did not shorten or modify the disease.

Dr. Briscoe said bacilluria when causing symptoms, was rapidly relieved. So was rheumatoid arthritis, where possible an infective focus should be removed or relapse would occur when the injections were discontinued. He reported good results in some cases after recognized treatment had completely failed. Dr. Gillett said some 75 per cent. of his chronic bronchitis cases had responded favorably to autogenous vaccine; some with great dyspnea; but some cases proved obstinate. Dr. Abraham reported little or no benefit and held it should not be resorted to in cases amenable to other treatment. In one case he thought death accelerated by it.

At the second meeting (on the 3d inst.) Dr. J. D. Rolleston remarked that those who had several successes in succession, fascinated by a new conception of a rational treatment, were apt to be optimistic, but their opinion might be modified by time. Pessimists, on the other hand, would attribute any good results to coincidence, suggestion, or association of other treatment. He took a middle position of open-minded doubt. The problem of immunity was complex and the technique might be at fault rather than the principle. The conditions of culture on artificial media might modify the products of the microorganisms. Vaccines had also been used in improper ways. Their results were so uncertain that their use was only justifiable when other methods failed or did not exist. Dr. Carmalt Jones was confident that the principle was sound, and if ever the control of infection became possible it would arise out of the methods they were employing now. All sources of irritation, pus, sequestra, dead tissue, foreign substances, must be removed. The correct organism must be used in suitable doses. He was satisfied some benefit had been obtained in pyorrhea alveolaris, bronchial asthma, and rheumatoid arthritis. In the mouth by streptococcal vaccines co-operating with the dentist. In asthma when excited by infected and inflamed bronchi. In rheumatoid arthritis there was no known definite bacteriology, so the treatment was quite empirical; but by trying organisms from the gums, urine, and feces good results were obtained. Dr. N. Raw had treated over 200 cases of lobar and broncho-pneumonia. To be of any use vaccines must be given at the outset—not later than third day—so stock vaccines had to be used—a considerable disadvantage. He had seen no bad effect. It was not a specific but a valuable aid. Dr. Harmer found some good results in affections of the upper air passages. Vaccines would cure colds, pharyngitis, and laryngitis; these are often due to *Micrococcus catarrhalis* and *Bacillus influenzæ* in combination. He reported some cases in which there had been a temporary ill effect. Dr. Agnes Savill said she discovered in 1908 the germ of acne and large doses of it were of unique value in seborrhœa oleosa and baldness. She had recorded twenty cases of benefit or cure. Dr. Nabarro was convinced of the value of the method in infections of the respiratory and urinary tracts. Dr. Bezly Thorne reported three cases of impaired health remaining after other treatment had nearly restored, but this indefinite condition was removed by autogenous vaccines. Lt.-Col. E. H. Elliot, I.M.S., said much optic neuritis, atrophy, and iritis in the East seemed due to pyorrhea and yielded to vaccines. Staphylococcal vaccines gave good results in the large boils seen in the East, and in the accompanying rheumatic pains and in asthma. He was told of better results still with anti-plague serum and he thought there was something in vaccines beyond the specific element.

The foregoing notes on this debate must not be considered a report. I have only selected a point or two from each speech, thinking you may like to know what is going on here as to this much-vaunted method. I cannot help remarking how much the case rests on its association with other treatment, so that if we admit the vaccines have value it is impossible to estimate to what extent. There is no evidence, such as we demand for other additions to our therapeutic measures. I sympathize with the president, who, in summing up, said the results in acute infections were eminently disappointing, though strikingly valuable in a few cases. But these few could not establish the good effects of the treatment. The manner in which vaccines had been used throughout the country was essentially unscientific and could do little good and harm had been done in some cases. Another point brought out was that other treatment must be used with it.

It was difficult to compute the value of a method without knowing the natural course of the untreated disease.

Dr. C. Addison, M.P., was entertained at a dinner last Friday by admirers of the Insurance Act. The Chancellor of the Exchequer took the chair and in a complimentary speech let out a little bit of the secret history of the Act to the effect that he was guided by the doctor as to the effect of his measure on the medical profession. Dr. Addison, he declared, is a politician as well as a doctor, and was not unmindful of the interests of his profession. He had depended on him to advise and instruct and had never been let down. "With all his mildness and gentleness of disposition," said the chancellor, "our friend is a first-rate fighter, a man to go hunting tigers with." Then he added: "I have been hunting tigers with him and we have both got out of the jungle." In his reply Dr. Addison expressed the honor they felt at Mr. Lloyd-George's presence and said some might not agree with his politics, but wherever they went they would find some who blessed his name and some who did the opposite.

Yesterday the Governors of St. George's Hospital met and considered the differences which led to the resignations of the treasurers followed by that of the president (Princess Christian). An effort to show that "an unfortunate misunderstanding" was all that occurred does not seem very convincing. It is pretty clear to outsiders that the managers muddled the matter and resolutions taken are only attempts to cover up the subject and prevent further public discussion. Whatever was the cause of charges made and the resignation of the treasurers, when the Princess, as president, proposed that an independent committee should investigate the matter, it was madness to suffer any opposition to so reasonable a step. When Her Royal Highness found some persons objected or questioned her right as president to request (or as one speaker said, "perhaps it was more than a request") such an inquiry resignation naturally followed. It seems a pity for a noble institution to have been exposed to such a misfortune. The governors have placed "on record the right of the president to institute such an inquiry."

A fund is being raised to form a permanent endowment of the late Sir Jonathan Hutchinson's museum at Haslemere. It was maintained by him up to his decease and has been kept up since by the family.

Mr. Mayo Robson has met with an unfortunate injury while touring in East Africa. He was accidentally shot in a buffalo hunt. He received flesh wounds in both thighs and had to be carried some 40 miles to Fort Hall. He has telegraphed to his brother that he is doing well.

Miss J. A. H. Cock, L.R.C.S. Ed., M.D. Brussels, Dean of the Royal Free Hospital Medical School for Women, has died in her fifty-fourth year.

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**Rupture of Choroid in a Myope, Following Parturition.**—A. S. Cobbledick reports the case of a markedly myopic woman aged 31 years, who had been delivered by means of forceps five months previously. As soon as she got about—ten days after the birth of the child—she noticed a dark patch in front of the right eye. It is still dark and diamond-shaped, close to the center of vision. The right eye has been tender to touch. There is a choroido-retinal tear extending from the outer side of the posterior staphyloma outwards and slightly upwards—somewhat fusiform in shape with a patch of pigment on each side of the rupture at its widest part. There is no history of previous traumatism.—*Proceedings of the Royal Society of Medicine.*

## OUR VIENNA LETTER.

(From Our Regular Correspondent.)

NATURE AND TREATMENT OF PAVOR NOCTURNUS AND ITS EQUIVALENTS—TEST FOR GASTRIC ACIDITY WITHOUT THE STOMACH TUBE—POSTANGINAL NEPHRITIS—RENAL DIABETES—EXTIRPATION OF MENISCI OF KNEE JOINT—HERPES ZOSTER OF THE BLADDER.

VIENNA, February 1, 1914.

IDIOPATHIC pavor nocturnus occurs in children who awake from sleep with signs of marked fear. They are unconscious and only appear to be awake; in fact, they are in deep sleep. The cause of the manifestation is the following: the children are dreaming of an exciting occurrence of the day, which perhaps produces fear. The attacks are repeated in a typical manner for several days and even for many weeks, during which the content of the dreams is always the same. The stereotypy of the attacks is to be explained by the stereotypic and monotonous course of the last hours before going to bed. In the same class as pavor nocturnus one can place its equivalents, which consist of fits of coughing, vomiting, or pains, etc., during sleep. One characteristic is that the children cannot remember their dreams or fits. The therapy consists of suggestion while the children are awake "Wachsuggestion." One prescribes, for instance, 5 or 10 drops of tinctura amara or tincture of cinchona, with which remedy one may guarantee success with absolute certainty. Of course, the children must know exactly the aim of the treatment. With this treatment one can cure every case of pavor nocturnus, although one is not assured that relapses will not occur.

A method of testing for muriatic acid in the stomach contents without the use of the stomach tube is to be applied in cases in which the introduction of the stomach tube is not indicated or is not permitted by the patient. Späth has already described a method, according to which the patient has to swallow a silk thread colored with Congo red, on which hangs a lead globule. As the extraction of the globule causes disagreeable sensations to the patient, Dr. C. Schwarz has modified this method in replacing the lead globule by a gelatine capsule filled with pulverized metallic bismuth, barium sulphate, etc. After the extraction the thread becomes more or less blue, according to the acidity of the gastric juice. In cases of a total want of hydrochloric acid the thread remains red. During the discussion several opinions were given that this method is an unreliable one and that preference should be given to the stomach tube.

Nephritis after angina (postanginal nephritis) was discussed at a meeting of the Practitioners' Society of Vienna. Pribram presented four cases in which there occurred after follicular tonsillitis a nephritis with albumin and casts in the urine, with edema of the face and feet and increased blood pressure. In all cases the symptoms disappeared after the performance of tonsillotomy; but this operation is indicated only in cases of chronic inflammation. As a result of the suppurative focus in the tonsils the glomeruli of the kidneys are secondarily affected.

"Renal Diabetes" was the subject of a paper by Professor Hugo Salomon who explained that the prognosis in cases of this condition is a very good one. The influence of the food upon the secretion of sugar is rather small, the content of sugar in

the blood is comparatively low (0.08-0.15, and in healthy persons 0.07-0.01). Salomon has observed 40 cases of renal diabetes and only in some of the cases was the content of sugar in the blood increased. According to the latest researches the previous existence of a nephritis is not necessary. Renal diabetes shows a certain resemblance to ordinary diabetes in the fact that one can cause it to disappear by the withdrawal of carbohydrates.

Of great interest is a case of extirpation of both menisci of one knee joint after an injury. As a result of the operation performed by M. Hirsch the function of the joint was in no way disturbed.

The diagnosis of herpes zoster of the bladder *in vivo* is a rare occurrence. R. Volk made this diagnosis in a man in whom during the course of a herpes zoster of the skin a hemorrhagic cystitis appeared. The latter condition disappeared with the subsidence of the herpes. The urine was sterile on repeated examination. A similar condition of the bladder has been observed in scarlatina, erysipelas, and purpura.

## OUR LETTER FROM THE PHILIPPINES.

(From Our Regular Correspondent.)

OFFICERS OF THE MANILA MEDICAL SOCIETY—CHOLERA UNDER CONTROL—HEALTH CENSUS OF MANILA—SEARCH FOR DYSENTERY CARRIERS AMONG COOKS AND WAITERS—SECOND BIENNIAL CONGRESS OF PHYSICIANS AND PHARMACISTS OF THE PHILIPPINE ISLANDS.

MANILA, P. I., January 21, 1914.

THE regular monthly meeting of the Manila Medical Society was held January 5, 1914, at the College of Medicine and Surgery of the University of the Philippines. The following officers were elected for the current year: *President*, Dr. B. C. Crowell; *Vice-President*, Captain Ernest R. Gentry; *Secretary and Treasurer*, Dr. John A. Johnston. No papers were read at this meeting.

The cholera situation in the Philippines is apparently still under control. The disease is eradicated almost immediately in any town in which it makes its appearance, but new centers of infection are constantly coming to light. In many of these it is practically impossible to trace the first cases to any previous case. The hypothesis is gradually gaining ground that cholera organisms are constantly present in the intestines of some inhabitants of the Philippines, but that perhaps their morphology is so changed that it is not possible to recognize them by present laboratory methods. Then, for reasons not as yet understood, the organism reaches a stage in its cycle in which it again becomes effective, and if the feces of such an individual contaminate the food or drink of a more susceptible individual a case of cholera results. If such a case is promptly discovered and the stools properly disinfected, a more serious outbreak or an epidemic is avoided. If the cases are not promptly discovered and a number of passages through human intestines take place, the cholera organisms gain in virulence and if the conditions are favorable other individuals become infected and an epidemic soon results. The foregoing hypothesis is apparently also supported by experiences with residents of other countries. For instance, on January 3, 1914, there arrived in the port of Manila the steamship *Prinz Sigismund*. The ship's surgeon reported four cases of beriberi among Chinese passengers who had embarked at Rabaul, New Guinea, about ten days previously. Twelve hours after the vessel arrived in port one of the cases died. The autopsy showed lesions of both beriberi and cholera. Cultures made from the intestines were positive for cholera vibrios. On January 10, 1914, a Japanese steerage passenger arrived on the steamship *Chicago Maru* from Japan. In making the routine stool examination, which invariably is made in the case of all steerage passengers entering the Philippines, the woman was discovered to be a true cholera vibrio carrier.

Under the joint auspices of the Police Force and the Bureau of Health a health census of the city of Manila is being made. This will include the number of males and females of each nationality in age groups, under the plan followed by the United States Census. In addition, it will include a count of the number of houses in the city of each type—that is, whether constructed of strong material, of light material, or of mixed materials.

In view of the progress which has recently been made with regard to the etiological factors concerned in amebic dysentery, the Bureau of Health is now about to undertake a stool examination of all of the servants in hotels, boarding houses, hospitals, and other institutions with a view to ascertaining whether there are any cases of amebic dysentery or ameba-carriers, especially among the kitchen and dining-room service personnel.

The Second Biennial Congress of Physicians and Pharmacists of the Philippine Islands will take place in Manila from February 10 to February 14. This organization is composed almost entirely of Filipino physicians and it is estimated that at least 300 members will be present. The work of the Congress has been divided into a section on medicine; a section on obstetrics and pediatrics; a section on surgery, gynecology, ophthalmology, rhinology, pathology, neurology, and orthopedics; a section on public hygiene, legislation, sanitation, and legal medicine; a section on pharmacy, which is divided into a division of professional interest to pharmacists, a division of applied chemistry, a division of vegetable pharmacology, and a division of pharmaceutical legislation. The Congress is under the presidency of Dr. Fernando Calderon, with Dr. Manuel S. Guerrero, general secretary, and Dr. Joaquin Quintos, general treasurer.

Dr. Vicente de Jesús, who entered the service of the Insular Board of Health January 24, 1902, and lately has occupied the position of medical inspector, has been named assistant director of health by the Governor-General.

## Progress of Medical Science.

**Boston Medical and Surgical Journal.**

*February* 19, 1914.

1. The Significance of Intraabdominal Bands, Folds, and Veils. W. S. Bainbridge.
2. The Prognosis of Sarcoma of the Testicle. E. A. Codman and R. F. Sheldon.
3. Have the Early Claims of Salvarsan Been Realized? C. M. Smith.
4. A Case of Strangulated Retroperitoneal Hernia of the Small Intestine into the Paraduodenal Fossa. L. Davis.

2. **Prognosis of Sarcoma of the Testicle.**—E. A. Codman and R. F. Sheldon present an analysis of the statistics of this condition as observed at the Massachusetts General Hospital. These statistics give the mortality from the disease as 61.9 per cent. Excluding those not operated upon in which the condition of the testicle was manifestly inoperable, or else discovered at autopsy in

deaths from entirely different diseases, the mortality is reduced to 58.93 per cent. This is a large figure, but it is much smaller than is usually taught. Thus out of fifty-six cases operated upon thirteen are living (average time after operation nine years; extremes, two and twenty-eight years), and ten have died from something else (average time after operation, ten years; extremes, seven months and twenty-six years). That is, twenty-three or 41.07 per cent. of those operated upon survived the disease. If eight unoperated cases and twelve cases operated on when metastases were evident are excluded, one finds that 52.27 per cent. were cured. It is concluded, therefore, that the prognosis of sarcoma of the testicle, while bad, is not, when the condition is operated upon, so universally bad as textbooks would lead one to infer. The significant points are as follows: Of the thirty-three operated cases which died from the disease, twenty-one had no sign of metastasis at operation, yet death occurred in all within three years. Only twelve showed metastasis at operation; in spite of the fact that in two of these additional dissection was done, all were fatal. The authors' figures confirm those of Chevassu, which show that a patient is safe after the three-year limit. On theoretical grounds they believed that tapping in these cases was contraindicated in that new paths for lymphatic infection might be opened up. From their statistics, however, the authors do not find this hypothesis to be borne out by the facts; nevertheless they think it is a procedure to be avoided. Nearly every case gave a history of trauma, but this is not important in the etiology.

3. Value of Salvarsan.—C. M. Smith concludes that the early hope of curing syphilis with a single massive injection of salvarsan has not been realized. It is a potent remedy in healing all manifestations on the skin or mucous membranes. It is more efficacious than mercury in changing a positive to a negative Wassermann reaction. Its prompt action on early moist lesions has a decided effect in limiting the spread of contagion. The early fears of damage to the cranial nerves appear to be groundless. When given in proper amounts at proper intervals salvarsan is practically devoid of danger.

## New York Medical Journal.

*February* 21, 1914.

1. Glaucoma. W. Reber.
2. Glioma of the Cauda Equina. W. M. Leszynsky.
3. Transvestism. B. S. Talmey.
4. Primary Uernicious Anemia. W. G. Batez.
5. The Care of Crippled Children in Germany. D. C. McMurtrie.
6. The Eyes of the Neurotic. C. W. Le Fever.
7. The Morality of Veneral Prophylaxis. R. A. Bachmann.
8. Natural Defenses of the Body against Disease. C. C. Sutter.

1. Glaucoma.—W. Reber, in discussing the treatment of the eye itself, in this condition, states that the ophthalmic world is divided into two camps, those who contend that operation offers the best chance for the preservation of sight, and those who maintain that treatment with miotics promises the patient some degree of vision quite as long as any operative procedure. To the author the truth appears as usual to lie between these two extremes. So long as a patient under thoroughgoing elimination and miotics in the eye can maintain a useful degree of vision without increase of intraocular tension or cupping of the optic nerve head and reduction of the visual fields, we would be slow to recommend operation. But if in spite of such general and local treatment the vision continues to fall off to a point where reading of good-sized print becomes impossible and the visual field suffers with deepening of the optic nerve cup, we would urge operation at such a time with all the earnestness at our command. One's choice of operation would be sclerocorneal trephining, which seems a much safer operation. As to the proper method of miotic medication, the author states that beginning with one grain to the ounce of pilocarpine and one-half grain to the ounce of eserine, the pilocarpine is used three times during the day and the eserine at bedtime. From time to time the strength of the miotic is increased, enough being used to keep the pupils well contracted. The solutions should be freshly prepared, at least once in two weeks, and filtered each time. The patient is cautioned to keep the dropper clean lest the solution become contaminated. Unless the patient is willing to cooperate with the physician at every point, this form of treatment will often fail. Obviously, therefore, the miotic treatment produces its best results in private patients and frequently fails in hospital and dispensary patients, a large proportion of whom necessarily would come to operation. Ocular massage is sometimes of great help in this peculiar class of cases. In the chronic form of the disorder the fullest cooperation of the general practitioner and the special practitioner is demanded. If the patients will submit to thorough elimination and conscientiously adhere to the miotic treatment they may often escape operation for many years and sometimes altogether. If patients will allow themselves to be rightly guided in the way of proper living by their medical advisers many cases of chronic noninflammatory glaucoma may in future be prevented.

2. Glioma of the Cauda Equina.—W. M. Leszynsky reports a case of this condition in a woman forty-nine years of age. The history of unilateral root pains of several years' duration, followed by a similar condition on the opposite side, and later by signs of compression such as bilateral foot drop, and ultimately complete paraplegia, etc., were all indicative of a neoplasm, involving principally the cauda equina. It was assumed that the adjacent lumbosacral cord, also the thoracic portion of the cord, were secondarily affected. Operation was advised, and this was performed, December 22, 1911, by C. A. Elsberg. Death occurred from exhaustion March 18, 1912.

## Journal of the American Medical Association.

*February* 21, 1914.

1. The Phenomena of Infection. V. C. Vaughan.
2. Gastric Tetany. W. L. Rodman.
3. The Effect of Tartrates on the Human Kidney. W. E. Post.
4. Chronic Arthritis. L. S. Milne.
5. Hydrophobia in a Wild Philippine Monkey. F. Schmitter.
6. Abderhalden Serodiagnosis of Cancer, with a Tabulation of Results Obtained in Fifty Examinations. C. F. Ball.
7. Repair of Tendons by Fascial Transplantation. D. D. Lewis and C. B. Davis.
8. The Diagnosis of Spinal Cord Tumors, with Report of Two Cases. H. Climenko and D. Felberbaum.
9. The Dorsal Position During the Puerperium as a Cause of Retroversio Uteri. W. C. Gayler.
10. Severe Cutaneous Eruption Following Neosalvarsan. Report of Two Cases. B. A. Thomas and S. W. Moorhead.
11. Fluoroscopic Bronchoscopy. Report of Case. E. F. Ingals and S. A. Friedberg.
12. Traumatic Epilepsy. Report of a Case of Five Years' Duration Cured by Surgical Treatment. W. M. Leszynsky.
13. Anastomosis of the Facial and Hypoglossal Nerves for Facial Paralysis. C. F. Welty.
14. Comminuted Gunshot Fracture of the Femur, with Fixation by Bone-Plate and Wires. F. B. Lund.
15. Cast of Swallowed Open Safety-Pin. R. S. Barton and H. A. Coleman.

1. The Phenomena of Infection.—V. C. Vaughan contradicts Doerr's statement that bacteria have a relatively simple molecular structure and asserts that all infecting agents are living proteins capable of growth and multiplication. He states that their pathogenicity depends on their ability to grow in the body, their rapid multiplication and wide distribution leading to acute systemic disease, and their slow or localized growth leading to chronic or localized disease. A new ferment may be formed or an old one modified by which the body

is protected against certain diseases, such as smallpox. The author is convinced that infective bacteria contain an intracellular poison common to all proteins, and that the poison which kills in all infectious diseases is the same; but the specificity of the bacteria lies in the non-poisonous groups, and the symptoms differ according to the organ or tissue in which the poison is liberated through the splitting up of the virus, which cleavage is due to a specific ferment. By means of animal experimentation the author found that the bad results of an infective disease are determined by the rapidity of the growth of the virus and the amount of accumulation of foreign protein at the time of effective sensitization. As Gamaléia concluded, twenty-five years ago, the febrile process is the result of the reaction of the organism against the bacteria and not of bacterial action. Vaughan has produced experimentally in animals, acute, remittent, intermittent and continued fevers and their accompaniments. Protein fever, which includes practically all clinical fevers, is a result of parenteral protein digestion, in which the animal cells furnish the ferment. The human being is immune to most bacteria and protozoa because they are destroyed, as soon as they enter the body, by the nonspecific proteolytic ferments probably secreted by the leucocytes, and normally in the blood and tissues. A protein not thus disposed of is deposited in some tissue or organ for which it has a predilection, such as the pneumococcus in the lungs. The time of development varies with the sensitizing protein. Solution of the problems of the conditions affecting a fever awaits further research. The author gives the evidence for and against this theory, drawing from the facts presented the conclusion that, although the exact chemical structure of the poison produced by the disruption of the protein molecule by chemical agents is not known, and though it has not been proved that the poison formed *in vitro* is identical with that formed *in vivo*, yet they are closely related, as is inferred from their physiological action. He warns that, since every unbroken protein contains a highly poisonous group, serum and vaccine therapy should be carefully used. He protests against classifying toxins and anaphylactogens together as "antigens." The fact that tuberculin, according to most investigators, either does not sensitize or does so imperfectly raises a question as to its usefulness in therapeusis, though it is an excellent diagnostic agent and through the tolerance established by it to the tuberculopoison should be used unless the more completely isolated poison is preferable.

2. **Gastric Tetany.**—W. L. Rodman reports a typical case of duodenal ulcer on which a no-loop posterior gastrojejunostomy was done. For ten days the convalescence was uneventful. After walking about the hospital and feeling very well on the tenth day, the patient had a restless night and suffered a recurrence of the spasm of the stomach that had troubled him before the operation. On the morning of the eleventh day he had a convulsion, beginning at the fingers and progressing to the extremities, but not involving the trunk. The patient's mind was clear throughout the attack, but he complained of a "terrible weakness" and his heart action was greatly quickened and respiration embarrassed. About the same time the next day he had another similar convulsion, but more severe, and extending to the abdominal muscles. The characteristic feature of this convulsion and of a later one was the drawing of the face to the left side and the rolling up of the eyeball. He had five convulsions in four days and then they ceased. Their disappearance was thought to be due to the frequent and copious lavage. The patient made a good recovery, left the hospital after thirty-one days and has continued well since. The interesting point is the late appearance of the tetany symptoms. In all the cases observed there has been great dilatation of the stomach, and in most cases from benign obstruction of the pylorus. While no theories of its causation are entirely satisfactory, Rodman seems to favor that of Mayo Robson that it is due to the absorption of the stagnant contents of a dilated stomach poisoning the nerve centers. Medical treatment of these cases is practically a failure, the great majority of the patients die. Surgical treatment is usually successful. This consists in a drainage operation, to relieve the distention. Frequent and thorough lavage of the stomach is beneficial in lessening the severity of the spasms. The author thinks a too optimistic view of the surgery may be obtained and that nothing is likely to give relief in the very severe cases in which the musculature is generally involved. His case shows that gastric lavage with rather full doses of antispasmodics may improve matters. Careful attention to diet also is advised. Buttermilk was the ideal nourishment in the case reported.

4. **Chronic Arthritis.**—L. S. Milne speaks of the confusion that exists in the nomenclature of the chronic arthritic conditions on account of the multiplicity of types which they may assume. The most simple type is that observed in old age, when the joints become stiff and painful from the participation of the cartilage in the general atrophy. This may occur independently of arteriosclerosis and as commonly in women as in men. There are no inflammatory changes associated with the process. True arthritis is an inflammatory process and the same cause may give rise to vastly different forms, and vice versa. It occurs in the course of numerous affections. In rheumatism there is a rapid transient involvement of the joints. A great variety of organisms, gonococci, streptococci, staphylococci, occasionally pneumococci, typhoid bacilli, and the colon bacilli may present arthritis as their most prominent clinical symptom. The author believes that defects in the metabolism are not proved and the digestive disturbances which accompany arthritis may also be due to its infecting cause. Arteriosclerosis is not proved as a cause and there are no conclusive proofs that deprivation of lime salts is a factor. In studying the pathology of arthritis the author has found much the same changes as can be produced experimentally in animals, the intensity and duration of its action being responsible for the clinical types. Sometimes a real osteoarthritis is produced in addition to the synovitis and damage to the cartilage. If at any time the infecting process can be discontinued the progress may be arrested. One must not assume too quickly when an infected focus is found that it is always the sole or chief factor, but all possible sources of infection should be searched for. It is remarkable how many cases are due to pyorrhea and caused by certain cocci of low pathogenicity. In cases in which there is no pyorrhea, streptococci may sometimes be demonstrated in the urine or feces. Autovaccination will often improve and limit the morbid process. A good deal can be done in cases without any signs of infected process and when they are stationary though with much deformity considerable can be done with orthopedic measures.

6. **Serodiagnosis of Cancer.**—C. F. Ball states that the results obtained from the Abderhalden ferment test indicate that it has special value in the diagnosis of cancer as in that of pregnancy. These results seem to demonstrate that there is a similar ferment produced in cancer and that it is quite as specific. Vaughan's views are quoted: According to him, one may obtain positive cancer reaction in two classes of cases: "First, occasionally clinically normal persons who have at some time or other possessed a cancer invasion which had been entirely eradicated, and, secondly, all cases possessing even the slightest malignant tumor formation. The latter

class may rightfully be divided into two subdivisions—those suspiciously malignant and those clinically malignant." The author gives a table of fifty-one serum examinations classified as clinically malignant, suspiciously malignant, and clinically nonmalignant. In the first all reactions were positive. In the second class twenty of the twenty-eight cases were positive and have been verified by subsequent examinations, by operation, microscope, roentgenogram or definite history. The test was erroneous in two cases and two of the remaining cases are developing suspicious symptoms. In none of the negative cases have suspicious symptoms developed. In sixteen nonclinically malignant, four were positive, but these were in women in advanced pregnancy, and in each cancer the cancer protein was obtained from a cancer of the uterus. The author gives the findings with pregnant serums used as controls. Eleven nonpregnant women reacted positively and six of the suspected pregnant cases also. The single negative reaction in this group was in a woman with a thickened parietal peritoneum. There were two errors in these other cases which the author attributes to the aminoacids of digestion. Since these errors he has taken the blood for diagnostic purposes, as a rule, on an empty stomach. The positive findings in persons not known to be pregnant all occurred in actual or suspected cancer cases. The author's work has impressed him with two sources of error in the use of the Abderhalden test with the usual uriometer jar or large test tube as an improvised dialyzing apparatus. One is the bacterial contamination of the thimble and its contents when filling the thimble outside the dialyzing chamber. The second and more serious possible error is of getting a drop or so of the blood-serum or a speck or two of the protein material on the outside wall of the dialyzing thimble.

**9. Retroversion of the Uterus and the Dorsal Position in the Puerperium.**—W. C. Gayler, after noticing the common lack of mention of the subject of posterior displacements of the uterus occurring without being caused by obstetrical injuries, says that a very few gynecologists are now adding a fourth cause, namely, the dorsal position during the puerperium. The uterus after delivery is more freely movable than at any other time and is large and heavy. It occurred to the author in delivering a woman who had previously had the round ligaments shortened for retroversion that it would be worth while not to put them under strain after delivery. He asks, "Are we ever justified in putting the recently delivered woman in the dorsal position? The uterus is then larger and heavier than at any time during the life of a woman, excepting before delivery, when a posterior position is impossible. The ligaments have not undergone involution and cannot support the uterus. The normal bladder irritability is usually lacking for several days, often causing unsuspected bladder distention. An overdistended bladder, more than anything else, will tend to push a uterus out of position. In short, it would seem that the dorsal position during the puerperium is the ideal condition for the production of retroversio uteri. There occur: (1) Temporary weakened ligaments; (2) lack of any but ligamentary support; (3) exceedingly heavy and freely movable uterus. Practically all the textbooks on obstetrics ignore the position during the puerperium period, but some of the authors to whom the author has mentioned the subject promised to include it in future editions. The author believes that the dorsal position should be avoided unless proper drainage of the lochial discharge should demand it.

### Berliner klinische Wochenschrift.

*February 2 and 9, 1914.*

**Treatment of Cancer by Roentgen Rays, Radium, and Mesothorium.**—In this number of the *Wochenschrift* we find a number of articles on the above subjects. Bumm gives some very recent experiences on radiation of uterine cancer by radium and mesothorium, with a word on the use of *x*-rays. These results are obtained with the greatest difficulties. Admitting that it is the future alone which must determine whether radiation will be our chief reliance in the treatment of malignancy, the rôle of a prophet is under any circumstance a thankless one. At the present time we can state positively that cancers 3 cm. deep can be destroyed by radiation. It is not unlikely that cancers a few more cm. in depth may be destroyed as a result of improved technique. All this, however, can already be done with the knife. The author finds notes of ten cases, in which radical operation was either contraindicated outright or would have caused prohibitive functional disability, in which radiation had caused a complete cure. Many diagrammatic figures are given which show how completely mesothorium has destroyed cancer of the cervix with beginning invasion of the parametrium. Warnekros takes up the subject where it was left by Bumm, who introduced at the close the subject of Roentgen therapy. His title is Roentgen technique of radiation of cancer. The point of greatest value is deep radiation over the lower abdomen in the attempt to reach cancer of the cervix. By means of an apparatus in which deep action is secured without damage, Bumm has cured five cases of cervical cancer with Roentgen rays alone. Numerous other cures or near cures have been made in cancers of the pelvic organs and breasts. In so-called near cures the cases were beyond the reach of the knife. Warnekros' article is devoted almost solely to a description of his deep radiation apparatus and its mode of use. Lazarus writes on the "present condition and aims of radium-mesothorium therapy." The paper is a technical one only, in which are considered many different elements. A sketch illustrates radiopuncture and tunnel crossfire, in which three tubes (gradium or mesothorium) are present intratumorally at certain levels in such a manner that every portion of the tumor mass is thoroughly penetrated with the rays. The practical portion of Lazarus' article will appear in a subsequent number of the *Wochenschrift*. Pinkuss now gives some of his latest experience with mesothorium radiation in cancer. After two years' experience he looks forward with great hope to the permanent adoption of mesothorium and radium therapy. This hope is bound up wholly with technical evolution, as no new basic principles are yet under consideration. There is so much evident room for technical improvements that these must be gradually acquired. These include such subjects as filter material, concentration and arrangement of radioactive substances, dosage, duration of exposure, etc. Finally from Czerny's Cancer Research Institute Fränkel and Gumpertz dwell on an allied topic, to wit: the action of thorium *x*-injections upon the agglutinins of the blood—since thorium has often been accused of behaving inimically in the blood. In animal experiment it was found that despite the destructive action in the blood resulting from large doses the agglutinins showed normal values in some animals, but that in general the formation of agglutinins was injured in the same degree as are the leucocytes.

**Local Diagnosis of Spinal Cord Tumors.**—Söderbergh sums up his study as follows: In the preceding lines I have meant to give but a brief review of certain problems in localization which has been forced upon me by the analysis of several cases of tumors. The therapeutic results of operations are touched upon only *en passant*, and may at the first glimpse seem to be little encouraging. If, however, one looks more deeply he may derive the very opposite impression. Among the cases which ran an unfortunate course was one of multiple

tumors seated on the anterior aspect of the cord; another a tumor in the uppermost cervical region, likewise seated chiefly on the anterior aspect and firmly attached to the dura. Both of these were from the first of most dubious prognosis. On the other hand, two cases which terminated successfully were of a sort which seldom recover under operation. One was seated at the highest portion of the cervical region, while the other was a bony tumor of the cauda.

**Status and Newest Aims of Radium-Mesothorium Therapy.**—Lazarus concludes an article on this subject as follows: Among the newest aims of the form of treatment are the following: (1) The determination of that quantity of nervous energy required for the acquisition of a definite physiological effect upon individual kinds of tissue and individual depths of the same, as well as the manner by which we can convey this exactly measurable amount of energy to the tissues concerned and to these alone. (2) The construction of an artificial energy transformer by which the change from electric to biological energy shall secure to the latter a strongly active radiant energy of medium amplitude and greatest possible absorption in the interior of the body without the hitherto greatly to be avoided near and remote dangers. It is not improbable that the future will succeed in the artificial production of periodical ether disturbances which closely resemble y-rays. (3) The study of rayed tissues in respect to the chemical transformations which take place within individual cells—reactions, oxidations, fermentative katabolic processes.

**Mesenteric Vein Thrombosis in Phlebosclerosis of the Portal Vein.**—Geppert and Siegfried report a case in which the portal vein sclerosis pursued a latent course. Cases of phlebosclerosis have been reported by twenty-four authors. Some of these cases were believed to have originated from thrombosis of the portal vein. The author believes that genuine phlebosclerosis begins with the known alterations in the wall of the vessel. Among the causes adduced for such changes, syphilis and traumatism must be excluded despite high authority to the contrary. In the severest cases spots of calcification of the intima and extensive ossification of the media are present in such a degree that a calcified and ossified tibial artery is paralleled. In every case of phlebosclerosis thrombosis of the mesenteric vein is sooner or later added, death then occurring from collapse.

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### Deutsche medizinische Wochenschrift.

*January 29 and February 5, 1914.*

**Therapia Sterilisans in Trypanosome Diseases.**—Kolle, Hartoch and Schürmann have been using for this purpose the trioxide of antimony. Intravenous injection of large animals is practicable. At first with intramuscular injection, local irritation and abscess formation resulted, but by the intravenous method it was found possible to sterilize small animals. In dogs with dourine it was found necessary to use inunctions of synthetics containing antimony in addition to intravenous injections. Before resorting to the use of antimony trioxide the authors succeeded in preparing it in a form nearly related to the colloids. This is doubtless why the substance is sold under a proprietary name.

**Progress in Pharmacotherapy During 1913.**—Cloetta refers first to the revived interest in calcium. Bread containing the latter is made and this should suffice to guarantee to the body its daily requirement. Calcium has gained ground as a remedy for hay fever. It has been combined with ichthyol and injected for tuberculosis. Casein calcium added to dilute cow's milk seems equal to albumin milk in infant feeding. The combination of bromine with calcium should be, and is, of value in epilepsy, because the latter tends to depress nervous excitability as well as the former. Atropine has been found of value in seasickness, and has been termed the natural remedy, 1 milligram of the sulphate to be given, and if necessary, repeated. Many drugs cited are by no means new, and do not belong here. Certain old ones acquire new value; thus American wormseed has been found of great value in Europe for ankylostomiasis. Opium and morphine retard the action of the stomach, intestine, and colon. Pal has shown that opium contains two groups of alkaloids which behave very differently in the intestines. The first, comprising morphine, codeine, and thebaine stimulate the musculature of the entire intestinal wall, both longitudinal and circular fibers. The second group, comprising narcotine, papaverine, and narceine, exert the opposite or depressing action. Opium itself therefore exhibits a double activity, for while the circular fibers are constricted, the longitudinal ones are relaxed. Papaverine seems to be an ideal depressant in spasm of the stomach and intestines. Among other discoveries in the opium group is the superiority of codeine hydrate to codeine. It has been learned that belladonna (tincture) in somewhat large doses persistently is able to hasten metabolism or at least to reduce weight. Colloid metals (palladium, for example) possess the same property. For certain reasons the above remedies are not likely to come into general use. The former recommendations of pyocyanase for local use in infectious anginas has been revived by the introduction of another preparation made from a culture of the *B. pyocyancus*. This did better work than 15 others in a test made for the best local treatment of 480 cases of agina.

**"Innocent" Diabetes of Children.**—Salomon uses this expression to designate a form of diabetes in childhood differing radically from the ordinary severe types. This may be seen in two or more children of a family (familial glycosuria). Neurotic inheritance may be present. The amount of sugar excreted is small; much smaller than in true juvenile diabetes. As a rule there is no increase in the amount of blood sugar. There is no tendency of the disease to progress, despite the growth of the subjects. In a carbohydrate-free diet it is common to see an increased excretion of acetone, which disappears rapidly when carbohydrates are added to the diet. The patients as a rule feel well and do not know that anything ails them, aside from certain petty nervous disturbances. The sugar in the urine of an infant may cause a sugar exanthem on the thighs, etc. Both this mild and the severe type may coexist in one subject (diplomellituria). Many children with this affection have been condemned to death by physicians who know nothing of "innocent" diabetes.

**Ostitis Fibrosa After Typhoid Fever.**—Wolz dates our knowledge of this lesion back to 1880, when French authors began to ascribe all kinds of bone lesions to the typhoid bacillus. The reverse conception that typhoid may be complicated or followed by periostitis of the tibia especially is of course much older. We now speak of typhoid diseases of bones as we do of tuberculosis or syphilis of the same tissue. The number of individual lesions produced by typhoid comprises most of those known to exist under other conditions. The typical lesion is commonly regarded as a circumscribed osteoperiostitis. The bacilli are known to lie latent in the bones (ribs for example) for many years. It has been shown that during the fever the bacilli enter the interior of the various bones and at times produce odd symptoms quite early in the fever—for example torticollis or lumbago, due actually to vertebral disease.

## Insurance Medicine.

The Curve of Mortality.—Life insurance companies are to-day analyzing their mortality experience among many groups of insured risks to an extent never before undertaken. Mr. Virgil M. Kime, Actuary American Central Life Insurance Company, Indianapolis, Ind., shows that when the results of the medico-actuarial mortality investigation in connection with certain medical impairments and certain occupations are published we shall have available a body of data of immense value in guiding our selection of risks. To be trustworthy, the mortality rates on which we base our calculations must be those derived from an experience among lives similar with respect to health, climate, occupation, and environment to those we expect to insure. A variation in either of the factors mentioned may mean a variation in the rate of mortality experienced. A mortality table suited to our use must be derived from an experience among standard insured lives, as these are, in general, better in their prospect of longevity than those of the general population, due largely to elimination of the industrial grades and to the presence of medical selection. The crude rates of mortality on which a mortality table is based, if derived from an experience among insured lives, are obtained by bringing together at each particular age or at each age and duration of policy, the number exposed to risk of death and the number dying, the latter being divided by the former. Depending upon the data from which they are derived, mortality tables may be divided into select, aggregate or ultimate. A select mortality table classifies the rates of mortality both by attained age and by duration of policy, thereby taking into consideration the effect of selection. An aggregate table shows the mortality by attained ages alone based on all the data under consideration regardless of the duration of the policies. Strictly speaking, an ultimate table is one showing the rates of mortality by attained ages, eliminating the experience during the period selection is effective, this period being dependent upon the nature of the selection effected as well as on the ages of the risks. What are usually termed ultimate tables are formed by eliminating from the experience data based on a specified number of years following issue, usually either five or ten. This is more correctly called a truncated table. Theoretically, and excluding the expense of acquiring the business, a select table would be most satisfactory as a basis for premium computations and reserve calculations, since each group would stand by itself and the premiums would provide for the mortality to be expected. An aggregate table would not be proper for such a basis of calculations, since the rates of mortality depend largely upon the relative proportions of new and of old business, and the premiums derived therefrom would be unsafe. Ultimate tables are the best for all practical purposes. The rates of mortality derived are safe, and the premiums adequate. In every mortality table there occur certain irregularities in the crude mortality rate which must be removed. It is customary to smooth out a table before the results are used for actual calculation. To do this a curve is drawn plotting out the data for the various ages; then a smooth curve is superimposed over the original curve, eliminating its irregularities and the result used as fairly representing the general experience set forth. Graduations may be effected by mathematical formulæ.

The first American mortality table was constructed in 1853 by Professor Gill of the Mutual Life and bears his name. The next, the American Experience Table, was formed by Sheppard Hoffman, also of the Mutual Life, in 1858, and is the one in most common use. It is an example of an ultimate table, in that the mortality experience for the first five years has not been included. The Medico-Actuarial Table is somewhat newer and also in common use. Mortality tables are also based on mortality experience by ages, by kinds, by amounts, and by years. The Medico-Actuarial Table is evidence of the fact, as shown in Mr. Kime's article, that it agrees with other statistics that mortality, particularly at the younger ages, has materially improved within the last twenty to twenty-five years. In studying mortality tables, the composition of the business of various companies must be taken into consideration, as a company writing a predominating volume of ordinary insurance will have a higher mortality than one writing principally endowments.—Medical Section, American Life Convention.

**The Accident Toll of the Surgeon.**—Feilchenfeld considers the medical man as to the hazard of his calling. The extrahazardous risks make up from 1½ per cent. to 2 per cent. of the ordinary toll, according to the special activity of the insured. Operators who in the carrying out of operations run a risk of slight injury with possible infection from suppurative processes and infected wounds come under the 2 per cent. danger class. Here belong surgeons, gynecologists, and pathological anatomists. Within the past few years this hazard has become notably lessened by the adoption of rubber gloves by all these practitioners. Injuries and infection occur much more infrequently. Hence the demand would be justified in taking account of this circumstance by reducing the surgeon's risk to that of the practitioner of ordinary professional hazard of 1½. For by reason of the greater sparing of the hands in substituting the glove for the frequent washing with antiseptics, the former eczemas, boils, etc., are less frequently encountered and are less liable to suppurate and transmit suppuration. All such affections rate as ordinary accidents. The author calls attention to the present infrequency of these injuries of the hands. No doubt this viewpoint could be confirmed by statistics. If this is the case then a reduction of tolls should follow.—*Zeitschrift für Versicherungsmedizin*, July, 1913.

**Insurance for Women—What it Usually Means.**—E. J. Spratling, Medical Director Majestic Life and Commercial Life, states that the matter of issuing policies to women simply hinges on the motives for taking insurance. If the motive could be obtained with certainty, the intuition of the examiner or medical director could be depended upon in the majority of cases, to decide whether or not to issue the policy, but the motive is generally the part concealed. Even the most suspicious medical directors get caught unmercifully in handling women risks. The speculative element is too potent in the case of women, consequently the motive for deception is nearly always present when women are applying for insurance.—American Life Convention, Medical Section.

# Book Reviews.

MODERN MEDICINE, ITS THEORY AND PRACTICE. In Original Contributions by American and Foreign Authors. Edited by Sir WILLIAM OSLER, Bart, M.D., F.R.S., Regius Professor of Medicine in Oxford University, England; Hon. Professor of Medicine in the Johns Hopkins University, Baltimore; formerly Professor of Clinical Medicine in the University of Pennsylvania, Philadelphia, and of the Institutes of Medicine in McGill University, Montreal, Canada; and THOMAS MCCRAE, M.D., Professor of Medicine in the Jefferson Medical College, Philadelphia; Fellow of the Royal College of Physicians, London; formerly Associate Professor of Medicine, the Johns Hopkins University. Vol. I. Bacterial Diseases: Diseases of doubtful or unknown etiology, non-bacterial fungus infections, the mycoses. Second Edition; thoroughly revised; illustrated. Philadelphia and New York: Lea & Febiger, 1913.

IT is six years since the first edition of the theory and practice of medicine, edited by Sir William Osler and Dr. Thomas McCrae, was published. The work has proved valuable and popular and a second edition is welcome. The new edition has been thoroughly revised; some matter which appeared in the first edition has been omitted, while some fresh material has been added. There are new sections on pellagra, beriberi, trypanosomiasis, Malta fever, and electrical diagnosis in cardiac disease. All the papers in the new edition have been greatly condensed, especially in the etiological and pathological portions. Owing to this condensation, increased size of page and by augmenting the number of pages in each volume the number of volumes has been reduced from seven to five. In the first volume the greater part of the book is taken up with a consideration of the bacterial diseases. Three chapters are devoted to tuberculosis, that on the pathology of the disease by Dr. W. G. MacCallum of New York being an excellently clear exposition of that branch of the subject. Dr. E. Farquhar Buzzard of London, England, gives a good account of acute poliomyelitis. Dr. Rufus Cole deals with gonococcus infection and Dr. Thomas D. Coleman of New York with Dengue. Rabies is discussed from all standpoints by Dr. Mazyck P. Ravenel.

Perhaps the most important contribution to Volume I is that by Dr. Frederick J. Poynton of London on rheumatic fever. Together with Dr. Paine the writer of the article has done a good deal of original work with regard to the etiology of rheumatic fever. They have discovered a microbe which they have called *Diplococcus rheumaticus*, which they claim to be the essential factor in the production of rheumatism.

Dr. James Homer Wright has contributed a chapter on the non-bacterial fungus infections. The first volume is in line with the advances which have been made within recent years in scientific medicine. The volume is well printed and illustrated, the type is clear, and the illustrations aptly serve to explain and emphasize the text, a point of importance in works of this description.

MEDICAL AND SANITARY INSPECTION OF SCHOOLS. For the Health Officer, the Physician, the Nurse, and the Teacher. By S. W. NEWMAYER, A.B., M.D., in charge of Division of Child Hygiene, Bureau of Health, Philadelphia. Illustrated with 71 engravings and 14 full-page plates; price $2.50. Philadelphia and New York: Lea & Febiger, 1913.

THE medical inspection of school children has attained an extraordinary elaborateness of supervision, organization, and scope. Many difficult problems pertaining to the duties of school nurses, the correction of the physical defects of school children, the prevention of contagion, etc., have arisen, and have been solved by the large cities that have undertaken school medical inspection on a large scale. The author of this volume has studied this subject in its myriad phases and has succeeded in presenting a comprehensive and systematic work not only on school inspection but also on school hygiene and sanitation. The book is eminently practical, describing methods of administration and inspection that are in actual use. It contains a large number of illustrations, including views of classrooms, playgrounds, methods of inspection, etc. The sections dealing with the administration of medical inspection, with the keeping of records, the relation of schools, hospitals, and clinics, the construction of school buildings, and the various physical defects and infectious diseases found in school children are particularly well written.

A TEXTBOOK OF PHYSIOLOGY. For Medical Students and Physicians. By WILLIAM H. HOWELL, Ph.D., M.D., Sc.D., LL.D.; Professor of Physiology in the Johns Hopkins University, Baltimore. Fifth Edition; thoroughly revised; price $4.00. Philadelphia and London: W. B. Saunders Company, 1913.

THE advances in modern medicine are closely associated with the growth of the knowledge of physiology. He who has not consulted a textbook on the latter science since his student days, one or two decades ago, and who now scans the pages of a volume such as the one under review, is apt to marvel at the extraordinary additions that have been made to the knowledge of physiology within the past decade. These additions are conspicuously manifest in such subjects as the chemistry of the proteins, the physiology of digestion, the mechanics of the heartbeat, the localization of functions in the brain, etc. All of these advances are set forth in the present edition, which in this and in other respects maintains the high standard which it has achieved as an authoritative textbook suitable for study and for reference, both to the student and to the physician.

LEITFADEN DER ERSTEN HILFE; ein Samariterbuch. Von J. LAMBERG, Chefarztstellvertreter der Wiener Freiwilligen Rettungsgesellschaft. Mit 1 farbigen Tafel und 190 zum Teil farbigen Abbildungen im Text. Price 5 marks. Berlin and Vienna: Urban & Schwarzenberg; New York: Rebman Company, 1913.

THIS is an excellent first aid manual written for laymen by one who has had an experience of thirty years in the organization and direction of voluntary first-aid work in the city of Vienna. In the first chapter is described the historical development of first-aid relief. The second chapter deals with the anatomy and physiology of the human body. The next chapter discusses first aid in sudden illness, such subjects being included as fainting spells, epileptic attacks, childbirth in a public place, strangulated hernia, etc. First aid to the injured forms the subject-matter of the fourth chapter. In the fifth chapter the author discusses "technical" first aid, including the rescue of the drowned, the rescue of those who break through ice, the management of the victims of electrical accidents, etc. The transport of the sick is described in Chapter VI. The concluding chapter deals with the nursing of the sick at home. The book is one of the best manuals on first aid that have been written within recent years. It is profusely illustrated and is eminently complete and practical.

AN INTRODUCTION TO THE STUDY OF INFECTION AND IMMUNITY, including chapters on Serum Therapy, Vaccine Therapy, Chemotherapy, and Serum Diagnosis. For Students and Practitioners. By CHARLES E. SIMON, B.A., M.D., Professor of Clinical Pathology and Experimental Medicine at the College of Physicians and Surgeons; Pathologist of the Union Protestant Infirmary and the Hospital for the Women of Maryland; Clinical Pathologist to the Mercy Hospital of Baltimore, Md. Second Edition. Price $3.25 net. Philadelphia and New York: Lea & Febiger, 1913.

THE second edition of this work appears within a year after the publication of the first edition. This is gratifying evidence of a widespread desire to become acquainted with this important subject. On this account it seems rather unfortunate that the publishers have seen fit to present this material in such an expensive form. The subject of immunity is changing with tremendous rapidity and it would seem that the needs of the profession would best be served by frequent and cheap editions so that the revisions could be purchased as they appear without great expense. In this respect the German publishers are far ahead of those in this country.

The second edition has been amplified by the insertion of sections on auto- and normal serum therapy, on the chemotherapy of pneumococcus infections, and of cancer, and on the serodiagnosis of pregnancy. The remainder of the material has undergone sufficient revision so as to bring it into accord with recent investigations. The discussion of anaphylaxis is especially complete and shows very well the unsettled state of our knowledge in this branch of the subject. The style is easy and attractive and the book should find a place in the library of every physician.

# Society Reports.

## WESTERN SURGICAL ASSOCIATION.

*Twenty-third Annual Meeting, Held at St. Louis, December 19 and 20, 1913.*

THE PRESIDENT, DR. JABEZ N. JACKSON, OF KANSAS CITY, MO., IN THE CHAIR.

**Tuberculous Hip-Joint Disease and Its Treatment with Bismuth Paste.**—Dr. EMIL G. BECK of Chicago read a paper on this subject in which he reported 102 cases. The bismuth paste had been employed for diagnostic and for therapeutic purposes, as well as for the treatment of cold abscesses. He demonstrated three unique cases of hip-joint disease. Examples like these explained to a degree why surgical operations for these chronic suppurating sinuses often failed. A glance at the radiographs which represented injected sinuses taught us how irrational it was to attempt a dissection of tortuous sinuses which led into an inaccessible region. In the light of these pictures the probing of a sinus would not appeal to those who wished to be consistent. He had made the following general observations: 1. He had found that hip-joint disease in its incipient stage was too frequently diagnosed as rheumatism. Two-thirds of the cases gave the history of having been treated in the beginning for rheumatism or sciatica. 2. He had further noted that when the disease had progressed to the stage of abscess formation, incision and drainage was, as a rule, the form of treatment, a method which was now generally condemned. 3. He noted also that sacral tuberculosis or that of the sacroiliac joint was frequently taken for hip-joint disease. He had met with five such cases. The reason for this mistake was explained by the similarity of the swelling and contractures of the limb on the affected side, which he found in hip-joint cases. He had noted that when a patient who for years could not carry his weight on diseased limbs, on account of acute pain in the joint, and was obliged to use crutches, could, after the joint was closed, walk without pain, and he had in most instances allowed the patients to discard the crutches. The prevention of bismuth poisoning consisted in not allowing large quantities of the paste to remain in the body for absorption. Should the symptoms appear, the paste must be removed by washing out the cavity with warm olive oil. The sterile oil was injected and retained for from twelve to twenty-four hours, in order to produce an emulsion, which should be withdrawn by means of suction. After its removal all symptoms would promptly disappear. Scraping out the paste with a scoop was a dangerous procedure because it opened fresh channels for absorption.

Dr. J. W. COKENOWER of Des Moines, Iowa, said he had tried carbolic acid, formaldehyde, iodoform, etc., along the line of treatment of injections, and failed. When bismuth paste was brought forward, he tried it and failed. He also got bismuth paste poisoning in some cases. The reason for the poisoning was this: in a case of cold abscess he made too large an incision. There seemed to be considerable necrotic tissue. In curetting he exposed new tissue, injected the paste, and in the place where he left it raw the paste was absorbed. To obviate his mistake, he injected olive oil, filled the wound, allowed it to remain twenty-four hours, then took a suction pump, pumped out the paste, and saved the patient. One should make a small incision in these cases, the pus being sterile, injected with bismuth paste, and then its presence would stimulate leucocytes, dispense with the phagocytes, and bring about a prolification of tissue, and if the injection was made properly, one injection was sufficient.

Dr. WILLIAM T. REYNOLDS of Kansas City, Mo., asked Dr. Beck to explain the process of repair, or what brought about the cure.

Dr. BECK, in reply, thought leucocytosis was the underlying factor, and this was probably generated from the subnitrate of bismuth. He did not think it was absolutely essential to use bismuth. There were other substances that might do, but so far he had found no good substitute, and although he had tried ten or fifteen substances, none had proved satisfactory.

**The Use of the Wire Clamp in Operations for Goiter.**—Dr. LEONARD FREEMAN of Denver, Col., said that the wire clamp had a number of advantages: 1. It might be adjusted to almost any goiter—by bending the wires if required, although this was seldom necessary. 2. The control of hemorrhage nearly always was perfect, so that the gland might be sliced off beyond the clamp with absolute confidence. 3. The tissues were not crushed—simply constricted as in the use of a tourniquet, which was of importance in Graves' disease at least. 4. There was no danger to the recurrent laryngeal nerves or to the parathyroids. Even if they should be caught in the grasp of the wires, which was unlikely, the compression would not be great enough to do them permanent injury. 5. There was no chance of the wires slipping from the stump after resecting the gland, because they were held in place by the loops passing through the base of the lobe. 6. The wires were much narrower than the blades of a pair of forceps and hence took up less room. The author used this method in some twenty goiters of various kinds, where it seemed to be indicated. The operations proceeded easily, safely, without anxiety, and there were no fatalities.

**Parosteal Callus; the So-Called Myositis Ossificans Traumatica.**—Dr. OLIVER J. FAY of Des Moines reported six cases of traumatic intramuscular ossification; in four cases the brachialis anticus was the muscle involved, in two the vastus medius. In two cases the ossification followed a dislocation of the elbow, in three others a contusion was the determining factor, while in the remaining case there had probably been a rupture of the muscle. The youngest patient was sixteen, the oldest fifty. None of the four theories advanced to explain the pathogenesis of these intramuscular bone formations (the hemic theory, the theory of aberrant sesamoid bones, the theory of periosteal detachment or dissemination, and the theory of ossifying myositis) was entirely satisfactory. The first two had found but few supporters; the third did not explain muscle ossification in muscles not overlying the bone, while the fourth, in so far as it assumed a hematogenous infection lacked clinical evidence. Histologically, the bone mass was found to bear a close resemblance to the callus of fractures; the whole picture was that of a reparative process, the damaged connective tissue cells having temporarily lost their differential function and become osteogenetic. Since the term myositis ossificans traumatica emphasized the inflammatory rather than the reparative nature of the ossification the author preferred the appellation *parosteal callus*. The early symptoms were those of any contusion, but the functional did not keep pace with the objective improvement and an indurated mass became palpable. While the clinical picture and the history of trauma might suggest the presence of a parosteal callus, the radiograph was essential to differential diagnosis. Operation was indicated where there was functional disability or where the parosteal callus interfered with the blood or nerve supply. The prognosis was good unless there was periarticular ossification. An early operation must be radical, and all damaged tissue removed to guard against a recurrence, but better functional results were obtained if the callus was allowed to "ripen." A conservative operation was then possible and the maximum amount of the muscle tissue was saved.

**Subacromial Bursitis.**—Dr. L. W. LITTIG of Davenport, Iowa, stated that the subacromial bursa, as large as the palm of a small hand, and located between the tuberosity of the humerus and the tendon of the supraspinatus below, the overhanging acromion above, had been described as made up of two separate and distinct bursæ, the subacromial and the subdeltoid. Codman, who brought this subject prominently before the profession in 1906, considered a single bursa the more usual condition. Prentiss, basing an opinion on an enormous dissecting room experience, considered this bursa usually multilocular, which might be regarded as evidence of the frequency of bursitis, as the loculi must indicate preceding inflammation followed by more or less "stretched" adhesions. Shoulder joint disability due to inflammation of this bursa was exceedingly common, and usually diagnosed as rheumatism, neuritis, sprain, myositis, etc. Traumatism of one kind or another, as a blow or fall on the shoulder, or general sepsis, was the usual cause of subacromial bursitis. In the acute stage of bursitis the shoulder joint was locked by muscle spasm whenever movement beyond an arc of 10 degrees was attempted. Abduction, and outward and inward rotation were impossible because of muscle spasm and pain. Or the bursa might be distended with fluid, and caught between the tuberosity of the humerus and acromion, thus mechanically limiting abduction. In the second stage adhesions formed between the opposing floor and roof and the above-named movements were limited partly by pain and muscle spasm, but more

efficiently by adhesions. In the third stage movement might be quite free, although abduction and internal and external rotation were more or less limited, depending on the character of the adhesions between the opposing walls of the bursa, or by the bursa distended with fluid. Dawbarn's painful point was of value in making a diagnosis, and consisted of severe pain on pressure just beyond the acromion when the arm was hanging at the side. The painful point disappeared when the arm was raised. When a distended bursa limited abduction a slight rotation outward brought the bursa between the overhanging acromion and the neck of the humerus, in which position the arm could be raised with less difficulty. In the second stage adhesions might be stretched, which was best accomplished by standing on a block of wood, firmly grasping some object, as a crossbar, just within reach, and then stepping to the floor. This cross-bar might be gradually raised perhaps an inch a week, and the range of motion gradually increased. Excision of the bursa might be considered.

**Multiple Exostoses: An Hereditary Affection of the Body Skeleton.**—Dr. Roger T. Vaughan of Chicago stated that all cartilaginous exostoses were congenital in origin, being demonstrable probably at birth, though usually not recognized by patients or clinicians till years later; that the tendency to their formation was hereditary and transmissible; that they were frequently accompanied by other developmental defects of the skeleton, some of which were characteristic of the affection; and that these tumors might be accompanied by congenital defects of other body structures. The fact that cartilaginous exostoses as well as enchondromata represented congenital anomalies of the skeleton had not been generally recognized and accepted until relatively lately. Since these tumors were usually noticed only late in youth, when they attained a considerable size, and since the patients themselves usually considered them an acquired affection, the medical profession had been late in recognizing their congenital origin. Of late years, however, there had been a numher of cases recorded in which these exostoses were noted at or shortly after birth. Multiple cartilaginous exostoses were, as a rule, a harmless affection. The disturbance in the wrist and elbow joints were the most bothersome. A few exostoses might, on account of their location, become very burdensome, but rarely dangerous. Those exostoses which locked the joints might be removed. Neuralgia, paralysis, epilepsy, apoplexy, defective hearing, dystocia in labor and rupture of the uterus, exophthalmos, rupture of the popliteal artery with aneurysm formation, and also malignant degeneration had been described. In view of these severe, even if infrequent, complications, and the considerable and not infrequent deformities occurring in this disease. the undesirability of the intermarriage of members of exostosis families in the light of Mendel's law should be recognized by physicians and eugenists.

Dr. A. A. Law of Minneapolis stated that they had recently found in the Minnesota clinic that it was an absolute impossibility to differentiate these benign conditions in some cases from the extremely malignant osteosarcoma, with a mortality of practically 99 per cent. from metastases. A case in point prompted him to bring up this question. A boy in a football accident was kicked above the left petalla. They saw him a month after the accident, when he had a typical fusiform, non-inflammatory tumor, apparently in connection with or attached to the femur. A series of $x$-rays were taken of the femur, twenty in all. The case was seen by Drs. Mayo and Moore, and others. who were of the opinion that they could not make the differentiation for the simple reason that the clinical picture presented by the $x$-ray was that of osteosarcoma with feathery trabeculæ about the femur. Exploration was finally resorted to, and the tumor found to be inflammatory. There was a degenerating blood clot.

Dr. Arthur E. Hertzler of Kansas City, Mo., said that if Dr. Law would hear in mind that the ray-like processes in ossifying myositis ran parallel to the fascia and muscle fibers, while in periosteal sarcoma the rays were fan-like, extending from the base of the bone in all directions, and not parallel to the muscle fibers, it would assist in the differentiation.

Dr. Emil G. Beck of Chicago had taken different bones and made stereoscopic pictures of them, and through the stereoscope they got very fine points, the three dimensions, and the changes which were on a single $x$-ray picture very diffuse became concentrated. He thought the whole question of pathological specimens, tumors, etc., could be differentiated. They could differentiate a sarcoma from a cyst or inflammatory condition by stereoscopic pictures.

Dr. M. L. Harris of Chicago said that there were two other varieties of the so-called ossifying myositis. First, it was found that practically the traumatic variety developed at the point where the muscle had a broad attachment to the bone or other organs; in other words, where the muscle fibers came into connection with the bone, there was no periosteum which in any way could play a part in the process. Second, and this was very important in the diagnosis of osteosarcoma, this condition never had a distinct individual growth like a tumor. Therefore, they were always differentiated from tumors by the fact that they never showed a characteristic, individual growth like a tumor, always limited, and when once the foundation was laid, they never showed a progressive tendency; they always saw the original outline in the early $x$-ray, and they appeared to enlarge on successive $x$-rays, but the original foundation was practically always laid early, and they did not show a progressive tendency after that point.

Dr. D. S. Fairchild of Des Moines, Iowa, stated that a few days ago a boy, 20 years of age, received an injury to the elbow joint. The nature of the injury was not known. The case had been treated as a fracture; it might have been a dislocation, and the elbow joint was kept in splints for some time. The case was sent to a doctor in the community; an $x$-ray picture was made, and the doctor proposed that something should be done at once to the elbow joint to secure good motion. He operated but the result was not satisfactory. The patient, discovering the several elements in the case, came to Dr. Fairchild of his own accord, and he made the $x$-ray examination as Dr. Fay had shown, which he gave Dr. Fay. In the past, he had had a great deal to do with cases where splinters of bone came off in the accident, and these spiculæ could be felt by the examining finger, if large enought to be felt through the soft parts, but since the advent of the $x$-ray they were able to interpret conditions exactly.

Dr. James F. Percy of Galesburg operated on a woman, now 45 years of age, about ten years ago for an extensive carcinoma of the right breast. She had no signs of recurrence for eight years, and then she returned with pain above the collar-bone and extensive swelling of the right arm. Examination showed that the subclavians were probably being pressed upon by this growth, and the $x$-ray revealed a growth coming from the fourth or fifth dorsal vertebra, going up back of the lung and coming up inside of the collar-bone. He assumed that this was a recurrence in the bone of carcinoma. A surgical friend gave a bad prognosis, saying she would probably not live more than two or three months. This was two years ago. She had had in the neighborhood of 230 $x$-ray treatments. There was no sign of an $x$-ray burn, and at the present time there was almost nothing to be seen of this growth.

**Gas Bacillus Infection.**—Dr. W. D. Haines of Cincinnati, Ohio, spoke of the high mortality of this type of infection and the importance of early recognition and prompt action and referred to the "foamy" liver as one of the constant findings post-mortem. The intestinal tract was one of the normal habitats of the gas bacillus, and invasion of the adjacent cellular structures might take place through ulcer, malignant disease, or perforation. A case was cited wherein an enormous abdominal distension from gas bacillus was mistaken for postoperative dilatation of the stomach. The disease appeared as a local phlegmonous inflammation characterized by extensive exudate and the presence of hydrogen gas in the tissue spaces. Pressure gangrene and profound general toxemia were frequently associated with the clinical manifestations. The period of incubation in one of the cases reported was forty-eight hours; in the second case it could not be determined. The *Bacillus aerogenes capsulatus* was anaerobic; therefore, success in the treatment would depend more upon free exposure of the infected area than upon any form of local or internal medication. The report of two cases, one of infection of the scrotum, and the other of the arm, where recovery followed free incision, concluded the paper.

**President's Address.**—Dr. Jabez N. Jackson of Kansas City, Mo., after referring to the progress that had been made in surgery, took up the question of fee splitting. That was a practice which led to several indictments. (1) It induced family physicians to betray the sacred confidence of their trusting patients and referred them to men who were not the most competent, not those who offered the greatest possibility of

the saving of life, the preservation of health, but to men who paid for the victim. Life risked for money! Was it much worse to take life for money? (2) It lowered the dignity and value of the services of the family physician who was presumably rendering valued services for nothing, and gave a magnified value to surgery which was presumably receiving all. How much more exalted would be the standing of the general practitioner if people were taught to value his services in diagnosis and his responsibility in counseling surgery and recommending a surgeon until they would expect to pay for that service as they would for any other. It should be the privilege of the surgeon to aid the physician openly to secure this just compensation. (3) As a rule, the trusting patient was robbed, paid two fees instead of one, as he supposed. (4) It was the stepping stone by which incompetent men secured business. (5) It penalized honesty in the young surgeon who was capable but must sit idly by and starve while his less competent competitor bought the business. (6) It led to many unnecessary operations with their attendant risk and expense performed merely because the patient could be induced and had the price. In all it was a betrayal of trust, encouraged dishonesty, bred incompetency, and should in short, be held a crime. In conclusion he wished to offer two suggestions for added activity of the society: (1) That an added day of the annual sessions be inaugurated as a permanent feature, devoted to clinics, conducted by Fellows of the society resident at the place of meeting. That was for the purpose of enabling them to become better acquainted with the operative work of their associates. (2) The Clinical Surgical Society several years ago began the plan of a party trip to some of the foreign clinics every alternate year. These trips had been reported as exceptionally profitable and pleasant. Few of the Fellows belonged to the Clinical society. Would it not be equally valuable to them if they could inaugurate a similar custom? The itinerary being varied with each successive trip would in time bring those who went a familiarity with practically all of the work of the world. Such a party would ensure a cordial welcome and an assurance of systematized preparation with a wealth of material so that more could be seen with less expenditure of time than by any other method. That plan should stimulate the breadth of their knowledge and correspondingly the richness of their work.

**Pericolic Membranes, Resulting from Experimentally Produced Coprostasis.**—Dr. Joseph Rilus Eastman of Indianapolis stated that anomalous peritoneal folds, wherever and whenever found, notwithstanding their variations in macro- and microscopic appearance, were with respect to their nature and origin quite closely related. The frequency of anomalous pericolic folds in the fetus, and the fact of their very common presence in young children indicate that whatever the fundamental pathological process which causes them might be, this process frequently became operative in embryonal life. However, the actual manner of the formation of such membranes was not made clear by such observations. It was probable that in many instances at least the same pathology led to pericolic membrane formation in fetus and adult, and that reaction to irritation, with or without consequent fusion or adhesion, underlies anomalous pericolic membrane formation in practically all cases. He had experimentally produced pericolic membranes in rabbits by inducing a low grade plastic peritonitis. The mild adhesive peritonitis occurred as the result of the plugging of the large intestine with its own contents. Extreme coprostasis was induced by intermittent ligation of the anus and administration of morphine over a period varying from two weeks to three months. In this manner pericolic membranes, or membraniform adhesions about the colon were produced in eleven rabbits. Care was taken not to confuse the long flowing mesenteries of the rabbits with membraniform adhesions. As in other quadrupeds, the mesenteries of the rabbits were luxuriantly developed, a single mesentery in some cases enveloping and supporting several intestines. The membranous adhesions which were attributed to the artificially induced plastic peritonitis occurred in cases in which the intestines over extensive areas were held together by plastic lymph. The membranes were brought to view by separating the intestine at the site of imperfectly organized adhesions. From these observations it appeared that extensive membraniform adhesions might result from extreme coprostasis, and this was exactly as we should expect, for we knew that incarceration of hernia and other forms of obstruction of the intestinal lumen, without visible lesion of the intestinal wall and without strangulation led to mild peritonitis, fusions, and membraniform adhesions. Such pericolic membranes were not different in histology and origin from similar membranes about the uterus and uterine adnexæ, all representing reactions of the peritoneum to irritation.

**The Significance of the Jackson Veil.**—Dr. Daniel N. Eisendrath and Dr. E. W. Schnoor of Chicago stated that from their observations during operations, from dissection of cadavers, and finally from examination of ten fetuses, they believed that certain conclusions could be drawn. The parietocolic fold of Jonnesco synonymous with the pericoloic membrane or Jackson's veil was a reduplication or fold of peritoneum which was constantly found during fetal or post-natal life. That membrane corresponded in every way to the descriptions given by Hale of Jackson's specimens in his two principal papers published in 1908 and 1913 respectively. It was a fine translucent membrane which varied greatly in vascularity. In some of their cases there were only a few fine capillaries, while in others the membrane was extremely vascular. The upper border of that right-sided pericolic membrane was almost invariably at the level of the hepatic flexure and its lower border from 1 to 1½ inches above the lower end of the cecum. Some of their cases the lower border either extended a little farther down and covered the entire cecum and a portion of the appendix or fused with the fold of Treves. In the great majority of these cases this fusion did not occur. The vessels of the pericolic membrane were, as a rule, directed downwards and inwards. In two of their cases the membrane was as thick as ordinary cardboard and showed practically no vessels. In the remainder of the patients the membrane was very thin. It extended inwards across the front of the colon to the attachment of the mesocolon and either fused with the peritoneum, covering the latter, or fused with the omentum along the upper third of the ascending colon. These might be called normal cases. The membrane being a persistence of a fetal structure, under no circumstances should it be stripped off. Such a step would result in leaving an extensive denuded surface. From the examination of specimens and from observations in the living, they believed that the genitomesenteric fold of Reid was the forerunner of the ileopelvic band of Lane and bore the same potential relation to the Lane kink that the pericolic membrane bore to possible kinks of the ascending colon. That such constrictions occurred one could no longer doubt. One case reported afforded ample proof of the rôle which the Jackson veil might ply in the production of acute and chronic obstruction of the ascending colon and cecum. They were not prepared to state at present what caused this change in the pericolic membrane from an innocent persistent fetal structure to the production of a distinct pathological entity. In their opinion Jackson, Pilcher, Gerster, Flint, and others had rendered a great service in calling attention to the various sequelæ of such pathological changes in the pericolic membrane. One of the chief objects of this investigation had been fulfilled by calling attention to the fact that there were two distinct types of pericolic membrane: 1, those which were innocent; 2, those which might cause mechanical interference with the function of the colon. Each case must be judged upon the operative findings and one was not justified in saying that every pericolic membrane required interference. The majority were perfect normal structures. Their examination of fetal cadavers confirmed those of Gray and Anderson, that there was a left parietocolic fold which corresponded in every detail to the same structure on the right side. It was a constant finding in the fetus, and no doubt search for it in the future during operations on the left side of the abdomen would confirm these fetal observations. The treatment of the pathological conditions due to the right pericolic membrane must depend on the findings in the individual case.

**Jackson's Veil or Pericolic Membrane.**—Dr. Arthur N. Collins of Duluth, Minn., said that it was not an easy matter to effect a solution of this riddle. In opening the abdomen he had found a vascular film or veil of greater or less extent in at least 75 or 80 per cent. of cases. How many of these were pathological in the sense that they were giving or would in the future give signs or symptoms? This was a difficult part of the riddle. There were two features upon which the clinical factors of constipation and attendant systemic and local manifestations depended. These were the (1)

extent and (2) thickness of the membranous veil. In his experience, covering some twenty-five or thirty cases, in which the membrane was dealt with, the most frequent location of the veil was upon the ascending colon; next on the cecum; the hepatic flexure alone coming third. Dr. Collins was not prepared to answer the question as to whether the fold of Jonnesco persisted throughout life. Nor was he concerned with the uncertainty of opinion as to whether Jonnesco's fold was one and the same with Jackson's membrane. If an enveloping membrane existed in infancy—and Eastman's studies showed that it did in a certain proportion—it probably persisted into adult life. It was his belief that the membranous veil was intimately concerned in cases of acute or chronic constipation or stasis in the large bowel. By treating the membrane surgically, he had relieved the constipation more often than the pain and tenderness. But there was still an important question which they had to answer: "Was the veil the cause of the constipation, or was the constipation a factor aggravating an already existing veil; or had they to deal with a peculiar type of individual in whom this membranous veil was more prone to occur and become pathologic? Wilms' experience with cecopexy, by which he relieved the pain in all and the constipation in 75 per cent. of his cases, led Dr. Collins to use the method he had diagrammed on the charts. The membrane was tied fast in several places, making stumps and leaving the membranous part of the stump still attached fan-like to the colon. Before closing the wound one or more stumps were anchored to the anterior abdominal wall at points corresponding to the situation of the stump upon the gut.

Dr. L. A. Greensfelder of Chicago stated that in cases in which the abdominal operation was performed, in the quiescent period, where they were enabled to examine the ascending colon, in sixteen instances a Jackson's membrane was found which was not pathological. From his own observation he believed tha the reason sometimes the membrane was not observed in children was because it was a very fine, frail, web-like structure, which, unless one looked for it accurately and carefully, one was very apt to overlook. Through a very small McBurney incision you could without any trouble whatever bring to the surface the ascending colon and a portion of the transverse colon, so that the observation was easily made in children, and he was quite sure that anyone who wished to look for it carefully would find the membrane in every case.

Dr. William S. Bainbridge of New York City followed with remarks on intraabdominal folds and veils.

Dr. Leonard Freeman of Denver said that not long ago he made up his mind to observe in such cases as it was possible to observe the Jackson membrane. Since then he had done thirty-one sections in which the membrane was observed. He found it in twenty-four cases; hence it had been extremely common in his experience.

Dr. Miles F. Porter of Ft. Wayne, Ind., stated that the mere presence of what seemed to be a rather unusual fold in the peritoneal cavity did not necessarily call for an operation of one sort or another upon that fold. In the next place, it did not seem to him that from a practical standpoint it was important to determine whether these folds were of embryonic or pathological origin. It was important to determine as to whether or not they were doing any harm.

Dr. Van Buren Knott of Sioux City, Iowa, said that it had been his experience that more harm resulted from injudicious attempts at handling of bands supposed to be responsible for symptoms than he had seen good results. They should have greater familiarity with this subject before they knew just in what cases they should attempt to liberate or remove the membrane.

Dr. Thomas C. Witherspoon of Butte, Mont., claimed that one error they frequently made was to attribute the whole thing to the bands. Undoubtedly children had these things, but they did not suffer. They were active, they were getting about, there was no stasis, there was no reason for it, and the intensification of the mechanical obstruction by the bands that they got later as they went into their studies or offices, where their habits were sedentary, was due to the occurrence of cesspooling in the bowel and then stasis began.

Dr. Byron B. Davis of Omaha thought that the Jackson membrane was a normal one and was present in a very large percentage of cases; that in most cases when it was normally formed it was really a conservative anatomical structure rather than a pathological one, and he believed that in many instances it served to fix the ascending colon and to prevent a prolapse which would occur in the absence of this membrane.

Dr. A. A. Law of Minneapolis had found this membrane in fifty cases. He said that all of them had been studied with colonic injection of bismuth fluoroscopically and by means of the stereoscope. These studies convinced them that the *x*-ray findings incident to bismuth emulsion were practically of no value except as they showed whether obstruction was present in the large bowel. The large bowel took so many positions according to the posture of the patient that it was of little value. Every individual case of theirs had cecalptosis. The cecum was in the pelvis, or went down there when the membrane was released.

Dr. William T. Reynolds of Kansas City, Mo., had made some observations and investigations of the inside of the abdomen of infants. He had had eleven of these cases, the youngest of which was six months, and the others up to term. In no instance was there an absence of this membrane on the right side of the colon high up, and in no instance was it absent on the terminal ileum. In three cases it was present on the opposite side as observed by Dr. Eisendrath.

Dr. A. A. Kerr of Salt Lake City said that the cases that he had personally seen had been associated with intestinal stasis or chronic appendicitis.

Dr. Clifford U. Collins of Peoria referred to the unanimity with which the reports agreed on certain phases of this question.

Dr. Jabez N. Jackson of Kansas City, Mo., stated that if a person simply found a loose, vascularized veil floating over the colon, that had no bands of fibrous tissue in it definitely interfering with the capacity of the gut somewhere, he should just dismiss it from his mind. When this membrane interfered mechanically with the capacity of the gut it should be divided or stripped off, and this should depend upon the individual case. In some instances a mere slit of an incision was all that was necessary. Sometimes the attachments were so multiple that no simple line of incision would do it, and they had practically to strip the restricting membrane off.

Dr. M. L. Harris of Chicago said that after these membranes were dealt with the patient became a medical case and unless properly treated these membranes would recur, if due to a pathological state in the intestinal wall or to low forms of infection. They could produce experimentally these conditions in animals, and when they found these same conditions existing in the individual, and when they knew the great frequency with which intestinal stasis took place, in his opinion this low infection from intestinal stasis was the underlying factor in this condition.

**Cholecystitis and the Factors That Control Results of Operation.**—Dr. Charles H. Mayo of Rochester, Minn., said that the results of operations for cholecystitis were influenced by many conditions besides those in the gall-bladder itself. Among these, he enumerated infections within the liver and bile ducts which caused changes in the balance of the acidity of the stomach and of the alkalinity of the duodenum, the presence of pyloric spasm and changes in the pancreas. He called especial attention to a group of lymphatic glands extending along the common and hepatic ducts and on the cystic duct. He noted that any case of cholecystitis with sufficient infection to produce symptoms would necessarily affect these glands. In the majority of cases, if these glands were much enlarged, one would find a lymphedema of the head of the pancreas as well as the infection of the gall-bladder. An exception was the general swelling of the mesenteric glands through malignancy or gross abdominal infection. The majority of cases of cholecystitis were undoubtedly best relieved by cholecystectomy.

**Repair of the Common Duct by Means of Transplanted Fascia.**—Drs. Carl B. Davis and Dean D. Lewis of Chicago stated that following partial destruction of the common bile duct, temporary continuity of the passage of bile had been attempted in a variety of ways. In those cases where the remnant of the choledochus could not be implanted into the stomach or duodenum, two methods of repair had been used—the use of a foreign body, such as a rubber tube and various forms of plastic use of the tissues of the body. Sullivan, in 1909, successfully used a rubber drainage tube as a link between the hepatic duct and the lumen of the duodenum. His work was done on dogs. About the same time Wilms and Brewer reported the success of the same procedure in the human. Since that time numerous similar cases had been reported. In most of the reports the tube had passed into the digest-

ive canal and had been expelled. In other cases it had been necessary to reopen the abdomen to remove or readjust the tube. Cahen recently reported a case where the tube did not pass and the autopsy showed an enormous liver abscess. Enderlen had repaired defects in the gall-bladder with omentum. Baldassari and Gardini used flaps of serosa and muscularis for the same purpose. Kehr reported the use of detached flaps from the stomach to repair the choledochus. Kausch and Stubenrauch had constructed tubes, using all the layers of the jejunum and stomach and anastomosing with the permanent biliary fistula already established. The successful use of transplanted fascia in reinforcing the gastrointestinal and urinary tracts led them to believe that fascia might be of use in surgery of the biliary system. In their work they had transplanted free fascia from the abdominal wall to bridge gaps in the common duct and to patch partially severed ducts. In all cases the gastrohepatic omentum was destroyed in so far as any support was given to the choledochus. In one series of cases the common duct was cut across and the ends allowed to retract until they were one-half to one inch apart. A strip of fascia was removed from over the rectus muscle, passed beneath the ends of the severed duct and fastened by silk sutures to the proximal portion of the common duct and passed well up on the cystic and hepatic ducts. The repair at the distal end was done by fixing the fascia to the duodenum behind the entrance of the distal end of the duct into the gut. The fascia was then folded over to form a tube and two continuous sutures used to make the caliber as water-tight as possible; over this the omentum was wrapped as an extra precaution. In the second series of cases the common duct was cut partially across and then slit lengthwise for one-half inch. A strip of abdominal fascia was placed around the duct and the abdomen closed without drainage. In eleven cases it was necessary to close the abdomen without drainage, as the animals pulled out tubes and gauze in the first twenty-four hours. In some cases they tried to divert the bile from the field of repair by draining the gall-bladder, but lost the animals by extravasation of bile into the abdominal cavity after the tubes had been removed by the dogs. Wherever a leak occurred in the region of the flap, the experiment failed. This occurred in three cases—two in the first series and one where the duct was merely slit up. Five dogs were lost from infection of the abduct wall. Three dogs lived two months in the first series. Two of them when killed showed a patent common duct and stools of normal color. The third dog, which lived sixty-five days, had a constriction at the duodenal end. The bile ducts were distended to an enormous degree. The fascia was alive and as resistant as the normal tissues. In one animal where the bile duct had been slit longitudinally, the fascia was sutured too tight at the duodenal end—resulting in marked distention of the gall tracts. In this case the fascia was alive and strong enough to retain the bile.

**The Duodenum—Mobilization, Traumatic Rupture and Toxemia.**—Dr. A. B. KANAVEL of Chicago dealt with three questions; first, the possibility of mobilizing the duodenum; second, a consideration of traumatic rupture, its diagnosis and treatment; third, the question of toxemia developing in those cases in which the duodenum had been ruptured. Attention was called to the difficulty of reaching the third and lower portion of the duodenum by Kocher's method of mobilization and it was suggested to use the following procedure. In the first of the two cases going to operation, the author experienced great difficulty in mobilizing by Kocher's method and in the second case of extraperitoneal rupture of the duodenum he raised the colon and made an incision in the peritoneum between the duodenum and the hepatic flexor of the colon, *i.e.* in the peritoneal covering of the colonic mesentery. The opening was enlarged by the fingers and the entire retroperitoneal duodenum in its lower part was completely exposed, thus allowing of suture and treatment. The second case of extraperitoneal rupture which he reports (both cases were fatal) presented marked toxemia, and death was apparently due to this toxemia rather than to peritonitis, the absence of which was demonstrated by post mortems. The question as to whether the toxemia was due to a secretion of the duodenum or to some other factor was discussed.

**Congenital Pyloric Stenosis.**—Dr. ROLAND HILL of St. Louis, Mo., stated that recent studies of congenital pyloric stenosis had shown it to be a disease of much importance. The frequency of occurrence of this condition was hard to estimate, but it was found to be present in five cases out of one thousand babies studied at the Bethesda Hospital by Dr. T. Wister White of St. Louis, Mo. This estimate of 1-200 seemed to be fairly accurate as to the frequency of the condition. The pathology consisted primarily of great enlargement and thickening of the pylorus caused by hypertrophy of the circular muscle, leading to obstruction of the pyloric opening. In many cases this enlargement could be felt through the abdominal wall as a small movable tumor. The symptoms of the disease usually manifested themselves between the third and sixth week of life. The earliest symptom was vomiting, which was usually projectile in character; it was often so marked that little or no food was retained. Appearing at the same time were the gastric waves so characteristic of the affection. Constipation was very marked, sometimes absolute, and a tumor might be felt. The treatment might be either medical or surgical. If obstruction was marked, surgery alone afforded a chance of relief. The operation best adapted to these cases was posterior gastroenterostomy. Dr. Hill had operated upon ten of these cases, five of which had recovered and five had died. One of these five deaths was due to a kink and the other four to complications existing at the time of operation. He reported a successful operation upon a premature child five weeks old that weighed only 3 pounds and 15 ounces. This child gained 3 ounces in the first two weeks, 4½ ounces in the third week, 12½ ounces in the fourth week, 1 pound the sixth week, and still continued to gain at the rate of about 2 ounces a day. This was apparently the smallest child upon record to recover after operation for this disease.

*(To be concluded.)*

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### PHILADELPHIA NEUROLOGICAL SOCIETY.

AT a stated meeting held December 22 Dr. WILLIAMS B. CADWALADER presented a communication entitled "A Case with Bilateral Paralysis of the Muscles of Deglutition and Anesthesia Limited to the Left Upper Extremity, Left Shoulder and the Distribution of the Second Branch of the Left Fifth Nerve." The patient was a syphilitic and the symptoms had been present, after a sudden onset, in varying intensity for a period of six years. There had at one time been diplopia, but the eyegrounds presented no lesion. The condition was thought to be dependent upon thrombosis of the right posterior inferior cerebellar artery.

Dr. GEORGE WILSON exhibited a patient presenting "Tetanoid Chorea, with Anarthria and Exaggerated Reflexes, but No Babinski Response, Probably Due to Lenticular Disease." The man had had an attack of hemiplegia, shortly followed by a second attack of paralysis involving the opposite side. Apparently he understood what was said to him, but he was unable to make intelligible reply, succeeding at times, however, in making some sound. Any attempt at voluntary movement was followed by more or less violent jactitation of the musculature concerned. There was marked difficulty in deglutition, the act being accomplished only with considerable effort.

Dr. WILLIAM G. SPILLER exhibited a specimen of "Extensive Bilateral Subdural Hemorrhage Over the Motor Cortex, Without Motor Paralysis or Irritation." The patient had been struck on the head by a bag of paper weighing, it was thought, about 150 pounds, and falling from a height estimated at 14 feet. The man said he felt as if his neck had been broken, but he did not lose consciousness. He complained of headache, but at no time did he present any motor disturbance, nor did he have any convulsions. The optic discs were blurred. Without apparent further cause the patient became stuporous, then comatose, and finally death took place. Post-mortem examination disclosed extensive hemorrhage beneath the dura over both cerebral hemispheres, without sign of fracture of any bone of the skull.

Drs. SEYMOUR D. W. LUDLUM and ELLEN P. CORSON-WHITE presented a communication entitled "Tests for Latent and Treated Cases of Syphilis." They pointed out that in a not inconsiderable number of cases of syphilis negative responses to both Wassermann and Noguchi tests are obtained, while a positive response is secured with the luetin test. Accordingly no case should be considered as conclusively non-syphilitic in which the luetin test has not been shown to be repeatedly negative.

Drs. ARTHUR GERHARD and HENRY K. DILLARD reported "A Case of Syphilis Presenting Unilateral In-

volvement of Certain Cranial Nerves." The patient was a negro, 23 years old, with a clear history of luetic infection and with a positive Wassermann reaction. He had a typical right-sided facial palsy, with anesthesia of the cheek, deviation of the tongue to one side, loss of taste and paralysis of the soft palate.

## State Medical Licensing Boards.

### STATE BOARD EXAMINATION QUESTIONS.

LOUISIANA STATE BOARD OF MEDICAL EXAMINERS.

*October* 27, 28, and 29, 1913.

(*Continued from page* 368.)

PATHOLOGY.

1. (*a*) What is an infarct? (*b*) What is an anemic infarct? (*c*) What is a hemorrhagic infarct?
2. Describe the process of healing of wounds by first intention.
3. Name the different forms of pus-producing cocci, and state which of these are the most virulent.
4. (*a*) What is suppuration? (*b*) What is leucocytosis?
5. What changes occur in joints following gonorrheal metastasis?
6. Describe the pathology of acute osteomyelitis.
7. What are the pathological changes found in the small intestine in typhoid fever?
8. Describe the gross pathology of acute lobar pneumonia.
9. Describe the pathology of pyonephrosis.
10. Describe the pathology of arteriosclerosis.

THERAPEUTICS.

1. (*a*) What are mydriatics? (*b*) Name them.
2. Name the principal drugs used for the reduction of blood pressure.
3. (*a*) What are cardiac stimulants? (*b*) Name some of the best known drugs used for this purpose.
4. Describe the physiologic action of the diuretics.
5. How would you treat a case of acute opium poisoning?
6. What are the antidoes for arsenic?
7. Describe the treatment of valvular disease of the heart with failing compensation.
8. How do substances act by counterirritation? Name some of the best known counterirritants.
9. Describe the action of antidiphtheritic serum in a case of diphtheria.
10. What are the physiological actions of the salts of cinchona?

OBSTETRICS.

1. (*a*) What are the causes of prolonged first stage of labor? (*b*) dangers? (*c*) management?
2. Discuss in general the principal drugs used to hasten labor.
3. What are the prerequisites, indications and contraindications for the use of forceps?
4. What are the causes of hemorrhage before and after delivery?
5. (*a*) What conditions necessitate version? (*b*) forceps delivery? (*c*) cesarean section?
6. Describe a cesarean section.
7. Vaginal examination shows the saggital suture occupying the right oblique diameter; the small fontanelle is felt opposite the right sacroiliac synchrondrosis, the large fontanelle being directed toward the left and front. (*a*) What is the position of the child? (*b*) how may the case end? (*c*) treat the case if nature's efforts are unsuccessful.
8. What changes occur in the fetal circulation at birth?
9. Give the etiology and treatment of subinvolution of the uterus.
10. What is the cause and treatment of frequent urination in pregnant women?

### ANSWERS.

PATHOLOGY.

1. An *infarct* is an area of degeneration and inflammation caused by the plugging of an end artery. An *anemic infarct* is one in which there is no blood. In a *hemorrhagic infarct* there is blood.

2. *Healing of wounds by first intention.*—"Exudation of plasma from the neighboring blood-vessels occurs, and its fibrinogen is converted into fibrin, so gluing the edges of the wound together. Leucocytes are poured out and infiltrate the wound, absorbing any blood clot present. These are followed by fibroblasts (connective-tissue cells), which take their place. New capillaries form by budding out from adjacent ones, and vascularize the new tissue. Fibrous tissue is formed by intercellular exudation from the fibroblasts and so the fibrocicatrical union is complete, for at the same time epithelium is spreading over the narrow surface line."—(*Aids to Surgery*).

3. The *pus-producing cocci* are: *Staphylococcus pyogencs aureus, Staphylococcus pyogcnes albus, Staphylococcus pyogenes citreus, Streptococcus pyogenes, Staphylococcus cereus, Micrococcus tetragenus,* gonococcus. The *Streptococcus pyogenes* is the most virulent.

4. *Suppuration* is a condition in which pus is present, and there has been some destruction of tissue following inflammation. *Leucocytosis* is a condition in which the white blood-corpuscles are increased in number.

5. *Gonorrheal arthritis.*—"One or several joints may be involved, generally the former, the knee, ankle, and wrist being most frequently affected. The inflammation may be acute or chronic, and varies in extent as well as in degree. Although the synovial membrane alone may be involved, the ligaments and periarticular structures are very apt to be thickened and infiltrated. Except in the mildest cases, the pain is severe and there is fever. Suppuration may occur, and ankylosis is very prone to follow even the milder cases."—(Stewart's *Surgery.*)

6. *Acute osteomyelitis:* "The marrow first becomes red and edematous, then cellular infiltration and proliferation are superadded, and finally collections of pus or diffuse purulent transformation follow. The surrounding bone is involved, becoming more or less infiltrated, softening, and not rarely undergoing necrosis. Small or large sequestra may be formed, or the bone may necrose completely. Periostitis is generally associated, and the tissues around the bone are usually infiltrated and suffer suppurative or necrotic changes. Hypertrophic changes may occur in the periosteum and superficial layers of bone, causing a bony encasement of central sequestra. In such instances a suppurating sinus, extending from the bone to the surface, usually remains."—(Stengel's *Pathology.*)

7. "Principally inflammation of the lymphoid tissue of the lower portion of the ileum, with more or less catarrh throughout the bowels. Peyer's Patches—1st week.—Are swollen through infiltration of leucocytes, the surface raised and fawn-colored—the infiltration involves the submucous coat. The lesions are most numerous at the lower end of the ileum. 2nd week.—The surface becomes abraded; sloughs form, which are often bile-stained. 3rd week.—Sloughs come away, leaving ulcerating surfaces. Typical typhoid ulcers are thus formed. A few solitary glands undergo the same process. At the end of the week the ulcers begin to granulate, but healing is usually slow. Mesenteric glands may undergo the same changes, but more often become swollen, red, and tender only, or break down into cheesy masses."—(Wheeler and Jack.)

8. *Lobar Pneumonia.* "(1) *Stage of engorgement.*—This is the stage of inflammatory hyperemia and edema, and it is characterized microscopically by overfullness and slight tortuosity of the pulmonary capillaries, and by swelling of the alveolar epithelium. The lung is of a dark red color; it is heavier and less crepitant than natural: it pits on pressure; and its cut surface yields a reddish, frothy, tenacious liquid.

"(2) *Red hepatization.*—Here there is an exudation of liquor sanguinis and blood corpuscles. The exuded liquids coagulate within the alveoli and terminal bronchioles, the coagulum enclosing numerous white and a few red blood corpuscles. The alveolar epithelium is swollen and granular. The lung is now much heavier than in the preceding stage, and is increased in size, so as to be often marked by the ribs. It is quite solid; sinks in water, and cannot be artificially inflated. It is remarkably friable, breaking down with a soft granular fracture. The cut surface has a markedly granular appearance, seen especially when the tissue is torn, and due to the plugs of coagulated exudation-matter which fill the alveoli. The color is of a dark reddish-brown, often here and there passing into gray. This admixture with gray sometimes gives a marbled appearance. The pleura covering the solid lung always participates more or less in the inflammatory process. It is opaque, hyperemic, and coated with lymph.

"(3) *Gray hepatization.*—This stage is characterized by a continuance of the process of inflammatory cell-emigration, and by more marked changes in the epithelium. The white blood corpuscles continue to escape from the vessels, and the alveolar epithelium becomes more swollen and granular. The alveoli thus become more completely filled with young cell-forms, so that the fibrinous exudation is no longer visible as an independent material. The fibrinous exudation now disintegrates, and the young cells rapidly undergo fatty metamorphosis. The alveolar walls themselves, with few exceptions, remain throughout the process unaltered, although very occasionally, when this stage is unusually advanced, they may be found here and there partially destroyed. Owing to these changes, the reddish-brown color of the lung becomes altered to a grayish or yellowish white. The granular appearance is much less marked; the solid tissue is much softer and more pulpy in consistence, and a puriform liquid exudes from the cut surface of the organ. This stage, when advanced, has been termed 'suppuration or purulent infiltration' of the lung."—(Quain's *Dictionary of Medicine*).

9. *Pyonephrosis* is that form of suppuration in the kidney and its pelvis which is associated with obstruction to the outflow of urine. "The infection is commonly an ascending one, being formed by the increased backward pressure. As a result of chronic inflammation, the walls of the ureter become thickened and fused with the peritoneum and surrounding tissues, and the lumen is usually dilated. On section the kidney presents a number of abscess cavities, the intervening parenchyma being pale and tough as a result of chronic interstitial nephritis. Unless there has been antecedent hydronephrosis, the pelvis is usually small in proportion to the greatly enlarged and flask-shaped calyces, which constitute the abscess cavities and form the chief bulk of the kidney. Their communications with the pelvis and with each other are narrowed or obliterated, so that they may be regarded as separate cavities. The purulent contents are often mixed with crumbly masses of phosphates. The mucous membrane of the pelvis and calyces is converted into granulation tissue, and, in advanced cases, becomes the seat of ulceration which eats into the parenchyma. The renal blood-vessels are thickened and narrowed by endarteritis, so that there may be very little hemorrhage when the pedicle is divided. The perinephric cellular tissue is converted into granulation and scar tissue, and is frequently the seat of scattered foci of suppuration, and sometimes a large perinephric abscess is found to communicate directly with one of the dilated calyces. The perinephric suppuration may extend into the psoas and quadratus muscles, or into the cellular planes of the abdominal wall."—(Thomson and Miles' *Manual of Surgery.*)

10. *Arteriosclerosis.*—The large arteries are chiefly affected. The earliest changes are a small-celled infiltration of the subendothelial tissue, which may be either replaced by fibroid tissue or undergo fatty degeneration. Degeneration usually occurs, and the softened mass either bursts into the artery or becomes converted into a calcareous plate. The process extends to the middle coat, which is at first softened, and the muscular tissue is destroyed in patches. The result is either weakening of the wall and dilatation into an aneurysm, or the deposit of lime salts and calcification of the middle coat. The external coat is thickened, and helps to prevent dilatation. The conditions which are secondary to atheroma are thrombosis, detachment of a plate forming an embolus, or "dissecting aneurysm," due to the blood-stream getting under a plate and tunneling under the tunica intima.

THERAPEUTICS.

1. *Mydriatics* are agents which cause the pupil of the eye to dilate. The chief are:—Atropine, homatropine, daturine, coniine, hyoscyamine.

2. *The principal drugs used for the reduction of blood-pressure:*—Amyl nitrite, sodium nitrite, potassium nitrite, nitroglycerin, erythrol tetranitrate, veratrum viride, aconite.

3. *Cardiac stimulants* are agents which promptly increase the force and frequency of the heart when it is depressed. The chief are:—Alchohol, ammonia, nitroglycerin, heat, ether, camphor, sparteine.

4. PHYSIOLOGICAL ACTION OF DIURETICS. *"The refrigerant Diuretics* modify rather than increase the urine, and exercise a sedative action upon the heart and circulation. Used to excess they depress the heart and impoverish the blood. *Hydragogue Diuretics* increase the water of the urine largely, and in general act by raising arterial pressure, either—(*a*) throughout the body, or (*b*) locally in the kidneys. This they accomplish in various ways, direct and indirect—increasing the action of the heart, contracting the efferent vessels so as to raise the pressure in the glomeruli, dilating the afferent vessels, etc. The *Stimulant Diuretics* are largely eliminated by the kidneys, and act upon the entire genitourinary mucous membrane by local irritation, which in excess causes inflammation and symptoms of a violent character, as strangury, bloody urine, etc. All the members of this group should be used with great caution."—(Potter's *Materia Medica.*)

5. In a case of *acute opium poisoning*, an emetic should be given, the patient's stomach should be washed out, a one per cent. solution of potassium permanganate may be used to wash out the stomach, the circulation and respiration must be maintained, the patient should not be allowed to rest, strong coffee or caffeine may be administered by the mouth or rectum, the urine should be drawn by a catheter.

6. The *antidote for arsenic* is freshly prepared solution of ferric hydroxide; a hypodermic of apomorphine should be given.

7. "Where compensation has failed, cardiac tonics are required, and of these digitalis stands first. It acts beneficially by slowing the action of the heart and prolonging its diastole, thus increasing the natural rest. It also increases the force of the cardiac beat. In addition, it has a diuretic action and thus tends to relieve dropsy. Its disadvantages are that it increases resistance in the peripheral arteries and so produces greater strain, and that in aortic regurgitation the prolonged diastole permits of a longer back-flow. Consequently it should not be given in aortic regurgitation unless there are mitral symptoms. . . . Sudden breakdowns of compensation call for complete rest and stimulation of the heart by ammonia or ammonium carbonate. Where the right heart is overdistended strychnine hypodermically, along with a mercurial purge, and, if necessary, removal of blood by leeches over the liver or by bleeding from the arm are required."—(Wheeler and Jack's *Handbook of Medicine.*)

8. "The entire basis for the employment of counter-irritation rests upon reflex action, or the conduction of a nerve impulse to a center, which, when so stimulated, sends out an impulse to the part of the body which is diseased."—(Hare's *Therapeutics.*)

*Counterirritants:* Mustard, iodine, capsicum, chloroform, camphor, ammonia, cantharides, croton oil, hot water.

9. *How* antitoxin produces immunity and effects cure is not known, but *theories* deduced from observed facts are as follows: "As the various pathogenic bacteria produce the causative toxins of their respective diseases, so the organic cells of the body, reacting under the stimulus of the poisons thus introduced, immediately proceed to elaborate defensive bodies, which if produced in sufficient quantity will neutralize the effects of the toxins. Residual antibodies remaining in the blood after recovery render the animal immune for a time against the disease. The immunizing and curative effects obtained by the injection of the blood serum of an immunized animal into the circulation of another animal are due either to direct chemical neutralization of the toxins themselves by the antibodies so introduced (Behring, Kitsato), or to a particular influence exerted by the antibodies upon the living cells of the organism which, being affected in two opposite directions, remain neutral to the disease (Buchner). Some authorities hold that these results are due to the conjoint action of leucytic and chemical forces. Ehrlich's side-chain theory assumes that every toxin contains toxophore molecules having direct toxic action, and hantophore molecules which combine the toxophores with a similar combining group of molecules in the tissue cell of the attached organism. The tissue cell molecules being destroyed by the toxophores, a rapid and profuse regeneration of similar molecules occurs in side chains, and these molecules overgrowing are carried into the circulation, becoming the antitoxin, which acts by combining with the haptophores of newly arrived toxin, using up their combining power before they can reach the tissue cells."—(Potter's *Materia Medica*, etc.)

10. *Physiological action of the salts of cinchona:* They are antiseptics, bitter tonics, and antipyretics; at

first they improve appetite and aid digestion; later they cause gastric catarrh; in small doses they act as a cardiac tonic; later they slow the heart's action; small doses stimulate the brain, large ones cause ringing in the ears, disturbances of vision, delirium, dilated pupils, a sense of fullness in the head; the spinal cord is first stimulated, then depressed; and the urinary secretion is increased by these salts.

OBSTETRICS.

1. PROLONGED FIRST STAGE OF LABOR. *Causes:* Obstruction, uterine inertia, uterine exhaustion. *Dangers:* Asphyxiation of fetus, postpartum hemorrhage, sepsis, pressure-necrosis and fistulæ, exhaustion or death of the mother. *Management:* The case should be treated early; causes should be removed when possible; a warm vaginal douche, and the administration of morphine, chloral, or quinine have been recommended; delivery by forceps may be necessary.

Uterine inertia is *primary*, when it is simply characterized by weak pains from the beginning. In *secondary* inertia the labor has begun in a normal way, but pains have given out, and there is a condition of uterine exhaustion. Primary inertia requires rest, strychnine, and (some say) ergot; secondary inertia needs sleep, chloral, bromides, and opium. In the primary form version or artificial delivery may be indicated.

2. "Oxytocics are drugs that tend to accelerate parturition by increasing the expulsive force of the uterus. It is conceivable that they may act directly by stimulating the unstriped muscle of the uterus, or indirectly by influencing a center for uterine contraction supposed to exist in the lumbar spinal cord. The chief oxytocics are ergot, quinine, hydrastis, cotton-root bark, and corn smut. Oxytocics may be employed during labor to hasten the expulsion of the fetus; at the close of labor, to prevent or to check postpartum hemorrhage; and in the puerperium to overcome certain forms of subinvolution.

"In the parturient woman small doses of *ergot* induce uterine contractions which often closely resemble the rhythmic contractions observed in normal labor. After full doses, however, the contractions usually become very powerful, and uninterrupted or tetanic. The preparations of the drug on the market vary so much in activity that it is quite difficult to predict the effect of an average dose in a given case.

"*Quinine* has some power of increasing the rapidity and energy of the uterine contractions when they have once begun; its action, however, is inconstant. The contractions are much less prolonged than those excited by ergot and are probably due to an influence exerted directly on the uterine muscle."—(Stevens' *Modern Materia Medica.*)

3. *Prerequisites for the use of forceps* are: (1) The rectum and bladder must be empty; (2) the os uteri must be fully dilated; (3) the membranes must be ruptured; (4) the pelvis must be of sufficient size.

*Indications for the use of forceps* are: (1) *Forces at fault:* Inertia uteri in the presence of conditions likely to jeopardize the interests of mother or child. (*a*) Impending exhaustion; (*b*) arrest of head, from feeble pains. (2) *Passages at fault:* Moderate narrowing, 3¼ to 3¾ inches, true conjugate; moderate obstruction in the soft parts. (3) *Passenger at fault:* A. Dystocia due to (*a*) occipitoposterior, (*b*) mentoanterior face. (*c*) breech arrested in cavity. B. Evidence of fetal exhaustion (pulse above 160 or below 100 per minute). (4) *Accidental complications:* Hemorrhage; prolapsed funis; eclampsia. All acute or chronic diseases or complications in which immediate delivery is required in the interest of mother or child, or both. *Contraindications:* Mechanical obstruction in the parturient canal; incomplete dilatation of the os; non-rupture of membranes; non-engagement of the presenting part; the fetal head being too large or too small; distended bladder or rectum.

4. The following (from Gould and Pyle's *Cyclopedia of Medicine and Surgery*) is a useful classification of the hemorrhages in question:

*A. Hemorrhages of Pregnancy:* Caused by (1) placenta prævia; (2) premature separation of a normally situated placenta; (3) apoplexy of the decidua or placenta.

*B. Hemorrhages of Labor:* Caused by (1) placenta prævia; (2) premature separation of a normally situated placenta; (3) relaxation of the uterus; (4) laceration of cervix; (5) rupture or inversion of uterus.

*C. Hemorrhages of the Puerperium:* Caused by (1) retained secundines; (2) displaced uterus; (3) displaced thrombi; (4) fibroid tumors; (5) hypertrophied decidua; (6) carcinoma.

5. (*a*) *The Indications for Version are:* (1) In transverse presentations; (2) in placenta prævia; (3) in malpresentations of the head; (4) in simple flattened pelvis, and in minor degrees of pelvic contraction; (5) in prolapsed funis; (6) in sudden death of the mother; and (7) in any case where speedy delivery is imperative.

(*b*) See QUESTION 3.

(*c*) *Cesarean section* (conservative). "*Indications:* The cases in which it is performed are: (1) Extreme deformity of the pelvis, in which delivery by forceps and version is excluded, and in which craniotomy is either impossible or would be more dangerous to the mother than cutting into the abdomen and uterus; and in which there is not room for a successful symphyseotomy. Such cases present the '*positive*' indication for cesarean section; there is nothing else to be done. Flat pelves having a conjugata vera of 2¼ inches or less, and justo-minor pelves with a conjugata vera of 2½ inches or less, present this positive indication; (2) cases of more moderate pelvic contraction in which craniotomy is possible, but cesarean section is agreed upon to *save the life of the child;* (3) mechanical obstruction in the pelvis from fibroid, cancerous, bony, or other tumors which cannot be pushed up out of the way or be safely removed; (4) irreducible impaction of a *living* child in transverse presentations; (5) in women dying near the end of pregnancy the child, if alive, is rapidly delivered by *post-mortem* cesarean section; (6) various other obstructions from inflammatory adhesions, atresia, constrictions, etc., of the vagina, and uterine displacements, may rarely require the operation; (7) recently the operation has been done in eclampsia cases, where more conservative methods of rapid delivery were impracticable; and (8) in placenta prævia, chiefly with a view to lessen the infant mortality attending the usual treatment of this complication."—(King's *Obstetrics.*)

6. *Cesarean section:* "Fluid extract of ergot, ℥xx, is injected into the thigh muscles just as the anesthesia is begun. The operator assures himself that there is no loop of intestine between the uterus and abdominal wall, beneath the field of incision. Should a coil of intestine be found there, it is pushed above the fundus. An assistant holds the uterus in central position. The skin incision extends one-third above and two-thirds below the level of the umbilicus. It is best made through the right rectus muscle. The external layer of the rectus sheath is divided, the muscular bundles separated with handle of scalpel and the fingers, and the deep layer of the sheath and the peritoneum divided after lifting them with tissue forceps. Bleeding vessels are controlled by gauze sponge, pressure, or held by catch-forceps before opening the peritoneum. A short longitudinal median incision is made in the uterine wall beginning at the fundus, avoiding the membranes if still unbroken. This is extended downward with fingers, scissors, or scalpel to a total length of about six inches. The hand is thrust through the membranes and the child is extracted by the head or the feet, whichever is most accessible. In case of anterior implantation of the placenta, usually the hand may best be passed directly through it. The cord is clamped at two points with catch-forceps, cut between them, and the child is passed to an assistant. The uterus slips out of the abdomen as the child is extracted, and the intestines are kept back with hot sterilized towels placed over the upper part of the incision. The coverings help also to protect the peritoneum from soiling. The uterus is wrapped in hot moist cloths. As a rule, it is better not to wholly eventrate the uterus. The placenta, if not spontaneously separated, may be peeled off by grasping it with one hand like a sponge. If the cervix is not sufficiently open for drainage, a large rubber tube or gauze strip is passed down through it and withdrawn from below. Irrigating or mopping the uterine cavity is unnecessary. Asepsis is promoted by leaving it as nearly as possible untouched. The peritoneum is sponged dry with the least possible friction or handling. The uterine wound is closed with deep No. 2 chromated catgut sutures at intervals of about 1/3 inch. They are given a wide sweep laterally through the muscular wall, falling short of the decidua. The peritoneal coat of the uterus is closed with a No. 1 continuous plain catgut suture, forming a welt over the deep suture line. The hemor-

rhage is inconsiderable and usually ceases with the introduction of the first sutures—a hypodermic of ergot should be given before beginning the operation, and one of ergotole and pituitrin on the delivery of the child. Retraction of the uterus is ensured by manipulating it, if necessary, through a hot towel, or by faradism. When there has been much blood lost, a quart or two of warm sterilized 0.9 per cent. salt solution may be left in the peritoneum. The parietal peritoneum is closed with a plain running No. 0 catgut suture. Interrupted silkworm-gut sutures are then passed at intervals of about¾ inch, through all but the peritoneum, from within outward. The fascia is brought together with interrupted No. 2 plain catgut sutures, or with a continuous suture. The silkworm-gut sutures are now tied. The abdomen is cleansed, and the wound covered with a dressing of several thicknesses of dry sterile cheesecloth; over this is placed a thick compress of sterile absorbent cotton. The dressings are secured by means of strips of zinc oxide adhesive plaster, and are held in place by a Scultetus binder." (Polak's *Obstetrics.*)

7. (*a*) The position is right occipitoposterior.

(*b*) The *case may end* by rotating to an anterior position, or by becoming a permanent posterior position, or by becoming a face presentation.

(*c*) *Management*—"(*a*) *When diagnosed while the head is at the brim.* (1) Leave it alone. The occiput will probably rotate to the front all right if it is given plenty of time. (2) If flexion appears to be deficient, try to increase it by pushing up the sinciput with the fingers in the vagina during a pain, at the same time pressing down upon the fundus with the other hand. (3) The head may be rotated by passing the hand into the vagina and grasping it between the fingers and thumb. At the same time the shoulders must be rotated by abdominal palpation, or else the head will at once go back to its original position. This maneuver generally requires an anesthetic.

"(*b*) *When diagnosed after the head has entered the pelvis.* (1) Leave it alone. After exercising the patience of all concerned, it will probably rotate spontaneously. Only about one case out of twenty fails to do so. (2) An attempt may be made to increase flexion as before. (3) Manual rotation may be attempted as before, but the head must first be flexed and gently pushed back out of the pelvis. (4) If the pains are weak, forceps should be applied well back on the head, so that when traction is applied flexion will be promoted. The head should then be pulled well down on to the pelvic floor. If it begins to rotate, take off the forceps and leave the rotation to nature, merely keeping the head on the pelvic floor by pressure on the fundus. After the rotation has taken place the forceps may, if necessary, be reapplied and delivery completed thereby.

"(*c*) When the occiput has definitely rotated into the hollow of the sacrum, and the case has become a persistent occipitoposterior, forceps should be applied and the head delivered with the occiput posterior. The perineum should be guarded as much as possible, and any tears stitched up at once. In extreme cases craniotomy and pubiotomy may require to be considered."—(Johnstone's *Textbook of Midwifery.*)

8. *Changes that occur in the fetal circulation at birth:* The hypogastric arteries dwindle and close, the foramen ovale becomes obliterated, the ductus arteriosus and ductus venosus become obliterated, the umbilical vein becomes impervious, and the Eustachian valve atrophies.

9. SUBINVOLUTION. *Etiology:* Laceration of the cervix; absorption of septic products; mismanagement of the convalescent stage of the puerperium, chiefly too early rising; tedious labors; misplacement of the uterus; retained clots or membranes; tumors of the uterus. *Treatment:* Rest in bed, hot intrauterine and vaginal douches, correction of constipation, abstention from sexual intercourse, tonics, correction of displacement, and, if necessary, curettage. An abdominal binder may be worn.

10. Frequent urination in pregnancy is due (1) to uterine displacement, chiefly anteflexion, occurring at the beginning of pregnancy; (2) to pressure of the presenting part on the bladder, occurring toward the end of pregnancy. A displaced uterus may be replaced; the patient should drink as little fluid as possible; tincture of hyoscyamus has been used by some practitioners with benefit.

## Miscellany.

**Medicine and Divinity.**—A writer in the *British Medical Journal,* October 4, 1913, narrates the history of Sir Francis Milman, who was admitted a Fellow of the Royal College of Physicians in 1778; but apparently just about that time he was nearly lost to medicine and gained by the Church, for he took the degree of bachelor of divinity at Oxford on November 10 of that year, and soon thereafter resigned his appointment as physician to the Middlesex Hospital. The intention, however, was abandoned, and he is found to be, in 1785, physician extraordinary to the King's household; and then, having, so to say, put his foot on the ladder, he is seen mounting steadily—physician to the household, physician extraordinary to the King, physician in ordinary to the Queen, and, in 1806, physician in ordinary to the King. He was created a baronet in 1800. If Sir Francis at any time regretted that he did not leave medicine for divinity he must have been consoled to some extent by the fact that he lived to see his third son (Henry Hart Milman) take orders (1816); in that year also a grandson was born (Robert Milman), who was in time to come (1867) to be bishop of Calcutta. Henry Hart Milman also rose high in the Church, being made dean of St. Paul's by Lord John Russell in 1849; he was known as "the great dean," and is now remembered for many of his literary undertakings.

**Prevention of Loss of Life at Sea.**—At the recent International Congress on First Aid and Ambulance Work, held in Vienna, the prevention of loss of life in sea voyages was discussed in a paper by Professor Flamm, who said that watertight compartments should be constructed in the long axis as well as in the cross-section of a modern ship, the stability of the vessel being of paramount importance. The number and capacity of the life-boats should be in direct relation to the number of persons on board the ship, and not to the tonnage of the vessel. A modern passenger steamer must have apparatus for wireless telegraphy, must be carefully ballasted by proper storing of the cargo and trimming of the fuel, and must have the fuel stored in fireproof compartments. Medical aid must be provided for each 300 or 500 souls, one medical man and a ship's hospital or ward, with at least six beds, being available. Cork belts must be within easy reach in the berths and on deck.—*Lancet,* October 4, 1913.

**Economy of Fuel.**—It is not the amount of gasoline that determines the amount of power to be derived from a given cylinder. It is the amount that can be changed into vapor and mixed with air to a proper degree before ignition. In winter much gasoline is wasted by being carried as liquid into the cylinders. Such material burns very slowly as compared with the proper mixture, and leaves much of the carbon deposited in the combustion chambers. This is not economy.—*Motor.*

**Life of Dry Cells.**—When dry cells are used for starting purposes, a season's use may be considered their average life. If a set of cells in this service deteriorates rapidly, the obvious assumption is that there is a short circuit somewhere down the line or the driver has forgotten to turn the switch after the engine starts. A small, two-point switch, placed "under the driver's nose" generally serves to refresh the memory of even the most careless.—*Motor.*

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## Original Articles.

### THE EXTENSION OF TUBERCULOSIS IN THE IMMUNE LUNG.

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We learn from animal experimentation that while large inoculations with tubercle bacilli produce an acute, disseminated, rapidly fatal tuberculosis, it is possible by the administration of a small enough dose to produce a type of chronic localized tuberculosis which much resembles the chronic pulmonary tuberculosis of man. Furthermore, animals which have a tuberculosis of a chronic type have been shown by properly conducted experiments to be immune to reinfection from without, and the fact of localization of the tuberculosis and its slow course in such animals seems to point to the existence of at least a partial immunization as respects the spread of the already established disease. Many facts point to an analogous immunity in man. The purpose of this article is to endeavor to explain and coordinate certain facts as to the extension of the chronic tuberculous process within the human lung on the assumption that a relatively small infection with tubercle bacilli confers a more or less perfect immunity toward tuberculosis and that the typical localized and slowly progressive pulmonary tuberculosis of the adult owes its peculiarities to the existence of such immunity.

Tubercle bacilli enter the human body for the most part by deglutition and inhalation. Bacilli which infect the cervical and mesenteric glands pass through an apparently unchanged mucous membrane. V. Baumgarten, it is true, finds microscopic evidence that damage is inflicted upon lymphoid tissue by the bacilli during their penetration, but the fact remains that the development of manifest tubercle at the point of entry is exceedingly rare. As for the lungs there are many obstacles to purely aerogenous infection of the pulmonary parenchyma. The vast majority of tubercle bacilli which enter the air passages must be deposited upon the mucous membrane as Saenger[1] has shown. In this case if they enter the tissues they do so after penetration of the mucous membrane of trachea or bronchi.

It is held by many that tubercle bacilli reach the alveoli directly by the inspired air. But if this does occur, evidently the bacilli cannot be agglomerated into clumps. In order to penetrate so deeply they must be suspended in impalpable dust or be contained in finely atomized fluid, which practically necessitates the breaking up of aggregations into their individual bacilli. According to Kretz[2] tubercle bacilli after reaching the alveoli under the conditions of animal experiment, quickly disappear therefrom, that is they enter the lymph vessels, and if not clumped are probably transported to lymph glands as in infections elsewhere. We may say, therefore, that, as a rule, the tubercle bacilli of primary infections enter lymph channels one by one and are transported to lymph glands.

Bartel[3] has shown that tubercle bacilli undergo a diminution in virulence in passing through a mucous membrane and that their virulence is still further diminished after they have reached the lymph glands, so much so that for a time they may become completely avirulent. It has been found by inoculations of the gland substance of both man and animals that the bacilli may be present without producing visible changes in the tissues and that they may remain latent even to tuberculin tests for weeks at least, that is, they do not necessarily at once produce systemic infection. From the fact that tubercle is not formed at the point of entry of the single bacillus and from the additional fact of the latency of tubercle bacilli in lymph glands it may be concluded that the single bacillus does not produce a systemic reaction, that is, does not infect the organism. If this is true of the single bacillus it is equally true of disseminated and isolated bacilli. Tubercle bacilli do not infect until they have multiplied or have otherwise become aggregated. In other words, there is a threshold of infection below which tubercle bacilli are unable to arouse sufficiently the resistance of the body to produce the necessary reaction to their presence. The need of aggregations of tubercle bacilli in order to produce infection would seem to show that somewhat of a concentration of their toxic products may be requisite as well as a concentration of the bacilli themselves. The individual bacillus is a more or less inert substance. It is only when the bacilli are massed together that their toxic products become a sensible irritant to unsensitized cells. What number of bacilli thus aggregated is necessary in order to reach the threshold of infection is not known. It probably varies with the individual and with the virulence of the strain of bacilli. The figures given by authors as to the number of tubercle bacilli necessary for infection are not significant, for multiplication after introduction is not excluded.

If it is true that the single bacillus cannot cause the primary infection it is still more true that after the primary infection has produced an immunity, and so long as that immunity exists, isolated bacilli, whether few or numerous, and whether derived from without or from the primary focus, cannot cause secondary lesions.

This proposition would be disputed by those who believe that the sensitization of the organism to tuberculous infection renders it more rather than less subject to extensions of the tuberculous process. Undoubtedly immunization is slow in reaching its full development and large doses of tubercle

bacilli, artificially introduced, may result in superinfections while the immunity is still imperfect. These are, however, rather to be counted as a part of the primary infection.

What happens to small collections of tubercle bacilli in the human body when immunity has fairly developed may be shown by a brief consideration of the subject of what may be called the primary multiple infection, or more properly speaking, the multiplicity of collections of tubercle bacilli before or at the beginning of the first systemic reaction to the tubercle bacillus. It is probable not only that tubercle bacilli are collected in more than one gland during the process of primary infection, but also that all tubercle bacilli do not enter the body by the same portal in the given case. The choice of the portal of entry is doubtless much influenced by the mode of administration of the tubercle bacilli. Thus Bartels[3] found that infections of the mesenteric glands much preponderated when young rabbits were given a single feeding with food containing human tubercle. But if the food was soaked with suspensions of tubercle bacilli the percentage of infections of the cervical glands was considerably increased. We may suppose that the child inhales occasional tubercle bacilli which reach the bronchi and from thence are carried to the tracheobronchial glands, and that he swallows tubercle bacilli from time to time, some of which may reach the cervical glands, while others may chance to pass through the stomach, especially when it is disordered, and infect the mesenteric glands from the intestine. When opportunity for massive infections is absent it is reasonable to suppose that the acquisition on the part of the child of a sufficient number of tubercle bacilli to produce infection is often a protracted process. This is favorable in so far as it tends to avoid an overdose of tubercle bacilli before immunity has been inaugurated, unfavorable as respects the formation of aggregations of tubercle bacilli.

Beitzke,[4] wishing to determine whether tubercle bacilli are disseminated by the blood even in the latent stage of tuberculosis, inoculated into guinea pigs glands from 27 children one to fifteen years of age, the bodies of whom presented no trace of tuberculous disease at autopsy. Nine cases were positive for tubercle bacilli. Of these in two cases the cervical, tracheobronchial and mesenteric glands contained tubercle bacilli, in one case there were tubercle bacilli in the tracheobronchial and the periportal glands, in another in the periportal and axillary glands. In four the cervical glands were alone affected, and in one the tracheobronchial glands. From these results Beitzke concludes that hematogenous dissemination of tubercle bacilli must be exceptional in the latent stage of tuberculosis, for, if it were not, the axillary and inguinal glands would have been infected, whereas the axillary gland was only infected in one doubtful case and the inguinal glands were uniformly negative.

This argument is convincing as to the improbability of hematogenous dissemination of tubercle bacilli during the stage of latency. But Beitzke supposes that the tubercle bacilli, when more than one gland contained them, had passed from one to another gland by way of the lymph vessels. There are obvious difficulties in this assumption. If not perfect, the lymph glands are at least good filters. We may expect that small collections of tubercle bacilli, such as remain latent in cases like those of Beitzke, will be retained by the lymph glands. We prefer, then, to assume that the tubercle bacilli in the various glands were not derived in such cases from the collections in any of these glands, the infections were multiple from the onset, the collections entirely independent of one another. So long as all the collections are below the threshold of infection there is no systemic infection. The largest collection of tubercle bacilli, other things being equal, will first reach the threshold, the body will become infected from it and thereby there will be inaugurated an immunity which by increasing the resistance of glands harboring the other latent collections may keep these collections permanently latent, perhaps ultimately destroy them.

The same influence of immunity in restraining the growth of the minor foci may be apparent after manifest tuberculous lesions have developed. For example: when hematogenous dissemination of tubercle bacilli has begun at an early stage of systemic infection, the lung as Ranke[5] remarks, is the first capillary network to catch the circulating bacilli. For mechanical reasons, therefore, the tracheobronchial glands become secondarily flooded with tubercle bacilli whatever the location of the primary lesion. In these glands, if the immunity is still rudimentary, the greatest conflict takes place. If a more perfect immunity results therefrom small manifest foci elsewhere are restrained by it, and if these foci are contained in well developed glands like those of the mesentery (which glands, as Beitzke says, are much exposed to bacteria and at an early time acquire a certain insensitiveness to them), the foci will probably become arrested, perhaps healed, leaving hyaline foci such as have been demonstrated by Warthin.[6] Manifestly if sensitization of the organism led to increased reaction to previously existing collections of tubercle bacilli in such conditions as those just considered, the picture of early tuberculosis would be very different from that with which we are familiar. The facts of observation would seem rather to favor the view that under the influence of immunity multiple collections of tubercle bacilli for the most part fail to develop macroscopic foci, so that the largest focus alone may reach the stage of manifest tubercle and may give the impression of a single infection. If, however, immunity fails at a later time such latent collections may increase by multiplication of bacilli and result in the production of manifest tubercles and these may then be considered to be superinfections of a later date than that of the primary focus.

The evidence that tubercle bacilli lying latent to macroscopical examination in the glands have caused a systemic infection is twofold: first, the positive reaction to tuberculin by cutaneous and intracutaneous methods; second, histological changes manifested by a primary swelling with secondary contraction and induration of the gland tissues, "lymphoid hyperplasia." In the most favorable cases the tissue changes probably do not pass beyond the stage of hyperplasia with secondary fibrous contraction. Such cases probably acquire the highest immunity and pass through life without undergoing any further extension of tuberculous processes. In a large majority of cases, however, whether because the original infections have been too large or because of lapses in immunity the tuberculous infection goes on to the production of the manifest tubercles so often found at autopsy even in the apparently non-tuberculous subject as caseous or calcified foci.

Tendeloo has shown that if chemical irritants such as formic acid, silver nitrate, or balsam of Peru are injected into the lung substance an inflammatory focus results which is made up of three zones: a zone of fibrinous inflammation, with leucocytes, at the center; next a zone of serous inflammation, and last a zone of proliferation of connective tissue. The two inner zones are the result of the poisonous or irritant action of the introduced substance, the outer zone is the result of a stimulus to growth by the irritant now diluted in its dissemination from the point of introduction. This inflammation from a chemical irritant with its various zones much resembles the inflammatory phenomena characteristic of an active tuberculous focus. We may say also, in the case of the latter, that the inner zones of the tubercle are largely the result of the concentrated irritant and inflammatory effect of the toxic substances of tubercle bacilli, while the more diluted noxæ produce a stimulus to proliferation of the outlying tissues, the effect of the concentrated antigens being in great measure at least to produce a passive injury of the nearer cells. As Meissen puts it, the pneumonic inflammation is an "actio" of tubercle bacilli, the connective tissue proliferation the "reactio" of the organism. By the proliferation of cells stimulated by the products of the tubercle bacillus small collections of tubercle bacilli are confined among strands of contracting fibrous tissue, small tubercles may be interwoven and obliterated by fibrous threads, larger tubercles are surrounded by a firm fibrous capsule. The ability to develop abundant fibrous tissue in the presence of the tubercle bacillus is characteristic of the more or less immune body.

The cell by contact with the products of the tubercle bacilli acquires the power of secreting ferments adapted to the digestion of the foreign albumin. Under the most favorable conditions, as in the peritoneum of the immune, such ferments may cause extensive bacteriolysis. The fact that virulent tubercle bacilli are eliminated by immunized animals which remain uninjured by the large so-called reinfecting doses is, however, sufficient evidence that lysis of tubercle bacilli is not a prominent feature in the maintenance of immunity. The power of the cell to form ferments against tuberculous albumin is more a weapon of defense than of offense, that is, it suffices to check the multiplication of tubercle bacilli rather than actually to destroy them. Like all ferments, the ferments of the immunized cells act best on traces of the antigen. The poison which in high concentration destroys the life of the body cells impairs the vitality of cells when present in less fatal concentrations. For these reasons the tuberculous focus exercises an unfavorable influence upon the neighboring living tissue. Immunity may be high enough to prevent all extensions at a distance, but its processes may not be able to check extensions in the immediate vicinity of the focus. In any case large tuberculous foci, even large collections of tubercle bacilli artificially introduced, are not destroyed. The antibodies of the circulating fluids and the ferments of the surrounding cells are powerless against large aggregations of the tuberculous antigens as they are against large aggregations of other antigens (abscess, gumma, etc.).

The encapsulation by which a tuberculous focus is shut off is a mechanical defense. Yet in the last analysis the defense against extensions of tuberculosis is not mechanical. Wherever living tissue is found there are lymph channels through which antigens and antibodies pass. Failure of immunity is often first manifested by the softening and breaking down of the fibrous envelope of a tubercle, and at autopsy we sometimes see a fresh tubercle in the center of a contracted and indurated hilus gland, or find multiple fresh tubercles strung like beads through the oldest and most massive fibrous trabeculæ of upper lobe lesions. No mechanical defense is efficient against tubercle bacilli unless supplemented by the presence of defensive substances in the circulating fluids. Since the success of restraining efforts is governed by the quantitative relations of antigen and antibody, it is to be expected that the larger foci will be restrained with the greatest difficulty and the conclusion is justified that in partial failure of immunity the extension of tuberculosis will first take place from a large focus. And we should also expect that while the body retains any considerable portion of its immunity all subsequent extensions of the tuberculous process would be able to advance only under the protection of the toxic substances given off by preexisting lesions, that is, by continuity or in the immediate vicinity of such lesions. Furthermore, if concentration of toxic products is a necessary condition for extension under the supposed conditions, such extension will take place solely or by preference in parts of relative immobility in which the requisite concentration can be maintained.

An apparent exception to the law that extensions occur only from large lesions by continuity is furnished by miliary tuberculosis which in adults is almost always a secondary extension and not infrequently occurs in cases in which isolated or well-localized tuberculous lesions of long standing would seem to show the existence of an immunity. It was formerly believed that the mere presence of tubercle bacilli in the circulating blood would suffice to create tuberculous foci wherever the bacilli might chance to lodge. The facts of tuberculous bacteriemia in man and in animals and of the elimination of tubercle bacilli by the bile and other secretions dispose of this theory. For the development of miliary tuberculosis in the immune some additional factor must be necessary. We find this factor in the poisonous products of tubercle bacilli. Miliary tuberculosis, as is generally recognized, proceeds (in the immune) from the irruption into the blood stream of tubercle bacilli contained in a caseous gland or other caseous focus which has become adherent to the walls of the blood vessel. But from a softened focus there are poured forth not only tubercle bacilli but fragments of cheesy substances. The infection is produced by emboli which might be called ambulant tubercles. Lodgment of these emboli produces new foci in which the tubercle bacilli are aggregated from the outset and in which their growth takes place under the protective influence of the toxic products from the original lesion, favored, no doubt, by the overwhelming of the reactive powers of the infected organism from the sudden liberation of large amounts of toxic substances. Miliary tuberculosis of the partially immune subject is therefore not an exception to the rule that secondary tuberculous foci are formed by extension from a large focus under the protection of its toxic products, but is on the contrary an illustration of that rule.

We may summarize the foregoing as follows: Under natural conditions tubercle bacilli enter the body one by one. The primary infection is produced by an aggregation of tubercle bacilli. First infections may be and probably usually are multiple. But immunity tends to keep small collections of tubercle bacilli latent and to isolate and make fibrous small tubercles. Immunity is well-nigh absolute under conditions in which the antibodies preponderate over the antigens, hence at all parts of the body remote from large tuberculous foci. But where the antigens preponderate, as in the vicinity of large foci, immunity is most severely taxed. If immunity fails sufficiently to permit any extension of the original tuberculous process such extension will first proceed from a large focus by continuity and into relatively immobile parts. So long as a fair degree of immunity persists, the further progress of the disease will likewise be only by continuity from previous lesions and under cover of the toxic products of the tubercle bacillus.

Having thus outlined the conditions which appear to govern the extension of tuberculosis in the relatively immune body, it now remains for us to inquire how far these conditions may be found to apply to the progress of pulmonary tuberculosis.

The lung is the only organ in the body which functions more actively in one part than in another. In the infant, in whom the apices are not yet fully developed and whose elastic thorax expands practically as well in one part as in another, the distinction as to activity of function is but little apparent. In the mature adult, especially in the sedentary individual, the apices hardly move at all in ordinary breathing. The transformation of the cell which means immunity is a function of its nutrition, which nutrition is dependent upon functional activity and the vascularity which accompanies functional activity. Therefore, if the lung participates in the general immunization of the body against tuberculosis, manifestly the acquired immunization will be greatest in the most actively functioning portions. The apex will fall relatively behind the other parts of the lung so far as the development of acquired tuberculosis is concerned. The stiffer the thorax and the less the respiratory activity of the apex, the more definitely does the latter become the part of least resistance, the more likely is it that tuberculous processes will localize themselves there.

Chronic pulmonary tuberculosis typically begins at the apex or the upper part of the upper lobe, a region of slight mobility, and advances downward. The progress of the tuberculous process in the relatively immobile parts is manifested by increase in the number, later by the coalescence of tubercles, finally by cavitation. In relatively acute cases of upper lobe involvement the entire lobe may break down into a cavity. In cases of less severity and acuteness in which the course of the disease can be traced, we note that as a rule the disease extends downward over the anterior or posterior surface of the lung. The progress, except as to increase of the original focus, is from the relatively immobile toward the more mobile portions. It is a development by continuity in the sense that new tubercles form only in parts near enough to the older foci to be under the influence of their poisons in concentrated form. Until the region of the third rib is reached anteriorly the course of the tuberculosis is relatively slow, the tubercles are large; below the third rib the progress is relatively rapid, the tubercles are small and have a certain regularity in their distribution, the superior tubercles are larger than the inferior, cavities are small or are absent if pleural adhesions are not well marked. The base of the lung presents two types as respects extension of tuberculosis. In the first type it is free of tubercle, at least in its superficial portions. In this type there are no adhesions over the lower lobe. But if well-marked adhesions are present, and especially if the plural cavity is completely obliterated, we may have quite a different picture—the second type. Large tubercles are present, irregularly interspersed between trabeculæ of fibrous tissue, the process suggesting that typical of the upper lobe. Or in more acute cases, the lower lobe may be the seat of enormous cavities. Now in these two quite distinct types when the clearness of the picture is not blurred by intercurrent disease, miliary tuberculosis, aspiration pneumonia, etc., it is apparent that the differences observed are due to the presence or absence of normal mobility. As the tuberculosis progresses downward in the non-adherent lung it encounters more and more mobile parts. At the apex the respiratory movements are slight, tuberculous products stagnate, affect strongly the vitality of the immediately contiguous cells, tubercles grow by coalescence; in the more mobile parts, the lower part of the upper lobe, the upper part of the lower lobe, the motion of the lung distributes tubercle bacilli and their products more freely. The cells are still attacked by a sufficient concentration of tuberculous poisons to permit tubercles to form, but the tubercles are more discrete and smaller, for comparatively stagnant poisoned lymph no longer overwhelms the vitality of the neighboring living cells. Finally the region of greatest mobility is reached, the region under the influence of the diaphragm as well as of the freely moving lower ribs. Here the respiratory movements are so powerful that the poisons of tubercle are scattered and diluted. They no longer maintain the requisite degree of concentration, tubercle bacilli are no longer able to proliferate, tubercles do not form.

We recognize, then, three regions in the lung: the region of relative immobility, the region of moderate mobility, and the region of great mobility. In the first region stagnation of lymph favors large tuberculous lesions of slow progress; in the second region, motion of the lymph favors small lesions of rapid growth. In the third region, withdrawal of tubercle bacilli and their products by inspiratory suction prevents the formation of lesions. If the movements of the lung are restrained by adequate adhesions these differences disappear.

Ghon[8] in 644 autopsies of children found 184 cases of pulmonary tuberculosis. In 170 of the 184 cases there was a lung focus, in 14 cases there was not. Involvement of the bronchial glands was present in all of the tuberculous cases. The primary lung focus was usually small. The regional glands were preponderatingly affected. In many cases the size of the lesion in the glands exceeded that of the parenchymatous focus. There was sometimes excessive caseation of the glands. As for the distribution of the foci (which were usually single) the right lung was affected more than the left, there were more foci in the right upper than in the right lower lobe. The majority of the foci were near the surface or subpleural. Pleural adhesions were generally present over the lesion

or elsewhere. Küss, from whom Ghon makes extended citations, found on the other hand in his large material that the right and left lung were affected equally and that the lesions decidedly preferred the lower lobes. He agrees with Ghon as to the generally subpleural location of the lesions and as to the frequency of pleural adhesions. Comparing the results of the two authors, it would appear that the only law manifest in the distribution of the lesions is their usually subpleural location. Their distribution as to lobes would seem to be a matter of chance. Both authors think their findings to prove the aerogenous nature of the infection, and consider the parenchymatous focus to be the primary focus of the tuberculous infection. A critical examination of these observations with respect to their bearing upon the aerogenous theory is not within the scope of this paper. The important point with reference to the discussion in hand is the fact that parenchymatous foci of the lungs of whatever origin, occurring in subjects who from their youth could probably have had no well developed immunity, are found in any portion and usually the more mobile portions of the lungs.

In contrast with these results in the non-immune child are the well-known observations of Birch-Hirschfeld.[9] This author found that tuberculosis of the lungs in the first stage presents itself as a tuberculous ulceration of the mucous membrane of a medium sized apical bronchus. This first tuberculous focus is, he says, as a rule rather large (often the size of a hazel nut). It lies beneath the surface and produces at first no change of form of the surface of the lung. The visceral pleura is smooth and free from adhesions. Of 32 observations of incipient tuberculosis, 28 agreed in having the seat of the tuberculous focus in the wall of a medium sized bronchus (so called branches of the third to fifth order, regarding the chief bronchus of the lobe as of the first order). The ramifications of the posterior apical branch were especially affected. Birch-Hirschfeld regards these findings as demonstrating the aerogenous origin of pulmonary tuberculosis, and his observations have been frequently referred to by later writers as affording a proof of this theory. Unfortunately, Birch-Hirschfeld nowhere states the age of his subjects. There is, however, reason to believe from internal evidence that they were adults. Comparing his results with those of Küss and Ghon, we find larger, more deeply situated lesions and a preponderating location in least mobile parts of the lung and upon the bronchi, as contrasted with small lesions located by chance in the parenchyma, but usually subpleural. There would seem to be no doubt that Birch-Hirschfeld's foci are the primary manifest pulmonary foci of more or less immune individuals. His observations are of great importance as showing that the primary manifest focus in the pulmonary tuberculosis of the immune is usually situated in the least mobile tissues (the bronchi) of the least mobile part of the lung, and comparatively near the surface but not subpleurally.

It may be interesting to inquire if there are physiological reasons why the part of the upper lobe in which is found the primary focus of Birch-Hirschfeld should afford an especially favorable opportunity for the development of the first manifest tuberculous lesion. To do this will necessitate a brief consideration of some points in the anatomy of the lung and the mechanics of respiration.

The lung is an elastic organ, but not perfectly elastic. The superficial parts of the lungs expand consequently more than the underlying portions of the same lobes. The parts farthest from the hilus expand most, the lower lobes expanding much more than the upper. From a maximum of approximately 3 inches in the complemental spaces in the axillary line, the expansion diminishes gradually to a nominal amount in the paravertebral portion of the upper part of the upper lobe. The imperfect elasticity of the lung is due not only to the character of the parenchymal tissues but also, as Tendeloo[10] has pointed out, to its non-homogeneity from the presence of bronchi and vessels. The large bronchi elongate and retract during respiration, to an extent progressively less as the hilus is approached. The bronchioles near the surface are more freely movable and not only elongate but expand in inspiration. The direction of the bronchi is approximately perpendicular to the thoracic wall. They occupy the center of the lobes and of the lobules traversed by them. The expansion of the air cells is greatest at the periphery of lobes and lobules and diminishes progressively towards the center. It follows then that the bronchi always occupy the least mobile portions of the lobes and lobules through which they run.

During inspiration the arteries are lengthened, the blood within them is sucked peripherally and is accommodated in the widening and lengthening capillaries, so that notwithstanding the theoretical acceleration of the blood current due to aspiration the pressure within the capillaries is lowered during inspiration. In the veins the suction of inspiration effects a retardation of the centripetal flow. The blood and lymph of the cortical portions of the lung are actually carried outward in inspiration, the lengthening and widening of the venules and lymph vessels effecting a lowering of the pressure within these vessels as in the arterioles and capillaries.

The flow in the veins being more rapid than the respiratory movements, the rapidity of the venous current is simply slowed by the movements of inspiration. Not so with the lymph which originating from the blood of the capillaries has as its impelling force the secretory pressure and in the upper lobe the lymphostatic pressure. We may reasonably suppose that the effect of inspiration upon the lymph capillaries and smaller lymph vessels of the superficial parts of the lung is to produce an actual reversal of the lymph current. The more centrally situated portions of the lymph vessels contain lymph which under the influence of previous propulsive factors is progressing towards the hilus, and in the larger vessels is prevented from retrograding by numerous valves (the fact that there are no valves in the pulmonary veins while the lymph vessels are well supplied with them is apparently a proof that the circulation of the veins is not subject to stoppage by respiratory influences, but that the reverse is the case with reference to the lymphatics). There will therefore be a region in the course of the lymph vessels where their contents will tend to be drawn both forward and backward, that is, will remain stationary. In the actively moving lower lobe the force of lymph flow in both directions being well marked such pause will be but momentary. In the less ample and forcible inspiration of the upper lobes with their scantier lymph flow corresponding with their lesser vascularity and functional activity, the suction backward and the forward advance of the

lymph stream are relatively feeble, there will be a pause of some duration in what we may call the region of intermittent stoppages. For the immune subject in whom colonization of tubercle bacilli can only take place under conditions most favorable for their growth, the region of intermittent stoppages will afford the best, perhaps the only opportunity for infection, the checking of the lymph flow enabling tubercle bacilli to leave the closed lymph channels and immigrate into the lymph spaces. Hence the so-called primary focus, the first tuberculous lesion of the clinician, usually forms, in the relatively immune subject, in the upper lobe on the 3d to 5th ramification of the bronchus of Birch-Hirschfeld or in the neighboring parenchyma, near the surface of the lung but not upon it, the precise depth depending upon the amplitude of respiratory movement of the upper lobe in the given case.

Animal experiment has shown beyond a doubt that in inoculation with tubercle bacilli whatever route may be chosen the tracheobronchial lymph glands usually become infected. If this is true in primary infections of animals, it is still more true in the aftercourse of infections of the human subject. Albrecht and Arnstein[11] examining the bodies of 100 children from 6 to 16 years of age, who died of various diseases, found clinical tuberculosis present in 38. Of the remaining 62, in 36 tuberculosis was found in the tracheobronchial glands by macroscopic examination. This left 26 cases of the 100 in which there was present no visible evidence of tuberculosis. The tracheobronchial glands of these cases were subjected to histological examination with the result that in 13 cases tuberculosis was found, thus leaving but 13 cases of the 100 which were negative under inspection, macroscopic or microscopic. The authors divide their cases by periods. Of the period 6-10 years, 51 out of 61 children had tuberculosis of tracheobronchial glands or had manifest tuberculosis in which tuberculosis of the tracheobronchial glands may be assumed, or 83.6 per cent. Of the period 10-16 years 36 out of 39 had tuberculosis of the tracheobronchial glands or manifest tuberculosis, or 92.3 per cent. Hamburger with the Stich-reaction found an average of 82 per cent. of children to react. The figures of Albrecht and Arnstein agree well with Hamburger's, for the latter found for the period 7-10 years about 71 per cent. positive to tuberculin, for the period 10-14 years 94 per cent. in clinically not manifestly tuberculous material, as compared with Albrecht and Arnstein's 83.6 per cent. for the period 6-10 years and 92.3 per cent. for the period 10-16 years. It appears then that in children the reaction to tuberculin is practically equivalent to tuberculosis of the tracheobronchial glands. But since it is well known that adults are found to be infected with tuberculosis in a percentage increasing with age and that the implication of the respiratory system becomes more and more constant, it is hardly too much to say that the civilized adult almost without exception has a tuberculous infection of the tracheobronchial glands. The reason for the preponderating involvement of these glands has been alluded to in the foregoing. We are now especially concerned with the fact that the tracheobronchial glands contain the most constant and, it is fair to assume, the largest depot of tubercle bacilli and their products which is to be found in the body of the more or less immune individual. On theoretical grounds therefore we should expect, in conformity with the law already referred to, that if the immunity of the individual is diminished to the extent of permitting any extension whatever of tuberculosis, such extension will occur from the tracheobronchial glands.

The *x*-ray appears to show that this is the case. Cole[12] states that radiographic examination of incipient cases of tuberculosis indicates that in a very large percentage of cases the lesion of the root is more extensive than the parenchymal lesion, and so frequently do radiograms show a distinct lesion at the root with no parenchymal involvement that it is reasonable to assume that it extends from the root to the parenchyma. Radiating from the root to the apex in the adult and to the base in children may be seen infiltrations in and around the walls of the bronchi, the air cells supplied by these bronchi are infiltrated with isolated or conglomerate tubercles. There may be a diffuse fibrous growth extending from the root. There may be infiltration in and around the large bronchi without thickening at the root and without parenchymal involvement, and there may be a more or less extensive exudative process.

With the improvement of technique in *x*-ray work it is coming to be more or less of a commonplace that adults present in a greater or less degree evidences of healed tuberculous processes which are manifested by thickening of the normal lines radiating from the hilus. With commendable conservatism many *x*-ray operators hesitate to consider these thickenings as evidence of tuberculosis except in the presence of more or less sharply circumscribed spots or dots which are considered to be tuberculous foci and which are very common in the vicinity of the hilus. Even without these dots, however, a thickening of the radiating lines which is not universal throughout the lung and especially thickenings confined to the less mobile parts of the lung are usually characteristic of a present or past tuberculous process. In view of the frequency of tuberculous involvement of the tracheobronchial glands, it is evident that the liberal interpretation of these changes as of tuberculous origin is more likely to be the correct one. Cole's description which has been quoted in part above presents a general picture. He is not concerned with the lung of the more or less immune individual in any especial way. But it is evident that the more immune the subject the less characteristic the picture because the more closely it is confined to purely fibrous processes. Limiting ourselves to the case of the immune individual whose immunity has relaxed sufficiently to permit tuberculous extension, but solely under conditions and at places most favorable for the growth of tubercle bacilli, how may we conceive of the process, first, as respects the deeply situated parts of the lung, secondly, as respects extension to the superficial parts?

We have the following laws to guide us: First: extension will occur first and in case of high immunity probably solely from the lymph gland which contains the largest collection of tubercle bacilli and of the products of turbercle bacilli. Second: extension will occur in tissues most flooded by the products of tubercle bacilli. Third: it will occur in the parts which best permit the multiplication of tubercle bacilli, *i.e.* the most immobile parts. By the first law a tracheobronchial gland will usually constitute the starting point of the infection. Holding the largest collection of tubercle bacilli and of their products, the tuberculous process has

been held in check there with the greatest difficulty by the immune processes. Tubercle bacilli escape in lymph poisoned by their products into the adjacent tissues and the tuberculous process spreads by their proliferation. The direction of extension seems to be at first usually downwards, perhaps influenced to some extent by gravity. The paravertebral portion of the lower lobe is the least mobile portion of this lobe. The course of the infection will be chiefly directly downwards. The infection cannot of course extend against a strong centripetal lymph current. But we must not think of the lymph vessels as large. According to Bartels[12] the deep lymph vessels of the lung are situated in the walls of the bronchi and along the branches of the arteries and veins. The smaller arteries and veins are accompanied by only one lymph vessel, but the lymph vessels of the bronchi are five or more in number and run along the posterior wall. There is a plexus of lymph vessels about each bronchial cartilage. When we consider that the flow of lymph from healthy lung is not abundant under ordinary conditions, we shall find no great difficulty in believing that one or more of the five lymph trunks of a bronchus will be practically empty or at least not contain so powerful a stream of lymph as to present any insuperable obstacle to the distal extension of the tuberculous process. This is a question which must be left to further investigation. But there is no reason why the tuberculous process cannot spread through the lymph capillaries and plexuses of the bronchial tubes and blood vessels and of the immediately adjacent parenchyma. If it attempts to extend laterally into the air cells the tubercle bacilli and their products are dissipated by the motion of the lymph and the respiratory activity of the parts forbids the multiplication of the bacillus which by supposition can only prevail against the immunity of the body when aided by a relative immobility. The process is therefore confined to the immediate vicinity of bronchi and blood-vessels. A factor which tends to prevent widespread stagnation of the lymph with resulting large caseations is the aspiration from the large lymph vessels, the current of which is proceeding towards the hilus. Any effusion therefore which reaches a vessel communicating with a large lymph vessel is drawn into the centripetal lymph stream. The tuberculous process is thus necessarily confined closely to the parts of least mobility because an accumulation of toxic products sufficiently strong to overcome the immunity can only collect in these parts. It is a process therefore of slow growth and well drained of excess of lymph. Since it is thus limited to small vessels there is no great aggregation of tubercle bacilli anywhere. The effect upon the organism is therefore predominatingly or solely to produce a proliferation of fibrous tissue. Tubercles do not form except perhaps in lymph glands, where the conditions permit larger aggregations of tubercle bacilli. Before the process has proceeded far in a downward direction the motion of the lung under the powerful influence of the diaphragm becomes well marked. The bronchi begin to expand and elongate noticeably. They no longer afford the necessary repose in their lymph capillaries. It is even more difficult than before moreover for the tuberculous process to extend laterally on account of the more vigorous respiratory movements. The tubercle bacilli may advance to the region of intermittent lymph stoppage, but the conditions here are not favorable for the formation of large foci, of manifest tubercles, because the stoppage is but a momentary pause between the ebb and flow of a flood of lymph. Any tubercle bacilli which penetrate beyond this region are aspirated away by the suction of inspiration, scattered, and returned to the hilus by the centripetal lymph flow. The downward extension of the tuberculosis is therefore soon checked. It has been confined in the class of cases under consideration to a chronic peribronchitis productiva, leading to a thickening of the bronchial envelopes and of the peribronchial tissues which manifests itself to the *x*-ray by a darkening and thickening of the normal lines, the markings diminishing toward the periphery of the lung and disappearing before the superficial part of the lower lobe has been reached. In less resistant cases the process may extend outward as well as downward, in the direction of the complemental space, and manifest foci, usually in lymph glands, may show themselves to the *x*-ray as dots or larger spots along the thickened lines and especially at bifurcations of these lines. But in this direction, too, the process is confined to the deeper parts of the lung and the evidences of it fade out before the freely moving superficial parts are reached.

For extension laterally from the hilus the conditions are still more unfavorable. The bronchi are smaller, hence the more mobile parts are even more quickly reached and the process is only indicated by a darkening which extends a short distance with perhaps involvement of the lymph glands shown as before by more or less sharply marked roundish shadows. The form of tuberculosis so far manifested is not of a formidable type, since large tubercles have not been developed. With the supposed degree of immunity, the stimulation afforded by the restricted and little acute but at the same time rather extensive tuberculous process (we may conjecture) raises the immunity to a degree sufficient to inhibit further activity on the part of the tubercle bacilli. The induration progresses to its maturity without check. There is no further extension of tuberculosis perhaps for years. If the tuberculous process is arrested for a long enough time a local immunity develops which with the crippling of the lymph-capillary system due to the old inflammation is sufficient to prevent permanently any renewed tuberculous activity in a downward or outward direction from the hilus.

So far the process which we have outlined has run its course in early life. Supposing now that the patient has reached or is approaching years of maturity and that the immunity has again begun to fail. The tuberculous extension of childhood has naturally taken its origin from the glands which were supplied by lymph from the largest and most active parts of the lungs and which therefore might be expected to receive the largest numbers of bacilli from the circulating blood. But when adult age is reached these glands have undergone a transformation. Under the revived immunity following the arrest of the active process they have become indurated, calcified, the tubercle bacilli which they contain are imprisoned, access to the glands from the lower lobe has become difficult on account of the indurative changes about the larger lymph trunks. Tubercle bacilli carried to the hilus now reach glands higher in the chain, formerly less severely affected, in which the tuberculous process has not yet run its course. Extension now takes place from the superior glands, in the direction of

the upper lobe. The tuberculous process advances as it did in the lower lobe, except that now it is against gravity. The lymphostatic pressure is now positive. The lesions are better drained than before and are therefore even more closely confined to the parts of least mobility, the bronchi. But on the other hand the tuberculous process is now advancing into a region of less mobility. The paravertebral portions are still the regions of least mobility, but the entire upper part of the upper lobe is much less active than the lower lobe. Hence according to the activity of the tuberculous process and the mobility of the upper lobe there will be a greater or less tendency to diverge from the regions of least to those of little mobility. The process may be shown by the *x*-ray as mainly vertical lines proceeding to the posterior and superior portions of the upper lobe or there may also be seen lines radiating toward the shoulder joint. When the tuberculous process approaches the superficies of the lung it may terminate in two ways. If the subject is still young and active, the chest flexible, and the immunity relatively high, the region of intermittent lymph stoppage affords no very favorable place for development. The bronchi expand and elongate. They no longer offer a suitable breeding ground for tubercle bacilli. The bacilli and their products tend to become dissipated. They are sucked toward the pleura and form small tubercles or succeed only in exciting indurative processes in the superficial lung. As before, a revival of immunity may cause arrest of tuberculous activity. The apex becomes indurated. The condition present is the abortive tuberculosis of Bard. If, on the other hand, the subject is of a sedentary habit, the thorax stiff and the immunity less good, the respiratory changes of the apex will be minimal, the bronchi will move hardly at all in respiration, the suction toward the pleura will be slight, the intermittent lymph stoppages prolonged. All the conditions will favor the stagnation of lymph in this region, the accumulation of toxic products, the proliferation of tubercle bacilli. A manifest tuberculous focus will form at the point of election of Birch-Hirschfeld on the smaller bronchi, or in the adjoining parenchyma. The tuberculous process has emerged from the condition of a clinically latent productive tuberculous peribronchitis into that of a clinically manifest caseous tuberculous focus and the subsequent possibilities are familiar.

We have followed a process which exemplifies the laws of extension of tuberculosis in the immune as laid down in the first part of this paper. Starting from the largest collection of tubercle bacilli and their products the process has proceeded by continuity under cover of the toxic products of tubercle bacilli through the regions most favorable by reason of their immobility for the growth of the bacillus to the superficial region of least mobility and of least perfectly developed immunity in which alone large parenchymatous tuberculous foci are able to develop in the highly but not perfectly immune individual.

The apex of the lung is the seat of the first manifest focus in the pulmonary tuberculosis of the relatively immune subject, because its slight mobility permits the invasion of a peribronchial tuberculosis which extends from the largest primary focus by continuity through relatively immobile parts.

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# EXACT DIAGNOSIS BY ACCURATE INSTRUMENTS IN THE TREATMENT OF CATARRHAL CONDITIONS OF THE EUSTACHIAN TUBES AND EARS.*

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In the treatment of catarrhal conditions of the Eustachian tubes and ears, the otologist no longer finds it necessary to work along empirical lines and to confine himself to the haphazard methods of the

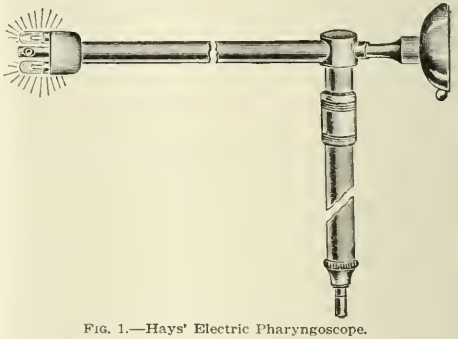

Fig. 1.—Hays' Electric Pharyngoscope.

older days. During the past decade the advancement of exact diagnosis has been exceedingly rapid, due mainly to our ability to apply electrically lighted instruments to those parts which at one time had to be treated in the dark. There are many men who still adhere to the older methods and who refuse to adopt any of the finer instruments. These men not only fail in the treatment of their cases, but are unable to find out that primal cause which eventually results in such a disastrous ailment as deafness. I have stated over and over again in previous papers that there is nothing more distressing than deafness which is allowed to go on year after year and which the patient thinks cannot be stopped or cured, because he has been unable to find the man who is willing to take the time and trouble to get at the basic factors in his condition. Not by

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any means do all cases of so-called catarrhal deafness arise from the same cause. Patients must be treated individually for these conditions, and the treatment must be based upon definite etiology the same as in any other disease.

I shall in this paper describe the various newer instruments for diagnostic and treatment purposes, which have been invented within the past six or seven years, and show how they can be applied to the treatment of catarrhal conditions of the Eustachian tube and those parts directly affected by it.

In my desire to devise an instrument for the more exact view of the nasopharynx, early in 1909 I invented an instrument called the pharyngoscope, which I believe up to that time was the first instrument (with the exception of the so-called salpingoscope, out of which later arose the nasopharyngoscope of Holmes) which gave a symmetrical view of all parts of the nasopharynx and allowed of a thorough study of the tubes and the adnexa.

The pharyngoscope is an electrically lighted instrument, the optical portion of which is similar to the cystoscope. This telescopic portion is mounted in a flat metal sheath and on either side of the prismatic lens at the proximal end are two watertight electric lamps which when turned on to full incandescence give an excellent view of any part within the scope of the lens. At right angles to this flat piece is attached a handle on which is an electric switch for turning the current on or off. (Fig. 1.)

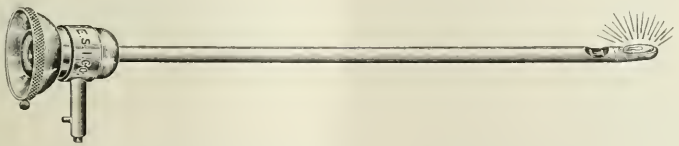

Fig. 2.—Holmes' Nasopharyngoscope.

This allows the instrument to be used as a tongue depressor. The distal lens containing the lamps and lens are placed behind the soft palate and when the mouth is closed by having the patient breathe through his nose, the nasopharynx shows up as large as a half dollar. In many cases where I have otherwise been unable to place the Eustachian catheter properly in position, by putting the pharyngoscope in the mouth and the catheter through the nose, I have been able to get it in an exact position under direct vision. I may say that by turning the lens down one obtains a very beautiful view of the larynx.

Although this instrument has met with a great deal of satisfaction in the hands of those who have had much experience with it there are some cases in which it is impossible to keep it in place for a sufficient length of time to obtain an exact view of the pathological condition around the Eustachian tube. I am happy to say that within the past few years Dr. E. M. Holmes of Boston has devised an excellent instrument called the nasopharyngoscope which overcomes this difficulty. This instrument, however, must be used through the nose instead of through the mouth.

The nasopharyngoscope of Holmes (Fig. 2) is a miniature cystoscope with the lens and lamp mounted at an exact angle so that one gets a very exact view of either Eustachian tube. The lamp is connected with a dry cell battery. After cocainizing the nostril which one wishes to enter the instrument is inserted into the inferior meatus until it reaches the posterior pharyngeal wall, when the lens can be rotated in any given direction so that the Eustachian tube of either side and the surrounding parts can readily be seen. By means of this instrument, instrumentation can be done on the opposite side in an exact manner, and also small operations in the vicinity of the tube, such as the removal of small adenoid masses in the fossa of Rosenmüller, can be performed. I believe that the nasopharyngoscope is exceedingly valuable in many cases where the throat of the patient is too irritable to stand any instrument, and I believe that Dr. Holmes should receive all the credit due him for getting out a precise aid to diagnosis, where others have tried before and failed.

The third useful instrument that I wish to present to you is a graded Eustachian catheter. The original instrument is the silver catheter of Yankauer, which I have had measured off with half centimeter markings. (Fig. 3.) This is a very simple device which is of exceeding value. Oftentimes the distance of the Eustachian tube from the edge of the nostril varies considerably. Unless one has a marked instrument of this kind it is often difficult for him to find the Eustachian opening exactly without the aid of some illuminating device. In a series of twenty-seven cases of which I have exact records, I have found that the distance from the Eustachian orifice to the center of the edge of the nostril varies from 8½ cm. to 11 cm., and that the distance on the right side varies from that on the left in many cases as much as ¼ cm. One must take into consideration in making these measurements that the curve of the Eustachian catheter must often be changed, and that therefore the difference in its supposed length varies. What is also of a great deal of importance is that it seems to be impossible to get instrument makers to make all of their catheters of the same length.

One of the commonest conditions seen in the treatment of catarrhal conditions of the Eustachian tube and middle ear, is a stenosis of the tube due to thickening of its mucosa from inflammation. A great advance has been made within the past few years in the treatment of such a stenosis by means of the ingenious instruments of Dr. Yankauer. I refer particularly to the applicators, bougies, and sounds. (Fig. 4.) The Yankauer applicator is a fine strand of steel wire at the end of which can be wound a small piece of cotton. This is put into a holder which is marked off into centimeters and half centimeters, so that one can gauge the exact distance he is in the Eustachian tube. The applicator is inserted into the catheter until the first mark on the holder appears at the proximal end. It is dipped into a solution of cocaine and adrenalin and then inserted into the nose and Eustachian tube, and is

gently pushed through the tube until it reaches the middle ear. The cocaine and adrenalin shrink up the mucosa to a certain extent and allow of a passage being made painlessly. Of course the length of Eustachian tubes vary, but his markings represent the average, and any one with the smallest amount of intelligence or experience can readily ascertain when he gets to the isthmus of the tube, after which it is safe to progress only a centimeter.

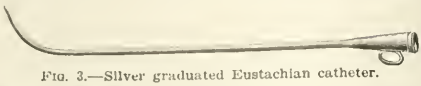

Fig. 3.—Silver graduated Eustachian catheter.

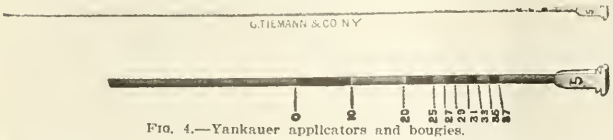


Fig. 4.—Yankauer applicators and bougies.

After the tube is once dilated in this way one can begin to insert suitable size bougies or sounds, which are marked in the same manner as the holder for the applicator. These are allowed to remain in place for a half hour or an hour, when as a rule the tube is more widely opened and very little pressure is needed with the Politzer bag to obtain the proper massage of the drum. Oftentimes the bougies and catheters can be seen through the drum membrane.

The newer forms of auroscopes are also of a great deal of value in diagnosticating conditions of the drum membrane. The best form that I have seen is an electric auroscope which is mounted on the handle of my pharyngoscope (Fig. 5), allowing one to use it with a great deal more exactness and gentleness than the older forms. At one side is an opening on to which can be fitted a small bulb for massage. This instrument is of a great deal of value in determining the amount of retraction of the ear drum or the amount of relaxation. It is extremely important in the treatment of so-called catarrhal conditions of the ear, to determine these factors, for at least 50 per cent. of the cases of catarrhal deafness are due to a relaxation of the ear drum rather than to a retraction or stiffening of the joint. The treatment in the two conditions is very different, and unless one determines this factor he is very liable to do a great deal of harm. I am in hopes that within the near future I shall be able to explain more fully the treatment of deafness due to relaxed ear drum.

A valuable adjunct to the auroscope is a new instrument which is not yet out on the market, but which I present to you this evening. It is called the Carroll tympanoscope. (Fig. 6.) This instrument is an auroscope mounted on a band which fits on the patient's head, so that it does not have to be held by the physician. A mirror reflects the image of the drum at right angles, and this image is magnified by a suitable lens so that the physician is able to see the vibrations of the ear drum as he massages the ear. In certain conditions this instrument is of extreme value.

The last instrument that I wish to describe I am in hopes will aid considerably in the exact determination of the amount of hearing in those cases of catarrhal deafness which it is difficult to ascertain by the ordinary means. The common test for hearing is by a tuning fork and the watch. The physician approximately guesses where the watch is heard, and approximately estimates the length of time the tuning fork is heard. For purposes of comparison day by day or week by week, this method is entirely inaccurate, and it is for that reason that within the past few months I have invented what I call an improved audiometer (Fig. 7), for the exact measurement of hearing.

The instrument consists of a scale, 60 cm. long, mounted on a suitable standard. The upper portion of this scale is a ratchet on which works a mechanical devise by means of a cogwheel. There is an opening into which can be mounted a watch (Fig. 8), preferably a stop watch, which is placed in contact with the patient's ear. The watch can then be moved silently away from the ear until the exact distance that the patient hears it is ascertained. If the distance is more than 60 cm. the apparatus can be moved an exact distance from the patient by proper markings on the floor. The watch hearing can be definitely determined within ½ cm. and duly recorded. The watch is then removed from its receptacle and a tuning fork (either 512 or 1024) mounted (Fig. 9). The second wheel controls a hammer (made to eliminate overtones) which is moved backward an exact distance by means of a strong spring. When the second wheel is turned the hammer strikes the tuning fork with the same intensity every time. When the tuning fork is struck the physician starts his stopwatch, and when the patient no longer hears it the watch is stopped. Thus there is an exact measurement of the length of time of hearing of the tuning fork. The hearing can then be expressed in the form of a fraction, the denominator being the number of seconds the patient hears the

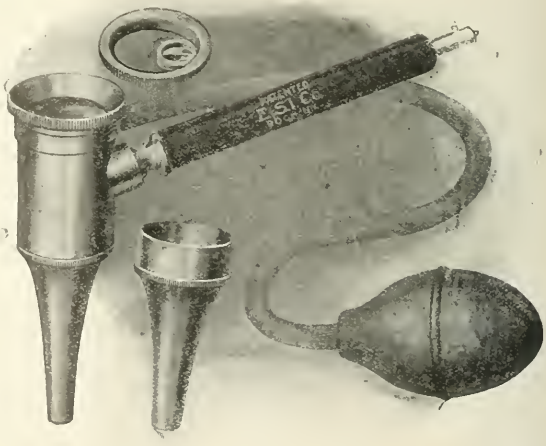


Fig. 5.—Electric auroscope.

tuning fork, and the numerator the number of centimeters distant the patient hears the watch. I have tried this audiometer on a number of patients within the past few months with very satisfying results,

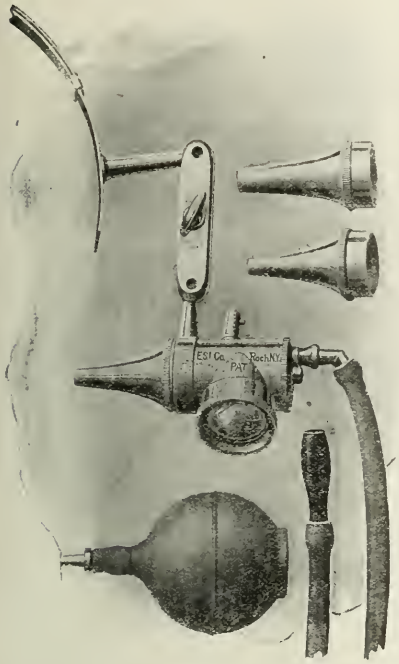

Fig. 6—Carroll tympanoscope.

and hope that others will meet with the same satisfaction with it that I have. Of course this does not take into consideration the finer tests for hearing which need special instruments, but which are of

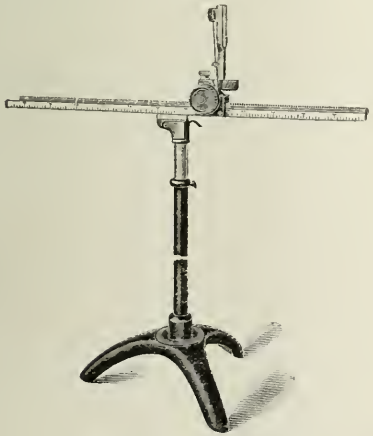

Fig. 7.—Hays' improved audiometer.

much more satisfaction to the physician than to the patient.

I believe that I have covered fully in this paper the newer diagnostic and working instruments that can be used in the treatment of ear conditions. This sort of treatment is far more exact than any that has heretofore been used, and the results are correspondingly better. It is not within the scope of this paper to record the results obtained. This is but the beginning of an awakening into the possibilities of completely curing or at least alleviating to a great extent that most distressing of conditions, catarrhal deafness.

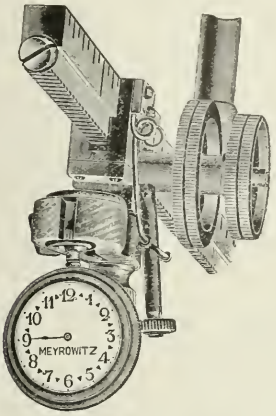


Fig. 8.—Audiometer with watch in position.

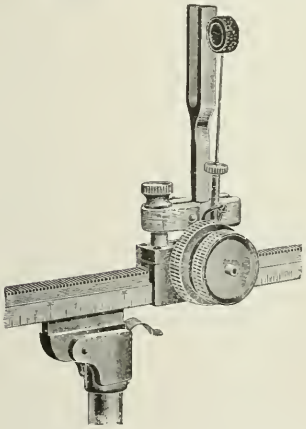

Fig. 9.—Audiometer with tuning-fork in place.

11 West Eighty-first Street.

## ADENOMA OF THE PROSTATE.

By EDWIN BEER, M.D.,

NEW YORK.

The following notes on benign growths of the prostate are based on 85 cases seen during the past two and a half years. Most of these were in the genito-urinary service of the Mt. Sinai Hospital. Of this series, 60 patients were operated upon by suprapubic route, the adenomata being enucleated, while of the remaining 25, 11 were too bad risks for a prostatectomy, 10 refused operation, and 4 had such slight symptoms that an operation did not seem advisable.

*Pathology of Prostatic Adenoma.*—For some time before the excellent work of Zuckerkandl and Tand-

ler many of us appreciated that the adenomatous masses arose in that part of the prostate that lies above the ejaculatory ducts. These investigators showed by beautiful anatomical studies that this conception was correct, and that the growing adenomata gradually compressed the rest of the gland so that it became a flattened-out shell, which is so regularly seen in cutting into the gland in the perineal operation. Whether they are correct in calling this part of the gland above the ducts the middle lobe has not been determined, as work by Lowsley goes to show that embryologically what lies above the ducts is made up of the two lateral and the middle lobes. This interpretation fits in very well with what I have seen in the cases studied by me. In a small percentage of cases there are adenomata which arise from the so-called Albarran glands, and which may grow as large as pears, projecting into the bladder and acting as true ball-valves.

As the obstruction to the outflow from the bladder becomes more and more marked the bladder becomes hypertrophied and trabeculated, pouches form and residual urine collects. This gives infectious organisms an excellent opportunity, and cystitis, with possible stone formation, may set in. After a varying long period this obstruction begins to tell on the ureters and on the kidneys. Hydroureters and nephroses develop and the parenchyma begins to suffer more and more as atrophic and fibrous changes take place in the kidneys. Infection once introduced into the bladder may ascend the relaxed ureters and the whole upper tract become infected.

*The Mechanism of Prostatic Obstruction.*—Every surgeon who has enucleated prostates by the suprapubic route has noted that the prostatic urethra instead of being obstructed in the sense of strictured is usually widely dilated. This apparent contradiction has interested me for a long time and led me to make a rather extensive study of the posterior urethra and neck of the bladder with the endoscopic methods to determine the mechanism of obstruction. In the great majority of cases the mechanism is the same. In a small minority, those cases where there are small submucous nodules in the posterior urethra, and those in which there is a typical ball-valve projection of the middle lobe without lateral lobe involvement, as well as those derived from the Albarran glands, effect the obstruction in a self-evident manner.

If one employs the close vision convex sheath cystoscope brought out by Wappler in 1911 with the catheterizing optic (which looks slightly forward) one can observe the play of the adenomatous lateral lobes of the prostate as distinctly as the laryngeal mirror shows the movements of the vocal chords. In such a picture one sees the lateral lobes projecting into the urethra as two symmetrical masses (usually) and extending down to a little beyond the bladder end of the verumontanum. With this in the field, if you ask the patient to breathe deeply, you will see the urethra open up as a more or less wide trough, as the lateral lobes move away from each other, and then if you ask the patient to strain or press you will see the lateral lobes crowded together and obliterating the urethra Under the increased intraabdominal pressure the prostatic adenoma is forced down in straining into the prostatic capsule, and the wide posterior urethra is compressed from side to side, thus producing obstruction to the outflow of urine. The ocular demonstration of this distinct play of the lateral masses is excellent proof of this *a priori* explanation of the nature of the obstructive process, and this explains the fact, so often observed in these cases, that the harder they strain the more difficult it is to empty the bladder.

*Mortality in Prostatic Adenoma.*—Only twenty-five years ago one of the leaders of the profession, Guyon, stated that the operation of the removal of the prostatic obstruction was a practical impossibility, and that even if it should occasionally succeed, the marked disturbances secondary to the original trouble would stand in the way of a complete cure of the patients so afflicted. Within a generation this all has changed and the incorrectness of both these postulates has been proven thousands of times.

During this period, especially in the last few years, reports of series of cases, have been made, in which the patients have been completely cured and in which the number that have succumbed has been rather low. Such reports do not, however, express the true state of affairs as applied to the general run of cases that one encounters in a hospital service in a city such as New York. Here our private cases come for relief much earlier than the charity cases, with the result that statistical reports on these two types of cases will show a marked difference in the end results. With an exaggeration of the low mortality following prostatectomy for adenoma, the medical man to whom the case first appeals is liable to put off consultation with the surgeon till the patient becomes a much poorer risk. This is very noticeable in this disease, which differs from most surgical conditions, in that its course is very slow, and consequently there seems to be no great urgency for radical measures. This procrastination will invariably lead to some harm, and instances of the fatal results following delays come to me with unfailing regularity. During the last two and a half years I have seen at least eleven cases of neglected prostatic adenomata that were sent in to the hospital for surgical relief when they were no longer fit surgical risks, and seven in a very few days went into uremic coma, despite active treatment, and died. This is liable to be the end result of every neglected prostatic obstruction case, unless measures are taken at the proper time to avoid such an outcome, provided the patient does not die of some intercurrent diseases. If such cases are operated upon, naturally they will die, and the excellent results that are so often reported would be materially changed.

If the indications for operative interference could be drawn as carefully as in most surgical conditions harmful delays would be less frequent.

*Indications for Operation.*—This to my mind is one of the most difficult propositions that we have to face. I believe the difficulty disappears in a measure if we divide our cases in accordance with their social status. A man who can afford to keep a trained attendant who can regularly empty his bladder and wash it out is in an altogether different position from one who has no such means at his control. Even the former is not free from all the risks incidental to such manipulations, but provided he is comfortable under such treatment he may prefer it to running any operative risks. His poorer fellow must, however, have recourse to an operation or go from bad to worse without any relief worthy of the name.

(1) Attacks of retention; (2) marked frequency

of urination, especially nocturnal frequency which prevents sleep; (3) bleeding; (4) painful and difficult urination; (5) chronic intractable cystitis, especially when accompanied by stone formation, are to my mind the clearest indications for surgical relief, provided a brief period has been devoted to such medical therapy as the use of Wildungen water (Georg Viktor Quelle), ergot, and rest, without avail. The future will have to decide whether radium and massive *x*-ray dosage will prove of any avail. Transurethral cauterization with the Bottini incisor, as well as with the high-frequency current, seem to have only temporary effects.

*Preliminary Study of Prostatic Cases.*—There is no type of cases where it is more important to make a preliminary study of the patient prior to running the risks incidental to an operation than cases of prostatic adenoma. The experienced clinician often has the ability to size up his patient before operation in a most satisfactory manner, but even he will find that occasionally he is surprised in a most remarkable manner.

There are three things in connection with every prostatic that I think should be studied: (1) The anatomical and functional condition of his urinary tract; (2) The condition of his heart; (3) The condition of his arterial system.

1. In my experience most prostatics can be cystoscoped, and I believe that this should be regularly done. Not only is this of value in confirming the diagnosis, but in view of the fact that adenoma of the prostate is at times associated with benign or malign papillomata of the bladder, these should be recognized and destroyed if possible before the prostate is attacked. Another advantage of this examination is to determine the presence of stones that may be packed away in diverticula, and which will be left *in situ* at the time of operation if they have not been recognized before. In one case at the cystoscopy, I was able to dislodge a number of stones thus packed away in different pouches in the trabeculated bladder, and then remove them prior to the prostatectomy. Catherterization of the ureters I believe is only rarely of advantage in these cases, and unless there is a very distinct suggestion that the supravesical organs are asymmetrically diseased, I do not try to do this. Further information is obtained by routine *x*-ray examinations of the whole urinary tract, which throws light on the presence or absence of calculi in the kidneys as well as often gives some idea of the position and size of these organs. This also calls attention to ureteral and, frequently, to vesical calculi.

Important information is obtained by an examination of the functional activity of the kidneys. I have made use of all the more popular tests, such as cryoscopy, phloridzin, indigo-carmine, experimental polyuria, phthalein, and believe they are of value in the determination of very bad risks, provided, as is usually the case, one can feel fairly sure that the supravesical condition is symmetrical, and that one kidney is not inhibiting the other, so as to make the combined function appear reduced. *It can be said with absolute truth, that the nearer a patient comes to a condition in which his excretion of these various substances is zero, provided his supravesical disturbance is symmetrical the greater the risk of any operative procedure, and those with zero excretion should not be operated upon until they have been treated preliminarily and their kidneys given a chance to improve.* The following cases are of unusual interest in this connection, and in view of these experiences I would not operate when the excretion is zero or practically zero, provided I feel fairly sure that the kidneys are not asymmetrically diseased and that an inhibitory influence is not making for the negativity of the tests. The urea excretion as seen in the following cases is of no great value in determining the functional value of the kidneys. Attempts at testing the function by throwing more urea into the circulation have not proven as yet of any marked value.

Case I.—H. S., 60 years old (history abbreviated); admitted February 12, 1912. For past year has had attacks of frequent micturition and burning on urination. Three weeks ago a number of calculi were removed from his bladder through the cystoscopic sheath in the dispensary. For the past two months the frequency and pain have become worse; voids every hour or half hour. Urine is turbid and has pain over bladder. General condition is good; well nourished. Heart sounds are feeble, chest is barrel shaped, pulse is regular, good force, increased tension, moderate arterial thickening. Prostate is enlarged by rectum, firm and hard. February 13, 1912.—Cystoscopy. Diffuse cystitis; base filled with many grayish white calculi, some of which are faceted, others broken; prostate enlarged; several small stones washed out through sheath. February 14.—Phthalein test. (I) No excretion; injection made at 12 noon, and up to 4:20 P. M. negative. February 15.—Phthalein test.. (II) No excretion; injection 10:55 A. M., and up to 1:20 P. M. no excretion. February 16.—Phthalein test. (III) 3:11 P. M. to 4:11 P. M. 4 ounces of urine secreted, but no excretion of coloring matter; 4:11 P. M. to 4:30 P. M., faintest excretion of phthalein (inestimable amount). Phloridzin test. Minims xv of a 1 per cent. solution in alcohol injected at 4:12 P. M.; up to 5:05 P. M., no reaction (solution tested on other normal patients produced glycosuria). Indigo-carmine test. Three drams of 0.4 per cent solution injected at 4:10 P. M. At 8 P. M. the first trace of a very feeble excretion appeared. Urea excretion. (24 hours' specimen), 1 per cent. concentration; total, 18.6 grams. Patient refused further treatment and went home against advice; readmitted May 10, 1912. He had felt well and fairly comfortable for one month after leaving the hospital; past two months feels worse again and has become incontinent; permanent catheter inserted. May 13.—Indigo-carmine test. (II) Four drams of the above solution injected at 10:50 A. M. At 2:30 P. M. urine began to show weak stain. Fundi are negative. May 15.—Phthalein test. (IV) Injection at 11:30 A. M. Negative up to 5:30 P. M. May 16—Phthalein test. (VI) Injection at 1 P. M. At 6 P. M. faintest reaction. Less than 5 per cent excreted. May 16.—About 100 stones removed from the bladder through the sheath of the cystoscope. With lithotrite some larger stones crushed and evacuated (Novocain anesthesia). Operation was brief and three separate instruments were introduced into the bladder, each only once, *i.e.* cystoscope, lithotrite, cystoscope. There was no injury and patient was not excited. May 17.—Patient is dull and quiet; distinctly uremic. Tongue is dry; vomited several times. May 20.—Under active treatment: Diuretin, rectal drip, colon irrigations, subcutaneous salines, etc.; patient improved. May 20.—Phthalein test. (VI) Injection at 11:45 A. M. First appearance of faintest reaction at 2 P. M. During the next 24 hours passed inestimable amount of the phthalein. May 22.—Without any local anesthesia many more stones rapidly evacuated from the bladder without any injury and without any distress to the patient. May 25.—Patient has been duller again; breathing labored; pulse weaker; passes less urine; placed on same treatment as before without avail. May 26.—Became more and more stuporous; breath urinous and died in uremia. Urine examinations showed large amount of pus and albumin with urea in the 24 hours' specimen; May 12, 0.9 per cent., 13.5 grams; May 13, 1.1 per cent., 17.6 grams. On forced nitrogenous diet: May 22, 1.2 per cent., 11 grams; May 23, 1.5 per cent., 19 grams. Autopsy: Prostatic adenoma with hypertrophied bladder; marked cystitis and a few vesical calculi; hydroureter and hydronephroses on both sides and atrophic contracted kidneys.

Case II.—D. G., 66 years old (history abbreviated); admitted November 13, 1913. Well till four years ago, when taken ill with gastric symptoms, pyrosis, eructa-

tions, vomiting; became costive; no headache nor visual disturbances; urinates four or five times each night. Since four weeks has become so weak that he went to bed; had retention of urine for which he had to be catheterized. Physical examination: General condition, fair; emaciated; tongue dry; heart sounds of fair force; second aortic accentuated; some general arteriosclerosis. Lungs show signs of a tubercular process in the right upper lobe. Prostate is enlarged by rectum; slight edema of the ankles; permanent catheter inserted and antiuremic therapy introduced; blood pressure, 130 mm.; residual urine 9 ounces. Test meal: Free HCl 30, total acid 50, lactic acid 0, blood (benzidin) 0. Blood examination: Hb 50 per cent.; RBC, 4,300,000; WBC, 20,800; polynuclears, 83 per cent.; lymphocytes, 14 per cent.; large mononuclears, 3 per cent. October 30.—Phthalein test. (I) Negative; no excretion in 24 hours. November 31.—Indigo-carmine test. (I) No excretion. November 1.—Phloridzin test. (I) minims xv of a 1 per cent. solution; no excretion in 12 hours. Nov. 3.—Eye examination shows slight changes in the retina often seen in chronic nephritis. November 3.—Phthalein test. (II) Very faint reaction at 3½ hours. November 4.—Indigo-carmine test. (II) No excretion in 24 hours. November 5.—Phloridzin test. (II) Very faintest reaction at 4 hours; Albarran polyuria test repeatedly negative. November 8.—Mental condition less clear and patient is weaker. November 11.—Phthalein test. (III) Faintest excretion in 4 hours. November 13.—Died. Urine in good amounts passed every day, containing slight trace of albumin and some pus cells with urea in the 24 hours' specimen: October 31, urea 1.6 per cent., 16.3 grams; November 4, urea 1 per cent., 16.5 grams; November 4, 1.2 per cent., 13 grams. Autopsy: Prostatic adenoma, chronic cystitis, hydroureter, and nephrosis on both sides, with extensive parenchymatous degeneration and interstitial nephritis.

2. The only method that gives us an idea as to the function of the heart is the observation of its activity under normal conditions and under stress. Congestive signs in the viscera, edema of the dependent parts of the body, feeble pulses, and marked acceleration of the heart's activity after exercises, naturally suggest to the surgeon great caution, as the risk of a fairly severe operation may be too great. If, however, none of these symptoms of disturbed function are in evidence, this system will not figure adversely in the sizing up of any particular case.

3. In many old men that come for relief the picture of an arterial marasmus dominates the whole picture. These patients have begun to undergo the process of shrinkage seen regularly in the very old. Their arteries seem to be unable to carry to the peripheral parts sufficient nutrition. Many of these look to the clinical surgical eye, as unjustifiable risks, but frequently on rest and forced feeding what at first blush looked like a bad risk, improves, takes on weight and becomes a subject that can stand the operation satisfactorily.

*One-Stage and Two-Stage Operations.*—Now despite all this preliminary work the surgeon may be in doubt as to his patient's ability to stand an operation, which occurs not infrequently. Provided the patient must not be relegated to the group of unjustifiable risks, (vide such cases as quoted above), I believe this group of cases should be operated upon in two stages, but only after they have had the advantages incidental to preparatory treatment of their bladder retention, etc. There can be no doubt that in the two-stage operation the patient has a better chance, and when in doubt I invariably operate in this way. At the first operation the bladder is quickly opened and a tube placed snugly within it, the wound in the soft parts and in the bladder being closed down to the tube, which is surrounded with gauze to the bladder incision. Depending upon how the patient stands this, the adenoma is enucleated at some later date. The bleeding at the time of the enucleation is less than at the one-stage operation, and the perivesical tissues are well protected by the reaction that followed the first stage. The total time consumed by the two operations is frequently shorter than that required by the operation in one stage, and the bed of the prostate gives less secondary bleeding. Moreover, the closure of the wound provided the tissues are drawn together at both stages, is not much slower than after the one-stage operation. On the other hand patients in excellent condition, I operate upon in one stage, provided they have no stones or severe cystitis. The only objections to the two-stage operation are that it takes somewhat longer to close the wound, and many patients object to what seems like two operations. These are not insuperable difficulties, and where the two-stage operation is indicated it should be done.

Of the 60 cases operated upon by our staff, 36 were looked upon as sufficiently good risks to warrant a one-stage operation whereas 24 were considered questionable risks and were operated upon in two stages. Of the former series two died and of the latter 3 ended fatally (5 per cent. and 12 per cent. mortality respectively).

*Technique of the One-Stage Operation.*—The bladder is opened by a 2-3 inch suprapubic median incision, after filling the viscus with air or fluid, the patient being placed in slight Trendelenburg posture to allow the peritoneal reflection to be more readily held out of the way. A finger is introduced through a small opening in the bladder and with counter pressure through the rectum with the operator's finger (left hand), the mucous membrane is broken through and the cleavage line, between the adenoma and the false capsule, made by compression of the adjacent prostatic tissue, is entered. It seems quite immaterial where this break in the mucous membrane is made. I believe it is more readily accomplished over the most prominent part of the growth, and I begin the attack at this spot. The enucleation of all the tumor is readily accomplished and then the enucleated mass or masses are delivered. This leaves a cavity whose walls and edges may bleed seriously. Hot packings introduced into this cavity and compression of this area for a few minutes between the rectal finger and a sponge holder which steadies the hot packing above will frequently stop most of the bleeding, so that no packing need be left in the bed of the prostate. Should such manipulations, as well as the use of hot saline irrigations, fail to control the bleeding a dry long gauze packing with a heavy silk thread attached, is firmly placed in the prostatic bed the thread reaching through the bladder and out through the large drainage tube. The bladder is sewed snugly about this and the wound closed in layers, being careful to attach the bladder to the rectus muscles and fascia by means of one catgut suture, below the tube, thus obliterating the approach to the prevesical space and at the same time bringing the bladder opening well above the posterior surface of the symphysis. Two small packings are placed above and below the tube down to the bladder wall to act as drains and to determine the flow of wound secretions toward the opening that has been left in the parietes.

*Anesthesia, Hemorrhage, Infection of the Prevesical Space.*—Ether preceded by gas has been used in the majority of cases. Occasionally gas and oxygen, and rarely local anesthesia for the pre-

liminary cystotomy. Pulmonary complications have been very exceptional. Pneumonia was once noted and occasionally was there a transient bronchitis. Gas followed by ether gave better relaxation and was in general preferred on that account.

There have been no cases of alarming bleeding, and it was not necessary to reopen the bladder and pack the bed or clamp bleeding vessels, in any case.

The prevesical space gave slight trouble in only one case and in this patient I tore through the neck of the bladder behind the symphysis in enucleating a very adherent large mass. This required drainage as I could not suture the thin wall of the bladder. A mild infection delayed the closure of the wound for several weeks. The patient, 83 years of age, made, however, an excellent recovery. But for this there have been no prevesical space infections.

*Mortality.*—In this series of 60 cases we lost 5 patients, a mortality of a little more than 8 per cent. Of these 5 deaths 2 followed the one-stage operation and 3 followed the two-stage procedure. The nature of these cases will be seen from the following:

Case I.—Had a sharp rise in temperature following a difficult cystoscopy for prostatic enlargement associated with calculi. Not suspecting that this might be of moment, I rather inadvisedly did a one-stage prostatectomy shortly thereafter. This patient developed anuria and subsequently pneumonia. For a time improved and seemed to be doing well, being out of bed and voiding portion of his urine. Five weeks after operation he died, having developed signs of renal involvement. Autopsy showed a bilateral suppurative condition in his kidneys and gangrenous condition of the pelves.

Case II.—Died five days after a one-stage operation of cardiac weakness. This patient, 72 years old, might have done better had a two-stage operation been done. After the operation we had great difficulty in moving his bowels, and the progressive distention embarrassed his heart action. Despite heroic measures we could not control the situation and the patient, who undoubtedly had a fatty heart, gradually became weaker and could not be relieved.

Case III.—Died four weeks after the second stage of a two-stage operation from an apoplectic stroke.

Case IV.—Died twelve days after the second stage from an embolism, having been up and about several days.

Case V.—Was a case of advanced myelogenous leucemia, with a spleen reaching into the suprapubic region. He died ten days after the second stage of what seemed to be some blood crisis, as his local condition gave us no reason for alarm.

As all five of these cases died in the hospital while still under our care they must be considered as the operative mortality, even though in the last three cases death is not so directly connected with the operative procedure as in the first and second cases.

*Post-Operative Care.*—By the one-stage technique outlined above we regularly keep all our one-stage patients absolutely dry until suprapubic tube drainage ceases. Those done in two stages usually leak after the second stage as the drainage tubes do not regularly fit the stretched bladder opening snugly. After 24 hours the fit becomes snugger and the patients are comparatively dry and comfortable. Caffeine and strychnine are used as stimulants, and as soon as the patients react they are sat up in bed and given saline in good quantity per rectum. If there has been considerable oozing the bladder is washed to expel clots, a catheter being introduced through the drainage tube which naturally is disconnected for this purpose. After about 3 or 4 days the packing in the bed of the prostate is carefully withdrawn through a Kelly endoscope which is introduced into the bladder threaded over the silk thread after withdrawing the large drainage tube. A very warm irrigation usually controls the bleeding caused by drawing out the packing, and then after thoroughly drying the edges of the wound a receptacle of hard rubber* is glued† over the drainage hole to collect the urine, and keep the patient dry. Whenever these do not functionate properly a large absorbent moss pad dressing is bandaged in place to take up the copious flow of urine. These cases are then irrigated carefully each day through the urethra with a urethral tip, using any mild antiseptic solution, with only sufficient pressure to get by the compressor urethral muscle. Occasionally a soft rubber catheter may have to be used for this purpose. The urine should be kept acid and urotropin administered. After 10 to 12 days of irrigating it is usually advisable to stop all such manipulations and allow the wound to close, if everything is ready for closure in the suprapubic wound. Under such circumstances, continued irrigations will reopen the closing fistula and delay the course of the case. It is possible in this way to get complete closure within 12 to 14 days without inconveniencing the patient by passing urethral instruments. The many fine points in the after treatment of these cases experience alone will teach. In a very recent paper by Marion he attempts to give in detail many of these, which are somewhat out of place in this sketchy paper.

*The end results of suprapubic enucleation of prostatic adenomata* are most ideal. The patients heal up most kindly and are completely restored to health. Their sexual functions are not interfered with and urination is perfectly normal in almost every case. The cystitis that regularly follows the opening of the bladder, as well as that which exists so often prior to operation, improves rapidly after the removal of the obstruction to the outflow and within 6 to 10 weeks the patient's urine is nearly clear or absolutely so. Incontinence is most unusual after this operation, and the only symptom that may remind the patient of his previous trouble is the persistence of some frequency. In the majority of cases the control is perfect, and according to the work of A. Hyman the compressor group of muscle fibers is responsible for this in most of these cases. The fact that the sphincter at the bladder's neck does not functionate in many of these cases is evidenced by the oft-repeated remark that patients make, concerning the absence of the ejaculation during intercourse and the voiding of their semen in the first urination thereafter, mixed with the urine.

*Made for me by G. Tiemann & Co., New York.

†Supplied to me by Johnson & Johnson, but not on the market.

48 West Seventy-fourth Street.

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A Case of Nystagmus.—H. Campbell reports a case of this condition in a man, aged 36, who for two years has suffered from lateral nystagmus on turning the eyes to the right. The nystagmus is accompanied by giddiness and widespread nervous perturbation. The trouble incommodes him in his work as shop assistant, especially when taking down articles from shelves. Turning the head to the right while the eyes are directed forwards does not cause nystagmus. Turning the eyes to the right with closed lids causes nystagmus with little, if any, giddiness. He has had some dull occipital headache. Beyond the nystagmus and a moderate defect of hearing no abnormal nervous condition can be discovered objectively.—*Proceedings of the Royal Society of Medicine.*

# A REPORT OF TEN CASES OF ACUTE PERFORATING GASTRIC AND DUODENAL ULCER.*

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ACCORDING to Musser, the perforation in gastric and duodenal ulcer occurred in 28.1 per cent. of a series of 1,800 cases. This condition therefore is more frequent than was thought to be. Perforations occur in patients at all ages. They are more frequent during the ages of 30 and 40 years and much more common in men than women. Acute ulcers perforate more frequently near the cardiac end of the stomach, while chronic ulcers perforate near the pylorus. They are more frequent upon the anterior wall, both in the stomach and duodenum. They occur infrequently upon the lesser curvature and almost never upon the greater curvature. It is said duodenal ulcer perforation is more frequent than that of gastric ulcer. Attention is called to this condition by its sudden onset with the classical symptoms of pain and rigidity of the abdominal muscles and the history of a previous gastric indigestion. The pain is excruciating and usually is confined to the upper abdomen. Patients suffering with perforation are as a rule found lying upon their back with the thighs flexed and a pronounced boardlike rigidity of the muscles. The breathing is therefore thoracic. Eliot states that the point of maximum intensity of the muscular resistance is a valuable guide to the site of the lesion. The patient's facial expression is most anxious and points to some intraabdominal catastrophe. Tenderness is present at once after perforation and at first is located at the site of perforation—later with the spread of peritonitis it becomes more diffuse. In the later stages this sign makes the differential diagnosis more difficult. The fluid from perforation first fills the right kidney pouch, then descends along the outer side of the ascending colon to the right iliac region and the pelvis. For this reason this condition may be confused with perforative appendicitis more than any other lesion. Shock may or may not be present and is purely a personal factor. Nausea and vomiting are usually present although not always constant. It is said to occur more frequently in duodenal than in gastric perforation. Blood is usually absent in the vomitus but when present it is of great assistance in the diagnosis. Temperature and pulse are but slightly affected in the early hours. Later both are materially increased. Again both temperature and pulse rate in the early hours are affected out of proportion to the pathology present and like appendicitis are personal factors.

There is but one rational treatment to be instituted in perforated gastric or duodenal ulcer, which is operative, and this should be instituted at once. Upon opening the abdomen one of the following procedures should be done. (1) The ulcer, if favorably located, may be excised and the walls then restored by suture. If located at the pylorus a pyloroplasty may be done. (2) Or simple inversion by a purse string suture which may be reinforced by a second purse string or interrupted sutures. (3) Drainage is always necessary in all cases for the contents may not be sterile. (4) Gastroenterostomy is not necessary unless the lumen is seriously interfered with so that the passage of food is obstructed. However, gastroenterostomy is to be advised for its beneficial influence upon ulcer, but great judgment must be exercised in its application for it prolongs the operation and in some hands this procedure combined with the closure of the ulcer would only add to the mortality.

The following cases occurred in the writer's experience. The series comprises ten cases of which six were gastric and four were duodenal perforation.

CASE I.—My first case of acute perforated gastric ulcer was as follows: Miss G. B.; age 17; October 10, 1906. Her illness began very suddenly four days previously. There was no history of previous stomach disturbance. A physician was called the first day of her illness, who administered some opiates. Her condition did not improve, but became gradually worse, and I was called the fourth day and found her with all the clinical manifestations of a generalized peritonitis. The history was indefinite as to whether it was of appendiceal origin. Consent was obtained to institute drainage, which was done under gas and oxygen anesthesia. The patient succumbed eight hours later. Upon postmortem the appendix was normal, but a perforation of a gastric ulcer upon the anterior side was found to be the cause of the peritonitis.

CASE II.—Mr. R. V. M.; age 26; November 27, 1910; clerk. Symptoms of indigestion for three or four years; had to be be very careful as to his diet. Pain an hour and a half to two hours after eating. While at work about 10 A. M. was taken with severe pain in upper abdominal region. Seen six hours later. Diagnosis of acute perforated duodenal ulcer made, and operation advised and accepted. Through right rectus incision, perforation sutured; drainage; recovery. Some symptoms of impaired gastric digestion persisted for more than a year, which finally disappeared.

CASE III.—Mrs. E. M.; age 24; December 21, 1910. Seen at 8 A. M.; symptoms of stomach trouble for more than two years. Had frequent eructations of acid fluid after eating; occasionally pain half an hour after meals. Fried foods caused great distress. Was taken suddenly with pain in mid portion of abdomen about midnight; some nausea and emesis. Was seen by another physician who diagnosed appendicitis and advised operation. Upon examination the abdominal muscles were generally rigid, with most tenderness over McBurney's point. The symptoms were not altogether positive of an appendicitis; operation was advised and accepted. Through a gridiron incision the appendix was exposed; this was small and not inflamed. The appendix was removed. Much exudative fluid of a yellow color flowed out, which pointed to the perforation of an ulcer of the stomach or duodenum. The primary wound was closed. A right rectus incision was now made and a perforation found on the anterior side of the stomach at the pylorus. The ulcer was excised and a pyloroplasty done. Tube drainage was inserted. Recovery was uneventful and there have been no symptoms since.

CASE IV.—Mr. L. B.; age 23; school teacher, Dale, Wis. Referred by Dr. Johnson, May 28, 1911. Was occasionally troubled with so-called indigestion which was attributed to some carelessness in diet. The day previous assisted his father in farm work and felt very well. Was attacked with sudden severe pain in upper portion of abdomen in early morning. The pain was excruciating. Dr. Johnson was called; an opiate was administered. I was called by telephone about 8 o'clock A. M. and told of this condition and advised his immediate removal to the hospital, the symptoms pointing to an acute perforation of some one of the digestive organs. Upon his arrival at the hospital (the trip having been made in an automobile) he was immediately taken to the operating room and a right rectus incision made. A perforated gastric ulcer was found about an inch or little more to the left of the pylorus upon the anterior side. The perforation was sutured with a circular suture and the omentum tacked over. The appendix was also removed. Tube drainage was instituted; recovery uneventful. At present he is located in Atlanta, Ga., as auditor for one of the Southern railways and enjoys good health.

CASE V.—Mrs. F.; age 42; Clintonville, Wis.; referred by Dr. Finney, October 19, 1911. For three years past has had much trouble with stomach. Fre-

*Read at the Fox River Valley Medical Society, Menominee, Mich., October 22, 1913.

quent acid eructations and pyrosis. Pain half an hour after meals and located over epigastric region. She entered hospital for examination and diagnosis. A test meal showed a total acidity of 90, both the free hydrochloric and combined acids being greatly increased. A diagnosis of ulcer was made and inasmuch as medical treatment of two years had been ineffective an operation was advised. This was to be done the following morning. About 3 A. M. patient complained of a very severe pain in the upper portion of the abdomen. She endeavored to vomit, but could not do so. The hospital called me and an opiate was advised to be given at once. As she was prepared for operation, the delay of three or four hours upon an empty stomach could cause no material harm. Through a right rectus incision an ulcer of the pylorus was found with a pin point perforation. This was sutured and a posterior gastroenterostomy performed; no drainage. The recovery was uneventful. February 17, 1912, the patient returned on account of a spasmodic pain due to a "pulling," as she described it, in the upper abdomen. The distress made the patient very uncomfortable, so another incision was made, and adhesions found which united the right side of the stomach to the abdominal wall. There were also some adhesions upon the left side of the stomach and abdominal wall. These adhesions were divided and sutured over. The gastroenterostomatic opening was found to be in excellent condition. The old scar was excised. The patient had also gained materially in weight. January 21, 1913, the patient returned, stating she was now feeling quite well and wished to have the gastroenterostomatic opening closed. This was done the next day, when she again made an excellent recovery. Recent inquiry was made as to her present condition, and she advised us she was now enjoying good health and had gained materially in weight.

Case VI.—E. W., laborer; age 24; March 29, 1913; referred by Dr. Reinick. Two years ago had an appendectomy performed. At this time had suffered with gastric distress and some pain after meals. Above symptoms had never entirely disappeared following the operation. Occasionally suffered with acute exacerbation of pain in the epigastrium. Patient reported for work as usual that day, but toward noon suffered with more pain in the upper abdominal region. He ceased work at noon and returned to his room. The pain became very severe in the afternoon, when he called Dr. Reinick. I was requested to see the patient, which I did about 8 o'clock in the evening. A diagnosis of perforated ulcer was made and he was sent to the hospital for a laparotomy. Upon opening the abdomen a perforated duodenal ulcer was found which was closed with two purse-string sutures; drainage to the subhepatic space. His recovery was uneventful.

Case VII.—Mr. A. C., farmer; age 49; May 10, 1913; referred by Dr. Greenwood. For a year had been suffering more or less with stomach trouble. Had been more or less of a heavy drinker of alcoholics for some years. Had lost 10 to 15 pounds in weight. The week previous to his operation had quite severe pain in the epigastrium, acid eructations, and constipation. Was taken with sudden acute pain about 6 o'clock in the morning. He vomited a small quantity of fluid, which contained blood. His physician was called and saw him about 8 o'clock. Morphine was administered to allay the pain. His symptoms and physical appearance pointing to some intraabdominal lesion, I was called to see the patient in consultation with Dr. Greenwood and was told to come prepared to operate. A diagnosis was made of perforation of an ulcer of the stomach. Upon opening the abdomen a pin point perforation of an ulcer upon the anterior side of the stomach adioining the pylorus was found. This was closed and invaginated with purse-string sutures. The patient took his anesthetic very badly and we had to give enormous quantities of chloroform to relax the abdominal muscles. A gastroenterostomy with the oblong Murphy button was hurriedly made. A small drainage tube was inserted. Convalescence became established with normal pulse and temperature. The button was passed the elghth day. The patient was up and out of bed the tenth day. The twelfth day symptoms of a left sided lobar pneumonia developed, to which he succumbed two days later.

Case VIII.—G. K., Greek; age 32; proprietor of billiard and pool hall and bootblack stand; August 3, 1913. In this case it was exceedingly difficult to obtain a satisfactory history until late in his convalescence and then the facts were obtained only in fragments. Five years ago was greatly troubled with indigestion. This condition continued for about two years. Appetite was impaired and the ingestion of food caused pain about thirty minutes to an hour after taking it. Bloated after eating and had frequent eructations of a sour fluid. After this his condition improved so that the succeeding years he had practically no discomfort. A month preceding his operation he noticed that his appetite was not so good and that he was constipated. He consulted me about 12 o'clock Sunday, August 3. It was difficult to understand him, as he could not speak English very fluently. He requested something for his bowels as they had not moved for a week. He said his appetite was not very good and he had some general abdominal discomfort, but no pain. I gave him a prescription for two ounces of castor oil, which he took in some whiskey at the drug store. I left my office for home and just arrived when a telephone message came from his partner informing me that the patient was in great pain. Upon my arrival he was found to be suffering intensely—a boardlike rigidity of the abdominal muscles and a general condition of shock. A diagnosis of perforation of either a gastric or duodenal ulcer was made and he was advised to go to the hospital at once for operation. Upon opening the abdomen the odor of whiskey was noticeable and the appearance of oil came to view so that the diagnosis of a perforated ulcer was verified. A perforated ulcer of the duodenum was found. This was closed with two purse-string sutures and a piece of the omentum was tacked over. Drainage was instituted. His convalescence was uninterrupted and he enjoys at present apparent good health.

Case IX.—Mrs. G.; age 50; Hayton, Wis.; referred by Dr. Bolton, Chilton, Wis.; August 25, 1913. For more than two years has suffered with pain and distress about one hour after eating; appetite greatly impaired. The stomach disturbance had been greatly increased the preceding four or five weeks, so that the patient had only partaken of broths, gruels, and toast. The patient retired at night as usual, having no more than the usual digestive distress. During the early morning hours, about 4 or 5 o'clock, pain became very intense in the hepatic and epigastric region. Some nausea, but no emesis. Dr. Bolton was called and administered some sedatives. The abdominal muscles became very rigid. As her condition did not improve and the symptoms were unlike any others he had met with, he asked for consultation. I was called by Dr. Bolton at noon and advised of her condition. A tentative diagnosis of perforation was made, operation advised, and a hurried trip by auto of thirty-five miles was made to her home in the country. Upon examination she presented all the symptoms of a serious intraabdominal lesion. The temperature was 100.2°; the pulse 130. An immediate laparotomy was performed and a perforated ulcer of the duodenum was found near the pylorus. A second ulcer, about an inch and a quarter, was found to the right. This was not perforated. The first ulcer was sutured by two purse-string sutures and an omental flap tacked over. Drainage was instituted. As the patient's condition was very grave, it was not deemed advisable to do a gastroenterostomy. The patient did very well the succeeding days, the tube being removed the fifth day. Near noon of the sixth day, August 31, the nurse noticed a discharge of fluid shortly after swallowing. I was again called by telephone while at Winneconne and apprised of her condition, and made a diagnosis of a perforation of the second ulcer. Another trip by auto was made, the distance this time being sixty miles. When we arrived at the patient's beside, about 9 P. M., her condition was extremely critical. The temperature was 101°; the pulse 140 and very irregular and intermittent. Preparations were made again for an immediate reopening of the original wound, and there were grave doubts as to whether the patient would survive the ordeal. The perforation was found of the second ulcer. Closure was made as in the case of the first ulcer. The work was difficult, and if it had not been for the help of a "trouble" electric hand light we would not have accomplished the closure. The patient was returned to bed none the worse for her experience. Her convalescence for the succeeding four or five days was stormy, but she finally weathered it and progressed on to a satisfactory recovery. This patient was seen four weeks later while in her neighborhood, and she was found to be looking well and expressed herself as feeling better than she had for some years. Gastroenterostomy was very much out of question in the first and decidedly so in the second perforation, but the patient was told that this procedure might have to be

done some time later in the event of any gastric symptoms arising.

Case X.—Mr. M. B.; age 35; fruit dealer; September 18, 1913. This patient presented himself at my office the afternoon of the day previous to his operation, with a history of stomach disturbance extending over a period of three years. Frequent acid eructations and pyrosis. Some nausea after meals and constipation. Pain half an hour after eating. For four weeks previous to his operation had to exert great care as to his diet, living principally upon gruels, milk, and eggs. For a week had had more tenderness than usual in the epigastrium. He had eaten nothing that day. The afternoon of his visit to my office he felt worse than usual and more pain in the epigastrium. The abdominal muscles were very rigid. He was sensitive, so that palpation was exceedingly difficult and unsatisfactory. However, with the history and physical findings a diagnosis of gastric ulcer which had penetrated the walls of the stomach to the peritoneal covering was made and immediate operation advised. This was accepted and he was at once sent to the hospital. Through a right rectus incision an ulcer was found an inch to the left of the pylorus, which had perforated and which was "plugged" with omentum. The ulcer was closed with purse-string sutures, and a gastroenterostomy and plication of the duodenum done. The appendix was removed; no drainage. The convalescence was uninterrupted. The patient left the hospital after two weeks. A visit from the patient October 14; he informed me he was now "feeling fine."

## SOME IMPORTANT FACTORS IN THE CONSERVATION OF HEARING.*

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As this is a period in which eugenics is being persistently discussed, one might well argue that the attainment and preservation of good hearing depend to some extent upon one's ancestors, when we consider the claim that otosclerosis (an internal ear disease) is often hereditary; and also the less demonstrable manifestations in a person whose progenitors have been subject to lymphatic derangements of the respiratory tract, adenoids, tonsillar disease, etc. Anatomical anomalies, climate, methods of living, general diseases such as arteriosclerosis, the excessive use of alcohol and tobacco, to say nothing of the occupational influences, might have their effect sooner or later by transmission, if only by inducing susceptibility. In this connection one would do well to follow the advice of the humorist and wisely choose one's forebears. As most of our patients display more interest in the ills of the present or near future, the more practical hearing of this subject—its application to living patients—will receive most attention in this paper.

Diseases of the ear may be roughly divided into three classes: those affecting the parts concerned in the conduction of sound, those affecting the perceptive mechanism, and those acting on both. The external ear, external auditory canal, membrana-tympani, Eustachian tube, middle ear with its contained ossicles and attachments, and the cells found in the mastoid process, are all of service in the conduction of sound from the outer atmosphere. Lesions in any one or more of these parts deserve attention on account of the primary or secondary effect they may have on hearing.

Sound waves are collected by the external ear, pass through the canal to the membrana tympani, causing it to vibrate. These vibrations are then carried by means of the ossicles to the membrane filling in the oval window which transmits them to the fluids and nerve endings of the internal ear.

Malformations, or injuries of the external ear or canal should if possible be corrected with little delay. Plastic surgery may correct a deformed or injured auricle and even atresia of the bony canal. Tumors and inflammations deserve attention. Impaction of cerumen and the presence of foreign bodies are important on account, not only of obstruction and disordered hearing, but of the local irritation and even ulceration which may ensue, the membrana tympani frequently suffering injuries. Eczema of the canal may be caused by otorrhea, but in some instances no local cause is apparent. Scratching the parts with objects like toothpicks and hairpins can only do harm. Early treatment can accomplish much in relieving this irritating affection.

The membrana tympani is sometimes the subject of direct violence by penetrating objects and may be ruptured by the impact of air produced by explosions, the slap of a hand, etc. The practice of boxing ears should be condemned on this account. Careful aseptic treatment after such an occurrence will promote healing and prevent infection of the middle ear. The ossicles and internal ear may also share in injuries to the membrana tympani.

In considering the diseases of the middle ear one is justified in saying that nearly all of them originate in the nose and throat; and further, anything which prevents proper physiological breathing is very apt to be a contributing cause. Ciliated membrane containing mucous glands lines the nose, the Eustachian tube, and anterior part of the middle ear. From that point to the limits of the mastoid cells, the mucous glands are absent; in this respect resembling the lining of the accessory sinuses of the nose which is virtually an endosteum. This may explain the vulnerability of the mastoid to infection.

In my experience I have usually found chronic rhinitis in its varied forms to be secondary to diseased faucial or pharyngeal tonsils, sinus disease, and exostoses and deviations of the septum. Disordered turbinates are often only symptomatic. Obstructive tonsils not only cause poor nasal breathing, but tend to perpetuate it through mouth breathing. When the mouth hangs open, muscular action is not such as to cause the oral and nasal bones to spread, which produces a narrow face with corresponding nasal fossæ and a deflected septum. Obstructive elements of any consequence affect proper breathing and while one impaired breath counts for little, many may count for much. The vascular control in the mucous membranes becomes affected, and this in a short time brings about derangement of the mucous secretion associated with swelling. Finally the so-called catarrhal inflammation becomes demonstrable with its various objective and subjective symptoms. When the nasopharyngeal membrane becomes disordered as described, pathogenic germs, which we always have with us, find an inviting field, and successive attacks of acute rhinitis occur, adding fuel to the chronic process. It can well be claimed that colds occur only when our nasal membranes are non-resistant, be it due to local or general causes. The Eustachian tube is virtually a part of the nasopharynx and is commonly involved when the previously described acute or chronic inflammatory lesions are present. This tube is but 1½ inches long and its sides are almost

*Read before the Cambria County Medical Society, August 14, 1913.

in contact at one point. Instead of the middle-ear being normally ventilated with consequent suitable adjustment of the vibrating structures, a partial vacuum is created by the tubal obstruction, thus deranging the function of the entire ear.

It should be emphasized that a diseased faucial or pharyngeal tonsil, with or without the nasal changes to which I have alluded, frequently causes much chronic inflammatory change in the middle ear and tube, especially when adenoid tissue partly surrounds the tubal orifice.

Acute non-purulent tubotympanic inflammation is very apt to complicate the ordinary cold, the symptoms being diminished hearing, a swollen stuffy feeling about the tubes and ears, possibly associated with tinnitus or slight pain. Such a process often becomes subacute, lasting for several weeks. Local and general treatment is of great importance as each attack does some damage and may be one of the stepping stones to chronic deafness. Successive attacks should lead us to seek some local or general cause. In chronic non-purulent tubotympanic disease hypertrophy, atrophy, calcification of the soft parts with ankylosis of the ossicles may occur, and owing to the inaccessibility of the parts thorough success in treatment is unknown. I have already indicated the importance of intelligent nasal and pharyngeal surgery in the prevention and cure of ear disease. The term surgery is here used, as some corrective operation should not uncommonly precede local or general treatment. While I have nothing but commendation for the well performed tonsil and adenoid operation in properly selected cases, I feel free to predict that within a few years otologists will be confronted with some more or less obscure and irremediable tubal disorders directly due to impaired action of the tensor palati and levator palati muscles which normally dilate and contract the tube in addition to aiding in speaking, swallowing, and breathing, through their insertion in the velum palati. Reckless and inefficient operating, which is all too common, brings about actual muscular destruction, cicatrices, and contractures which are bound to affect physiological action. If every operator would take the trouble to study the fauces and pharyngeal vault of such cases subsequent to operation he would frequently find conditions worthy of criticism, even though the operation had been well done.

After permanent changes in the middle ear structures have taken place, the arrest of deafness, not cure, should be discussed with the patient. Many patients seek the aurist too late and his reputation suffers thereby. The primary causes in such cases should have received attention before the deafness became so plainly manifest. Therefore I repeat that all nasopharyngeal and aural symptoms should receive early attention if impaired hearing is to be prevented. In many instances deafness begins in childhood and becomes grossly manifest years after, when cure is hard to obtain. In adolescents or adults atrophic diseased tonsils, residual adenoids, septal and turbinal anomalies, sinus disease, and chronic rhinitis in some form are the things which separately or together frequently complicate aural disease. Nasal hyperemia can even affect the internal ear through a common venous outlet and tinnitus in such cases has been cured by relieving nasal stasis. Having surgically corrected any nasopharyngeal lesions in chronic catarrhal tubotympanic disease, topical treatment with inflation of the middle ear (preferably by catheter) is indicated as long as improvement is evident or on recurrence of symptoms. The many and varied uncertain lines of therapy will not here be enumerated. It should be stated, however, that prognosis and ultimate treatment depend upon local examination, tuning fork and quantitative tests, both before and after a few trial treatments. Climate has its good and bad effects. What seems good for one is not suitable for another. However, a bland equable climate neither too dry or too wet would seem desirable.

Next to the prophylaxis connected with the nasopharynx, judgment and care in the treatment of acute purulent otitis media and its complications are the most important matters in the conservation of hearing. Neglect of preventive nasal measures during fevers, especially the exanthemata, has caused many an abscess. Expectant treatment carried beyond the time for incision of the tympanic membrane has brought about much suffering, loss of hearing, and even death. In infection of the middle ear, the mastoid antrum and cells are to some extent bound to share in the process as they are but extensions of the cavity and the outcome will depend upon resistance, drainage, or both. In this disorder the greatest surgical sin consists in neglecting to make an early incision in the tympanic membrane. Protracted pain, fever, and deafness with visible changes in the membrane give ample basis for such an operation. Practically no untoward results follow an aseptic, extensive well-placed incision, while no estimate can be made of the troubles which may follow a delay; the same may be said of operative mastoiditis when the diagnosis has been well made. Chronic otorrhea frequently means diseased bone in the tympanum or mastoid and early drainage by tympanic incision will in most cases prevent it. Intelligent general and local after-care is, of course, a requisite.

It has been reported that nearly 25 per cent. of the patients attending aural clinics are children under 14 years of age; of this number, 50 per cent. are subjects of suppurative inflammation of the middle ear, and of this portion 10 per cent. or more owe their origin to the exanthemata of childhood. Of the cases of deafness in the United States 27 per per cent. are said to be due to suppurative middle ear disease of childhood. After excluding measles and scarlatina, it has been estimated that 95 per cent. of all discharging ears in children are due to adenoids and in the fevers mentionad adenoids are usually predisposing causes.

Chronic otorrhea is often neglected beyond prescribing a wash; if such therapy is not successful the otologist through his familiarity with the parts can not uncommonly cure it. Exuberant tympanic granulations, polypi, or even diseased bone may be removed through a perforation, causing the discharge to cease. That the nasopharynx should receive attention goes without saying. Diseased bone in the tympanum or mastoid may justifiably demand a tympanomastoid operation. The resulting common cavity can be treated through the external canal and finally becomes lined with epidermis. If such an operation is wisely chosen it is of great value. The recent operation of closing the tympanic end of the Eustachian tube to prevent chronic infection from the pharynx has its adherents and is no doubt of value.

The best protected and most essential part of the organ of hearing, the internal ear, may suffer indirectly from affections of the other aural parts

such as extension of acute infection, chronic inflammation, or injuries; directly from rarefying osteitis, systemic diseases, and the toxic action of drugs. Tobacco likewise causes changes in the auditory nerve. Syphilis, alcohol, tuberculosis, and the anemias are prone to cause nerve involvement. Abscess, embolism, or apoplexy in the labyrinth may cause immediate deafness and temporarily destroy our power of balancing, vertigo and vomiting being associated symptoms. An occupation connected with loud sounds should be avoided as it sooner or later adversely affects the nervous mechanism of the internal ear. After having briefly referred to the more important factors which influence hearing, I will attempt to justify the title of this paper by stating that skillful attention early in the course of most of these affections would, as intimated, do much to conserve hearing. Many patients come to us too late, whereas a large majority could have been benefited and the disease arrested had they come before the development of permanent damage. Contributing causes should be treated early and deafness, which is only a symptom, avoided. As much depends upon the actions of the patient as on those of the doctor. Cordial cooperation is necessary. Diet, hygiene, sanitation, personal habits, occupation, climate, and general health all have a vital direct or indirect bearing.

604 Johnstown Trust Bldg.

## FIVE HUNDRED EXAMINATIONS OF THE NOSE AND THROAT IN AN INSTITUTION FOR DELINQUENT BOYS.

By MAX TOEPLITZ, M.D.,

NEW YORK.

Reformatory institutions for children were founded in New York for the purpose of removing these from evil environment and of placing them under wholesome influences for the correction of immoral and criminal tendencies. The Hawthorne School, the first Reformatory for Jewish boys, received the first boy on April 25, 1907, and had under its supervision at the end of 1912 316 boys of from 8 to 16 years of age. The grounds of the Hawthorne School comprise 260 acres of meadows, orchards, and woodland at an elevation of 500 feet above sea level. The boys are distributed in eleven separate cottages, each of which houses 30 boys under the most hygienic conditions.

After their commitment to the Hawthorne School by the Judge of the Juvenile Court, the boys are examined with special reference to eye, ear, nose, and throat, as well as to their general condition, and are also vaccinated. In addition to this preliminary examination the boys, according to the rule of the Board of Estimate and Apportionment, are examined twice a year. The special care of the ear, nose, and throat has been entrusted to me. Here I have paid particular attention to the most prevalent affections: adenoids and hypertrophied tonsils. (Other conditions, such as septal deviations, nasal hypertrophies and purulent otitides are, since comparatively rare, included among the miscellaneous cases.)

The following table presents the examinations arranged in five groups of a hundred boys each:

The first group of 100 boys contained 70 diseased cases—enlarged tonsils (21), adenoids (23), and the two conditions combined (8). Of these 52 cases, 50 required and 25 demanded an operation, but only in one case were the tonsils removed; there were 30 normal and 18 miscellaneous cases in this group. Owing to the custom, then prevalent at the institution, of waiting for the consent of the parents, who in most cases are in ignorance of the benefit to their children, out of 50 operations needed only one could be performed. Another system was then adopted, under which, while the parents are notified of the intention to operate, their consent is not awaited. The operation is performed, unless they are heard from to the contrary prior to a certain date. The second group contained 75 diseased cases: adenoids (26), enlarged tonsils (18), and their combinations (21); 10 miscellaneous and 25 normal ones; 23 of the 65 requiring operation received it, 5 had refused it. In the third group the number of operative cases: enlarged tonsils (29), adenoids (13), and combined cases (31); increased to 73, of which 26 were operated upon; 27 were normal.

| | First 100 Boys 1910 | Second 100 Boys, 1911 | Third 100 Boys, 1911 | Fourth 100 Boys, 1911 | Fifth 100 Boys, 1911 and 1912 | |
|---|---|---|---|---|---|---|
| Enlarged tonsils | 21 | 18 | 29 | 19 | 19 | 106 |
| Adenoids | 23 | 26 | 13 | 9 | 18 | 89 |
| Adenoids and enlarged tonsils | 8 | 21 | 31 | 32 | 24 | 116 |
| Miscellaneous | 18 | 10 | .. | 2 | 10 | 40 |
| Entirely normal | 30 | 25 | 27 | 38 | 29 | 149 |
| | 100 | 100 | 100 | 100 | 100 | 500 |
| Operations needed | 50 | 65 | 73 | 59 | 45 | 292 |
| Operations performed | 1 | 23 | 26 | .. | 25 | 75 |
| Operations refused | .. | 3 | 5 | 9 | 6 | 23 |

The large percentage of cases requiring operation, 178 among 300, or 59⅓ per cent., evoked quite some criticism. It was, therefore, tried to eliminate the moderate cases of adenoids and enlarged tonsils, with the result that the fourth group contained 62 affected cases: enlarged tonsils (19), adenoids (9), and combined cases (32), 59 of which required operation; 38 were normal. In the fifth group were 71 diseased cases: enlarged tonsils (19), adenoids (18), and their combinations (24), 45 of which needed an operation.

In summing up all 500 examinations, 351 cases were diseased, of which 106, or 21⅕ per cent., had enlarged tonsils; 89, or 17⅘ per cent., adenoids; and 116, or 23⅕ per cent., were combined cases, and of these 292, or 58⅖ per cent., required operation, 23 refused it, and 74 were operated upon; 149, nearly 30 per cent., were normal. There were different degrees in size and disease of adenoids; different forms, diffuse and lumpy; different consistencies, soft and hard. The faucial tonsils also showed differences in size and consistency.

An argument arose that too many operations were required, and it was suggested to leave the diffuse, flat, and soft adenoids, and the small faucial tonsils untouched, and to remove only the large lumpy, hard growths. The diffuse, which appear smaller, are spread over larger surfaces and are usually more diseased than the large hard tumors. It is necessary to remove either all the diseased conditions or none at all. The figures of the year 1912 clearly elucidate this point; for among the 169 first examinations there were 25 cases of adenoids, 29 cases of enlarged tonsils, and 39 cases of enlarged tonsils and adenoids, a total of 93, or 55.03 per cent.; among these 93 thus affected there were 28 moderately affected, 65 requiring operation, 19 refusing operation, and 34 radically operated upon; of

the remaining 76 boys 41 were normal and 35 were miscellaneous cases.

In 1910 40 per cent. of all the 111 cases treated by the physician to the institution were traceable as to their origin to faulty conditions of the nose and throat, and all cases reported by the surgeon dealt exclusively with conditions of the neck.

MEDICAL WORK IN 1910 TRACEABLE TO NOSE AND THROAT

| | |
|---|---|
| Abscess | 9 |
| Adenitis | 9 |
| Bronchitis | 5 |
| Tonsillitis | 11 |
| Rheumatism | 6 |
| Grippe | 1 |
| Pleurisy | 1 |
| Malignant endocarditis | 1 |
| | 43 |

SURGICAL WORK

| | |
|---|---|
| Tuberculous abscess of the neck | 1 |
| Tuberculous glands of the neck, bilateral | 1 |
| Enlarged glands of the neck | 1 |
| Wryneck | 1 |
| | 4 |

MEDICAL WORK IN 1911

| | |
|---|---|
| Abscess (ear) | 1 |
| Bronchitis | 1 |
| Coryza | 7 |
| Grippe | 2 |
| Pleurisy | 1 |
| Rheumatism | 2 |
| Tonsillitis | 3 |
| Pneumonia | 1 |
| Asthma | 1 |
| | 19 |

In 1911 18.6 per cent. of 102 cases treated by the physician were thus traceable to the nose and throat.

The operations for the removal of adenoids and enlarged tonsils were all performed in the hospital of the institution; all were radical, *viz.*, the tonsils were enucleated and every vestige of adenoids was eradicated. An anesthetic was administered only in a few obstreperous cases. In three cardiac cases the operation was abandoned; in one cardiac case an extreme hemorrhage took place after the operation, which was performed in ignorance of the cardiac condition. All operations effected thorough cures, and no recurrence took place in any case.

The Girard College of Philadelphia is the only other institution in the United States besides the Hawthorne School at which throat operations have been performed on a large scale. Among 1,500 boys of from 7 to 17 years of age tonsil and adenoid operations were advised in 152 cases; hypertrophy of tonsils was under observation in 124 cases; operations for deformities of septum advised in 25 cases; catarrhal and inflammatory conditions were recommended for treatment in 89 cases; 125 operations for the removal of tonsils were performed under general anesthesia by Dr. Joseph S. Gibb.

The school examinations of the Board of Health of New York show 15 per cent. of all the children with adenoids and enlarged tonsils, but these examinations are not done by expert laryngologists, the diagnosis is made by mere inspection of the mouth and not by mirror or finger; thus a large amount of cases of adenoids are overlooked. In this connection it is interesting to find that among 800,000 school children in Holland which were *suspected* of being affected with adenoids—the mouthbreathers and backward children only being suspected—6 per cent. was the result of this suspicion. The low percentage remains unaltered, where "dead speech," nasal speech, or conjectures are used to establish the diagnosis. With the aid of the finger, however, Strandhygaard[1] finds among 568 village school children 83 per cent., and Wilbert finds among 375 public school children 62 per cent. with adenoids, employing anterior and posterior rhinoscopy, when palpation was not permitted. Kafeman[2] finds among 905 boys 34 per cent., among 927 girls 39.2 per cent. of adenoids.

The delinquent boys are in the majority not strong and healthy, as their home surroundings and conditions help to undermine their constitution. Gershel[3] says that almost invariably, prior to admission to an institution, dependent children have lived in poverty for a long period under the poorest hygienic surroundings and have suffered the privation which destitution brings. He has particularly noticed in one of the largest of the Jewish child-caring institutions in New York City that the children at the time they are committed to the institution are ill-nourished and show a poor physical condition. Under these circumstances it is not to be wondered at that deafmute children also show a high percentage of adenoids. Lemcke found lesions of the nasopharynx in 58 per cent.; Aldrich found in 73 per cent. adenoid vegetations; and Wróblewski in 57.5 per cent., Peisson in 50 per cent., and Frankenberger[4] in 59.49 per cent. found hypertrophy of the pharyngeal tonsil.

According to Dr. T. F. Harrington, director of School Hygiene in Boston: "Adenoids will heal themselves in four cases out of five if the child suffering from them is given plenty of outdoor air." After a year's observation at the Hawthorne School, however, I found as the result of the re-examinations of over 300 boys, that in only six cases the moderately enlarged tonsils and adenoids had disappeared and that, although a general subsidence of inflammatory conditions of the tonsils and adenoids under the influence of improved hygienic surroundings was observed, the swellings had in most cases to be removed. A moderate enlargement was even found in four cases, where the condition had formerly been normal.

Examinations of the nose and throat in any institution are useless unless they are systematically followed by the necessary operation, and I claim that the removal of all faulty conditions of the nose and throat will place any institution on a more wholesome, nay, even on a well protected sanitary base. As a matter of fact, the most striking feature of the condition of the Hawthorne School at the end of 1912 was the remarkable improvement of its entire sanitary state, which was the direct result of the large number of operations in 1911. This proves not only the importance of this treatment for the Hawthorne School, but also the advisability of making it a part of the program of every juvenile Reformatory.

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275 CENTRAL PARK WEST.

Case of Friedreich's Disease (?).—J. Taylor reports the case of a man, aged 42, who had an unsteady gait for five years; no pains. Upper limbs not so accurate as formerly. No sphincter trouble; no ocular trouble. Articulation peculiar (?) Wiltshire accent. No ataxia; no scoliosis; no foot deformity; no anesthesia. Knee-jerks present, not so active as normally, but more active than on admission; extensor responses from both soles. —*Proceedings of the Royal Society of Medicine.*

# MEDICAL RECORD.

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## THE USE OF ETHER LAVAGE IN PERITONEAL INFECTIONS.

ABOUT a year ago Morestin (*Bull. et Mem. Soc. de Chir. de Paris*, Feb. 18, 1913) reported a case of extensive soiling of the peritoneum by pus and fecal matter, in which he obtained a cure by copious ether lavage of the entire peritoneal cavity, and remarked that he had long used this method, and had obtained most satisfactory results. One week later, Souligoux again introduced the subject, stating that in 1891 there came under his care a man, both of whose legs had been crushed. He thought nothing could be done but a double thigh amputation, which the patient absolutely refused to consider. Consequently, he washed the wounds with ether, applied splints, and was surprised to find that no suppuration followed, and the patient saved his legs. Since then he has used ether regularly for cleansing superficial infected wounds and in the treatment of erysipelas and lymphangitis. Since 1891 he had put ether into the peritoneum of guinea-pigs without there being any ill effects, but had not dared to try the experiment in man before last year. In July, 1912, he operated upon a patient having intestinal perforation, and found the peritoneal cavity full of pus and fecal matter. "At this moment," said Souligoux, "considering my patient as lost, remembering my old experience of 1891, and knowing that Morestin often employed ether in abdominal operations, I poured in ether in abundance." The patient recovered. So since then Souligoux had applied ether abundantly in all his abdominal cases where there was pus, and with the best of results. Souligoux also reported 31 cases for Marcille: 6 cases flooding of the peritoneum from ruptured tubal pregnancy, all cured; 17 cases strangulated hernia, all cured; 3 rupture or cut intestine, 1 death, 2 cures; 3 cases general peritonitis, 1 death, 2 cures; 1 case infarction large intestine, 1 death; 1 case perforation of stomach by ulcer, cure. It is not definitely stated, and it does not appear probable, that there was peritoneal infection in all of these cases. In the discussion Cunéo said that he had used ether dressings to good advantage in the treatment of felon and phlegmons of the extremities, but that the idea of turning ether into the peritoneal cavity did not appeal to him at all, and he believed that the success obtained by Souligoux was due to the earliness of operation rather than to the employment of ether lavage. At one of the May meetings of the same society (*Revue de Chir.*, June, 1913) Témoin reported two cases in which he had used ether for peritoneal lavage, once when there had been soiling with fecal matter from rupture of the cecum, and once following intraperitoneal rupture of a pyonephrotic sac, both cases resulting in cures. Morestin referred to his experience with the intraperitoneal use of ether since 1901, and insisted upon its antiseptic, tonic, and anesthetic action in this situation. Auvray had used ether successfully in a case of diffuse peritonitis after intestinal perforation. Broca (*Revue de Chir.*, December, 1913) reported that he had tried this method of treatment, and that he was favorably impressed with the results; but in four cases he had observed secondary occlusion of the intestine by adhesion bands. Savariaud also had one case of occlusion after its use. Souligoux reported one more case of his own and 8 for Témoin, all of severe peritoneal infections, and all cured with ether lavage.

So much for case reports and discussion before the Société de Chirurgie. We find no mention of the subject during the past year in the leading American journals, while in the *Lancet* we find but three references, principally covering the work reported above. Phélip and Tartois, however (*Ann. de gynéc. et d'obst.*, December, 1913), have contributed a rather extensive article based upon the report of 16 cases in which ether was used for peritoneal lavage, and a comparison with the last 16 cases said to have been operated upon under like conditions before the employment of ether. The 16 cases were classified as follows: 1 case subacute appendicitis, residual abscess, cured; 3 cases acute appendicitis, localized abscess, 2 cured and 1 died; 7 cases acute appendicitis, perforation, general peritonitis, 3 cured; and 4 died; 5 cases acute appendicitis, without perforation, general peritoneal reaction, 3 cured, 2 died.

Of the 7 fatal cases in this series, one patient was practically moribund when operated upon, and died two hours later. Another patient forced out a coil of intestine when the wound was being dressed on the third day, and this was followed by vomiting, rise of temperature to 104°, aggravation of the general symptoms, and death on the following day. The remaining five cases and a few that were not fatal present certain features of especial interest. Bronchopneumonia occurred in three cases, with two deaths. In one of these there was a beginning pneumonia before operation. The lesion in the lungs increased in extent, and the patient died on the third day after operation. The night before death occurred, however, the face had appeared "leaden," and there had been vomiting of greenish material. In the second fatal case with pneumonic symptoms the patient died on the day after operation with extreme congestion of the entire left lung, though there had been no pulmonary signs before operation. In the sixteen cases without ether lavage of the peritoneum one death from double bronchopneumonia is reported.

Secondary hemorrhages occurred in three cases. One patient died from intestinal hemorrhage five days after operation; in another the hemorrhage occurred on the 17th day after operation from ulceration of the deep epigastric artery, and was controlled by suture after opening up the lower end of the wound; in the third case severe hemorrhage came from the depths of the drainage area on the seventh day after operation, but yielded to tamponnade. Secondary intestinal obstruction occurred in two cases and resulted in the death of the patients. Fecal fistula developed in three cases, only one of these being small enough to close spontaneously. The authors ascribe the death from intestinal hemorrhage to "des phénomènes d'intoxication secondaire"; but while this may explain the death, to the authors' satisfaction, these three cases of hemorrhage remind us very forcibly of the experience of Weir, McBurney, and others when they used plain ether for rectal anesthesia. The same may be said regarding the formation of three fecal fistulæ in nine surviving cases, for extensive sloughing as well as hemorrhage was noted by Weir and McBurney at that time. In the 16 cases without the employment of ether lavage, with which the authors are supposed to have compared the 16 which they report, there were 6 recoveries and 10 deaths. However, no histories or descriptions of conditions found at operation are given of any of these cases. A number of the cases included by Philip and Tartois in their series were such as would almost unquestionably have recovered at the hands of any competent operator, some with and some even without drainage. It is also to be noted that in only 7 of the acute cases was there perforation of the appendix, and in 4 of these death occurred.

In view of all these facts, and since no information is given as to the bacteriology of the free peritoneal fluids, the conclusions formed by the authors would seem to be founded more on enthusiasm in the development of a new idea than upon any convincing basis of fact. We trust that, for the present at least, experimentation along this line will be left to our French brethren; and that the method will not receive trial in this country until much more conclusive evidence of its value has been furnished by its sponsors abroad.

## STUDIES ON ADRENALIN GLYCOSURIA.

A NUMBER of important results have been obtained in the investigations carried on by Anastazy Landau and reported in the *Zeitschrift für klinische Medizin*, Vol. 79, Nos. 3 and 4. He found that whereas 150 grams of grape sugar increase the sugar content of the blood, this increase is as a rule insufficient to evoke glycosuria. If adrenalin is injected subcutaneously it gives rise to glycosuria provided that immediately before the injection the organism receives a considerable amount of grape sugar or of foods containing it. In this case the glycosuria is accompanied by a marked hyperglycemia. If, instead of grape sugar, levulose is administered, no glycosuria results.

Another important observation made is that the glycosuria-producing and the diuretic powers of adrenalin are quite independent of each other. Moreover small doses of cocaine sensitize the action of adrenalin, increasing both the hyperglycemia and the glycosuria. On the other hand a preparation containing the total alkaloids of opium, if injected with adrenalin, inhibits the glycosuria-producing powers of the latter. The mechanism of this inhibition is twofold. On the one hand the opiate delays the mobilization of the glycogen in the liver and reduces the hyperglycemia; on the other hand it diminishes the glycosuria by impairing the secretory activity of the kidneys.

The above facts are pregnant with significance from the viewpoint of the mechanism of diabetes and its treatment. There can be little doubt that a derangement of the internal secretions is at any rate in part responsible for this condition, and that possibly an excess of the internal secretion of the suprarenal capsules or of some allied gland is an important factor in the production of diabetes. There is another necessary component in the nexus of adrenalin-glycosuria, namely, the intake of a sufficiently large quantity of grape sugar. In other words the dietetic factor in diabetes is an important one. Another fact brought out by the experiments of Landau is that the therapeutic value of opium in diabetes may in part be due to a harmful effect of this substance upon the renal epithelium.

## TUBERCLE BACILLI IN THE FECES.

THE text-books of clinical pathology, as a rule, state that while tubercle bacilli may be found in the feces, they are extremely difficult to differentiate morphologically from other acid-fast bacilli, such as the hay bacillus and the smegma bacillus, which are often present. Such a differentiation would no doubt be very difficult, but the statement that acid-fast bacilli constitute a frequent finding in the feces of healthy individuals would seem not to be borne out by the literature. Laird, Kite, and Stewart (*Jour. Med. Research*, 1913, XXIX., 31) considered this aspect of the question in the course of an investigation which they made of the stools of patients suffering from pulmonary tuberculosis. They conclude that acid-fast bacilli have not often been found in the feces of healthy persons. They examined the feces of 153 patients, all of whom were suffering from pulmonary tuberculosis in one form or another. In 101 of these specimens they were able to demonstrate acid-fast bacilli, and in 48 instances proved the identity of the tubercle bacillus by guinea-pig inoculation. They had no autopsies. The swallowed sputum is the most natural and probable origin of these organisms, and they believe that nearly all patients with tubercle bacilli in the sputum also have virulent tubercle bacilli in their feces, while very few who do not have the bacilli in their sputum have acid-fast bacilli in their feces. They refer, however, to the work of Rittel-Wilenko, who in a series of twenty-nine autopsies found that ulcers were almost always to be found in the intestine if acid-fast bacilli had been found in the feces, and think that such ulcers are much more common than is generally supposed. In view of these findings it would seem to be important to disinfect the stools as carefully as the sputum. The danger of contaminating water supplies is really greater than in the case of the typhoid bacillus, because of the greater resistance of the tubercle bacillus. The hypochlorite treatment of drinking water would

probably have little effect upon any of the acid-fast bacilli, and in sewage they would probably remain virulent for a longer time than the majority of the pathogenic bacteria. This matter has always been neglected in the past, but would seem to demand more attention in the future.

### Malignant Disease in Animals.

It is only within the past few years that any very reliable knowledge has been acquired with regard to malignant disease in animals. During the last decade, however, a good deal has been learned in this direction for it has now been discovered that it is universal in all vertebrate animals. Ernest Glynn in a paper contributed to the *Medical Press and Circular*, Feb. 11, 1914, points out that neoplasms were found in 162 out of 67,849 bovines slaughtered in Great Britain in 1910. The Imperial Cancer Research examined 160 neoplasms microscopically; 120 proved to be cancer and 29 sarcoma. Malignant disease may occur in the horse, the sheep, the pig, the elephant, the cat, the dog, the hen, and even the trout, and the cod. Glynn draws attention to the fact that the discovery of the broad zoological distribution of cancer amongst vertebrates has been of great value in regard to certain aspects of the cancer problem. Especially interesting has been the study of cancer in mice, which are particularly susceptible to it. It has been discovered that cancer is capable of being transplanted from mouse to mouse. Further, mice can be protected from developing experimental cancer by a form of vaccination, as cattle are protected against anthrax. Glynn thinks that it is possible that some day this principle of protective inoculation may be applicable to the prevention or treatment of malignant growths in man, though how far one can argue from mice to men is very uncertain. The problem of cancer is the greatest, taking all the factors of the case into consideration, which confronts the medical profession at the present time, and the mystery pervading the origin of the disease can perhaps be laid bare only by experimental research on animals and by studying the malady in men and animals. No doubt the antivisectionists will oppose experimental research in animals, even if it promises to lead to the discovery of the origin of cancer and hence to the prophylaxis and cure of the disease as strongly as they have antagonized all experiments on animals. They place animals before men and despite the fact that experiments on animals have been shown to pave the way to discoveries resulting in saving of life and restoration to health in animals as well as in man, they still continue to carry on their ill-considered agitation.

### Another Antivivisection Romance.

Some of the antivivisectionists of New York or others of the same breed have recently caused the circulation of stories to the effect that children treated in the city hospitals have been inoculated with dangerous diseases as a part of the experimental work done in the hospitals. These stories have been investigated and as a result Health Commissioner Goldwater has issued the following statement: "Not only were the children found not to be suffering with the diseases alleged, but it was also shown that there was absolutely no experimental work in any of the diseases with which it was charged they had been inoculated in any of the hospitals of the Department of Health. The charge was made that many of the children attending the public schools in the Bronx were suffering with disease due to experimentation and infection in city hospitals. In particular, B. S. Deutsch addressed a letter to the District Attorney of Bronx County in February, stating that forty-eight children, many of whom were attending the public schools, were suffering with a grave disease. Mr. Deutsch's statement goes on to say that the alleged infection of these children was the result of 'inoculation which occurs without the consent of either the children or their parents, or else as a result of negligence or carelessness within the hospitals.' The department investigators visited the forty families mentioned in the Deutsch list. Of this number fifteen could not be found at the addresses given. Interviews were obtained with twenty-five families, in which there were thirty-four children. Among these not a single case of the disease suspected was found. There was no evidence of the inoculation of any of these children with serum or vaccine. Time and again statements made by the antivivisectionists have been proven false, and yet the propagandists continue to make them."

## News of the Week.

**Annual Report of Canal Zone.**—The Department of Sanitation of the Isthmian Canal Commission reports that during the year 1913 the employees of the Isthmian Canal Commission and the Panama Railroad Company numbered 56,654, and that among these there occurred during the year 473 deaths, giving an annual death rate per 1,000 of 8.35, the lowest on record. For 1912 the rate was 9.18, and for 1911, 11.02. Among white employees from the United States the death rate from disease was only 2.50 per 1,000, while the total death rate for the year among those classed as employees was 5.0 as against 5.52 per 1,000 in 1912. The inclusion of American women and children raised the death rate from disease among Americans to 3.40, but the inclusion of the officers and men of the United States Army and Marine Corps stationed on the Canal Zone, and their families, lowered the rate again to 3.16 per 1,000. Of the deaths among employees during the year, 4 were due to typhoid fever, 6 to dysentery, 47 to pneumonia, 21 to malaria, 24 to organic disease of the heart, 65 to all forms of tuberculosis, 26 to nephritis, and 176 to external violence. Among the 11,943 white employees there were no deaths during the year from either dysentery or typhoid fever. For the total population of the cities of Panama and Colon and the Canal Zone, the death rate per 1,000 for 1913 was 23.57, an increase over 1912 when the rate was 20.49. One man with smallpox on a ship from Callao, Peru, was isolated at Santo Tomas Hospital during the month of November, and subsequently recovered and was discharged the following month. With this exception no case of yellow fever, smallpox, or plague originated on or was brought to the Isthmus during the year.

**England's Low Birth Rate.**—During 1913 the birth rate per 1,000 in England was 23.87, or 0.02 points lower than that for 1912, which was the previous low record. The death rate for the year fell also from 13.32 in 1912 to 13.07 in 1913, while the marriage rate increased from 13.5 to 15.51.

**Plague in Havana.**—Because of the discovery of a case of supposed bubonic plague in Havana on March 6, the departure of all vessels from the port was prevented by the Marine Hospital Service. It is reported that plague is prevalent in all the ports of Ecuador, and that a number of deaths have occurred.

**New York's Birth Rate.**—The city's birth rate for the year 1913 was the lowest on record since 1903, reports the Department of Health. The total number of births during the year was 135,134, making a rate of 25.12, against a total of 135,666, and a rate of 26.22 in 1912, or a decrease in the absolute figures of 532 births, and in the rate of 1.07.

**Vital Statistics in New Jersey.**—The New Jersey State Board of Health reports that during the month ending February 10 the deaths throughout the State numbered 3,761, of which 665 were due to circulatory diseases, 441 to pneumonia, 363 to tuberculosis, 55 to diphtheria, 16 to typhoid fever, 38 to measles, 22 to scarlet fever, and 35 to whooping cough. There were 661 deaths of infants less than one year of age, 273 of children between one and five, and 1,316 of persons of sixty years and over.

**City Death Rate.**—For the week ending February 28 the death rate in New York City was 16.93 per 1,000 of population, the total number of deaths being 1,812, as against a rate of 16.50 and a total of 1,699 deaths in the corresponding week of 1913. For the first nine weeks of 1914 the death rate was 15.08 per 1,000, as compared with 15.47 for the same period of 1913.

**Fordham Medical School Rated Up.**—Announcement has recently been made that the Council on Medical Education of the American Medical Association, which in 1912 reduced the School of Medicine of Fordham University, New York, to the Class B grade, has now restored the school to the A grade.

**Typhoid in Canada.**—Typhoid fever is reported to be epidemic in Sabrevois County, Province of Quebec, where out of a total population of 7,000 people, 2,000 are suffering from the disease. Most of the cases have thus far been of a mild type, although several deaths have occurred. It is believed that the water and milk supplies are the sources of the contagion.

**For Hospital Organization.**—The Board of Health of New York City on March 3 adopted a resolution requesting the medical boards of the Willard Parker and the Kingston Avenue, Brooklyn, Hospitals, to appoint a conference committee to formulate a plan of organization to meet the needs of these hospitals for contagious diseases and of the two contemplated hospitals in the Bronx and Queens. The committee was urged to consider the following points with a view to improving the medical service at these hospitals: (1) A definite term of appointment, not to exceed three years, for each member of the visiting staff, the appointment to be subject to renewal. (2) A continuous period of duty of not less than three months. (3) A clear definition of the duties of members of the visiting staff. (4) A plan which will provide for a visit by a member of the visiting staff to every ward at least once daily. (5) An auxiliary staff of special consultants.

**Fewer Street Accidents.**—Fewer persons were killed in the streets of New York by traffic accidents during February than in any month since February, 1911, according to the report of the National Highways Protective Society, which believes that the decrease was due largely to the heavy snow in the streets which prevented speeding. During the month eight persons were killed by automobiles, ten by trolley cars, and two by wagons.

**A Conference on the Cost of Clean and Wholesome Food** will be held at the N. Y. Academy of Medicine on March 19, at 4 P.M. The speakers will be Dr. Haven Emerson, Dr. Marian McMillan, Miss Cauble, Miss Goldmark, Messrs. P. E. Taylor, A. D. Woodruff, and F. A. Harne. In the evening of the same day the regular meeting of the Academy of Medicine will be devoted to a discussion of food in general, the speakers being Drs. Bigelow, Pennington, Lusk, Mendel and others.

**Harvey Lecture.**—The tenth lecture of the Harvey Society will be delivered on Saturday, March 14, at eight-thirty, at the New York Academy of Medicine, 17 West 43d street, by Prof. W. T. Halsted of Johns Hopkins University, on "The Significance of the Thymus Gland in Graves' Disease."

**Civil Service Examinations.**—Open competitive examinations for various positions in the State and County services will be held in several cities throughout New York State on March 28, 1914. The positions are as follows:

*Trained nurse* in State institutions, open to both men and women, at a salary of $420 to $600 and maintenance. Candidates must be graduates of a nurses' training school registered by the State Education Department. No written examination will be held, but candidates will be rated on age, education, preliminary training, and experience.

*Assistant physician* in the State Homeopathic hospitals at Middletown and Gowanda. The usual salary is $900, increasing to $1,200 and maintenance. The examination is open to both men and women who are graduates of a registered medical school, have had one year hospital experience or three years private practice, and are licensed to practice in New York State. Unmarried men are preferred.

*Physician*, Rensselaer County Jail, at a salary of $350 a year. Candidates must be licensed physicians of New York State. Intending candidates for any of the above must execute application blanks and file them in the office of the State Civil Service Commission, Albany, N. Y., on or before March 20, 1914. Application blanks will be supplied on request at the office of the commission until March 18.

**International Surgical Association.**—The fourth congress of this association will be held at the Hotel Astor in New York City lasting four days, beginning Monday, April 13, 1914. This is the first time that the congress has ever had a meeting outside of the city of Brussels, where the first one was held in 1905, and repeated every three years. The membership of the Association is limited to a certain number from each country. The membership in the United States is about one hundred. The president of the Fourth Congress is Professor Depage of Brussels, Professor Willems of Ghent is president of the International Committee, and Dr. L. Mayer of Brussels is the General Secretary. The local secretary is Dr. J. P. Hoguet, 40 East Forty-first street, New York City, and the American committee is composed of Dr. Roswell Park (deceased) of Buffalo, Dr. L. L. McArthur of Chicago, Dr. C. L. Gibson of New York City, and Dr. R. H. Harte of Philadelphia. These last three

with the addition of Dr. Rudolf Matas of New Orleans and Dr. R. G. LeConte of Philadelphia constitute the committee designated to represent the American Surgical Association in making preparations for the entertainment of the foreign members. The program is limited to the consideration of three main topics: (1) "Gastric and Duodenal Ulcers," by De Quervain of Basel, Hartmann of Paris, Lecene of Paris, Mayo of Rochester, Minn., Moynihan of Leeds, and Payr of Königsberg. (2) "Grafts and Transplantations," by Morestin of Paris, Villard of Lyons, Ulmann of Vienna, Lexer of Jena, and Carrel of New York. (3) "Amputations," by Witzel of Düsseldorf, Ceci of Pisa, Kuzmik of Budapest, Binnie of Kansas City, Durand of Lyons, and Ranzi of Vienna. After the close of the congress most of the foreign members will make a tour of other cities, the itinerary including Philadelphia, Baltimore, Washington, Chicago, Rochester, Minn., Montreal, and Boston. The foreign members have been invited also to attend the session of the American Surgical Association held in New York at the Hotel Astor April 9, 10, and 11, and many have signified their intention of arriving on the SS. *Imperator* due April 9.

**Courses in Psychiatry.**—A course of special instruction for physicians engaged in psychiatrical work will be given at the Psychopathic Hospital of the University of Michigan, Ann Arbor, extending over a period of four weeks from March 30 to April 25, 1914. Instruction will be given in clinical lectures and conferences, laboratory studies, and demonstrations, and will include all phases of the subject. A fee of twenty-five dollars will be charged for the course, and the number of students will be limited to fifteen. Further details may be obtained upon application to Dr. Alfred M. Barrett, Director of the Psychopathic Hospital, Ann Arbor, Mich.

**Personals.**—Dr. Charles F. Sanborn has been appointed superintendent of the new Cincinnati General Hospital, Cincinnati, O. The appointment was made on the basis of a civil service examination.

At a recent meeting of the Tri-State Medical Society of the Carolinas and Virginia, Dr. E. C. Register, editor of the *Charlotte Medical Journal*, was elected president.

**Dr. Georg Joachimsthal**, professor of surgery and director of the Poliklinik für orthopädische Chirurgie in the University of Berlin, died on March 1, from inflammation of the lungs, at the age of fifty-two years.

**Mr. Henry Green** of Hartford, Conn., one of the pioneer workers with the *x*-rays, died at his home from cancer induced by the rays, after a long illness, on March 4.

**The Late Dr. William Kelly Simpson.**—The following resolutions were adopted at a meeting of the Medical Board of the New York Foundling Hospital:

Dr. William Kelly Simpson came into the New York Foundling Hospital in the days when Dr. Joseph O'Dwyer was perfecting intubation. He was, in fact, the first one to intubate an adult, at the request of Dr. O'Dwyer. For many years Dr. Simpson cheerfully responded to all calls from the hospital for the Sisters of Charity as well as the children. It is in grateful remembrance of these services that the medical board wishes to make this record.

While recognizing his well-known skill and professional services, the medical board desires to make mention of his good comradeship, his cheery, joy-bringing presence. It has been truly said that in his death the medical profession has lost something of cheerfulness in the daily toil of all those who knew him.

*Whereas*, The Medical Board of the New York Foundling Hospital has lost a much prized counsellor and friend in the death of Dr. Simpson; therefore be it

*Resolved*, The Board herewith records its high appreciation of him as a consultant, of his untiring devotion to the hospital, and of his genial presence.

*Resolved*, That a copy of these resolutions be spread upon the minutes of the Board and that a copy be sent to each of the current weekly journals of medicine, and that a copy of the same be sent to the family.

W. P. Northrup, *President*,
Colman W. Cutler, *Secretary*.

**Obituary Notes.**—Dr. Francis Martin Burke of Brooklyn, N. Y., a graduate of the New York University Medical College in 1890, died at his home from diabetes on March 3, aged 53 years.

Dr. Frank Sargent Grant of New York, a graduate of the College of Physicians and Surgeons, New York, in 1875, died at his home after a short illness on March 1, aged 62 years.

Dr. Heber McK. Harvey of Washington, D. C., a graduate of the Bellevue Hospital Medical College, New York, in 1867, for some years a practising physician of Evansville, Ill., and for several years county physician of Vanderberg County, and a member of the Medical Society of the District of Columbia, died at his home in Washington after a long illness on February 19, aged 74 years.

Dr. John F. Welch of Quincy, Mass., a graduate of the Bellevue Hospital Medical College, New York, in 1880, a member of the American Medical Association, the Massachusetts Medical Society, and the Norfolk South District Medical Association, formerly city physician of Quincy, and a member of the Board of Health, consulting physician to the Quincy Hospital, and first president of the Anti-Tuberculosis Society of Quincy, died at his home on February 23, aged 59 years.

Dr. William Wallace Stevens of Kansas City, Mo., a graduate of the University Medical College of Kansas City in 1901, and a member of the American Medical Association, and the Missouri State and Jackson County Medical Societies, was killed in an automobile accident, on February 18, in the 34th year of his age.

Dr. William R. Gieser of Philadelphia, a graduate of the Hahnemann Medical College and Hospital of Philadelphia in 1892, died at his home on February 26, aged 55 years.

Dr. William Endlich of Philadelphia, a graduate of the Jefferson Medical College, Philadelphia, in 1885, died at his home on February 27, aged 55 years.

Dr. Alfred Carty Stratton of Florence, N. J., a graduate of the Medico-Chirurgical College of Philadelphia in 1913, died at the Philadelphia Hospital for Contagious Diseases from scarlet fever contracted in the course of his professional duties, February 26, aged 24 years.

Dr. Hiram J. Coon of Colfax, Ind., a graduate of the Medical College of Indiana, Indianapolis, in 1881, died at his home from apoplexy on February 27, aged 62 years.

# Correspondence.

## OUR LONDON LETTER

(From Our Special Correspondent.)

DISEASES OF CHILDREN—DISCUSSIONS ON TWO SECTIONS AND EXHIBITS—SPLENECTOMY—DWARFS OR MONSTERS?—MEDICAL VOLUNTEERS.

London, Feb. 20, 1914.

Diseases of children have attracted a good deal of attention lately. At the section of the R. S. M. cases and specimens have been exhibited and contributions made. Kala azar in a boy of five whose father had recently died from that disease attacked the lad when in Calcutta in March, 1913. When he reached England in June the abdomen was enlarged and it has continued to increase since while wasting has gone on, especially in the chest and limbs. Glands enlarged, cervical, axillary, and inguinal. Abdomen measured 24½ inches in circumference, liver up to 3 inches below costal cartilage, spleen enormous, reaching middle line and filling left iliac fossa. The blood count was given by Dr. Whipham as: Red cells, 3,220,000 per c.mm.; white cells, 2,200; polymorphonuclears, 46 per cent.; leucocytes, 38 per cent.; large mononuclears, 12 per cent.; transitionals, 4 per cent.; hemoglobin, 66 per cent.

A case of lymphatic leucemia in a boy of 6½ treated by benzole was shown by Drs. Rolleston and Boyd. Enlargement of the cervical glands followed measles and pneumonia. Later the axillary, inguinal, and submaxillary glands enlarged and the spleen was palpable. The boy was treated at first with 2 minims of benzole t.i.d., and then the dose was increased later to 3 minims. The following figures were given, taken at a month's interval:

| | December. | January. |
|---|---|---|
| Leucocytes ..... | 60,000 | 16,000 |
| Large lymphocytes..... | 54 p. c. | 41.5 p. c. |
| Small lymphocytes ..... | 16.5 p. c. | 46 p. c. |
| Polymorphonuclears .... | 25 p. c. | 10 p. c. |

At an earlier meeting there was a discussion on enlargement of the spleen in children, which Dr. Robert Hutchinson divided into nine groups, but others thought so elaborate a classification was not required. One of the commonest disorders of early childhood is the so-called splenic anemia of infancy—pseudo-leucemia of von Jaksch—and the problems that arise about it are not very different from those in adults. In later childhood cases are not to be distinguished from splenic anemia in adults. Cases combined with cirrhosis—a rather frequent condition—Dr. Hutchinson classified thus: (a) The cirrhosis of multilobular type, some alcoholic, though probably other poisons may produce the same or a similar result; (b) monolobular (Hanot type); (c) syphilitic; (d) cases of enlargement lasting for years, followed by a multilobular cirrhosis (Banti's disease); (e) cirrhosis, depending on congenital malformation of the bile ducts. Splenectomy is now enabling one to consider and may determine how far the part played by the spleen is active or passive. The operation is indicated in neoplasms, cysts, and some cases of splenic anemia in adults and splenomegaly, with acholuric jaundice.

Sir J. Bland-Sutton pointed out how rapidly the spleen increases after birth and easily becomes engorged in fevers and other diseases, especially rickets, suggesting that it has important functions at this early stage of life. Splenic anemia he attributed to its functional excess of activity. He had removed the spleen of a woman aged twenty-two for acholuric jaundice with a satisfactory result, and in children he regarded the operation as a life-saving one for splenic anemia. Dr. Sutherland related two cases, each a family disease, splenectomy proving a complete cure in each. Dr. Poynton thought he was the first in this country to show the yellowness might alternate with anemia, but be so slight as to be easily overlooked in members of the same family. He pointed out the difficulties of diagnosis. Dr. Thursfield said the disease was really a congeries of cases due to different causes. In obscure cases a surgeon might be asked to remove the spleen, for in the vast majority of splenectomies he believed the whole of the splenic tissue was not removed. Mr. Philip Turner mentioned an obscure case in a boy of five, in which splenectomy was most successful, the boy being quite well three months after it. Dr. Lerkis discussed the fragility of the corpuscles and vital staining granules. Dr. P. Weber proposed to substitute the word abnormality for enlargement of the spleen, and classified them as (1) when the change served some useful purpose, (2) due to tumors, (3) to microbes, (4) to excessive functional activity.

The Clinical Section's last meeting was also occupied with the subject of splenectomy. No less than sixteen cases of various abnormalities for which operation has been performed or is contemplated were brought forward for consideration. Dr. Whipham described four of splenic anemia in one family—father and three children—and said splenic anemia was rare in two successive generations. The blood counts in the four were similar; the red cells decreased and altered in size, shape and nucleation. There was also eosinophilia, possibly due to tenia in the father but not in the children. Splenectomy had to be considered in the two girls who had got worse lately, but not in the boy or the father. Mr. P. Sargent showed a girl of ten who recovered from the operation, but six weeks afterward suffered from hematemesis, pyrexia, and diarrhea, but after thirteen weeks was well. Mr. G. Hoffman showed a similar case in a girl of twelve, who had in addition epistaxis, purpura, and melena. The blood condition was normal two years later. Drs. French and Turner showed a boy of five who had recovered rapidly after splenectomy. A younger sister had similar symptoms. Antisyphilitics had been tried unsuccessfully. Sir J. Bland-Sutton advised operation for the boy shown by Dr. Whipham. Dr. G. R. Ward did not agree to the diagnosis in the family group, but held that the slight yellowness was due to acholuric jaundice which the blood counts supported. Dr. Parkes Weber was of the same opinion. When adults and children in a family had enlarged spleen and anemia the condition was hemolytic jaundice, though yellowness was not apparent. Sir W. Osler thought the remittent fever with eosinophilia in Dr. Whipham's case indicated trichinosis. He had long advocated operation for splenic anemia. Dr. Box had formerly treated Dr. French's case and a similar one, regarding them as von Jaksch's anemia. Cases of recovery after splenectomy for acholuric and hemolytic jaundice were shown and discussed by several members. Dr. Wynter said in such cases excess of cells appeared at first, but

soon subsided as if for compensation for a time. In considering operation he would regard not only the mortality, but the chance of enjoying a full life afterwards. Dr. Thursfield had a case of congenital acholuric jaundice cured by operation, and insisted the differential diagnosis, which he thought could be made definite by fragility of red corpuscles. But Sir B. Dawson reported cases without fragility and said the jaundice was due to overproduction of bile pigments and it was a function of the spleen to manufacture the precursors of these pigments. Fragility persisted after splenectomy. In hemolytic jaundice "bilious attacks" occurred with bile in the urine. In such he explored the gall bladder and commonly found gallstones or inspissated bile which demanded attention first. A large spleen was not a necessary symptom, though it was usually found in young patients. Dr. P. Weber suspected increased fragility might be due to bile pigment without bile salts. In obstructive jaundice both were present with increased resistance.

Dr. Galloway invited opinions on a case of Banti's disease he brought, and several speakers favored splenectomy. Dr. Spanton said the mortality of splenectomy was 75 per cent. in 1866 to 1875; it was 59 per cent. in 1870 to 1885, and in 1886-1895 it was 16 per cent.

Professor Keith's picture of pretty dwarf, fairy and elf babies as the origin of our race, mentioned in my last, has given place to a different view of evolution. For in this week's lectures at the College of Surgeons he says the blood relationship between man and the great anthropoid apes (gorilla, chimpanzee, orang) is becoming more apparent and certain. At one time it might be, he said, that the family hominidæ was composed of diverse genera as that of the anthropoids and had a restricted distribution like them. Recent geological discoveries revealed the former existence of human types so different in structure as to represent separate genera of men. In another lecture on Wednesday he dealt with the brain development of anthropoid apes dwelling on the differences from that of man. All very interesting, but perhaps less inviting than the miniature babies from which the professor hinted human infants might have developed. They could hardly go in both directions. Is it to be the tiny growing bigger or the monster becoming smaller in order to develop mankind? This is a question we must ask the evolutionists to settle for us.

The Cantlie Club, formed in honor of Mr. James Cantlie's work in founding the Medical Volunteers, held its third annual dinner on Saturday, when over 100 well-known officers connected with the several branches of medical volunteering assembled. Lt.-Col. Whart, commanding the Third London Field Ambulance, took the chair, testified to the efficiency and camp discipline, comparing it favorably with the regulars. Col. Cantlie recalled that, though the Medical Volunteers were not officially recognized until 1885, they were started previously by some fellow-students with himself. When enrolled, in defiance of authority, they insisted on wearing their round cap and broad red trouser stripes, instead of the authorized narrow ones, and they started a fife and drum band. He could confess now that these breaches of discipline were committed at the instigation of certain medical officers in the War Office and used to obtain similar privileges for the regulars. That was how the R. A. M. C. got their uniform and band.

## MAGNESIUM SULPHATE IN TETANUS.

To the Editor of the Medical Record:

Sir:—Under the headline, "Magnesium Treatment of Tetanus," there is in the issue of the Medical Record of February 21, 1914 (page 355), an abstract of Stadler's article on that subject. The abstract contains an erroneous statement. It reads: "Stadler concludes his article as follows: He and others tested Meltzer's method in the Balkan War. There were no recoveries reported, but death resulted in three of five cases from cardiac failure and not from tetanus." The sense of the last sentence is obviously this: No recovery occurred under treatment with magnesium sulphate, while three of five patients died from heart failure and not from tetanus. The last part implies the further conclusion that the injections of magnesium salts not only were of no avail, but may have been the cause of the heart failures and deaths in three of the cases.

Now permit me to give here the exact translation of the paragraph under question in Stadler's article (*Berl. klin. Wochenschr.*, 1914, p. 113). It is as follows: According to my knowledge Meltzer's method was applied on a battle field for the first time by one of the Swiss sanitary expeditions in the Turko-Bulgarian War. Pettavel, one of Kocher's pupils, reports five very severe cases of tetanus with short incubation periods which were treated at the field hospital Kirkilisse with intraspinal injections of magnesium sulphate. Of the five patients three died of heart weakness; the heart action of these three patients, however, was very bad when they were brought into the hospital. Of all cases of tetanus at Kirkilisse and Demotica that were treated by any other method none survived."

In other words, of five cases of severe tetanus which were treated with intraspinal injections of $MgSO_4$ two recovered; the three which did not recover did not die from tetanus, but from cardiac failure, from which they suffered before the injections of the magnesium salts were made. Furthermore, on that battlefield no case of tetanus treated by any other method recovered.

According to the abstract, no recovery from tetanus took place under magnesium treatment which, on the contrary, may have been the cause of death of three cases in which it was applied; the unavoidable conclusion to be drawn from such an experience can be no other than that the magnesium treatment is not only useless but dangerous and therefore ought to be avoided. According to Stadler's actual statement, two out of five recovered under the magnesium treatment, the other three had hardly any chance of recovery on account of the preexisting heart failure; while no recovery occurred under any other mode of treatment of tetanus; evidently the conclusion to be drawn from this version ought to be that magnesium treatment is to be highly recommended in tetanus. That is indeed the outspoken opinion of Stadler in the paper under discussion; of Pettavel, who made the quoted observations, and of Kocher, whom some writers call now the "second father" of the magnesium treatment and who communicated to me verbally last summer the "excellent results" obtained on the battlefield with this treatment.

S. J. Meltzer, M.D.

Rockefeller Institute,
New York.

## THE ADHESION-PRODUCING BACILLUS.

To the Editor of the Medical Record:

Sir:—Allow me to protest against the name *B. adhæsioformis* which Dr. Bassler has "taken the liberty" of tacking on to his new (?) bacillus. *B. adhæsioformis* means (if it means anything at all) a bacillus which is shaped like an adhesion. A bacillus which forms adhesions should be called *B. adhæsioformans*, or *B. adhæsiofaciens*.

R. J. E. Scott, M.D.

New York.

# Progress of Medical Science.

### Boston Medical and Surgical Journal.

*February* 26, 1914.

1. A Study of Some Types of Disturbance of the Stomach and Intestines Associated with Adhesions Involving the Intestinal Tract and Their Treatment. H. F. Hewes.
2. Serodiagnosis of Pregnancy. A. Review. A. K. Paine.
3. The Effect of "606" on the Eye, with the Report of Seven Cases of Serious Eye Complications Following Its Use. P. S. McAdams.
4. The Early Diagnosis and Treatment of Dementia Præcox. E. Mellus.
5. Diabetes and Surgical Operations. C. G. Cumston.
6. The Significance of Earache. I. Sobotky.

**1. Disturbances of the Stomach and Intestines Associated with Intestinal Adhesions.**—H. F. Hewes states that with the great diversity in the location of adhesions involving the gut, and in the forms of distortion which they cause, and with the complicated manner of action of these abnormal conditions upon functions, it is clear, *a priori*, that the symptomatologies found in association with this condition of adhesions causing disturbance in the body must be very varied. A majority of the various symptomatologies found in association with adhesions, or distortion or disturbance of the gastrointestinal tract due to adhesions, are clearly in no sense pathognomonic of this condition, since similar symptomatologies are found in association with other pathological or functional disturbances of the body. For example, constipation with some sign of abdominal discomfort, perhaps the most common symptomatology of adhesions, is a frequent finding of purely functional disturbance of the intestines or of various conditions of organic disturbance other than adhesions. The continuous diarrhea often seen with adhesions is a symptom of functional disturbance, inflammatory colitis, or improper assimilation of food. Alternating constipation and diarrhea is a common symptom of mucous colitis and of nerve disturbances. The stomach symptoms seen with adhesions are often similar to those found in nervous dyspepsia, in some cases of ulcer of the stomach and duodenum, and in gallstones. The diagnosis or probable diagnosis that the symptoms in any given case are the result of adhesions can be made only by supplementing the study of symptoms with an *x*-ray examination, and in case of a positive finding, by exclusion of definite evidence of other conditions capable of causing similar symptomatologies.

**2. Serodiagnosis of Pregnancy.**—A. K. Paine concludes that the Abderhalden test is available where the services of a competent laboratory can be had. It is by far the most accurate method at one's disposal for the diagnosis of pregnancy, comparing favorably as a test with the Widal and Wassermann reactions in their respective fields. Until some method is devised whereby the materials used, especially the prepared placental albumin, may be kept for some time and in a more convenient form, and dependable dialyzers more easily procurable, the test will not be generally available. Attempts are being made to simplify the technique so as to make it more easily applied. Gutman expresses confidence that such a simplification can be accomplished, the difficulty in procuring a special dialyzer being the particular obstacle with which he is contending. The reaction places in one's hands a possible means whereby one may make a remarkably accurate diagnosis of the existence or nonexistence of pregnancy should the exigencies of any case demand a prompt determination of the fact.

**3. The Effect of Salvarsan on the Eye.**—P. S. McAdams states that no case of injury to the healthy eye by salvarsan has been proven. The consensus of opinion is that it is innocuous to the healthy eye. A favorable result from the application of this drug is to be expected in syphilitic disease of the iris, choroid, retina, and optic nerve; in paralysis of the ocular muscles due to syphilis, and sometimes in interstitial keratitis. As far as one can judge in the short time salvarsan has been in use it must be welcomed as an effective specific remedy in syphilis of the eye, which seems especially indicated in cases in which speedy aid is urgent. It is not a panacea for ocular syphilis which can entirely replace the usual specific preparations. It is especially indicated when a speedy action is desired, as in primary ocular affections or in secondary or tertiary symptoms, if a rapid impairment of function is dreaded.

**5. Diabetes and Surgical Operations.**—C. G. Cumston points out that in all cases of diabetes requiring operation, when the latter is not urgent for the saving of life, the patient should first be put upon a strict diet and treatment with drugs. When the glycosuria is sufficiently under control the operation may then be proceeded with. The reflexes should be nearly normal for a good prognosis, although this is not absolutely necessary. The urine should not contain either acetone or β-oxybutyric acid. The presence of urobilin or albumin should be a warning against interference. The quantity of urea secreted should be nearly normal. The length of time required for the operation and the quantity of the anesthetic given should be reduced to a minimum, likewise the loss of blood.

### New York Medical Journal.

*February* 28, 1914.

1. Motor Anomalies of the Eye. A. Duane.
2. The Futility of Phenolsulphonephthalein as an Indicator of Renal Function. M. W. Ware.
3. The Properties of Parathyroid Extracts. H. R. Harrower.
4. The Ross Jelly Film Method in the Diagnosis of Syphilis. J. A. Roddy.
5. A New Method of Determining the Dust in Air and Fresh Air Schoolrooms. J. B. Todd.
6. Diagnosis of the More Common Diseases of the Rectum and Anus. E. J. Leavitt.
7. Surgery in Goiter (with two illustrations). I. A. Stoloff.
8. Roentgen Diagnosis. J. Friedmann.
9. Carbon Disulphide as a Therapeutic Agent. H. H. Seelye.

**2. Phenolsulphonephthalein as an Indicator of Renal Function.**—M. W. Ware believes that the value of phenolsulphonephthalein as an indicator of renal function has not been proved. The efficiency claimed for the drug because of its complete rapid elimination and its reappearance in an unaltered form cannot bespeak any elaboration in the sense of work done on the part of the kidney, for this is denied by the very definition of efficiency, which represents the ratio of useful work to energy expended. The dye output can be estimated colorimetrically. The interpretation of the colorimetric reaction is the issue. Evidence adduced favors its being an acidometric test, but without any claims of parallelism existing between the degree of acidity and kidney function. Its nonirritating nature, nontoxicity, and smallness of dose, which are all regarded as virtues (Geraghty and Rowntree), are but of the negative variety. As for the information afforded by the test being precise this is controverted by theoretical, chemical, experimental, and clinical evidence, which forbids reliance on the

extravagant claims of phenolsulphonephthalein as a functional kidney test.

**4. The Ross Jelly Film Method in the Diagnosis of Syphilis.**—J. A. Roddy states that E. H. Ross reported the finding in syphilis of protozoal parasites of considerable dimensions and possessing various phases of development, of which the *Treponema pallidum* is one. The technique for examining suspected specimens is as follows: Make 2 per cent. agar by dissolving powdered sugar in distilled water, filtering and sterilizing it. To 5 c.c. of this agar add 0.4 c.c. Unna's polychrome blue, 0.4 c.c. of 5 per cent. aqueous solution of sodium bicarbonate, and 4.2 c.c. sterile water. Pour a thin film of this jelly on a clean slide, and when it is hard place the material to be examined on a clean cover glass and gently drop it on the jelly. Material for examination is collected in capillary tubes and mixed with an equal volume of 1 per cent. citrate of sodium in normal salt solution. The author states that the examination of blood for Ross bodies is not as simple a procedure as has been reported; more than ten minutes should be devoted to the examination of a slide before it is declared negative; it is often difficult to differentiate these bodies from artifacts, sometimes impossible. The value of the test as an aid to diagnosis is greatly reduced by the occurrence of the bodies in the blood of nonsyphilitic patients, or what amounts to the same thing, the occurrence of artifacts difficult if not impossible to distinguish from them. If the bodies described by Ross as *Lymphocytozoa pallida* really are such, then they do not occur in nonsyphilitic patients and the author's positive finding in nonsyphilitic cases raises the question of the nature of the bodies found. It seems equally probable that the bodies described by Ross may not be living parasites, but products of human tissue acted on by toxin; that the toxin of syphilis causes this change very frequently, more frequently perhaps than most others, but that some other toxins also produce these bodies. The Ross bodies are present in the blood of most syphilitics and less frequently present in those suffering from other diseases. Their true nature has not been conclusively established, nor has it been shown that these bodies do not occur in normal persons. The author is convinced that the Ross test is much inferior to the Wassermann test in the diagnosis of secondary and tertiary syphilis and believes that the examination of material from suspected initial lesions for Ross bodies, in addition to examination for spirochetes, will be a valuable aid in the differentiation of chancres and chancroids.

**5. A Method of Determining the Dust in Air and in Fresh Air Schoolrooms.**—J. B. Todd has found after many experiments that the following method has proved satisfactory in giving a positive objective answer to the question of how much dust there is in the air: A canton-flannel disc two and three-sixteenths inches in diameter is placed in a receiver which has a round opening one inch in diameter. Through this, by means of a suction pump, 200 cubic feet of air are drawn. On removing the canton-flannel disc one has the dust record. For the purpose of standardization a scale of ten gradations, from white to black, has been made. The pump used is a rotary quadruple bellows pump from a player-piano.

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**Journal of the American Medical Association.**

*February 28, 1914.*

1. The Charge of "Human Vivisection" as Presented in Antivivisection Literature. R. M. Pearce.
2. An Economic View of Venereal Infections. J. Patterson.
3. The Ischemic Lumbago, a Further Contribution to the Lumbar Type of Intermittent Claudication. J. Ramsay Hunt.
4. The Snare Versus the Sluder Operation in Tonsillectomy. H. C. Todd.
5. Chronic Tuberculous Diaphragmatic Pleurisy with Symptoms Resembling Gastric Ulcer. L. S. Mace.
6. Epidemic Poliomyelitis and Distemper of Dogs. R. H. Pierson.
7. Trichinosis. J. M. Van Cott and W. Lintz.
8. Prognostic Value of Slight or Transient Albuminuria, with Special Reference to Life Insurance Examinations. H. W. Cook.
9. Interlobar Empyema. F. W. Sinkler.
10. Rupture of the Uterus Following Cesarean Section, with a Study of the Uterine Scar. L. I. Breitstein.
11. The Conservative Treatment of Undescended Testicle. A. McGlannan.
12. Acute Intestinal Obstruction Due to Gallstone. Report of Case. R. L. Gibbon.
13. Severe Erythema Multiforme with Anaphylaxis Due to Oyster Protein. H. H. Hazen.
14. Vomiting of Pregnancy Treated by Injections of Blood of Normal Pregnant Women. A. H. Curtis.
15. Strangulated Hernia with Gangrene. L. P. Allison.
16. A Case of Traumatic Rupture of the Heart. B. J. O'Neill.
17. Fuchsin Ointment in Tinea Sycosis. H. B. Hanson.

**3. Ischemic Lumbago.**—J. Ramsay Hunt states that ischemic lumbago is readily recognized and differentiated from all other affections of the back by the following characteristics: In ischemic lumbago there is a sensation of pain or painful cramp, which may be associated with a feeling of weakness or stiffness, localized in the muscles of the lumbar region. This may be bilateral or strictly unilateral in distribution and is limited above by the twelfth rib and below by the crest of the ilium. When severe the pain may radiate as far laterally as the midaxillary line. The painful area is not tender to pressure, except after prolonged exertion, and then it is not of long duration. This pain is characterized by its intermittent character and absolute dependency on muscular exertion. If there is no effort or strain on the muscles there is no pain. When the pain is induced, any posture which places the affected muscles at rest promptly produces relief, and the pain ceases. For diagnostic purposes bending movements of the spine may be used to induce the pain and demonstrate its local and intermittent character. The movements of the spine are normal and in the beginning painless, which is an important distinguishing feature from lumbago of rheumatic origin. In the cases which have come under the author's observation the pain was not influenced by changes of weather, and this may be regarded as another point of difference in differentiating from the rheumatic lumbago, with which it is most likely to be confused. All other affections of the spinal column and pelvic joints may be excluded by the complete freedom of pain in active and passive movements.

**5. Chronic Tuberculous Diaphragmatic Pleurisy with Symptoms Resembling Gastric Ulcer.**—L. S. Mace points out that the presence of pleuritic adhesions between the base of the lung and the diaphragm, causing localized retractions of the latter, may in some instances produce a symptom complex of pain, gas and vomiting resembling the symptoms of gastric ulcer. If such patients are carefully examined for beginning lung tuberculosis, and it is borne in mind that the phrenic plexus and lower intercostal nerves may transmit pain to the front of the abdomen when the disturbance is in fact between the diaphragm and the base of the lung, many operations for gastric ulcer may be avoided and many lives saved by early resort to antituberculous treatment.

**6. Epidemic Poliomyelitis and Distemper of Dogs.**—R. H. Pierson has investigated a small epidemic of poliomyelitis which occurred among the Indians of fishing villages situated in central Alaska, near the town of Tanana on the Yukon River. The epidemic was not an extensive one. There were a few more than thirty cases in all. There were four deaths, three of which occurred in camps on the Yukon River and one at Tanana, Alaska. In five cases there was residual paralysis. The symptoms of poliomyelitis were in no way different from those which are usually described. Eleven of the cases came under observation of the army surgeons sta-

tioned at Fort Gibbon. The interesting features of this epidemic were associated with its mode of origin, its progress, and its decline. The epidemic among the human subjects was preceded by an epidemic of "distemper" among the dogs. The symptoms manifested by the dogs were the same as those shown by the human subjects. It is believed that the experience in this small epidemic will be of value in the study of other epidemics. The fact that the disease is more prevalent in rural communities where more dogs are kept is significant. The theory that the disease is common to dogs and human beings fits so well with the experience of epidemics which have taken place in different parts of the United States that it is well worth consideration. There is also the possibility that other domestic animals, as horses or cattle, may have the same disease. Its transmission by insects may not be confined to the horsefly. It may be carried from one individual to another by means of vermin. Many of the persons afflicted in this epidemic were manifested. It is quite probable that there are several modes of transmission. However that may be, this experience is sufficiently suggestive to be a warning to persons who live in rural communities to be careful to keep their houses screened and to see that their children do not become too intimate with young dogs which may have distemper.

7. **Trichinosis.**—J. M. Van Cott and W. Lintz conclude that trichinæ or their embryos are not found in the feces, hence these cannot be used for diagnostic purposes, nor are they a factor in the spread of the disease. Intestinal antiseptics are futile in this disease. Children either escape infection or when infected have the disease in a mild form because they eat only small amounts of the infected meat. A child is not endangered by nursing from an infected mother. For the first time living trichinæ have been demonstrated in the cerebrospinal fluid *in vivo*. In protracted and dubious cases of chronic muscular rheumatism it is advisable to examine a piece of muscle microscopically for trichinæ. Neither leucocytosis nor eosinophilia is an index of the severity of the disease. The trichinæ may wander into the tissues by boring through the fibrous connective tissues. It is a mistake to rely for diagnostic purposes on the finding of trichinæ in the blood, because such findings are rare. A new and simple method of staining trichinæ may be used. Salvarsan is useless, as was shown in the author's cases. Trichinosis should be made a reportable disease. A government microscopic inspection of meat for domestic use should be instituted.

8. **Prognostic Value of Slight or Transient Albuminuria.**—H. W. Cook concludes that in applicants over forty or forty-five it is of great importance to determine the presence or absence of a slight albuminuria. The slighter albuminurias are almost constantly overlooked by the average examiner. Apparently the only way to obtain this very vital information is to have the uranalysis made at the home office, although an improvement may be expected from the recommendation to the examiners of a more delicate and simpler test, such as Ulrich's test.

10. **Rupture of the Uterus Following Cesarean Section.**—L. I. Breitstein points out that a cesareanized woman who gives a history of an infection with a purulent vaginal discharge in the puerperium is a good candidate for rupture of uterus in one of her subsequent pregnancies. The mere fact that a cesareanized woman has delivered herself spontaneously is no reason for believing that she is free from the danger of rupture of the uterus with her future pregnancies. Rupture of a cesarean-section scar generally takes place in a scar resulting from improper wound-healing in the presence of infection. The implantation of the placenta on the site of the scar may so weaken the uterine tissue that it may rupture under the strain and stress of labor. He firmly believes that cesarean section should be limited to those cases in which it is strictly necessary. If there is any possible chance for the uterine wound to become infected some operative measure for sterilizing the patient should be employed. A cesareanized woman should be in a maternity hospital during the last month of her subsequent pregnancies so as to be under constant medical supervision.

## The Lancet.

*February* 14, 1914.

1. The Experimental Principles of the Operative Treatment of Fractures and Their Clinical Application. W. Hey Groves.
2. Some Common Errors in the Diagnosis and Treatment of Diseases of the Joints. A. P. Luff.
3. Mitral Stenosis, Cardiac Thrombosis, Aortic Embolism, and Gangrene of Both Legs. H. E. Symes-Thompson.
4. A New Method of Treating Chronic Colicystitis and other Bacterial Infections. C. Russ.
5. Errors of Refraction in School Children. A. Percival.
6. A Case of "Spastic" Constipation. R. Gompertz.
7. Extra-articular Ankylosis of the Inferior Maxilla Due to Foreign Bodies in the Scalp for Ten Years. W. MacDonald.
8. A Case of Intussusception Treated by Enterectomy. E. G. Gauntlett.
9. Multiple Mesenteric Lipomata Causing Obstruction. S. Mort.

1. **The Operative Treatment of Fractures.**—E. W. Hey Groves states that the chief necessity of operative fixation (asepsis being assumed) is mechanical efficiency. The arguments for its necessity, derived from experimental evidence and extended to the condition of human fractures, may be summarized as follows: (1) In order to secure stable equilibrium at the site of repair; (2) to avoid postoperative sepsis, and to obviate the necessity of a second operation for the removal of foreign bodies; (3) to allow early massage and movements of the part without the restraints and restrictions of splints and bandages; (4) to prevent a bending of the newly healed bone when it is subjected to the body weight; there is only a minimum of callus laid down with fractures that have been operated upon, and the bone must be reinforced in strength for some time after the ordinary period of hospital treatment; (5) to obviate the disadvantages of delayed union of the bone, if such should occur; (6) to shorten the period of confinement to bed and retention of the case in the hospital. Soft iron wire is far superior to silver; it is much stronger than either bronze or silver. The second point of importance in using wire in bone surgery is that the fragments must be accurately restored to proper position, or at any rate to a stable equilibrium, before the wire is tightened. Therefore, for all these reasons the linear plating of fractures can only be regarded as a very temporary and insecure union of the bones, which can only succeed if (1) rapid vital union occurs; (2) splints are kept rigidly applied until union has taken place, and (3) that the part be one, such as the lower leg, which can be controlled and immobilized by splints.

2. **Errors in the Diagnosis and Treatment of Diseases of the Joints.**—A. P. Luff, in discussing the differential diagnosis of rheumatoid arthritis and gout, states that the confusion of these two diseases of the joints in their chronic forms is one of the commonest errors. Rheumatoid arthritis occurs most commonly in females; gout occurs mostly in males. Rheumatoid arthritis occurs more commonly among the poor and ill-nourished; gout mostly among the well-to-do and well-nourished. In rheumatoid arthritis there is very little pain at first. There is some aching in the joint, but it starts in a very insidious manner. It is this insidious character of the disease which is one of its bad features, for the patients do not seek advice until the affection is fairly advanced. Chronic rheumatic affections of the joints are generally accompanied by the formation of fibrous nodules, by the

development of extraarticular fibrous thickening, and not infrequently by the indication of valvular disease of the heart. Chronic fibrositis of the joints is most frequently met with in the knuckle and finger-joints of those engaged in hard manual labor, especially when associated with damp surroundings. In its early stages acute rheumatoid arthritis may very closely simulate acute rheumatism, but it may be distinguished from it by not reacting to treatment with salicylates. The disease usually commences in one joint, commonly one of the metacarpophalangeal articulations, and then rapidly spreads to other joints. The disease does not flit from joint to joint as in cases of acute rheumatism, and the joint swellings are persistent. The swelling is at first due to periarticular thickening rather than to effusion. Rapid muscular wasting, vasomotor troubles, and pigmentation occur. In the acute and subacute stages the temperature is raised, but as a rule is lower than in acute rheumatism. It is very common error to mistake a chronic villous synovitis, usually of one or both knees, for an arthritis. Chronic villous synovitis is a purely local condition and not a manifestation of a general disease. It is, unfortunately, described in some textbooks as "arthritis sicca." It usually occurs in the knee and is characterized by crepitus or creaking on movement and by pain and tenderness on use.

3. **Mitral Stenosis, Cardiac Thrombosis, Aortic Embolism, and Gangrene of Both Legs.**—H. E. Symes-Thompson reports a case presenting these conditions. The embolus measured 1¼ inches by ½ inch, and lodged at the bifurcation of the aorta, being too large to enter one of the common iliac arteries. The diameters of the common iliac and the common carotid arteries are ¼ inch and 1-3 inch respectively, and one usually regards an embolus which plugs one of these vessels, causing unilateral gangrene or sudden death, as a large embolus. The embolus in this case was therefore of exceptional dimensions. The diagnosis of mitral stenosis could not be established during life. There was some irregularity of the heart, but nothing else on which to found such a diagnosis could be made out, and there was no history of rheumatism. The thickening and tortuosity of the arteries suggested the possibility of syphilitic endarteritis, but the Wassermann test gave a negative result. The absence of sugar from the urine excluded diabetic gangrene. The patient, a man aged forty-seven, was admitted to the Great Northern Central Hospital February 5, 1913, complaining of discoloration of the legs accompanied by pain and loss of power. The illness had begun fourteen days previously, when pain came on suddenly in the legs. The pain was like pins and needles, was worse at night, and was marked by exacerbations and remissions. For five days he had ceased to be able to move his legs, and for one day he had noticed that his legs were blue. There had been a slight cough with a little expectoration since the illness began, and some shortness of breath for five days. Neither the past personal history nor the family history presented anything noteworthy. He had not been abroad; there was no history of rheumatism or syphilis.

4. **A New Method of Treating Chronic Colicystitis and Other Bacterial Infections.**—C. Russ has shown that certain bacteria suspended in an electrolyte through which a current passes aggregate at one or other of the electrodes during the passage of the current, and that the aggregation varies with the nature of the electrolyte and is probably due to affinity between the products of electrolysis and the bacteria. He subsequently found that electrification of the bacteria in certain solutions kills them. Since nearly all pathogenic bacteria move to the positive pole during electrolysis in sodium chloride solution, he thought they might be drawn out of ulcers and infected mucous membranes, etc., if a column of sodium chloride were superimposed on the diseased area and a current passed in the appropriate direction. If the positive pole were submerged in such a column of saline and the organisms drawn to it by the current, then, as the tissues became free from the bacteria, recovery would ensue. Incidentally also the bacteria would be killed during the process. In 1911 he commenced this study by applying the above mentioned ideas to chronic varicose ulcers of the legs. These are lesions which can be seen during treatment and are accessible and easily measured. These ulcers were of years', months', or weeks' duration, and were systematically measured as to their greatest diameters before each treatment. In the first case, to estimate the number of bacteria withdrawn by the process, a control was undertaken by planting a sample of the saline (stirred over the ulcer) before polarization, and counting the colonies which developed from 1 c.c. and ½ c.c. on agar plates, and also after polarization for ten minutes. The result, namely, no growth in the second set of plates, was a sharp reminder of the importance of the bacteriocidal effect of the treatment, in addition to any effect of drawing organisms out of the ulcers. The author next sought to determine whether the bacilli might not be withdrawn from the bladder in colicystitis. The technique employed by the author was as follows: The patient, who had voided his urine, reclined on a couch and a broad abdominal belt of layers of line was passed around the lower part of the trunk. This belt, which carried a core of metallic gauze, was wrung out with warm salt solution before application. Next a rubber catheter, furnished with several perforations round its eye, was passed into the bladder. The free end of this catheter was connected to 8 inches of glass tubing, which in turn was joined by a short length of rubber tubing to a glass funnel—everything being sterilized. A few ounces of the salt solution (2 per cent.) were next passed into the bladder, and the glass tubing, after disconnection from the funnel, was clamped a little above the level of the pelvis. A platinum wire 6 to 8 inches long was next passed down the catheter to within 2 inches of its eye. This wire was connected to the positive and the core of the helt to the negative pole of the electric battery. The fluid in the bladder rose and fell in the glass tubing with the respiratory movements and its movement served as an indicator that the catheter eye was within the vesical cavity. A constant current was now gradually turned on to a magnitude of 3 to 5 milliamperes and was allowed to run for twenty or thirty minutes. The method of treatment has a germicidal effect and also draws the organisms electrically from the affected parts.

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**British Medical Journal.**

*February* 14, 1914.

1. The Nature of Pregnancy and Its Practical Bearings. J. W. Ballantyne.
2. Ante-Natal Hygiene: Its Influence Upon Infantile Mortality. A. Routh.
3. A Method of Producing Rapid and Fatal Intoxication with Bacterial Products, with Special Reference to the Cholera Vibrio. W. J. Penfold and H. Violle.
4. The Radical Cure of Procidentia Uteri in Elderly Women. M. Mamourian.

3. **Rapid and Fatal Intoxication with Bacterial Products.**—W. J. Penfold and H. Violle state that it has been shown by Hort and Penfold that sublethal doses of *B. typhosus* culture become lethal if injected in a large quantity of distilled water. They further showed that if the water be injected first into one vein and the sublethal dose of culture subsequently into another vein death resulted. The authors have found that distilled water sensitizes the body to many different bacterial cultures, including cholera culture. The sensitization is

equally well demonstrated by using cholera toxin after the actual organisms have been entirely removed. The intoxication with cholera toxin or culture in association with distilled water is acute, and death may be immediate. Acute death occurs if the cholera culture or toxin be given first and the distilled water afterward; the toxin may be given by channels other than the intravenous. The previous injection of concentrated saline has little effect on the type of intoxication, the authors discuss. The augmentation of toxic effect occurs with cultures of *Proteus vulgaris, B. pyocyaneus, B. dysenteriæ* (Shiga), *B. prodigiosus,* and also slightly with tuberculin, while it is not observed apparently with potassium cyanide or strychnine. The injection of lysed blood in small doses with sublethal doses of cholera culture produces acute death. The lysis of red cells is probably an important determining factor in the production of this effect.

4. **Radical Cure of Procidentia Uteri in Elderly Women.**—M. Mamourian notes that in dealing with the operative treatment Kelly states that "in those cases in which the vagina has been completely everted the lax outlet is resected with difficulty," and "there still exists a tendency of the uterus and the upper part of the vagina to bear down upon the repaired outlet." This tendency can be obviated by adopting an operative plan, on normal anatomical lines, comprising: (1) Reduction of the weight of the uterus proper; (2) removal of excessive cervical substances; (3) anteflexion of the uterus; (4) narrowing of the vaginal canal; (5) lengthening of the posterior vaginal wall; (6) restoration of the parallelism of the vagina to the conjugate of the pelvis; (7) restoration of the continuity of the cellular tissue around the new vagina; (8) repair of the pelvic diaphragm; (9) repair of the perineal body; (10) widening of the perineum and lessening the size of the pudendal orifice. All the above requirements are fulfilled by curettage, amputation of the cervix and anterior colporrhaphy.

## Berliner klinische Wochenschrift.

*February* 16, 1914.

**Cause of Variola.**—Rabinowitsch of Charkow claims precedence over all contemporaries in being the first to make a pure culture of an individual germ—a streptodiplococcus—which he alleges to be the actual cause of variola. He has studied this germ for years, and in 1910 states that he caused variola in the calf. The best that others could do was to demonstrate structures or tissues which contained the unknown cause. The reaction produced resembled that described by Fornet. The culture cannot pass through a bacteria-tight filter, so that all phenomena (Guarnieri reaction, etc.) produced by filtrates cannot represent the cause of the disease. These filtrates, he says, are all sterile, so that the reaction is produced by toxic products. Much information is given as to the biological qualities of the germs. The material studied came from the local smallpox epidemic of 1909. The streptodiplococcus was universally present, as a very small microorganism, staining with Giemsa. Of great importance is the fact that these finds were sometimes seen in cows' lymph. As a result of his early work he published a brochure in 1910 on the differences between variola and vaccinia, in which these discoveries were announced. He claims that his work is ignored by Fornet and other contemporaries who are seeking to solve the riddle of variola. Naturally there can be no identity between his streptodiplococcus and corpuscular bodies like the "microsoma variolæ," which simply include the former. So close does the actual cause adhere to inclusive bodies that Fornet expressed doubt as to whether the actual germ could ever be isolated and grown. Inoculation of the calf has been performed, as already stated, a vaccine like pustule being the result. But in the case of small laboratory animals the same operation caused typical pocks, rabbits and rats showing a peculiar susceptibility with the old technique of vaccination. Whether these pustules represent variola or a vaccinoid condition has not yet been shown.

**Normalization of the Upper Jaw in Complete Cleft Palate.**—Numann states that he devised a procedure for this purpose while quite unaware of Brophy's method. His ideal was that of the American—to improve existing conditions. After a description of the technique of the two methods he sums up as follows: Normalization of the upper jaw is the only procedure justifiable in complete fissure of the jaw. The wires of Brophy and clamps of the author, as used in effecting this condition, are not necessary in simple cleft palate. The author's clamp is of metal, and invests the jaw above the level of the dental germs. The treatment is highly technical, varying with the case, and no illustrations accompanying the text. It is kept up until the jaw is rendered normal. No cases are given, and the general reader obtains but a vague idea of the method.

## Deutsche medizinische Wochenschrift.

*February* 12, 1914.

**Hostile Criticism of Abderhalden's Serodiagnosis of Pregnancy.**—Michaelis and Lagermarck, who have kept in close touch with this subject since its outset, and who have followed zealously all the details prescribed by its discoverer, now announce that chiefly as a result of control investigations the serum of the gravida differs in nowise from that of nongravida and of men; that is to say that the differences, should such be present, cannot be utilized for practical purposes. Many kinds of serum may exert a minimal digestive action on boiled placenta substance; but there is no suggestion of specificity in connection with pregnancy. But there is always present a factor of importance in the techniques of the dialysis procedure which alone would invalidate all of the results thereby obtained. The phenomenon of "albumin leakage," supposed to indicate permeability of the hull, by Abderhalden, may be interpreted in a different manner. In conclusion the authors see no evidence of the existence of a specific ferment in the blood of the gravida which tends to antagonize the existence of placental material into that fluid.

**Abderhalden's Dialysis Procedure in Psychiatry.**—Kastan follows the preceding article by a companion study. In summing up his article he states that two subjects have chiefly been investigated, viz., the dysfunction of the thyroid and genital glands. The former is expressed in myxedema, the latter in nuclein metabolism, originally effected in the thymus, and at puberty passing into the genital glands. This transfer touches closely on dementia præcox. We know that in thymectomized animals the nucleins in the ganglion cells seem to cause an increased excitability, involving both the motor nerve symptoms and the psyche. Calcium salts tend to antagonize the action of nucleins, so that in self-defence the ganglion cells try to obtain lime from the body at large or the food. Meanwhile the nucleins change the fat of the cells to lipoids. So much lime becomes used up that the cells become lime poor. These changes mark the development of dementia præcox. The damage to the cells is believed to lead to the absorption by the blood of substances which cause the formation of defensive ferments. As far as we know the said substances comprise fats and sugars, which split off alcohol in the blood. We might infer that the rationale of Korsakoff's psychosis is not entirely unlike the cause of dementia præcox.

# Insurance Medicine.

## SUGGESTIONS TO MEDICAL EXAMINERS.

BY THE INSURANCE EDITOR.

### THE WASSERMAN REACTION

THERE is a widespread misconception in regard to the actual utility of the Wassermann test, judging from the communications received in regard to the use of this method, some physicians giving the impression through their written statements that they regard it as a means for determining whether or not the applicant has been thoroughly cured of syphilis. The complement fixation reaction, of which the Wassermann and Noguchi methods are the modifications most commonly applied, serves most excellently as a control or guide in the treatment and management of syphilis. In the light of present knowledge, sailing a ship without a rudder would be as aimless a procedure as the attempt to treat a case of syphilis intelligently without the control provided by the employment of the Wassermann test. When, however, the reactions become negative and remain so for months or years the proof afforded by the simple Wassermann test that the patient is cured is only about 50 per cent. good, as positive reactions are obtained in the remaining 50 per cent. of cases by other methods, such as the provocative Wassermann or the luetin test in patients who had long been considered cured.

The provocative Wassermann test, already referred to in these columns in a previous number, consists of the intravenous injection of a dose of salvarsan, followed in about five days by the regular Wassermann test. It would be better to make several provocative Wassermanns between one and fourteen days after giving the salvarsan. The salvarsan provokes any remaining spirochetes into violent energy, with the consequent production of toxins entering into the process which leads to a positive reaction. Before an application is stamped with approval at the home office a year should have elapsed since the last administration of treatment, and there should have been three or four simple negative Wassermann tests at regular intervals, followed by a negative provocative Wassermann at the end of the year. The luetin test, while of undoubted value, has not become popular.

It is highly important that the limitations of the Wassermann test, as well as its uses, should be recognized by the medical profession and the laity. Cures are believed to have followed a single injection of salvarsan. In the majority of cases, however, the administration of one or two doses of salvarsan may be followed by several negative Wassermann tests, but if the treatment is allowed to rest at this stage the probability is strong that there will be a relapse or the lodging of some spirochetes in inaccessible centers, where they will sooner or later flare up and do irreparable damage. This point must be recognized as one of vast practical importance, and to shut our eyes to it would be folly. It has been stated, and with good reason, that syphilis is one of the poorest treated diseases, either because the attending physician is too soon satisfied that a cure has been accomplished, or the patient fails to remain long enough under observation. A medical director, then, should regard the statement that the Wassermann test has given a negative reaction after a short or even long course of treatment merely as an indication that the patient is being cared for with the proper amount of precaution, and insist upon a more certain means of diagnosis before giving his final approval to the application.

A medical officer ought to assure himself, moreover, even when a provocative Wassermann has been applied with negative results, that the test was conducted by an unquestionably competent serologist. Serum diagnosis is indefinite, and a proper reading of the results cannot be accomplished unless the operator has had wide experience. Serologists themselves differ at times in interpreting the reaction obtained in the same specimen of blood, and it is not difficult to imagine that small reliance can be placed on the outcome of this difficult and complicated process in comparatively untrained hands. Self-styled serologists, indeed, are springing up in all parts of the country.

While skill and experience are demanded for properly interpreting the results of the complement fixation reaction, further difficulty arises from the fact that the supply of the different complicated ingredients required for the procedure must be conveniently at hand and carefully prepared. The antigen, for instance, must not be over twenty-four to forty-eight hours old. Moreover, the strength of the complement, amboceptor and antigen must be determined on the day of each test by titration, and correctly standardized. Serum diagnosis is an invaluable measure, but it is capable of misleading us into seriously wrong conclusions and a false sense of safety. The medical officers of life insurance companies will find it a priceless contribution to the scientific selection of risks, but only when careful discrimination is observed in accepting the results.

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**Comparison Between Male and Female Risks.**—Dr. H. A. Baker, Medical Director Pittsburgh Life & Trust Company, says that by comparison with the causes of death among men it is seen that the percentage of deaths from the following causes is greater among men than among women: Typhoid fever, appendicitis, cirrhosis of liver, suicide and accident, while there is a greater proportion from cancer and other malignant tumors among women than among men. After a review of much of the insurance evidence on the subject, Baker concludes that from a physical standpoint female risks are at least equal in logevity to male risks; but that the element of moral hazard is, however, greatly accentuated among female risks, which results in an increased mortality and renders their selection correspondingly more difficult.—Medical Section, American Life Convetnion.

**Examination of Women Applicants.**—Dr. W. F. Blackford, Medical Director Commonwealth Life, Louisville, Ky., recognizing that women are as insurable as men under proper restrictions: namely, the removal of the speculative feature, thinks that the medical directors have a problem to face that is even greater than the question of the insurability of women. How can the agents and examiners be assisted in securing proper applications and competent and thorough examinations of female applicants? When this question is solved he considers that the medical department will have added a great field for agents to work in which will give manifold results in handling female insurance, protecting the companies and at the same time obtaining the best results.—Medical Section, American Life Convention.

# Book Reviews.

TRANSACTIONS OF THE AMERICAN SURGICAL ASSOCIATION. Vol. XXXI. Edited by ARCHIBALD MACLAREN, M.D., Recorder of the Association. Philadelphia: William J. Dornan, 1913.

THIS volume, like its predecessors, contains lists of the officers of the association, the list of the presidents since its organization in 1880, the list of fellows, short biographical sketches of fellows recently deceased, and the papers read at the annual meeting held at Washington May 6, 7, and 8. There are 36 papers, which, taken together, cover a wide range of surgical subjects. There is also the inaugural address of the president, Dr. Charles A. Powers, and the report of the committee on fractures. The association lost by death a number of prominent fellows during the previous year, and biographical sketches are given of Lord Lister, who was an honorary fellow, and Drs. John S. Billings, Charles W. Oviatt, Beverly MacMonagle, Orville Horwitz, Alexander H. Ferguson, and Algernon T. Bristow. The individual papers have already been published in leading medical and surgical journals, hence it is unnecessary as well as unfair to single out special articles for comment at this time. Suffice it to say that the high standard of excellence which we have become accustomed to expect in the contributions read before this association has been more than maintained.

A MANUAL OF SURGICAL TREATMENT. By Sir W. WATSON CHEYNE, Bart., C.B., D.Sc., LL.D., F.R.C.S., F.R.S.; Hon. Surgeon in Ordinary to H. M. the King; Senior Surgeon to King's College Hospital; and F. F. BURGHARD, M.S. (London), F.R.C.S.; Surgeon to King's College Hospital, and Consulting Surgeon to The Children's Hospital, Paddington Green. New edition entirely revised and largely rewritten with the assistance of T. P. LEGG, M.S. (London), F.R.C.S.; Surgeon to the Royal Free Hospital; Assistant Surgeon to King's College Hospital; and ARTHUR EDMUNDS, M.S. (London), F.R.C.S.; Surgeon to the Great Northern Central Hospital; Assistant Surgeon to King's College Hospital. In five volumes. Vol. V. The Treatment of the Surgical Affections of the Pancreas, Liver, and Spleen; the Neck, the Breast, and Thorax, and the Genitourinary Organs. Price $6.00. Philadelphia and New York: Lea & Febiger, 1913.

THE present volume, which brings to a conclusion this valuable work, treats of the surgical affections of the pancreas, liver, spleen, neck, larynx, breast, thorax, and genitourinary organs. The successive volumes have followed each other with a promptness which is commendable and unusual, thus making it possible for the doctor to secure an authoritative work on surgical treatment which is up to date throughout. Generally, in a work in several volumes, the earlier ones of the series are out of date by the time the later ones are in the hands of the readers; the present case is a notable exception to this rule.

OPERATIVE SURGERY. For Students and Practitioners. By JOHN J. MCGRATH, M.D., Clinical Professor of Surgery, Fordham University; Professor of Operative Surgery, New York Post-Graduate Medical School; Consulting Surgeon to the People's Hospital; Visiting Surgeon to the Harlem and New York Foundling Hospitals; Fellow of the New York Academy of Medicine; Member of the American Medical Association. Fourth Revised and Enlarged Edition, with 364 illustrations, including full-page color and halftone. Cloth; 838 pages; price $6.00 net. Philadelphia: F. A. Davis Company, 1913.

THE first edition of this book was published in 1902 under the title "Surgical Anatomy and Operative Surgery," and the subject matter was arranged in accordance with the plan followed in the author's courses in operative surgery at the New York Post-Graduate Medical School. It seems unfortunate that the author has dropped the first part of the title, for the remarks on surgical anatomy have not only been retained, but have been amplified in certain cases, and form a somewhat unique and truly valuable feature. The original plan of presenting the subject has suffered little change, the general headings coming in practically the same order as in previous editions; but the great advances made in surgery during the last few years have necessitated the rewriting of many portions and the addition of much new matter.

McGrath has kept the textbook idea in mind in bringing the book up to date and the result is eminently satisfactory; for thus being obliged to keep the work within reasonable space limits, he has chosen what seem to him the best of the most recent additions in the way of operations and operative technique, incorporating those procedures of proven merit, and has made no attempt to include all the latest fads, many of which will soon be discarded. There are altogether too many books on this subject which are clearly hardly more than compilations, and it is a pleasure to note that in this instance we are dealing with a book that was written for a specific purpose and where the author's personality is impressed upon nearly every page.

Inevitably certain errors and omissions may be found in a work of this kind. Here we find no mention, in the index at least, of operations upon the pituitary body, the employment of fat-fascia flaps in arthroplasty, Foerster's operation for resection of posterior nerve roots, or some others just now receiving considerable attention. Generally speaking, however, the field of operative surgery is very well covered and the book certainly deserves continued popularity.

AN INTRODUCTION TO THE HISTORY OF MEDICINE, with Medical Chronology, Biographical Data, and Test Questions. By FIELDING H. GARRISON, A.B., M.D., Principal Assistant Librarian, Surgeon General's Office, Washington, D. C. Cloth; $6.00 net; half morocco $7.50 net. Philadelphia and London: W. B. Saunders Company, 1913.

ALTHOUGH this book is modestly styled an "introduction," it is really a finished product and is a clear and succinct account of the development of human medicine from its inception to the present moment. The author starts his work most auspiciously by pointing out that the beginnings of medicine, like those of language and the industrial arts, were practically identical in the various tribes of primitive man. He then proceeds to develop his main thesis, "that the folk-ways of medicine are inevitably the same and independent of time, place, and circumstance." To this postulate he adds the equally important axiom that the primitive mind is essentially "discontinuous" (as Rowland scornfully asserts of the "ordinary cultivated or legal mind"). These two postulates being granted, the halting development of medicine, which might be styled "steady by jerks," is largely explained.

No small part of the charm of the book is due to the apt and often droll touches of character painting, which the author indulges in. It is delicious when he speaks of that solemn humbug, Sir Kenelm Digby, as an Übermensch (page 2217) and then goes on to relate that practically everybody, even the self-constituted exposer of all deception, Paracelsus, fully believed in the "sympathetic powder" delusion, or pretended that he did. It is not, however, in the character touches alone that the master hand of the medical historian is shown. In speaking of the system-makers of the 18th century, Garrison says (p. 240): "We see the great theorists of the time as Emerson has described the gods, each sitting apart in his own sphere, 'beckoning up to their thrones.' Yet somehow, Hippocrates and Sydenham, Vesalius and Harvey, Celsus and Paré, seem nearer and more accessible to moderns than Stahl or Barthez, Borden or Boerhaave, Brown or Reil." He might have added just as the great peaks of a mountain range seem nearer to the observer than the intervening foothills.

Our author never loses sight for a moment of his main thesis, nor forgets that he is writing a compact and well balanced history of perhaps the most potent factor in the development of the human race, except religion. He has produced a book which with its excellent indices, medical chronology, and test questions should be the *vade mecum* of every physician whose ideas are above the level of the tradesman's, which will delight the man of literary taste, and instruct and amuse even the casual reader. The pictures are interesting and materially add to the reader's pleasure.

The work is accurate, painstaking, and fair. It comes at an especially opportune time and represents a great amount of careful preparation. Probably its most valuable feature is that it demonstrates beyond all cavil that in spite of setbacks, mistakes, and the pernicious influence of numberless "systems" and delusions, medicine has advanced in every department until the greatly desired day of preventive medicine, the *summum bonum* of human good, is even now dawning. And, lastly, it relieves America of the aspersion cast upon us by the learned Dr. Baas and others, that we have yet to produce a good history of medicine.

Principes d'Anacousie (Reëducation Auditine). Par A. Zundbupguet. Preface du Professeur C.-M. Gariel. Paris: A. Maloine, 1913.

The author recites the history of auditory reëducation, and says that it has made great strides. Much space is given up to the electrophonoid, an instrument constructed like the human voice. It has three registers corresponding to singing bass, baritone, and tenor or soprano. Each register can produce a series of sounds extending over an octave. By this apparatus the deaf are taught to concentrate, thus increasing auditory function, drying up old discharge, regenerating tissues, and bringing about favorable vasomotor changes.

It is of use in paracusis Willisi, juvenile sclerosis, chronic adhesive processes, and arteriosclerosis of aural vessels—in fact, in all cases where Costi's organ is not entirely destroyed. Contraindications are sudden deafness of syphilitic origin, cerebrospinal meningitis, and toxic infectious labyrinthitis. There is hope of improvement even when the loud voice is heard only *ad concham*, and 75 per cent. of the deaf who come to specialists may be relieved by the electrophonoid. If after fifteen seances there is no improvement further treatment is useless, but "such contingency is very rare." The author evidently is sincere in believing that he has found a therapeutic means of the greatest value to otology.

Malaria, Etiology, Pathology, Diagnosis, Prophylaxis, and Treatment. By Graham E. Henson, M.D., Member American Medical Association, Florida Medical Medical Association, Southern Medical Association, American Society of Tropical Medicine, Medical Reserve Corps, United States Army (non-active list). With an introduction by Charles C. Bass, M.D., Professor of Experimental Medicine, Medical Department Tulane University, New Orleans. Twenty-seven illustrations in 190 pages. Price $2.50. St. Louis: C. V. Mosby Company, 1913.

This book is written for the general practitioner by a man whose experience and research in this disease for many years in one of the most intensely malarious sections of the United States enables him to review the subject from the most practical standpoint. The development of the South has been held in check mainly by three diseases, yellow fever, hookworm disease and malaria, the latter perhaps taking greater toll than the others. Malaria continues unchecked for lack of sufficient knowledge on a subject as simple as either yellow fever or hookworm disease. There is little doubt that the eradication of malaria is the most serious problem that confronts the sanitarian in all tropical and subtropical countries. If proper attention is paid to diagnostic methods there is probably no disease more easily diagnosticated, and if treatment is properly instituted there is probably none that responds so surely, as shown by the wonderful results obtained by Colonel W. C. Gorgas. The position and experience of the author lend special weight to his words and the book is recommended to all who are interested in malaria and its eradication.

The Psychopathology of Hysteria. By Charles D. Fox, M.D. Price $2.00 net. Boston: Richard D. Badger, 1913.

But few books have as yet been published in English in which hysteria as a whole has been treated on the basis of the results of recent psychopathological researches. This one would appear to be one of the best of this kind. The subject is treated in a way both clear and understandable. Each and every pathological condition or manifestation of hysteria, the author teaches, is the logical outcome of a train of morbid subconscious ideation which, in turn, was the result of some external stimulus. The author's definition in part describes hysteria as a psychoneurosis in a neuropath with vicious environment, dependent upon disintegration of the personality and characterized by symptoms originating from the morbid control of the body by subconscious states. These symptoms, he says, can be shown to be but exaggerations or perversions of the normal; while many of the phenomena and "accidents" of the disease result from the increased suggestibility present. The theories of Freud and Janet have been drawn upon extensively in the composition of the book. Among the etiological factors of hysteria discussed are heredity, environment, faulty education, age, sex, social factors, occupation, race and climate, as predisposing factors; and, as exciting causes, acute psychic insults, chronic mental stresses, toxemia, and psychic contagion are mentioned. There are chapters on disturbances of sensory perception, visceral and circulatory derangements, psychomotor disorders, psycholepsy, alterations of consciousness, multiple personality, hysteric temperament, suggestibility, and diagnosis and treatment. The chapter on treatment concludes as follows: "The most logical and effective form of therapeusis includes the discovery, by means of some psychoanalytic method, of the causal submerged complexes; synthesis of these with consciousness; and, through the agency of psychic re-education, the removal of psychopathic tendencies."

American Red Cross Text-Book on Elementary Hygiene and Home Care of Sick. By Jane A. Delano, R.N., Chairman of the National Committee, Red Cross Nursing Service; Late Superintendent of the Nurse Corps, U. S. A.; of the Training School for Nurses, Bellevue Hospital, New York, and of the Training School for Nurses, Hospital of the University of Pennsylvania, Philadelphia, and Isabelle McIsaac, R.N., Member of the National Committee, Red Cross Nursing Service; Superintendent of the Nurse Corps, U. S. A.; Late Superintendent Illinois Training School for Nurses, Chicago; Author of "Primary Nursing Technique," "Hygiene for Nurses," "Bacteriology for Nurses." Prepared for and Indorsed by the American Red Cross. Price $1.00. Philadelphia: P. Blakiston's Son & Co., 1913.

One-half of this little text-book is given up to such practical subjects as lead to the prevention of disease. This study of the elementary household hygiene in connection with the person, the household and the community shows that in the estimation of its authors prevention is of the utmost importance. Almost every chapter is introduced by a few suggestions for simple demonstration, and in a few instances a vocabulary. This holds the interest and makes the subject matter more intelligible.

Clinical Disorders of the Heartbeat. A Handbook for Practitioners and Students. By Thomas Lewis, M.D., D.Sc., F.R.C.P., Assistant Physician and Lecturer in Cardiac Pathology, University College Hospital; Physician to Out-Patients, City of London Hospital for Diseases of the Chest. London: Shaw & Sons, 1913.

Dr. James Mackenzie has pointed the way to new conceptions of certain forms of heart disease, and Dr. Lewis, himself an originator of new views in the same direction, has been an earnest follower of Dr. Mackenzie. As he said in the first edition of his book, a new chapter has been added to our knowledge of the mechanism of the heartbeat during recent years—knowledge gathered by the employment of precise graphic methods. The object of the book is to afford medical men a means of gaining information of the new facts and conclusions which are of chief service at the bedside. In the present edition the main body of the book is in its original form; the new part consists chiefly of the addition of a short chapter upon auricular flutter. The work is calculated to be of great use to the busy practitioner who can learn from it enough to understand the salient facts of the mechanism of the heart.

Researches on Rheumatism. By F. J. Poynton, M.D., London, Fellow of the Royal College of Physicians of London, Vice-Dean of the University College Hospital Medical School, Senior Physician to Out-Patients at University College Hospital, London, and at the Hospital for Sick Children, Great Ormond Street; Physician in Charge of the Children's Ward, University College Hospital; and Alexander Paine, M.D. (State Medicine), London; D.P.H., Eng., Director of the Cancer Hospital Research Institute, London. Price $5.00. New York. Macmillan Co., 1914.

In this volume there are collected the chief papers bearing upon the research of the subject of rheumatism which has extended over a period of 15 years. Some of the papers were written before the authors demonstrated what they believe to be the cause of the disease; others elucidate the nature and action of that cause; others, again, extend the main theses dealing with allied conditions. At the conclusion of the volume the bearing of these investigations upon clinical medicine and public health is considered in a special article. Collaborators are Drs. V. Shaw, Gordon Homes, G. F. Still, D. B. Lees. The book consists of three main divisions: (1) Papers written before the isolation of the *Diplococcus rheumaticus;* (2) papers written after the isolation of this organism; (3) a study of acute rheumatism based upon the results of the previous researches.

# Society Reports.

## MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

*Stated Meeting, Held January 26, 1914.*

THE PRESIDENT, DR. T. PASSMORE BERENS, IN THE CHAIR.

**Inaugural Address of the President Elect.**—Dr. T. PASSMORE BERENS made this address. He expressed the belief that the burden of responsibility which his office entailed would be greatly lessened by the hearty co-operation of each and every member of the society, the Comitia Minora, the board of censors, and the various committees, as well as by the counsel, the secretary, Dr. John Van Doren Young, and the treasurer, Dr. Charles H. Richardson. The speaker recalled that November 14 of this year would be the 120th birthday of the society. In 1806 their membership was 371, and every doctor in the city was a member of the society by virtue of his right to practise medicine. To-day its membership was 2,492; it was the largest local medical society on the continent, and each applicant must prove his fitness for the privilege of becoming a member. There were still 2,700 physicians eligible to election who would give strength to their cause. The 3,000 mark should be passed before the meeting of the State Medical Society in April. This would be the 108th meeting of the State society and its first annual meeting in this city, and they should bear in mind that this session was at their invitation, and therefore they should demonstrate their interest and prove their hospitality by a large attendance at the scientific sessions as well as at the dinner. The aims and objects of the Medical Society of the County of New York had been the same through the many years of its existence, the protection of the health of the community, the elevation of the standard of the profession, and the elimination of the quack and the charlatan. For one hundred and twenty years they had struggled for these aims. The benefit of membership were now greater than ever before, but could they not be augmented if the vast amount of clinical material in their hospitals were rendered available to all members? This was a tentative suggestion made in the hope that at no distant date it would become a fact. The work of the committees of this society was laborious and varied. The maintenance of discipline and the application of the interpretation of the principles of ethics was frequently most disagreeable. The question which had perplexed them more than any other was the determination of certain principles of ethics, violations of which were being brought before them continually, and upon which action was demanded by those making the specific complaint. Dr. Berens said he referred particularly to the growing tendency to instruct the laity in the public press, and incidentally to bring into prominence the personality and practices of the individual physician. These articles varied from those with an obvious intent to exploit and advertise the author under a thinly concealed pretense at interview, and those of a purely altruistic nature where the personality of the author was less apparent. It was to call the attention of the society to this state of affairs that Dr. Sondern had been directed by the Comitia Minora to prepare the report which he would offer to-night. If they were wrong in considering the newspaper articles which he would mention as offensive against the best interests of the profession they would remodel their ideas relative to the standard of ethics; if they were right, it was to be hoped that this method of calling to the attention of those who had offended would work the improvement desired by them all. In closing, Dr. Berens begged that his administration would be accorded the same hearty support that had been granted that of his distinguished predecessor, Dr. Wells.

**Publicity in the Lay Press by Members of the Society.**—Dr. FREDERIC E. SONDERN presented this report as the representative of the board of censors. He stated that the board of censors had observed with regret the rapidly increasing number of publications in the lay press concerning the professional activities of many prominent members of this society. It had been found that these articles appeared in the daily newspapers, particularly in the Sunday editions, in the weekly illustrated papers, and in the monthly magazines. Some were written by the physician himself and some by a lay author whose name was mentioned, but in the majority of instances it was difficult to decide if the article was written by the physician or by someone else. The majority of these publications had the physician's pictures, and some were profusely illustrated, showing the physician at work in his office, laboratory, clinic, or hospital. Examination of these articles showed that they might be divided into several groups: (1) Those designed for the publicity of an institution, calling attention to the achievements therein and the advantages it enjoyed, and while the success of one or more prominent workers was often unfortunately conspicuously displayed, the ostensible purpose of the communication was to help the institution. (2) Those concerning modes of treatment, and while the primary object seemed to be to satisfy the public desire for information there was unfortunate prominence given to one or more physicians whose pictures usually appeared in the article and whose personal success with the remedy in question was exploited. (3) Those concerning one man, detailing his origin, his education, his opportunities, his achievements, and his success, and while such publicity might be considered a suitable recognition of arduous labor well performed, there was usually something said in the article which reduced it from a testimonial to a solicitation. Books were written by physicians containing advice on matters of hygiene, sex talks, and a host of other subjects intended to improve the public health, and these were sold or distributed gratuitously. Again there were many instances in which philanthropy was but a cloak for personal aggrandizement. Many of the lectures delivered by physicians to lay audiences belonged under this head. According to the principles of medical ethics, enacted by those ripe in experience and whose modest personal lives commanded their respect, this was all advertising matter. It was not their intention to convey the idea that every article such as they were considering was an advertisement written by the man described for the purpose of increasing practice. There were, doubtless, some which appeared without the knowledge or consent of the man described. There were others, particularly those descriptive of institutions, in which the worker in his zeal to do justice to the great work accomplished therein unwittingly appeared in a prominent manner. But most of these were advertisements just the same as those in which a physician described his personal ability in the practice of medicine or of a specialty, and in the language of their code of ethics, they defied the traditions and lowered the tone of the profession. The excuse that such articles were in part copied from the medical journals was not valid, as all medical journals were copyrighted, and such reprinting could be prevented if desired. The Comitia Minora was not alone in this complaint. The accusation had come from other sources that the so-called noble profession was at present characterized by a spirit of commercialism and the crudest egotism. The German and English journals also showed evidence of the growing evil of publicity in the lay press. Saunby in his "Medical Ethics," London, 1907, stated that the publication of biographical sketches and other laudatory notices of medical men in the lay press was to be deprecated, and practitioners should not consent to this sort of publication. They should not sanction quotation of extracts from their published medical writings. It was not the duty or the intention of the board of censors to suggest action in this matter; but it was their duty as the result of complaint, to bring it to the attention of this society, with the comment that they deplored its occurrence and were unable to stop what was believed in the main to be self-laudation rather than public health education. The public demanded information on the progress in medical science and had a right to do so, but what was printed should be the substantiated truth and not the possibly immature ideas of an enthusiast who might awaken false hope and by the unsuccessful outcome of his efforts lower the confidence of the public in the profession. This society had undertaken the work of public health education along other lines, and if it saw fit might also instruct the public through the medium of the press far more efficiently than was now done by the self-laudatory efforts which were the subject of this communication. The Nestors of their profession of twenty years ago, whose prominence, accomplishments, and successes were as great as those of any to-day, confined their pictures to this building and the family album and their professional opinions to the medical press. There were among them

to-day men of equal prominence whose pictures could not be purchased by the newspapers and whose opinions expressed in the medical journals never appeared in the newspapers. These were the men who were responsible for the respect of the community enjoyed by the medical profession as a whole.

**Early Recognition and Medical Treatment of Gastric and Duodenal Ulcer.**—Dr. WILLIAM VAN VALZAH HAYES presented this communication. He said that in view of the great prevalence of gastric and duodenal ulcer and their troublesome sequelæ, it was of the utmost importance that the medical profession should seek to make a diagnosis at the earliest possible moment, or to go a step further and ascertain what were the factors predisposing to ulcer and to correct them before greater damage was done. It was the cases not giving the definite cardinal symptoms that required special attention. It was essential that a painstaking history should be taken covering the following points: (1) Duration of trouble. (2) Periodicity of attacks. (3) Pain, as regards character, time, location; whether helped by belching, spontaneous or induced vomiting, taking of food or alkalis, and the effect of acid or irritant food or cold drinks. (4) Appetite, whether increased or diminished. (5) Regurgitation of acid or liquid food. (6) Constipation. In many cases there might be only fulness or discomfort with possibly moderate prolongation of digestion or acidity with constipation and the diagnosis must be made by the various tests and the *x*-ray independently of the history. The objective signs which helped to reveal the presence of ulcer were: (1) A tender point a few centimeters in diameter sharply defined and more or less constant in a given case. This might be just below the ensiform cartilage or in the region of the solar plexus. At times it was found to be over the actual site of the ulcer, but this was not always true and other evidence must be sought for definite localization. The *x*-ray workers emphasized the importance of tenderness over the stomach or duodenum moving with respiration. (2) A dorsal point of tenderness which might be found to the left of the tenth, eleventh, or twelfth dorsal vertebra, sometimes also on the right side or at a higher level. (3) In long-standing cases there might be resistance due to adhesions or a small palpable tumor or ridge if the edges of the ulcer were markedly indurated. As a rule in cases of recent hemorrhage or suspected acute ulcer the stomach tube should not be used. When admissible the employment of test meals was highly helpful. It was important that a stomach tube with closed end and depressed eyes should be used, and all hard straining avoided. When the tube could not be used the following method of examination might give valuable aid in determining whether the digestion was prolonged and the acidity excessive: A test meal of two soft boiled eggs, one French roll with butter, and one glass of water was given in the morning. Three and a half or four hours later examination of the abdomen was made, the patient reclining with head and shoulders moderately elevated. If succussion was readily and continuously elicited it showed prolonged digestion with myasthenia. If succussion was absent, but after separating a pouch of the stomach by gentle pressure a gurgling was produced as the patient exhaled, prolongation of digestion existed, probably due to hypersecretion or pyloric spasm. One-half dram of sodium bicarbonate was now given in two ounces of water; if it caused a notable increase in gastric tympany the presence of free acid, almost certainly hydrochloric, was shown. This test should not be used when acute ulcer was known to exist, though it was practically without danger. Special importance attached to the presence of occult blood in the gastric contents or the stools, provided other sources of bleeding could be excluded with reasonable certainty. The guiac test for occult blood gave satisfactory results. The thread test according to the Einhorn method slightly modified was used. When the thread had been retained over night, normally the lower end of the thread if it had entered the duodenum was green or yellow, its upper portion remaining white. If, however, a blood stain appeared, and one or two subsequent tests showed the stain at the same distance from the teeth, it was clear evidence of a definite break in the continuity of the mucous membrance, and, taken in conjunction with other evidence, was most helpful in the diagnosis of ulcer, particularly those situated at the pylorus and along the lesser curvature, where it was said 85 per cent. of chronic and a large percentage of acute ulcers were found. With duodenal ulcers occurring largely along the upper portion of the cap it was probable that the thread often failed to touch the ulcer surface. Röntgen examination might show the following conditions suggestive of gastric ulcer: Interruption of the normal peristalsis at a definite point along the stomach margin. Incisure of the greater curvature, due to spasmodic contraction opposite the seat of the ulcer on or near the lesser curvature. Slight irregularity of outline of stomach near the pylorus. Pylorospasm with gastric delay. In ulcer of long standing, where perforation, adhesions, or contractions had occurred, there might be found evidence of diverticula, fixations, marked flattening of the lesser curvature, hour glass deformity, or pyloric stenosis. Conditions suggestive of duodenal ulcer were: 1. Hypermotility of the stomach and duodenum associated with a vacant area in the duodenum which remained fixed in all examinations. 2. Spastic indrawing high up near the greater curvature of the stomach, associated with tenderness over the duodenum and increased by manipulation of the duodenum. 3. Deformity of the cap. In the absence of acute or chronic perforation repeated hemorrhage, progressive anemia, obstructive conditions, and suspicion of cancer, every case should receive the benefit of at least six months' careful medical treatment and observation before having recourse to surgery. As a rule the following principles should be insisted upon: Rest in bed for a period of four weeks with freedom from responsibility and care. This rest should be absolute so long as there was any sign of occult blood in the stools. An icebag should be kept on the epigastrium most of the time if hemorrhage had occurred and this treatment continued until occult blood no longer appeared. Later a warm compress was kept on the stomach. Abstinence from food or liquid by stomach from two to four days was desirable if there had been marked hemorrhage or great sensitiveness over the stomach or duodenum, provided, of course, the patient was strong enough to justify the partial starvation. During this period rectal alimentation might be employed. During the first twenty-four hours saline solution might be administered by the Murphy drip method, and later the following enemata: Four to six ounces of pancreatinized milk, one-half ounce glucose, and ten to fifteen grains of salt; or normal saline solution one pint and glucose one-half ounce. The essayist gave a modified Lenhertz diet list for the first ten days which by the tenth day represented a caloric value of 1,900 calories. At the end of two weeks the diet might include soft boiled eggs, milk soups, cornstarch, custard, farina, and arrowroot. The writer preferred in general a diet moderate in proteids and very low in extractives. Bland fats diminished the acidity and had high caloric value. Cohnheim advocated olive oil, a wineglassful in the morning and two dessertspoonfuls one-half hour before dinner and supper to be continued for weeks or months. In feeding by the duodenal tube the writer used a slight modification of the Einhorn method. Duodenal feeding was too new to justify enthusiastic statements, but it seemed reasonably certain that it constituted a valuable addition to the established methods of treatment. The medicines of value in ulcer were the following: (1) Bismuth subcarbonate suspended in water in doses of one-half to one ounce three times daily one-half to one hour before taking food. (2) Magnesium oxide three to twenty grains, or sodium bicarbonate five to twenty grains, or combinations of these, to control acidity. (3) Nitrate of silver one-quarter of a grain in one-half ounce of water might be substituted for the morning dose of bismuth and often hastened the healing of the ulcer. (4) Tincture of belladonna, one to three minims in liquid or tablet form, given three to six times daily before food with a view to diminishing the pylorospasm and supersecretion. (5) Anesthesin, three to five grains with bismuth might be substituted for the belladonna and increased the comfort of the patient. (6) Iron, preferably in some bland organic form, to combat the anemia. (7) Carlsbad Sprüdel salts, one ounce in warm water on waking was a laxative of merited reputation. (8) Liquid paraffin in doses of one-half to one ounce one-half hour before meals, three times daily. This seemed to decrease acidity and pylorospasm, diminish friction, relieve stasis and constipation, and bring about healing of the ulcer. It was usualy well tolerated.

Dr. MAX EINHORN said he wished to corroborate all the statements made by Dr. Hayes. In regard to the examination and application of the tube in gastric ulcer, they should be very carefully performed. He preferred the use of the stomach bucket because there was no

effort at all to bring it out. The tube, however, he had also applied in many cases. With regard to the thread test, he usually used the bucket, but he originally devised the use of the beads. His first endeavor was to make a study of the permeability of the pylorus. The great advantage in the use of the bucket was that material could be readily withdrawn from the duodenum. The combined method of thread and bucket might be employed. Dr. Einhorn presented a new instrument which would facilitate the introduction of the bucket. In most instances he introduced the bucket by having the patient swallow the bucket, but there were some instances in which this seemed difficult. Some patients said they could not swallow even a pill, let alone the bucket. Sometimes there was a spasm present. In some cases the water entered the stomach, but the bucket remained behind. He said he had had 124 cases in which he had used duodenal alimentation by means of a syringe, because in the ordinary method employed (fountain syringe) the length of time required for the food to reach the duodenum made it too cold.

Dr. Edward Wallace Lee believed that more attention should be paid to the study of stomach conditions, especially to the physical examination. Ulcerative tendency could then be recognized and even prevented. "Dyspepsia" was too often treated without looking for the cause; this seemed to be the "keynote" of Dr. Hayes' paper.

Dr. Bennet Sheldon Beach said there were four factors which should be considered: (1) The thread test was extremely useful and should play an important part in their findings. (2) It should precede the use of stomach tubes and other possibly traumatic methods. (3) The test for occult blood should also precede such examinations which were of a traumatic nature. (4) It was dangerous to aspirate by means of the bulb, and one should be very careful in withdrawing it because of the danger of causing erosions.

Dr. Hayes, closing the discussion, said he believed that nutrolone had a place in the treatment, especially where there was an over-acid condition.

**The Aim and Scope of the Psycopathic Clinic in Connection with the New York Public Schools.**—Dr. L. Pierce Clark read this paper. He said that for years the psychiatrist, neurologist, and educator had demanded more knowledge of the innate trends of manner, conduct, and temperament of normal and abnormal child life. For the psychiatrist such information was essential to assist him to mold the patient's life along lines that promised best mental anchorage; for the neurologist such facts would aid in preventing many of the neuroses and psychoneuroses; and for the educator a better information of the fundamental traits of intellect and character in children would enable him to gauge the lines of instruction to a more definite end. For these and many other reasons all demanded a thorough study of normal and abnormal child life. The school was the proper place for such studies and all public schools in the large cities should have a department for the clinical study of the frank nervous and mental disorders of children. The schools were the place for such clinics because they were in close touch with child life and the home. The parents had confidence in the public school system to deal with the mental development of their children. The school had also the training equipment, the personnel, and the financial support to adequately meet the issues concerned. When properly equipped and organized for the work, it could make clear the nature and degree of retardation and perversion of mental development of the child. The schools should call to its aid in this eminently co-operative work experienced physicians, sociologists, psychologists and educators to unravel this intricate problem of child study. The whole scheme called for the hearty support of all, as it was in line with the trend of the best thought of the day. They must study the beginning of mental disorders in order that the best means of preventing the nervous and psychotic disorders of adult life might be forthcoming. In accordance with the foregoing, Dr. Clark stated that last October a group of physicians had induced the Board of Education to form such a clinic under the direction of the Bureau of Ungraded Classes, since which date two experienced neurologists and psychiatrists and four social workers had been employed at analyzing the three thousand children in the two hundred special classes for the mentally defective, and more of such workers were being added as the organization progressed. One of the consulting staff was in charge of the central clinic at the Board of Education in its main office at Fifty-ninth Street every afternoon to examine in minutest details the more difficult or borderline cases. The Board soon hoped to have an observation school and a resident school for more prolonged and special training and treatment of the most stubborn cases. Careful case-records of the work were being kept and in time scientific and public information of the lessons drawn from the work would be given out. The idiot and imbecile group would be forwarded to State institutional care as rapidly as provision could be arranged for in such colonies. By so doing the clinic and school would give its greatest attention and study to the moron, the neurotic, and the delinquent child.

Dr. August Hoch said he was interested in the excellent program which had been presented for the care of these defective children. They were living in an impatient time, one that did not help in solving these problems. Along the lines outlined a great deal could be done in advising and guiding these patients. As a psychiatrist he had been interested in the study of the personality that came to patients after a breakdown or insanity. He was especially interested in learning what kind of people they were, and what traits they possessed which made them go in the wrong direction. Most of these individuals came too late for any sort of adjustment. There was an increasing appreciation of the importance of constitutional disorders in psychosis, as well as in neurosis. The speaker referred to the work of Dr. Healy of Chicago in the study of abnormal children; this work had shown how much could be done in finding out the genesis of the disorders. Such work was justified and by it a great deal more could be learned regarding these abnormalities. The Public School Institute work was interesting and had a place in the care of defective children, and Dr. Clark deserved great credit for the work he had done.

Dr. Foster Kennedy said that a few years ago the neurologist was directing his energies to solving the problems of structure which were mainly mechanical. A reversion had occurred from that point of view and now they were studying the individual from the psychical side. There was hope now that they might free themselves from such words as "hypnotic suggestion," "neurasthenia," etc. The study of the psychopathic child would enable them to differentiate the neurasthenic child and to separate these children into various types. By getting a knowledge of these different groups it might be possible to apply the remedy. The children who were defective in their motorium could possibly have one kind of education, and other types other kinds suited to their requirements. The neurologist and psychiatrist should be able to share in this work which would result in economic and social advancement.

Dr. Clark, in closing the discussion, said he agreed that there were types of temperament back of the precocious emotions in the infantile life in *ticeurs* and that the disturbance of the ambivalency of equality of emotional attachment to each parent was in greater part due to the inheritance of a certain type of temperament which, because of its strong determination to the hate polarity made one think that it was really atavistic in component. It would seem to be a predominant trait that many such individuals inherited, which was fortunately eliminated in most individuals. While the whole conception of the tics as laid down by him might be somewhat differently formulated in the future, he was confident the essential foundation of the concept would remain.

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## NEW YORK ACADEMY OF MEDICINE.

### SECTION ON PEDIATRICS.

*Stated Meeting, Held January 9, 1914.*

Dr. Godfrey R. Pisek in the Chair.

**A Case of Hereditary Lues.**—Dr. Sara Welt-Kakels presented this case. The patient was an infant 6½ weeks of age. The parents were apparently perfectly healthy and denied having ever had any venereal infection. They had been married three years and this was the third child. The first child was still-born, and the second, according to the mother's statement, died of asphyxia at birth. This infant had been delivered normally and was apparently well until two weeks of age, when an eruption appeared and spread over the body. The eruption was crusty and bleeding about the mouth and nose, and breathing was difficult. The liver

and spleen were enlarged, and the urine contained a considerable amount of albumin. About 90 per cent. of these cases showed that effect in the beginning. The Wassermann reaction was strongly positive. As they all knew, there was no hereditary lues of the child without syphilis of the mother. Dr. Kakels said that it was her custom to treat such children with bichloride in small doses. This method of treatment had not been followed by diarrhea or blood in the stools. The dose was one milligram and not more than six or eight doses were given.

Dr. HENRY KOPLIK said that many of these children when treated with salvarsan or neosalvarsan died. It was difficult in the new-born to gauge the exact dose and many did not bear salvarsan well. In his hospital work he did not use it. He obtained excellent results with calomel and iron. He did not favor the hypodermic use of mercury.

Dr. THOMAS S. SOUTHWORTH assured Dr. Koplik that calomel was used to some extent in cases of this kind in this country. He had long used it in the Babies' Hospital and Dispensary, following Dr. Jacobi's method —one tenth of a grain three times a day. The way in which congenital syphilis cleared up under this treatment plus mild inunctions when babies were at the breast was remarkable. At the Babies' Hospital Dispensary they very rarely lost a baby from this cause when it was breast fed. The high mortality from hereditary lues as was often given had always been a source of wonder to him in view of the good results that they had obtained in treating these cases. In regard to the nasal treatment of hereditary lues he had found that a small amount of oleate of mercury in albolene dropped into the nose had a very beneficial effect on the mucous membrane.

Dr. L. E. LA FETRA said that in cases in which the eruption was intense and the child in very bad condition salvarsan was of the greatest service and would save some babies that otherwise would die. The salvarsan could be given in one or two injections at an interval of a week or ten days; then mercurial treatment should be used, both by inunctions and internally. It often happened that a patient returned with a relapse of the Wassermann reaction after having been treated with salvarsan alone and one had then to return to the mercury, so that it was advisable to employ the mersury from the first.

Dr. GODFREY R. PISEK said that in complicated serious conditions as syphilis complicated with pneumonia, salvarsan, because of its quick action, would be indicated, but mercury was to be preferred in ordinary cases.

Dr. SARA WELT-KAKELS, in closing the discussion, said that she did not administer the bichloride by way of the mouth, but used deep intramuscular injections. One should watch very carefully for blood in the feces and for albumin in the urine. Calcium (5 per cent.) with sugar was an excellent adjuvant in these cases.

**Hairpin and Stone in the Bladder.**—Dr. SARA WELT-KAKELS presented an *x*-ray plate showing a hairpin and stone in the bladder and related the history of the case. The patient was a child nine years of age, who had complained for two and one-half years. At the time that she first saw the patient she was complaining of severe pain in urination and burning sensations. The urine showed the presence of much pus. In making an examination per rectum the examining finger met with resistance, and the *x*-ray had revealed the nature of the trouble. The child was operated upon and made an excellent recovery.

**An Experiment in Collecting Human Milk for Hospital and Dispensary Use.**—Dr. RAYMOND HOOBLER read this brief paper in which he said that he had received the inspiration for this work from Dr. La Fetra's service at Bellevue. He had found that among the poor mothers who had more milk than was required for their own infants were willing to sell the surplus. The mothers who were willing to sell their milk were subjected to the Wassermann test and were instructed in matters of diet and hygiene and shown how to draw their milk. The milk was also subjected to examination. The cost of the milk by this plan was ten cents an ounce. This was a plan that was of benefit to the poor mothers who needed the financial aid and at the same time provided mother's milk for premature or delicate infants who could not survive without it.

**A Simple Method for Making Casein Milk.**—Dr. RAYMOND HOOBLER read this paper. He stated that the difficulty of making casein milk had stood in the way of its more general use. The process was so complicated that it was not practical in the home. Even if the casein was passed through a seive five times the curd still settled and even clogged the nipple, making it necessary for someone to assist the baby in getting its food. He had found that casein flour could be used in making the casein milk, and that the work of preparation was by this means very much simplified. The mixture was smooth and the curd did not settle in the bottle. They had used these casein flour mixtures at Bellevue during active service in August and September, 1913. The fat-free buttermilk was used with the casein flour. The casein flour cost forty cents a pound and one pound made forty-four quarts of casein milk; to make the same amount from casein curd would require twenty-two quarts of milk.

**An Experiment in Milk Stations.**—Dr. S. V. HAAS read this paper, in which he reminded them that he had stated in a discussion before the Section in March, 1911, that there were two serious errors in the milk stations as constituted. The term milk station was bad because it led the laity to consider milk as the important factor and cow's milk feeding as the method to be followed, thus subordinating by inuendo breast feeding and hygiene. Again the dispensing of milk was unnecessary either as a premium or as a method of furnishing good milk. It was also undesirable for the mother who was required to go to a distant station for her milk supply. The practice of dispensing milk was not desirable for the station since it increased the cost of maintenance. It also deprived the authorities of a method of inspection not otherwise possible. If the milk were purchased in open market and the child became ill, the source of supply could be investigated at once. In order to test these points rooms were set aside in Lebanon Hospital under the auspices of the Social Service Department and the Pediatric Department of the hospital. The training school supplied the nurses who received the social service experience as a part of their course, while the Pediatric Departmnt furnished the medical supervision. Since April, 1912, 455 babies had attended the milk station; of these 384, or 84.4 per cent., were breast fed; 13, or 2.8 per cent., were on mixed feeding; 58, or 12.7 per cent., were artificially fed; 14, or 3.0 per cent., died, two of which died of malnutrition. The average attendance was 19 infants and the average length of time under observation was 14 weeks. They felt justified in concluding that these stations should be called Baby Stations or some other name not containing the word "milk." Milk should not be dispensed at these stations for the reasons pointed out in the early part of the paper. A Baby Station could be successfully conducted without dispensing milk, and breast feeding would thereby be encouraged. The mortality statistics of a station conducted without the dispensing of milk compared favorably with those obtained by other methods.

**Two Years' Observation of Milk Station Infants.**—Dr. MARK S. REUBEN presented this paper. He stated that his study was based on about 1500 feeding cases observed at the Vanderbilt Clinic Milk Station and the Vanderbilt Clinic Pediatric Department since January 1, 1909. Nearly 500 of the cases had been observed for about one year. About 900 of the infants were artificially fed, about 500 were breast-fed, and about 300 received both breast-milk and artificial feeding. Only 19 infants had died from January 1, 1912, to June 1, 1913, and of these five had been to the milk station only once. Of the remaining 14 not one died of gastroenteritis. There were four factors which were conducive to a low mortality at the milk stations, education of the mother, clean milk, the nurse, and the physician. Of these the education of the mother was by far the most important element, though the others were important adjuvants. Anything that prevented the nurse from visiting the homes of the mothers regularly and frequently detracted from the efficiency of the milk station, as it was only by this means that the mothers could be taught to prepare the formulæ accurately and the other details of infant hygiene could be impressed upon her. The best advertisement to induce the mothers to bring their infants to the milk station was the knowledge that the milk station babies were doing well. They had found that the statement that breast feeding was falling into disrepute was not borne out by their experience. There were three reasons why so many of the infants brought to the milk stations were artificially fed: (1) Because of the large percentage of mothers who did outside work after marriage; (2) Because many mothers become gravid before their infants were three or four months old; (3) Because of

the indifference or ignorance of the attending physician who was responsible for the artificial feeding of many infants that could and should have been breast fed. The essayist believed that these mothers should be taught how to prevent conception, as frequently the exhausted condition of the mother induced by excessive child-bearing resulted in premature and atrophic infants. Such teaching would have a great influence in reducing infant mortality and would permit of breast feeding in many cases that were artificially fed. In cases of insufficient breast milk every expedient should be tried before resorting to supplementary feeding. Even when supplementary feeding was employed, every effort should be made to increase the supply of the mother's milk and as soon as this became sufficient the supplementary feeding should be discontinued. The only reliable method of determining the sufficiency of the breast milk was by observing the infant for at least one week when it was on the breast alone. It was paradoxical but true that the most difficult task the physician had was to persuade mothers not to institute artificial feeding when the milk supply was sufficient in early infancy, and to induce them to begin artificial feeding in later infancy when the breast milk was very scanty and the infants were practically starving. Very few women who visited the milk stations could nurse their infants longer than twenty-seven to thirty-two weeks. It had been their rule to wean the infants when their weight became stationary, or they lost weight for two successive weeks, all other causes having been excluded. Weaning in two weeks at this time was preferable to mixed feeding until the end of the first year. In later infancy when the milk supply became insufficient, it was also of inferior quality and the infants put on mixed feeding did not do as well as those weaned and fed artificially. The cases that in early infancy did not do well on breast milk were those in which the supply did not increase, and these cases did better if taken off the breast entirely. One should try supplementary feeding for at least a month before taking the child off the breast entirely. If, however, at the end of this time there was no increase in the milk supply one should not hesitate to take the child from the breast entirely. This was not a plea for artificial feeding, but one should not wait too long before beginning the artificial feeding. The highest weight curve at the end of one year was shown by those infants who were breast fed until the supply became insufficient, usually from twenty-seven to thirty-two weeks, and then weaned in two weeks and put entirely on artificial food. The second highest weight curve was shown by those infants artificially fed from birth, and the lowest weight curve at the end of one year was shown by those infants breast fed for the entire year, being due to mild starvation after the sixth month. The breast fed children weighed more than the artificially fed at the end of six months, but after that the artificially fed children gained much more rapidly. The keynote of successful artificial feeding at the milk stations depended on the degree of simplicity of the milk formula and how well the mother understood its preparation. Over 90 per cent. of the artificially fed infants did well on simple dilutions of whole milk to which carbohydrates were added to make up the requisite number of calories. In twelve hundred cases they had met only one case in which there was an idiosyncrasy to milk. Of 200 feeding cases that came to their attention at the milk station, only 19 per cent. had been put on milk formulæ, and 80 per cent. had been on patented foods. The explanation of this was ignorance as to how to prepare fresh milk. Infant feeding could be made both simple and successful in the majority of cases. They never used lime water, barley or oatmeal water, or top milk mixtures, unless there was an indication for their use. They were thoroughly convinced that in most cases they were useless and could be dispensed with. In feeding healthy infants they usually began with a one in three mixture; seldom was it necessary to prescribe one more dilute. The quantity given at each feeding was increased by one ounce every four weeks, and the strength of the mixture was increased as the weight and the symptoms indicated. On the whole they had found that infants could take much stronger mixtures than were usually given. They could usually take whole milk at six and one-half to seven months. No infant was given more than one quart of milk daily during the first year. When an infant stopped gaining on that quantity flour was substituted for part of the sugar and later cereals in the form of gruels were added. At nine months broths and zwieback were given, and vegetables finely mashed when indicated. A dextrine maltose preparation of sugar was given in every case unless there was some contraindication (one level teaspoonful to every ten ounces of mixture). This sugar was contraindicated in infants under two months of age, in those having a tendency to constipation, and when there was a tendency to vomit. It was distinctly indicated for babies that were much under weight. They had found that dextrin maltose caused the greatest gain in weight, cane sugar less, and lactose the least. The effects of these sugars on the digestive tract was also different. Lactose had the least and maltose the greatest tendency to produce vomiting. Lactose was also the most laxative and dextrin maltose the least so of the sugars. Even in the feeding of sick infants they had found that the simple dilutions gave excellent results, though every sick infant was a problem in itself. In cases in which there were gastrointestinal symptoms they never gave dextrin maltose until the symptoms had subsided. In these cases they used the flours more freely than in healthy infants. In order to meet indications they had used skimmed milk and *Eiweiss milch*. The essayist presented a study in calories which he summarized as follows: The caloric estimation of an infant's food was of distinct value in beginning to feed a healthy baby on the bottle, as it gave a definite method of ascertaining about how much food the infant needed; in feeding atrophic and puny babies, since they knew that these babies needed more calories than did normal infants; and in infants who were not thriving, since an estimation of the calories would sometimes reveal that the infant was getting a food too high or too low in calories. In studying the problem of why some infants did not thrive, they had been much impressed by the fact that the most common cause of this was the irregularity and infrequency of the visits made to the milk station; for an artificially fed infant to increase steadily in weight the food must be increased in quantity and in quality regularly about every ten to fourteen days. Other reasons for failure to gain properly were ignorance or stupidity on the part of the mother in the preparation of the formula, or some constitutional disease in the infant.

**The Infant's Milk Stations: Their Relation to the Pediatric Clinics and to the Private Physician.**—Dr. S. Josephine Baker read this paper. She stated that the Bureau of Child Hygiene of the Department of Health was organized in 1908 for the purpose of pursuing a progressive and constructive policy with relation to the health of the children of the city. While its activities included practically all features of child welfare work in relation to health, one of its functions was the attempt to reduce infant mortality. The death rate of children under one year of age from all causes was 144 per 1,000 births in 1907 and had shown but slight fluctuations from that figure during the previous four years. It was felt that former methods of dealing with this problem must be discarded and a campaign of educational prevention instituted, in order to make a definite imprint on this excessive mortality. As a result of this change from the purely corrective work of the past to the preventive method of instructing the mothers as to how the babies might be kept well the death rate for the year 1908 was reduced to 128 per 1,000 births. It was felt that a year-round campaign must be instituted if true preventive work was to be done. An appeal to the Board of Estimate resulted in an appropriation which allowed for the establishment of fifteen Infant's Milk Stations to be maintained under the control of the Bureau of Child Hygiene. The City of New York had ample facilities for caring for sick babies, but until the establishment of the milk stations practically no facilities for providing proper instruction in "how to keep babies well." In 1911 an Association of Infant's Milk Stations was formed embracing all the prominent agencies engaged in combating infant mortality. By this means the records could be kept uniform and the city districted so as to prevent overlapping of the work. The year 1911 showed a death rate of 112 as compared with 125 in 1910, or an actual numerical decrease of 1162 deaths. As a result of the proved efficiency of this work an increased appropriation was granted the Board of Health sufficient to establish forty additional milk stations, making fifty-five in all under the Bureau of Child Hygiene. The Infant's Milk Stations were not children's clinics; their purpose was rather to provide instruction in the proper hygiene and feeding of infants. One of their most important achievements was the en-

couragement of breast feeding. Each station was in immediate charge of a trained nurse who had an assistant, and a physician was in attendance each morning during the summer. The milk now sold in these stations was "Grade A. Pasteurized," for which the company charged eight cents a quart, a much lower rate than the regular market price. It was dispensed in one quart bottles only, and was subjected to constant analysis and inspection by the Department in order to see that the standard was maintained. In the absence of the physician, the nurse gave a simple formula appropriate to the age of the infant. (These formulæ were devised by a Committee of which the President of the Pediatric Section, Dr. William P. Northrup, was Chairman). The mother was instructed to return with the infant when the physician would be present and then the child was thoroughly examined and a suitable individual formula prescribed for each case. The physicians assigned to duty in these stations were competent, thoroughly trained men and women; only those were selected who had demonstrated their fitness in the specialized work of infant hygiene and feeding. Sick babies were not treated at these stations unless the illness was caused by an error in diet and was amenable to dietetic treatment. Even in such cases the treatment was not given unless the family was unable to employ a private physician and refused to go to a dispensary or hospital. With each baby referred to a physician, or a hospital, or dispensary, was sent a reference slip, giving the name and address of the child and the formula which had been used in feeding. Requests had been made that all dispensaries and hospitals send similar reference slips to the milk station after the baby had left the care of the institution. It was evident that such data were of immense importance, saving much valuable time that might be lost in attempting to find the best type of feeding for the child. When babies were once registered at the milk station, they were kept under continuous observation. If death occurred either under the care of a private physician, a pediatric clinic, or in a hospital, the death was charged to the record of the milk station. The milk stations welcomed the cooperation of the private physician, and many sent babies to the stations for instruction of the mothers as to how the formula was to be prepared. When a physician did this the doctor at the station did not see the baby. Under no circumstances was any employee of the Department of Health allowed to take as a private patient any person with whom he came into contact in an official capacity. During the year 1913 a total of 49,904 babies were cared for at these milk stations; of this number, 9,295 had been carried over from the previous year. The milk dispensed amounted to 2,367,495 quarts, and the nurses and their assistants made 262,121 visits to homes. During this period there were 145 deaths among the milk station babies, three tenths of one per cent. of the number enrolled. Of these deaths ninety-seven were due to diarrheal diseases and 48 to other causes. During the year 1912 the infant death rate was 105 per 1,000 births, and during 1913, this had been further reduced to 102. The reduction of infant mortality in New York City had been greater during the past 10 years than that achieved by any other large city in the country. With the exception of Rochester, the infant death rate in New York City was lower than in any first or second class city in the State. During 1913 there were 500 fewer deaths than during 1912. That the infant's milk stations had been the largest factor in this result there could be no doubt. The Department of Health, through the Bureau of Child Hygiene, believed that only by perfect cooperation and thorough understanding of its methods could the best results be attained. It was the earnest desire of the Department to cooperate to the fullest extent with private physicians, pediatric clinics and babies' hospitals; it was also its earnest desire that there should be similar cooperation on the part of the latter.

Dr. Henry Koplik said that he believed in the work of the milk stations and the *gouttes de lait* consultations, and at the same time he recognized the value of the prophylactic work done by the Board of Health. They did ideal work among the well babies. It did not do to place too much reliance on statistics; many births escaped registration and this altered the value of the mortality statistics. They would do well to consider the good work done rather than the statistics. Several of Dr. Reuben's statements he could not accept. For instance, Dr. Reuben had spoken of a baby of eight months which weighed thirty pounds and another of one year weighing twenty-seven pounds; these were abnormal children and had no place in the paper. Dr. Reuben said that if a baby did not thrive on breast milk it should be taken from the breast and fed entirely on artificial food. The breast should be utilized as far as possible. Though the infant received but two breast feedings daily they should not be given up in early infancy. Again, Dr. Reuben advised weaning babies at the age of eight months in two weeks' time. This was too short a time for a baby that was thriving. The weaning should be gradual, extending from the ninth to the eleventh month. One should never take a young infant from the breast while there was any milk. The best plan was to utilize all the breast milk you had and then add the bottle to supplement the deficiency.

Dr. Henry D. Chapin said there were two points in Dr. Reuben's paper to which he wished to call attention. Dr. Reuben had said that if after a fair trial there was no gain in weight it was useless to continue trying to use the breast. The State Department of Agriculture had made investigations regarding the milk supply of animals and had found that individual animals had their limit as to milk supply and that this could not be greatly altered by feeding and other measures directed towards securing an increase in the supply of milk. If in a mother who was in fairly good health and living under good hygienic and dietetic conditions the supply of milk was not increased, it was useless to expect much change. The second point to which the speaker called attention was that of simple formulæ. A few years ago the formulæ were so complicated that no one could remember them, but now they were in danger of going to the other extreme in using too simple formulæ. It was necessary that the food elements should be in the right proportion, and it was important to remember that the food elements were not interchangeable; for instance, carbohydrates could not be substituted for fats without destroying the proper proportion of the elements. It was to be feared that some of this simple feeding would result in a crop of rickets in the future.

Dr. Charles Herman said that frequently statistics were of little value, but those of the infant mortality as given by the Department of Health during the last few years could be considered accurate. Even if all births were not reported, the percentage reported was very high and had remained quite constant during these years. The important part was that the infant mortality rate had diminished regularly from year to year. In order to obtain a more definite idea of how much an infant welfare station could accomplish, the following experiment was made at the station of the Vanderbilt Clinic. Two square blocks in the immediate vicinity were chosen. The total infant mortality, the mortality from diarrheal disease, from congenital debility, and from respiratory diseases in this area for the years 1907, 1908 and 1909 was known. In 1911 the station was established. It was found that there were ninety-five babies in these two blocks but of these only 25 per cent. were registered at the station, although it was so near to the area selected for study. This emphasized the absolute necessity of having a visiting nurse. After the station had been in operation for three years the infant mortality rate in this area could be computed and a comparison of conditions before and after the establishment of the milk station made. In order to obtain the best results there should be a close association between the infant welfare station, the outpatient pediatric department, the babies' ward, and the maternity ward. The last in order to obtain breast milk. At the Lebanon Hospital they were very fortunate in having all four departments together.

Dr. Thomas S. Southworth said that he could not quite agree with what Dr. Chapin had said in regard to taking a baby from the breast if it did not thrive after a fair trial. What was a fair trial? Every bit of breast milk that the child could get was of advantage. Many of Dr. Reuben's observations were most true, but he implied that the breast should be stopped when the child ceased to gain with complementary or supplementary feeding. This was an open question. Dr. Reuben was dealing with dispensary cases and had admitted that the supplementary feeding led to overfeeding and that this was the cause of failure to get good results in his cases. Where children were given the supplementary feedings in an intelligent way one could get as good results with them as with entirely artificial feeding. Again, after the age of eight or nine months, one was not looking so much for a

slightly larger gain in weight as for good general development.

Dr. L. E. La Fétra said that the experiment carried on by Dr. Hoobler in his Bellevue wards had been very successful; since it was demonstrated that good breast milk could be obtained by such a plan. Breast milk was frequently absolutely necessary to save the lives of premature and feeble infants, and Dr. Hoobler was deserving of much credit for his solution of a difficult problem. The method which was described of making albumin milk with casein flour was easy compared with the older methods, and this was a distinct advantage. In regard to Dr. Reuben's study of infant feeding in dispensary babies, Dr. La Fétra said he believed that they were all agreed that mothers should be given every encouragement to nurse their babies entirely or in part, and that every ounce of breast milk should be conserved, except in those rare cases in which it acted as a poison. This principle should be adhered to not simply because of the greater digestibility of the breast milk, but because of the human protective principles that were carried over from the mother's blood.

Dr. William Shannon recalled that, two years ago in speaking before the Section, Dr. Jacobi had said that practically all mothers could nurse their infants. This was not so. Dr. Shannon asked Dr. Baker if the cool summer had been to any extent effective in modifying the infant mortality statistics.

Dr. J. Finley Bell of Englewood, N. J., said that in Englewood he had succeeded in interesting wealthy people in the effort to obtain mother's milk for the hospital and the plan had worked well. The milk had cost them only about half the amount it had cost Dr. Hoobler. Possibly the reports of the results attributed to the education of the mothers were overdrawn. Many of the mothers were very ignorant and accustomed to uncleanliness, while the making up of a milk formula was a rather technical procedure. This factor should be considered before refusing to give milk to such mothers. It did not seem necessary to jeopardize the lives of the infants in order to educate the mothers. One weak point was that though the milk was prepared for the baby the mother was allowed to care for the nipples. In their work they had cared for the nipples and delivered them wrapped in waxed paper. Dr. Bell thought that the formula on the card passed around would underfeed an infant of the age for which it was designated.

Dr. Godfrey R. Pisek said that the feeling of antagonism toward the Board of Health's work in this direction had almost gone by, and the profession realized that the Health Department was doing efficient work and physicians were ready and willing to cooperate with them.

Dr. Mark S. Reuben, in closing the discussion, said that the only reply he could make to Dr. Koplik was that there was no one who misunderstood like one who would not understand. There was no evidence to show that the children fed on the simple mixtures did not do as well in every respect as those fed on the complicated ones so popular a few years ago. The infants weaned at the eighth or ninth month and fed artificially as described were not backward in development. Dr. Reuben said that, while he did not believe in taking the child from the breast for any trivial reason, there were certain cases in which the mother seemed to be in fair health, an analysis of the milk showed that it had the food elements in the right proportion, and there was a sufficient quantity, yet the milk was toxic to the child. Such a child would not thrive while taking the mother's milk, but as soon as breast feeding was stopped the infant would do well.

Dr. Baker, in closing the discussion, said that Dr. Haas had spoken of the delivery of milk to the homes rather than dispensing it at the milk stations. There was no question but that the milk was a bait to the mothers. The city would be glad to be released from this responsibility, but without the milk the mothers would not come to the milk stations. Again, the milk companies would not deliver milk to the homes at the same reduced rate at which they furnished it to the milk stations. Dr. Baker said she had understood Dr. Haas to say that in his stations about 84 per cent. of the babies were breast fed. This, of course, would eliminate the need of dispensing milk and under such circumstances possibly home delivery might be effectual. Dr. Reuben should be endorsed in what he said regarding the simple dilutions of whole milk. They had been using these simple dilutions of whole milk in the milk stations of the Department with very satisfactory results. In regard to the criticism of the formula on the card passed around that it was deficient in calories, it was distinctly stated that this was only a temporary expedient, employed until the infant was given a thorough examination and the formula suited to his needs prescribed. These formulæ were gotten up about five years ago at the request of the speaker by a committee of which Dr. William P. Northrup was the Chairman. Of course they were all agreed that one could not depend entirely upon statistics. The statistics of Boston, Providence, and New York had been accepted by the Federal authorities as reliable, and these were the only cities whose statistics were thus accepted. Even if the birth registration were entirely disregarded, the actual numerical decrease in the number of deaths could be depended upon. If the same death rate had prevailed in 1912 that they had in 1907, there would have been about 6,000 more deaths during 1912 than actually occurred. The weather had been pretty much the same throughout the country during the past year, and while returns from other cities had not been fully received, from those that had come in earlier in the year, it appeared that New York had a more marked decrease in its infant death rate than any other large city in the country. There seemed to be but one reason for this and that was the active and systematic work that had been done by all the organizations interested in the reduction of infant mortality. One of the speakers had questioned the possibility of teaching some mothers the home modification of milk; their experience had shown that this was not only possible but eminently practical. There was a tendency to over-estimate the influence of milk in the problem of infant mortality. Probably 20 per cent. of the mortality could be laid to the milk, while 80 per cent. was due to lack of general care and education. It should not be forgotten that the excellent results of the work were due to the faithful service of those doing the work, from the Chief Inspector to the nurses and assistants. In closing, Dr. Baker invited the physicians to visit the milk stations to ask questions, and to offer criticisms.

Dr. S. V. Haas said that as an illustration of the value of the nurse to the milk station he wished to cite an instance at the Vanderbilt Clinic. When the Milk Committee dispensed the milk they had an efficient nurse in charge of the station, but later the Sheffield farms people dispensed the milk and had no trained nurse. During this time the attendance at the station fell away rapidly, but when a nurse was put on the service it again increased.

## WESTERN SURGICAL ASSOCIATION.

*Twenty-third Annual Meeting, Held at St. Louis. December 19 and 20, 1913.*

The President, Dr. Jabez N. Jackson of Kansas City, Mo., in the Chair.

(*Concluded from page 456.*)

**Ulcer of the Stomach in Children Before Puberty.**—Dr. Charles D. Lockwood of Pasadena, Cal., stated that ulcer of the stomach in children was relatively rare, but was probably much more frequent than heretofore believed. Many obscure abdominal conditions in children might be due to unrecognized ulcers. This paper was based on a case recognized and operated upon by Dr. Lockwood. A careful review of the literature had been made and a number of unreported cases had been discovered through personal correspondence with the members of the Western Surgical Association, other surgeons of large clinical experience, and Children's Hospitals of the United States and Canada. Etiology, pathology, and diagnosis of ulcer in children were discussed. The rarity of ulcer in children was explained by the position of the child's stomach, permitting rapid emptying, the small amount of hydrochloric acid present, and the good motility. The factors favoring ulcer were malnutrition, tuberculosis, burns, local injuries, leucemia, septicemia, anemia, and chlorosis in young girls and follicular gastritis. Ulcers in children were more often superficial erosions. The typical funnel shaped deep ulcer found in adults was rare; when present, it was not so often found in the pyloric region and perforation was common. Perforation had been reported most often through the posterior wall, through the lesser curvature near the cardia, and through the greater

curvature into the pancreas, as in his own case. Gastric ulcer should always be thought of in children with abdominal symptoms. Pain in the epigastrium, hematemesis and bloody stools were pathognomonic. The two latter were usually absent. Pain, worse at night, and indigestion were usually present. Diagnosis must be confirmed by microscopic examination of stomach contents and stools for concealed blood. Appendicitis was most often confused with ulcer. In Dr. Lockwood's case, palpation of the epigastric region during a paroxysm of pain first suggested ulcer. Gas could be felt to gurgle through the pylorus, followed by relaxation and relief of pain. This was believed to be an important diagnostic sign. Report of case. Girl, age 13. Suddenly seized with pain in left side. Later, pain worse at night, food vomited, rapid emaciation. Diagnosis of ulcer made through palpation, finding of blood in stomach contents and stools. Anterior gastroenterostomy was done with complete relief of all symptoms for three months, then recurrence of symptoms, second operation, followed by death from starvation in two weeks. Post mortem. Perforated gastric ulcer of greater curvature. Carcinomatous degeneration, with metastasis to liver, pancreas, kidneys, and glands. He then reported fifty-seven cases; of these fourteen were reported by correspondence and had not been previously published. The other forty-five cases had been reported in various medical journals, but never collected together. Of the total number of cases, only eleven had been treated surgically and these were reported in detail.

**Retrocecal Appendicitis.**—Dr. DAVID W. BASHAM of Wichita, Kan., stated that posterior drainage in these cases was far superior to the anterior with the Fowler position. The appendix should always be removed in these cases, if at all feasible, without compromising the safety of the patient. If the appendix was not removed, drainage was usually prolonged for many weeks, and even then the appendix might have to be removed in the presence of pus. The pressure and disturbance about the cecum frequently led to gangrenous perforation, followed by fecal fistula. If the drainage was unobstructed, these fistulæ generally healed spontaneously.

**Inoperable Cancer: The Best Methods of Discovering Its Activity. A Study of Heat in Cancer.**—Dr. J. F. PERCY of Galesburg, Ill., gave a brief résumé of the status of the treatment of carcinoma, and discussed specifically the literature bearing upon the relation of heat to cancer, and emphasized the vulnerability of cancer to heat. He referred to the work of E. Vidal as important, showing that the use of various serums, toxins, and vaccines produced no results in the treatment of cancer if they failed when administered to raise the temperature. He, therefore, concluded that these various methods owed their success largely to their fever-producing qualities. The various reports of diminution of malignant tumors, following infections such as erysipelas, assumed a new significance. He described his clinical and experimental researches in the application of heat in cancer. In experiments made on beef muscle, he showed that a mass 3 x 3 x 3½ inches was entirely coagulated in sixty minutes. Based upon experimental data given in his paper, the author stated that it was logical that there might be hope for the eradication of cancerous growths by attacking these morbid processes through their vulnerability to heat. It, therefore, remained to develop a method of applying heat to the tumor mass to a degree of efficiency that would permit of the greatest destruction of carcinoma cells with a maximum conservation of normal tissue cells. He mentioned the various methods possibly useful in this connection, and finally described his own. He spoke of it as a practical method for the application of heat in the treatment of carcinoma, and insisted that it had none of the objections that could, with reason, be claimed against the various other methods which he enumerated. The penetration of heat by the author's method could be definitely determined and regulated. Its applicability had almost no limitations where the malignant process was at all accessible. The required apparatus was not expensive, and was easily portable. The method consisted of the application of heat from an electro-cautery accurately controlled by a rheostat, and applied to the affected tissues, as outlined in the author's two previous papers. The point was made that heat, and not cauterization, was the object to be attained. Cauterization was responsible for the early formation of a charcoal core, and this interfered with the dissemination of heat, and later prevented drainage from the treated area. Without drainage, there was danger from the absorption of large quantities of killed cancer cells.

**Removal of the Appendix in All Cases of Appendicitis with Localized Abscess.**—Dr. VAN BUREN KNOTT of Sioux City, Iowa, stated that in speaking from an increased experience with the method, he advocated the removal of the appendix at the first operation in every case of appendicitis with localized abscess. He reported a series of 501 consecutive operations for appendicitis with localized abscess, in every one of which the appendix was removed at the first operation. In this series there occurred six deaths. One patient, a little girl, aged four years, died thirty-six hours after operation. Cause of death unknown, as it occurred at home in the country, some distance from the hospital. Man, aged 49, died sixteen days after operation from cardiac thrombosis. A boy, aged 17, died four days following operation from septicemia. Another patient, a woman, aged 31, died six days after operation from septicemia. A man, aged 27, died twelve days following an operation, from post-operative obstruction, further intervention being refused. The sixth patient, a man, aged 24, died from secondary hemorrhage the third day after operation. The ages of the patients included in this series ranged from ten months to 84 years. Attention was called to the fact that there was in this series no death from peritonitis. As it was the fear of inviting peritonitis by the free separation of adhesions during the removal of the appendix which seemed to deter many operators from an attempt at such removal at the primary operation, he claimed that the results secured in the series above quoted had removed practically the only objection to the removal of the appendix in abscess cases. He said that by this procedure the tendency to post-operative complications, including obstruction, subphrenic abscess, pylephlebitis, empyema, hepatic abscess, etc., was greatly lessened. During the separation of adhesions many small localized pus collections were often found which would have been otherwise overlooked. Thus was disclosed the reason for many a secondary operation, which was often, improperly, called a secondary abscess. In the author's hands the mortality of operations for appendicitis with localized abscess had by this method been reduced from eight per cent. to one and two-tenths per cent., and the claim was advanced that in the hands of men who were qualified to operate upon acute suppurative conditions within the abdomen, not only would mortality be lessened, but that convalescence was shortened and the tendency to postoperative sequelæ much diminished by the invariable employment of the method.

**Sarcoma of the Ovary.**—Dr. MILES F. PORTER of Ft. Wayne, Ind., based his paper upon a comprehensive study of the literature including twenty-six cases found reported in satisfactory detail, together with three cases of his own, making twenty-nine in all. Many sarcomas of the ovary had been overlooked in the past because of incomplete microscopic study, and for the same reason many tumors of the ovary were classed as sarcoma which in reality were not sarcoma at all. Averaging the percentages of sixteen observers, covering over three thousand cases of ovarian tumor, it was found that the percentage of sarcoma to all other tumors was 5.08 per cent. About 20 per cent. of ovarian tumors were malignant and about 5 per cent. were sarcomata; 50 per cent. of ovarian tumors ocurring in patients under five years of age were sarcoma. Contrary to the rule, sarcoma of the ovary frequently involved both organs. This double involvement occurred in about 20 per cent. of cases. Sarcoma was especially likely to occur in the two extremes of life. In his table the youngest patient was ten and the oldest sixty-two years of age. Doran reported a case in a seven-month fetus. The growth was usually rapid. Sarcomas of the ovary on palpation were in the majority of the cases solid or semi-solid to the feel. The ascites in connection with ovarian tumor indicated malignancy but not the character of malignancy, nor did the ascites mean that the disease involved the peritoneum. Sarcomatous tissue was often found in dermoids. About ten or twelve cases of carcinosarcoma of the ovary had been reported. Round-cell sarcomata were more common in the young, and spindle-cell more common in adults. Difficulty of classifying malignant tumors of the ovary was very great. The diagnosis was seldom made save at operation or post-mortem. A close study of each case in the light of their present knowledge would make it possible to make the diagnoses oftener in the future than in the past. Rapidity of growth of the tumor and rapid growth in a tumor that had been stationary for

a long time raised the suspicion of sarcoma. Pain was a prominent symptom in more than one-third of the cases. Disturbances of menstruation were more common in malignant than in non-malignant tumors. Especially was this true of amenorrhea. The mortality of the operation was much higher in children than in adults. The ultimate prognosis seemed the best in fibrosarcoma. A permanent cure could be expected in about 10 per cent. of all cases. Even in desperate cases, the results of the operation were sometimes surprising. Seeligman reported the successful treatment of a case with metastasis in spinal cord by arsacetin intravenously and *x*-rays. One case of cure lasting over a period of two years was reported as following operation and subsequent administration of Coley's fluid.

**Non-Papillary Benign Tumors of the Bladder.**—Dr. E. S. JUDD of Rochester, Minn., noted that out of 164 neoplasms of the bladder operated on in the Mayo Clinic, two were of the non-papillary benign type, springing from the muscular layer of the bladder. In a review of the literature he found thirty similar cases previously reported. In most of the reported cases, bleeding was the first and most marked symptom. Bleeding came apparently from the congested mucous membrane of the entire bladder but especially that covering the tumor. Those muscular tumors extended into the bladder and outward into the peritoneal cavity. The point of origin of the two herein reported was close to the meatus of the urethra. Both were pedunculated. Both were removed suprapubically. Both patients made uneventful recovery and had been well six and one and three-fourths years respectively. Pathologically, the tumors were covered by stratified mucous membrane similar to the mucosa of the bladder. Their appearance throughout was that of uterine myomas. They were composed of smooth muscle fibers and fibrous connective tissue.

**The Necessity of Conserving the Intercostal Nerves in Abdominal Incisions.**—Dr. E. P. QUAIN of Bismarck, N. D., had had occasion to operate on several patients who had previously been operated through lateral abdominal incisions placed in such a way as to sever intercostal nerves. The findings in such cases suggested a possibility that the omentum might have a greater tendency to adhere permanently to that part of the abdominal wall which had been deprived of intercostal nerve supply than to any other part of the parietal peritoneum. A series of experiments on dogs and rabbits was undertaken in an effort to determine whether these observations were correct. The following plan was adopted: Group I. The lower intercostal nerves were severed on one side through an incision near the costal margin without damaging the peritoneum. Group II. An incision was made in the linea alba, both sides of the parietal peritoneum were rubbed with gauze, care being exercised to apply an equal amount of trauma on each side. The wound was closed. Through a second incision at the costal margin on one side, segments of the intercostal nerves were removed. Group III. Same operations were made as in group II, with the addition of tr. iodi, gastric or intestinal contents in weak solutions to the peritoneum on each side. At autopsy there were no microscopic changes in Group I. In Group II, pathological changes were more marked on the enervated than on the normal side in seven of the eight experiments. Microscopic sections showed a more chronic infiltration and a delay in the reparative process in the enervated peritoneum when compared with corresponding sections from the normal side. In Group III, application of tr. iodi and of intestinal contents caused adhesions and chronic peritoneal infiltration to be more marked on the side deprived of intercostal nerve supply. Summary from fifteen experiments in Groups II and III: Adhesions were confined to the side of nerve extirpation in eight animals; two of the three cases with bilateral adhesions had most of the adhesions on the operated side; fibrin deposits were limited to the enervated side in one case; and one animal without adhesions had a more marked peritoneal infiltration on the operated side. There were three negative experiments. Hence, 80 per cent. of the experiments gave a positive answer to the question as to whether the destruction of intercostal nerve supply was of pathological significance to the peritoneum. That adhesions and chronic infiltrations were more likely to follow trauma and infection on an enervated than on a normal peritoneum were facts which argued strongly against lateral longitudinal incisions and in favor of transvere incisions.

**Conservative Operative Treatment of Long Standing Inversion of the Uterus.**—Dr. H. S. CROSSEN of St. Louis, Mo., stated that though inversion of the uterus had been skillfully treated by posture and taxis since the time of Hippocrates (400 B. C.) and by amputation in the more severe cases since the time of Soranus (100 A. D.), it was only within the last half century that conservative operative measures had been developed. At the present time hysterectomy was the treatment commonly employed in the long standing cases. In some of these cases, particularly in women past the age of thirty-five, hysterectomy was the best treatment. In other patients, however, especially in younger women, sacrifice of the uterus was not the best treatment. In such patients preservation of a functionating uterus was very important and might be obtained through a conservative operation. He mentioned the operative methods by which the long-time inverted uterus might be replaced and its functions preserved. Complete division of the anterior uterine wall and cervix (Spinelli, 1900) was the most satisfactory method. He reported a case operated on by this method and detailed the technique. The patient was 23 years of age and had a complete inversion of the uterus of a year's duration. In the trimming of the thickened uterine wall so that it could be enclosed within the shrunken uterine peritoneum, about one-fourth of the wall was sacrificed. The patient made a perfect recovery. Menstruation began the second month after the operation and had been regular and normal for eight months. The advantages of the Spinelli method were as follows: (A) Being vaginal, it minimized the amount of peritoneal contamination; a most important consideration when dealing with an infected structure. (B) As the reposition was accomplished by incision, there was not the bruising and perforation of the friable uterine wall, which had so often accompanied attempted reposition by dilatation of the constriction ring. (C) Division of the interior uterine wall was preferable to division of the posterior wall, because the work was thus more easily and accurately accomplished. The anterior uterine wall and anterior fornix laid toward the operator, hence were less deeply situated and more easily reached. Again, when the operation was anterior, the bladder might be lifted away, giving a wide space for investigation of the inversion-funnel and of the various pelvic structures, and also more room for the operative manipulations of incision, reposition, and suturing. Again, if there was a marked backward tendency, effective forward fastening of the uterus might be carried out through the anterior incision. Again, a suture line on the posterior surface of the uterine wall was more likely to form troublesome adhesions—to the intestines, leading to obstruction, or to the posterior pelvic wall, leading to adherent retrodisplacement. The points in favor of the posterior incision were, that it eliminated the extra opening for drainage and that the sacro-uterine ligaments might be conveniently shortened. But these minor advantages of the posterior incision were outweighed by the more important advantages of the anterior incision.

**Studies on the Function of the Periosteum.**—Dr. J. E. MOORE and Dr. J. F. CORBETT of Minneapolis had made a study of bone growth both in man and through experiments on animals. The conclusions from these studies were: Bones from which a portion of the shaft had been removed, healed in the presence of irritation by subperiosteal bridge of bone. Cutting the nutrient artery prevented the formation of subperiosteal bridge. As the nutrient artery supplied medullary bone and as the periosteum was left intact when the artery was cut, one might assume that the medullary bone was responsible for the subperiosteal bridge. Subperiosteal bridge might fill in gaps left in the periosteum; therefore bone cells were not absolutely dependent upon that structure even as a place of refuge. Subperiosteal bridge was more marked where it received obsteoblasts from two sources than from one. Fascia was a substitute for periosteum. In heterotopic transplants, no subperiosteal bone could be produced by irritation. This was somewhat surprising in that the heterotopic experiments were conducted upon rabbits. They knew that old scars in these animals frequently contained true bone, and that the periosteal device of Scheppelmann begot true bone in the peritoneal cavity. At the present day the periosteum was disregarded. The present day surgeon might be comparatively indifferent to the periosteum when operating upon bone. If it was convenient he preserved it, because the conservation of tissues was always good surgery; but if it was not convenient, he did not hesitate to sacrifice it, knowing that it was not an essential element in the healing of bone.

**Pseudo-Pancreatic Cysts with a Report of Four Cases.**—Dr. Frederick A. Besley of Chicago first suggested that the name should be changed, the present term not being descriptive of the pathological condition. In a review of the literature he found that Jordan Lloyd first accurately described the condition. An analysis of early case reports of so-called pancreatic cysts due to trauma seemed to show that most of them were probably pseudo cysts. A brief review of the anatomy of lesser peritoneal cavity was given. Four cases were reported. Two cases occurred in the service of the writer at Cook County Hospital, one at Wesley Hospital, and one at the Post Graduate Hospital. All four cases received a violent injury in the upper abdomen. Each case showed some immediate reaction from a mild peritoneal insult. A tumor developed in from ten days to three weeks and appeared as a mass to the left and above the umbilicus. In three cases the distended stomach was above the tumor and the colon below it. In the first case the mass projected above the stomach. Fat necrosis was observed in two cases and in two cases a fluid contained pancreatic ferments. The four cases reported were all treated by incision and drainage, and all of them made an uneventful recovery.

**Surgery of Puerperal Eclampsia; Suprapubic Cesarean Section.**—Dr. B. M. Ricketts of Cincinnati, O., read a paper on this subject in which he drew the following conclusions: (1) Medical treatment alone was of but minor importance. (2) Ambulancing eclamptic patients should not be done except in rare instances. (3) The cause of eclampsia had not been discovered. (4) The mortality of both mother and child was proportionate to the early hour of operation. (5) Celiohysterectomy was the method of choice in cases of infection, uterine rupture, or neoplasms. (6) Celiohysterotomy was indicated after the sixth month of gestation when eclampsia was manifested with or without convulsions in the absence of known infection.

## Books Received.

*The* Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

The Student's Handbook of Gynecology. By George Ernest Herman, M.B., F.R.C.P. (London), F.R.C.S. (England). Second Edition, Revised. Illustrated; cloth; 587 pages; price $2.50 net. William Wood & Company, New York.

A Manual of Medical Treatment or Clinical Therapeutics. By I. Burney Yeo, M.D., F.R.C.P. Fifth Edition. By Raymond Crawford, M.A., M.D., F.R.C.P., and E. Farquhar Buzzard, M.A., M.D., F.R.C.P. In Two Volumes. Cloth; 834 pages; price $6.00 net. William Wood & Company, New York.

Tropical Medicine and Hygiene. By C. W. Daniels, M.B., F.R.C.P. In Three Parts, with colored and other illustrations. Part I—Diseases Due to Protozoa. Second Edition. Cloth; illustrated; 277 pages; price $3.00 net. William Wood & Company, New York.

Tuberculin in Diagnosis and Treatment. By Dr. Bandelier and Dr. Roepke. Second English Edition. Translated from the Seventh Revised and Enlarged German Edition. By Wilfred B. Christopherson. Cloth; illustrated; 307 pages; price $4.50 net. William Wood & Company, New York.

A Course of Lectures on Medicine to Nurses. By Herbert E. Cuff, M.D., F.R.C.S. Sixth Edition. Cloth; 281 pages; price $1.25 net. P. Blakiston's Son & Company, Philadelphia.

Diseases of the Digestive Canal. By Dr. Paul Cohnheim. From the Second German Edition. Edited and Translated by Dudley Fulton, M.D. Illustrated; third edition; 389 pages; price $4.00. J. B. Lippincott Company, Philadelphia and London.

Leitfaden der Säuglingskrankheiten. By Dr. Walter Birk. Illustrated; paper; 256 pages; price 4.80 Mks. A. Marcus & E. Webers, Bonn, 1914.

Pathogenic Microorganisms. A Textbook of Microbiology for Physicians and Students of Medicine. By Ward J. MacNeal, Ph.D., M.D. Cloth; illustrated; 462 pages; price $2.25 net. P. Blakiston's Son & Company, Philadelphia.

## Therapeutic Hints.

**Treatment of Premature Baldness.**—G. T. Jackson and C. W. McMurtry state that by proper care of the hair and scalp much may be done to prevent the fall of hair. The maintenance of the fullest vigor of the body is an important means of preserving the hair. In alopecia præmatura idiopathica in which there is no local disease of the scalp one must rely upon stimulation of the circulation in the hope of bringing a richer supply of blood to the hair papillæ. Massage of the scalp should be done frequently and thoroughly. If done by an attendant the massage should be performed for twenty to thirty minutes three or more times a week. The masseur should use an emollient such as "sulphur cream":

℞ White wax, 6 drams.
Petroleum oil, 5 ounces.
Rose water, 2½ ounces.
Sodium borate, 36 grains.
Precipitated sulphur, 7 drams.

Deep brushing with a long bristled brush for a few minutes night and morning is an easy and effectual means of bringing an increased flow of blood to the scalp. Wire brushes are of doubtful value. Electricity and vibratory massage have their advocates. The only medicinal agent that seems to exert a specific action is pilocarpine. A favorite formula is;

℞ Pilocarpine muriate, 20 grains.
Cologne water, 4 ounces.
Rose water,
Absolute alcohol, āā ad 8 ounces.

This is to be well rubbed in night and morning.

Cottle speaks highly of the following lotion:

℞ Acetic acid, 4 drams.
Powdered borax, 1 dram.
Glycerin, 3 drams.
Alcohol, 4 drams.
Rose water, ad 8 ounces.

Tar in some form is said to promote the growth of the hair. One of Sabouraud's formulæ is:

℞ Oil of cade,
Lanolin,
Vaseline, āā 2½ drams.
Yellow oxide of mercury, 15 grains.

In alopecia pityrodes in which there is always some scaling of the scalp, which in its minor form is recognized as dandruff, and which may be so abundant as to produce thick, greasy scales, one should first seek to cure the seborrheal condition. If there is abundant scaling of the scalp olive oil or sweet almond oil with 2 per cent. of salicylic acid should be well rubbed into the scalp at night and an oiled silk or rubber cap put on. On the following morning the scalp should be washed with soap and water.

This should be repeated for several nights until the scalp is clean. The authors prefer cleansing of the scalp with the use of sulphur cream. R. Sabouraud recommends the following:

℞ Alcohol, 90 per cent., 8 drams.
Spirit of lavender,
Spirit of ether, āā, 6½ drams.
Pilocarpine muriate, 4 grains.
Water, sufficient to dissolve the above.
Ammonia water, 1 dram.

The four drugs that are of most use in alopecia pityrodes are sulphur, resorcin, tar, and mercury, and the greatest of these is sulphur.—"Diseases of the Hair."

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## Original Articles.

### A NEW METHOD FOR ESTIMATING THE FUNCTIONAL CAPACITY OF THE KIDNEYS BY FORCED ELIMINATION OF PREFORMED UREA.

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The measurement of the functional capacity of the kidneys, as an aid to diagnosis, has attracted extraordinary attention during the last few years. It would be difficult to overestimate the value of such methods in a large group of cases in which the outspoken symptoms of renal disease are masked or complicated by other symptoms due either to morbid changes in other organs, or more generalized disturbances of health dependent, for instance, upon perversions of metabolism. It is fully recognized that the mere presence of casts and albumin in the urine tells us little as to the extent of the disease which their presence indicates. It is true that their significance may often be correctly determined by correlative signs and symptoms, but sometimes this is difficult or impossible. In such cases, and in that other group in which more or less extensive destruction of renal tissue exists without albuminuria or casts, at least at the time of observation, the need of such aid as a functional test may furnish is pressing.

There are certain difficulties standing in the way of the practical application of a functional test which should be fully recognized. Chief among these is the very large margin, so to speak, of kidney function with which the animal organism is endowed. The surgeon removes one kidney, *e.g.* and if the other is of normal size and function the individual goes on his way none the worse, so far as can be seen, for the loss of one-half of his kidney structure. Not only so, but at least one-half of the remaining kidney can be removed without seriously curtailing his renal function, at least so far as the ordinary demands are concerned. If, however, an emergency arises involving extraordinary demands, or if some untoward circumstance, such, for instance, as a severe passive congestion, or the depressing action of some toxin, should temporarily inhibit renal function, the patient might easily succumb because of the limitation in quantity, and, therefore, in functional capacity of renal tissue.

Now this general biological law, while of the utmost importance for the conservation of the individual, makes it impossible to recognize the incipient stages of destructive lesions by a simple measurement of functional capacity.

Not only is there an extremely wide margin of surplus function, a considerable part of which may be sacrificed without serious detriment to the patient under ordinary conditions, but the size and functional capacity of the kidneys vary in different individuals. Sharply defined lines, cases on one side of which are normal, and on the other pathological, can not be drawn at all.

To still further complicate this problem extrarenal causes, especially in the cardiovascular apparatus, may greatly impair function without any structural alteration whatever, or at most only that of a slight and evanescent character. The coexistence of cardiac disease always suggests the operation of extrarenal causes. Other signs of cardiac weakness will usually be found if this is an important factor in the case. In any event the influence of extrarenal circulatory disturbances in producing passive renal congestion, and thus impairing renal function is a practical problem which the clinician must solve as best he can. This is, of course, often very difficult. It has an obviously important bearing on both prognosis and treatment, but even if it can sometimes receive only a probable solution, information regarding renal functional capacity is still of the highest value.

The object of this communication is to offer a clinical method of estimating one of the most important phases of kidney function in a manner more strictly physiological than the elimination of foreign substances, the information derived from which must be entirely inferential. I say "phase of kidney function" because it has been clearly demonstrated, experimentally and clinically, that renal function is extremely complex, and that "functional capacity" may be unimpaired, or at most slightly impaired in regard to the elimination of certain substances, and most seriously compromised in regard to others. This fact is too well known to require comment or verification. While there are probably other substances or groups of substances, the elimination of which by the kidneys may be differently modified by kidney disease, I will mention three because of their great clinical importance, as well as their fundamental relation to the entire question, *viz.*, urea, chlorides, and water. The first two of these, and possibly the third, represent clinically, and probably pathologically, certain fairly definite types of renal disease. It is perfectly obvious that the dietetic treatment of Bright's disease, which is paramount to all others, should, if possible, be absolutely controlled by the precise type of "renal block" present. To subject a patient to relative proteid starvation, when the renal impermeability is for chlorides only, or vice versa, is no longer justifiable. The clinical differentiation can be made, and should be made as directly as possible. It is not desirable to draw inferences when direct evidence is obtainable.

The phenolsulphonephthalein test, undoubtedly the most valuable test by elimination of a foreign substance introduced up to the present time, although

giving information of great value, does not make this differentiation. The statement of Rowntree and Geraghty, that its elimination corresponds with that of urea, certainly has many exceptions. In another paper[1] I have cited a number of my own cases in which the discrepancy was very marked. This question will be taken up later in this paper.

It was with the view of getting direct evidence as to the capacity of the kidneys to excrete urea that I took up the clinical study of its elimination after the ingestion of preformed urea by mouth. The study of urea excretion after the ingestion of variable quantities of proteid food was obviously unsuited, because of the relatively slow digestion, absorption, and metabolic change of such alimentary substances. Preformed urea, being readily soluble, and entirely non-toxic, could easily be taken into the circulation from the digestive tract in quantities, the prompt elimination of which would either be beyond the capacity of the kidneys, or at least beyond any possible physiological requirement. In this way it seemed to me, a very reliable estimation could be made of the capacity of the kidneys to excrete what is apparently the most important end-product of nitrogenous catabolism.

Not only is urea important as a constituent of the waste products normally removed by the kidneys, but by reason of its large nitrogen content, it seems probable that the renal mechanism for its removal is somewhat closely related to that concerned in the removal of the toxins responsible for the syndrome of Bright's disease, because unless these unidentified toxic substances differ from the entire group of ptomaines, leucomaines, etc., which have been identified, they also are nitrogenous in composition. The inference seems fair, therefore, that the capacity of the kidneys to eliminate urea, would bear a close relationship to their capacity to remove these toxic substances from the blood. At least it should furnish more reliable information than the elimination of any foreign substance.

The only reference that I was able to find in easily accessible literature was in Albarran,[2] who reports giving 20 grams of urea and 5 centigrams of methylene-blue daily for several days and finding that the curves of excretion corresponded closely. My purpose was to determine the maximum capacity of the kidneys for urea excretion in a given period of time, believing that this would be the most reliable criterion of their ability to depurate the blood of the nitrogenous toxic substances.

After studying the question theoretically and experimentally, the following technique was adopted:

*Method.*—About 6 A.M. the bladder is emptied. Two hours later the urine is collected, and at the same time the patient is given 30 grams of urea, dissolved in four or five ounces of water. Just before taking the urea, the patient drinks one-half of about six ounces of thin cereal gruel, taking the other half immediately after the urea. No other breakfast. The urine is then collected every two hours for 12 to 24 hours, the urea determined for each two-hour period, including the two hours preceding the ingestion of the urea, and from these data the curve of excretion is constructed.

It is not necessary to secure an exact nitrogen balance. With any ordinary diet, the urea output from 6 to 8 A.M., fourteen to sixteen hours after the last food taken, is too small to confuse the findings in any way. Unless the quantity of proteid food ingested during the preceding day is excessive, the exogenous urea will have been all or nearly all excreted by that time. A fairly low, *e.g.*, 50 gram, proteid intake for the day preceding, and the day of the test, meets every requirement.

There are several reasons why the urea is given in the manner, at the time, and in the quantity indicated. The morning hour is selected because the urea output will be at its lowest volume, and the observations, if limited to 12 hours, may be completed during the waking hours. A small quantity of liquid nourishment is chosen in order that the urea may be hurried through the stomach, from which absorption does not take place at all, into the intestines where absorption is rapid. A part of the gruel is given first because we found that the empty stomach frequently does not tolerate the urea solution well, and the remainder of the gruel is given afterward to remove the rather unpleasant flavor of the urea. Beer and coffee have both been used to mask the bitter taste, which resembles that of epsom salts.

After experimenting with different quantities of urea, varying from 20 to 40 grams, 30 grams was decided upon as about the proper amount, being amply large to test the capacity of the kidneys to their limit, or at least far beyond any possible physiological demand for functional capacity.

As a basis of comparison, the bi-hourly output of urea was studied under different dietetic conditions in cases with presumably normal kidneys. This is shown in charts Nos. 1 to 4, forming

GROUP I.—Bi-hourly output of urea on ordinary diets without administration of urea.

*Explanation.*—In all of the charts which follow the vertical lines indicate bi-hourly periods, the figures at the base of these lines showing the exact time, always commencing in the morning. The horizontal lines represent grams of urea, graphical-

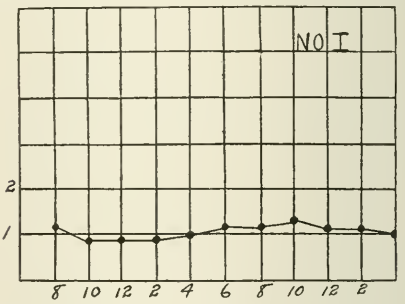


CHART 1.—Urea excretion in case No. 337—Tic Doloreaux—normal kidneys, on a diet of 50 grams proteid daily in three meals. Phthalein 2 hrs.—48 per cent. Urea excreted 12 hrs.—5.8 grams.

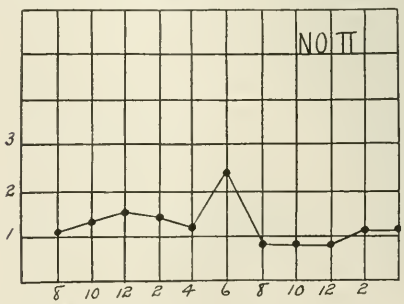


CHART 2.—Same patient as Chart 1, with 100 grams proteid daily. Urea excretion in 12 hrs.—9 grams.

ly shown, and also indicated by figures at the beginning of each line. The dot occurring on the vertical lines, as a part of the graphic line, always represents the urea output for the preceding two hours. When

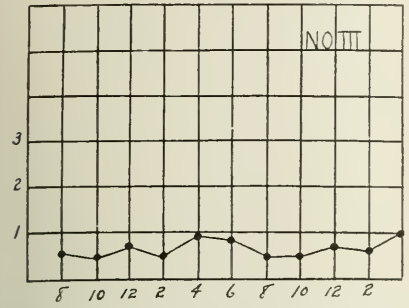


CHART 3.—Case No. 402—anemia with slightly damaged kidneys, still capable of doing good work. On 50 grams proteid daily. Phthalein—30 per cent. 12-hour excretion of urea—4 grams.

this occurs on the same vertical line with the x it represents the urea output for the two hours preceding the ingestion of the urea.

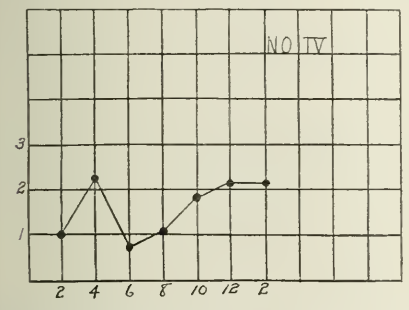


CHART 4.—Case of chronic gastritis—normal kidneys—on 65 grams proteid daily. Phthalein—record lost. 12 hour excretion of urea—10.3 grams.

Charts 1 and 2 represent the urea output in a man 25 years of age, with a remarkably large capacity for urea excretion as shown later in chart No. 5 from the same patient. There is a a notable similarity between the curves on a diet containing 50 grams of proteid and one of 100, the only difference being that the latter runs a trifle higher. In these two charts, both from the same patient, and in No. 3, from a patient with slightly damaged kidneys, on a 50 gram proteid diet, pretty evenly divided between the three meals of the day, there is a noticeable absence of any sharp rise or fall of urea excretion in connection with the digestion of meals. The urea from the food proteids can only be formed as fast as digestion, absorption, and the chemical processes of metabolism can be completed; and in these observations, excretion of the exogenous urea of one meal apparently merges into that from the next. In chart No. 4 somewhat wider fluctuations are observed with 65 grams of proteid daily, and with a single very large proteid meal they would undoubtedly be still larger.

The results of the ingestion and rapid absorption of 30 grams of urea are naturally much more striking. It is a crystalloid substance in solution, and unless retarded by gastric stasis usually enters the circulation through the intestinal wall very rapidly, and without any chemical change whatsoever, so far as known, is ready for excretion by the kidneys with a rapidity directly proportional to their functional capacity. It is perfectly well understood that this functional capacity is dependent upon several factors other than the structural integrity of the kidneys, such, *e.g.*, as the local neurovascular mechanism controlling the circulation of the kidneys, and, of course, the general cardiovascular conditions. Ordinarily the greater part of this urea will be in the blood by the end of the first two-hour period. During the second two-hour period, therefore, we should expect the maximal urea output. This is in fact what takes place in health. Just what the maximal output should be in any two-hour period following the ingestion of 30 grams of urea in normal individuals must vary considerably with the size of the kidneys, the activity of the renal circulation and of the renal epithelial cells which may very probably be influenced by toxic or nervous conditions and other factors known or unknown.

In charts 5 to 7 inclusive are shown what I believe to be the ordinary range of health.

GROUP II.—Excretion of urea in normal individuals in bi-hourly periods, following ingestion of 30 grams of urea.

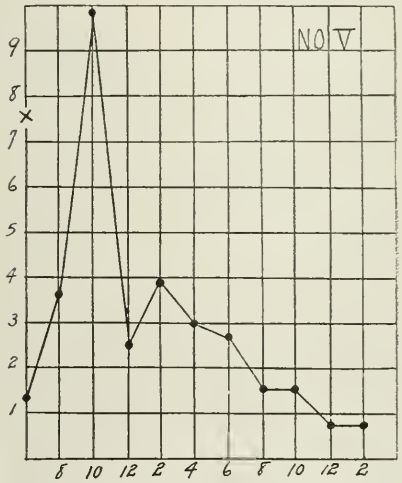


CHART 5.—Case No. 337—same as in Chart 1—normal kidneys. 30 grams urea given at 6 A. M. Phthalein—48 per cent. Highest output 9.6 grams—second bihourly period. Urea excretion 12 hrs.—25.5 grams.

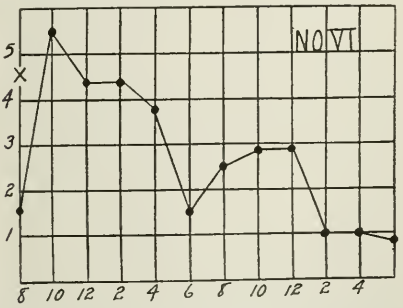


CHART 6.—Case No. 391—normal kidneys—30 grains urea given at 8 A. M. Phthalein—54 per cent. Highest output 5.5 grams—first bihourly period. Urea excretion 12 hrs.—22.1 grams.

*Explanation.*—Same as group I with the addition of an "x" in a broken vertical line which indicates the hour at which the 30 grams of urea were given.

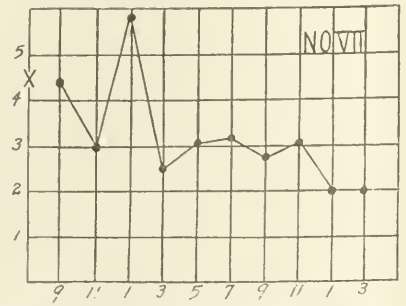


CHART 7.—Case No. 511—arteriosclerosis—kidneys with normal urea excretion—30 grams urea given at 7 A.M. Phthalein—25 per cent. Highest output 5.8 grams—third bihourly period. Urea excretion 12 hrs.—21.75 grams.

The following charts (8 to 14 inclusive) are selected from various cases, mostly pathological, the legends beneath each chart giving some information in regard to each case.

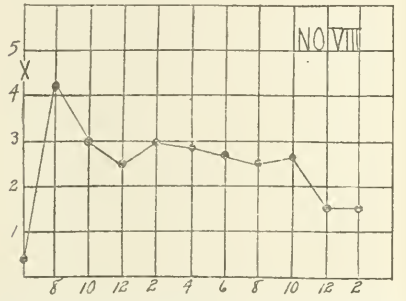


CHART 8.—Case No. 148—renal function for chlorides subnormal—urea excretion somewhat impaired—30 grams urea given at 6 A.M. Phthalein—32 per cent. Highest output 4.25 grams—first bihourly period. Urea excretion 12 hrs.—18.3 grams.

GROUP III.—*Explanation.*—Same as in group II. For diagnostic purposes these charts may be studied from several aspects, in addition to the maximum bi-hourly output already referred to. It

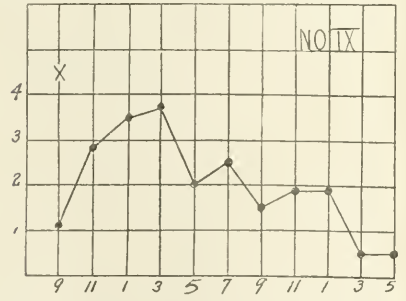


CHART 9.—Case No. 378—epilepsy—kidneys—30 grams urea given at 9 A.M. Phthalein—42 per cent. Highest output 3.7 grams—third bihourly period. Urea excretion 12 hrs.—16 grams.

seems worth while, in passing, to consider for a moment what would be the 24-hour output of urea if the highest bi-hourly rate were maintained for that time. In chart No. 1 on a 50-gram proteid diet, the 24-hour urea excretion on this basis would be about 15 grams. In Chart No. 2 on a 100-gram

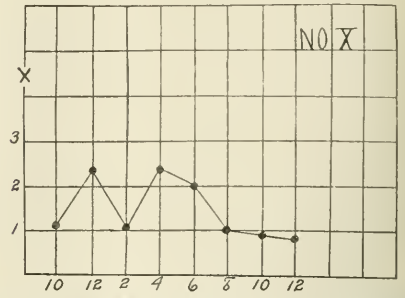


CHART 10.—Case No. 719—advanced endocarditis and myocarditis with chronic passive congestion of kidneys—30 grams urea given at 8 A.M. Phthalein—6 per cent. Highest output 2.4 grams—second and fourth bihourly period. Urea excretion 12 hrs.—10.25 grams.

proteid intake, it would be nearly 30 grams. In chart No. 5 from a normal individual after the ingestion of 30 grams of urea it would be about 120 grams, while in charts No. 6 and 7 it would be a

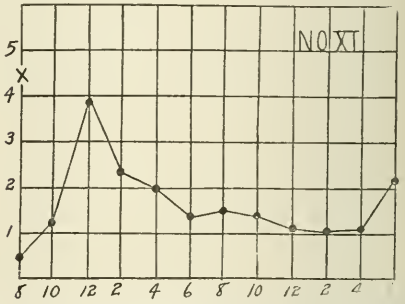


CHART 11.—Case No. 631—marked secondary anemia, cord degeneration and limited renal capacity—30 grams urea given at 8 A.M. Phthalein—21 per cent. Highest output 3.9 grams—second bihourly output. Urea excretion 12 hrs.—12.37 grams.

little more than 60. It would not, of course, be possible for the highest rates of excretion shown in charts 5 to 7 to be maintained for a very long time. The kidneys would soon become exhausted,

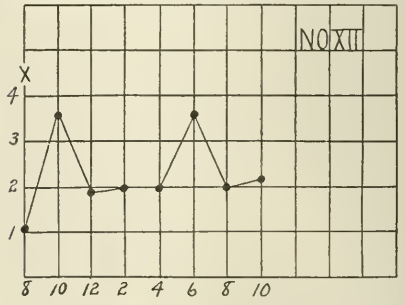


CHART 12.—Case No. 603—endocarditis, myocarditis, moderate renal impermeability to urea—30 grams urea given at 8 A.M. Phthalein—50 per cent. Highest output 3.6 grams—first and fifth bihourly period. Urea excretion 12 hrs.—17.67 grams.

even if it were possible to keep the blood charged with the high percentage of urea which we know

would be necessary, and which, according to Ambard's investigations, bear a certain definite proportion to the urea output in the urine at any given moment. Twelve times the highest bi-hourly output, however, gives us a factor which can be compared with the ordinary daily excretion on a full proteid diet, indicating the enormous reserve functional capacity of the kidneys. This is not suggested, however, as a diagnostic criterion.

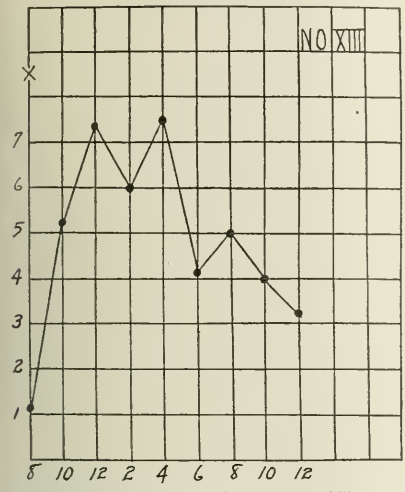


CHART 13.—Case No. 686—diabetes—permeability to urea normal—30 grams urea given at 8 A.M. Phthalein— 25 per cent. Highest output 7.5 grams—fourth bihourly period. Urea excretion 12 hrs.—35.35 grams.

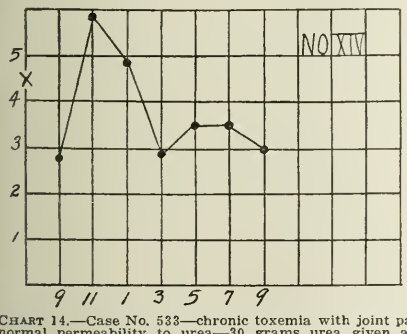


CHART 14.—Case No. 533—chronic toxemia with joint pains —normal permeability to urea—30 grams urea given at 7 A.M. Phthalein—45 per cent. Highest output 5.7 grams—second bihourly period. Urea excretion 12 hrs.—23.16 grams.

A more important consideration is that of the actual excretion during a longer period following the ingestion of the urea. For this purpose 12 instead of 24 hours has been chosen because of the practical difficulty of keeping up an accurate bihourly collection of urine during the night, and especially because the most important clinical data can usually be obtained within that time.

The entire curve for 12 or 24 hours often presents interesting fluctuations, the significance of which at present is not always clear. This gives us then for the clinical study of forced elimination of preformed urea:

1. The highest bi-hourly output, which seems to vary in health from 5 to 10 grams.
2. The total output in 12 hours.
3. The general character of the excretion curve.

The period during which the highest excretion occurs is of interest. It should be either the first or second two-hour period. If later, it may be due either to delayed absorption, or to a slow response on the part of the kidneys. The late, very wide fluctuations in the urea output found in some cases, after taking 30 grams, furnish pretty strong proof that the kidneys may for some reason fail to respond promptly to a large urea content of the blood, which certainly cannot rise and fall as the urea excretion sometimes does.

What are the standards of normal function calculated on this basis? Obviously, and for reasons already emphasized, no single standard of function can possibly be established, because of the wide variations in different individuals in health. The most that we can do with this or any other functional kidney test is to determine the range of health. This range, after the ingestion of 30 grams of urea, I believe to be approximately represented by the highest and the lowest of the three charts, 5 to 7 inclusive, giving from about 5 to about 10 grams in the highest two-hour excretion period, with a range of total excretion during the first 12 hours of 20 to 30 grams.

Cases with an excretion much below 20 grams should be regarded as of somewhat limited functional capacity for urea excretion, while one-half this lowest limit probably represents serious or even dangerous impairment of functions. It might be mentioned in this connection that the difficulties in the way of establishing a standard for comparison is no greater with this specific physiologic test for one phase of kidney function, than it is with the more general phenolsulphonephthalein test, which, as can be easily shown, does not differentiate between the urea and other excreting functions of the kidneys. The phthalein test in the conventional 2 hours and 10 minutes may vary in normal individuals anywhere from close to 100 per cent. down to about 50 per cent. In other words the proportion of the lowest to the highest range in health may be about as 1:2. This is equally true of the urea test so far as highest and lowest bihourly outputs are concerned, and is simply an expression of the wide range of normal functional capacity already emphasized. To say that it is not an obstacle in the interpretation of any functional test is absurd. It is, however, equally absurd to reject the valuable information which functional tests can furnish, simply because they cannot be reduced to a rule of three. To be safely guided by them requires clinical judgment without which any laboratory aid to diagnosis is a delusion and a snare.

I do not think it is necessary to comment at length upon charts 8 to 14 inclusive, which represent various degrees and phases of renal disease, with the exception perhaps of No. 13. This is from a case of diabetes, and shows a rather large urea output which is quite in harmony with clinical findings in diabetes, with an interesting fall in the third bi-hourly period and a subsequent rise in the fourth; and No. 14 which gives with a normal high point, a sustained excretion above 3 grams for 12 hours, indicating that the kidneys are working at pretty high pressure during that time to unload the excess of urea. No. 12 is noteworthy, illustrating a not infrequent prolonged drop in functional activity followed, 10 hours after the ingestion of the urea, by a second rise equal to the first.

In the following table is presented a comparative study of the phthalein and urea excretion:

COMPARATIVE STUDY OF RENAL FUNCTION AS SHOWN BY UREA AND PHTHALEIN EXCRETION

| Case No. | Twelve Hours Output | Highest Bihourly Output | Per Cent. of Normal Bihourly Output | Per Cent. of Phthalein 2 Hours 10 Minutes |
|---|---|---|---|---|
| 231 | 12.87 | 3.5 | 35 | 18 |
| 391 | 22.16 | 5.5 | 55 | 54 |
| 9 | 16.40 | 4.0 | 40 | 25 |
| 367 | 16.51 | 3.8 | 38 | 64 |
| 596 | 15.25 | 3.6 | 36 | 16 |
| 719 | 10.25 | 2.4 | 24 | 9 |
| 533 | 23.16 | 5.7 | 57 | 45 |
| 631 | 12.37 | 3.9 | 39 | 21 |
| 686 | 35.35 | 7.5 | 75 | 25 |
| 603 | 17.67 | 3.6 | 36 | 50 |
| 700 | 24.50 | 6.7 | 67 | 30 |
| 926 | 20.65 | 6.0 | 60 | 28 |
| 289 | 13.51 | 3.2 | 32 | 7 |
| 129 | 11.75 | 3.5 | 35 | 33 |
| 292 | 15.72 | 5.4 | 54 | 55 |
| 378 | 16. | 3.7 | 37 | 40 |
| .... | 32.05 | 6.2 | 62 | 47 |
| 855 | 21.75 | 5.4 | 54 | 43 |
| 511 | 22.1 | 5.8 | 58 | 25 |
| 929 | 23.05 | 5.4 | 54 | 38 |
| 65 | 19.9 | 5.1 | 51 | 46 |
| 337 | 25.5 | 9.6 | 96 | 48 |
| 118 | 18.3 | 4.2 | 42 | 32 |
| 449 | 11.7 | 2.9 | 29 | 21 |

The percentages are placed in parallel columns, the phthalein percentage indicating as usual the proportion of the entire 6 milligrams excreted in 2 hours and 10 minutes, while the urea percentages indicate the proportion of the highest output shown in the case to the high normal of 10 grams in 2 hours. A careful study of this table will demonstrate what I have repeatedly emphasized, that the functional capacity of the kidneys to excrete phthalein is not at all parallel to that of urea.

A word should perhaps be said about the significance and relative diagnostic value of the highest bi-hourly excretion of urea on the one hand, and the 12-hour output on the other. It seems perfectly obvious to me that the real maximal capacity of kidney function is best expressed by the highest excretion in a limited time—2 hours being the time chosen in this investigation. On the other hand the quantity of urea excretion of which the kidneys are capable in a considerably longer period of time —say 12 or 24 hours—might appear from certain points of view more important. As a matter of fact, a pair of kidneys with relatively smaller functional capacity by working constantly, at the highest possible rate of speed, possibly stimulated by morbid irritation, might do in 12 hours a larger actual volume of work than another, which, for some reason, while capable of doing much more, does not maintain continuously so rapid a rate of excretion. For instance, in chart No. 5 the highest bi-hourly rate is 9.6; the twelve-hour excretion 25.5 grams. In chart No. 13 the highest bi-hourly output is 7.5 grams while the twelve-hour output is 35.35 grams.

Illustrations of a similar character might be added from these and other unpublished charts. The same feature of long sustained maximal functional work on the part of damaged kidneys is prominently and most convincingly shown by Albarran in the work upon which his polyuria test is based. A kidney, *e.g.* which is badly damaged, may, as he clearly shows, be excreting more water under ordinary conditions than a perfectly normal kidney with a functional capacity many times greater. When the extra demand is made upon it, however, it may not do much more than before, while on the other hand the normal kidney may respond by a many times multiplied excretion.

It appears to me that the capacity of the kidneys to excrete urea, when a large extra demand is made upon them should be viewed somewhat in the same light. Albarran's work was, of course, surgical and his findings were commonly checked by operative procedure, a sort of check which is obviously impossible in the routine kidney work of the internist. Albarran says distinctly that in a large surgical practice he has never once been deceived by this principle of interpretation, and we may well learn such lessons and draw such inferences, from his work as we can with due reserve and caution, recognizing the different aspects of the problems which confront the surgeon and internist.

*Conclusions.*—1. It is now fully established that the functional impairment of the kidneys may be limited, or at least more marked, with reference to certain classes of waste products. There may be, *e.g.* (and these are the most important groups) varying degrees of renal block for urea, chlorides, or water.

2. This makes it extremely important from a therapeutic point of view to differentiate between the various types of renal block because the dietetic treatment of chronic kidney disease, by far its most important phase, can be intelligently directed only with full knowledge of this differentiation.

3. This differentiation cannot possibly be made by routine laboratory methods or by the phenolsulphonephthalein test because, as clearly shown in the above table, there is no parallelism between the capacity of the kidneys to eliminate phthalein on the one hand and urea on the other. The parallelism between phthalein and chloride elimination I have not investigated.

4. This differentiation can best be determined by surcharging the blood with the different substances in question and determining the rate of excretion of each, first over a brief period of time, *while the blood remains heavily surcharged*, and again over a longer period to determine the duration of time required to depurate the blood of a morbid excess.

5. The permeability of the kidneys for urea can be determined with great accuracy, in the absence of marked gastric stasis, by the ingestion of 30 grams of urea, according to the method described in this communication and furnishes a scientific basis for the regulation of the proteid intake.

6. While this method is easily within the reach of any physician who can make a determination of urea by the simple and inexpensive Doremus apparatus, which is sufficiently accurate for such an investigation, yet it is too laborious and time-consuming to be used as a routine method (for which the phthalein test is sufficient), but has a very high value in properly selected cases, in which, especially for therapeutic purposes, it is advantageous to know the type of renal block present.

7. The capacity of the kidneys for chloride and water excretion can, and in suitable cases, should be determined by similar methods, although the interpretation would be much more complex.

I desire to acknowledge my indebtedness to Dr. M. F. Porter, Jr., and Dr. B. M. Edlavitch for their assistance in this work.

## REFERENCES.

1. "The Functional Diagnosis of Kidney Disease," read before the Cincinnati Academy of Medicine, April 21, 1913; published in the *Lancet-Clinic*, August 16, 1913.

2. "Functional Diagnosis of Kidney Disease," Paris, 1905, p. 31.

# THE USE OF PINEAL GLAND IN THE TREATMENT OF CERTAIN CLASSES OF DEFECTIVE CHILDREN.*

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It is now over three years since Prof. C. L. Dana of New York telephoned to me at my office late one evening and said: "Dr. Berkeley, I wonder if I could get you sufficiently interested in the function of the pineal gland to undertake some research work on the subject?" I was a little appalled at such a suggestion touching one of the most mysterious organs in the body, and said: "You mean the hypophysis cerebri, do you not?" "No," he said, "I mean the epiphysis, the pineal gland, the conarium; go down to the Academy of Medicine and hunt up Frankl-Hochwart's account in the *Zeitschrift für Nervenheilkunde* of a tumor of the pineal gland in a boy of five and a half years, and see what you think of it." I did so the very next day, and that was the beginning of my interest in the development of the pineal gland as a clinical resource. But I must not fail to emphasize the fact that the original notion of the profit of such a research was entirely Dr. Dana's and that his ripe judgment and conservative advice have done much to bring to the work the measure of success it has met with.

This case of Frankl-Hochwart's is typical of a number that have appeared in recent medical literature, and is one of very great interest—an interest that would have been much more adequate and far-reaching but for the imperfection with which the original account has been quoted. The boy was under observation for a number of months and at the time of his death was conclusively proved to be only five and a half years old. He was as large as a normal boy of 12 or 13, had well-developed pubic hair, and a low-pitched voice. His mentality was also notably precocious; he is said to have asked many questions about the condition of the soul after death, and on another occasion remarked reflectively: "It is odd how much better I feel when I let the other children play with my toys than when I play with them myself."

Clinically the case was characterized by headache, by occasional projectile vomiting, and by choked disc. At autopsy there was found a peculiar tumor of the pineal gland. Microscopical sections of this tumor were drawn and the drawings are published in the article referred to. They have been interpreted by Frankl-Hochwart himself, by Marburg, and by others of the Vienna School as indicating a destructive lesion of the pineal gland. Without being able to offer any demonstrative evidence against this conclusion, and without meaning to question the judgment of Professor Frankl-Hochwart himself, for whom, as an old teacher of mine I entertain the highest respect, it appeared to me not at all impossible that on the contrary the tumor might have been in certain of its parts an adenoma of the pineal gland, involving some increase in its function. After talking this point over with Dr. Dana it appeared probable that if our own supposition was correct the same results, at least in the matter of physical growth, should be produced by feeding the gland to normal young animals, and that if this experiment proved encouraging we might next try the effect of pineal medication upon physically and mentally retarded children. This in brief was the guiding principle and aim of our work since that time.

After we had spent a winter in some preliminary work the Trustees of the Rockefeller Institute very kindly extended some aid to what had proved a rather expensive undertaking, and a long and laborious report on the whole subject was published in the Medical Record nearly a year ago. It has been the complaint of many that this article, by reason of its very technicality and length, was unreadable by many busy professional men who might be specially expected to interest themselves in trying out the new remedy. It seems therefore worth while to set forth more briefly and directly what the research has actually accomplished.

I shall speak of the form of the gland used as a medicament, then of the results with young animals, then finally of the clinical facts in the case of certain classes of retarded children.

First, as regards the gland, we began with calves' pineal, but it was found after a few weeks' work that to obtain these in any quantity was too difficult a proposition to be practicable. Since that time we have used exclusively the glands of young bullocks. The fresh glands were rapidly dried, mixed with milk sugar, and put up in capsules, each capsule corresponding to 150 pounds of bullock,—live weight. This is a physiological dose and enables one to avoid the chances of error (increased fibrous tissue, calcareous deposits and other anomalies) affecting the weight of the crude gland. These capsules are not unduly expensive considering that the dose is small. They may now be had, correctly prepared according to my formula, in several New York pharmacies. The ordinary dose for a child of 25 or 50 pounds' weight is one or two capsules a day, best after eating. For children who will not or cannot swallow the capsule whole, it may be opened and the powder given directly or upon a bit of buttered bread. The gland has proved uniformly harmless to the stomachs of many delicate children; only one or two doubtful instances of indigestion ensuing upon its use have been reported. As the gland usually contains no very dense fibrous tissue and no fat, this method of administration seems to me much the best, and I do not recommend any preparation purporting to be an "extract."

In respect of the work with young animals, guinea-pigs, kittens, and rabbits were used. The experiments have covered nearly two years in time and have gone far enough to produce some interesting results. Of eight half-grown guinea-pigs under observation for five weeks, four subjects gained 36 per cent. and four controls gained 25 per cent. in weight. Of a dozen small kittens the subjects outgrew the controls rapidly in activity, size, intelligence, and resistance to intercurrent disease. The best control, beginning with a weight of 11 ounces, gained four ounces in two months and a half. The best subject, starting with a weight of 12 ounces, gained 12 ounces more, doubling his weight. All were fed alike. The medication was fresh gland—one calf's gland per day for each subject, or a measured amount of nucleoproteid solution in milk.

Of ten small rabbits of varying color and size, under observation for five months, five were fed on the pineal capsules described above; one died (accident), and the four survivors, weighing *in toto*

*Abridged from an informal account given recently before the Society of Internal Medicine, New York City.

at the beginning of the experiment 99 ounces, gained in the period mentioned a total of 192.3 ounces, or an average of 48 ounces per rabbit. Of the five controls two died, and the three survivors at the end of the five months had gained in all 107.4 ounces, or 36 ounces per rabbit. The subjects were beautiful specimens—clean, active, fat, and salacious—and their growth was remarkable. One of the smaller ones trebled his weight exactly.

I come finally to our experiences with defective children. Here there first arises of course the natural, and, unfortunately, the very difficult question, "What is a defective child?" The term is applied nowadays in medical treatises to a vast number of clearly different conditions. Outside of the congenital half-human monstrosities, the cretins, and the mongols, the porencephalics, the monoplegics, and the rest, there are many mentally deficient children in whose physical make-up, outside the brain, nothing abnormal can be discovered. They have well-shaped heads, normal eyes, symmetrically perfect limbs, and an excellent digestion. They often grow rapidly and have excessive strength of muscle. In these cases it appears that the cerebral *chemistry* is alone at fault, and that if we had but "the key to the lock," the "proper spark-plug for the motor," all might go well. The question is further complicated in the case of the high-grade "moron" by the curious fact that he progresses normally up to his eighth, or tenth, or twelfth year, as the case may be, and then stops, the cause of his arrest being as mysterious as are the operations of the cerebral forces when normally in action. Moreover nearly all such patients—the physically negative ones—are so different from one another in their mental deficiencies that thus far no definite classification has been possible for them. Some can do simple mental operations proper for the normal child a few years younger than themselves; some, on the contrary, at six and eight years of age are still as helpless and untidy as babies.

It has long been supposed since Horsley's classic work on cretinism that others of the internal secretions might be at fault in unclassified cases of mental deficiency in children. But experiment has been disappointing, both because the preparations of the glands of internal secretion have until recently been notoriously unreliable, and because in the cases chosen for experiment the "key did not fit the lock."

With these bewildering facts before us there seemed but one way out of the difficulty—to give the remedy a fair trial on a large number of cases. Among these there were to start with a few cases of simple physical dwarfism with good mentality. These I presently left out of the investigation entirely, as I became convinced they were subjects for pituitary medication only. The pineal gland has now had a more or less fair test on nearly 100 mentally defective children. A large majority of these were without physical stigmata. They belonged in general to the unclassified group of cases I have already described. The following brief account discloses some remarkable results, and indicates in a general way what patients it will be worth while to make the experiment with in future.

I will take up the negative side of the work first. No experiments upon cretinism were made. A valuable specific medicine for this disease is already at hand. The gland was tried on one amaurotic idiot 18 months old; there was no definite result. As a matter of completing the record the gland was tried—always with negative results—upon a few congenital idiots of 8-15 years of physical age. I also found as far as our experience went that little or no response could be elicited *in mental defectives* of *any class over* 15 *years of age.* In respect of two mongols under my treatment for several months it was my impression that both made some progress, but as they might have been expected to make a certain degree of progress anyway I had no satisfactory control for them, and I shall have to leave it for the future to determine what pineal therapy can do for the medium and high-grade mongolian idiot. I doubt whether anything will ever help the low-grade mongol.

Turning now from the gloomy side of the question, I may mention finally, in brief, some of the case histories that appear to have reasonably justified the research.

At the Training School at Vineland, N. J., some impartial and exactly scientific tests of pineal gland were made by Dr. Henry H. Goddard. A four months' test was arranged. Some twenty-five subjects and twenty-five controls started upon the experiment; twenty-one subjects and fourteen controls finished. The criticism will at once be offered that the use of a control in such a case is impossible, no two defective children being ever exactly alike. However, each child was grouped with the child or children nearest him in heredity and mental age (Binet tests), and Dr. Goddard is of the opinion that by testing more than a dozen couples or trios of children in this way gross error may be safely avoided. All the children were under the regular dietetic and educational routine of the institution. Of the subjects, several were congenital idiots, and these, as was anticipated, made no progress. But fourteen of the others made a gain, and the average, .65 of a year, was twice the normal, and more than twice the progress of the control children in the same period. Some of the subjects advanced .8 of a year; one advanced 1.8 years. This child's teacher, who had not heard of the pineal gland experiment, came voluntarily and asked what new medicine the child was getting—that his progress was quite unusual.

There was another group of backward children at Public School 12, Jackson and Henry streets, New York, with whom the treatment was kindly undertaken by Miss Carol Young (Mrs. Startzman), the teacher in charge. Mrs. Startzman is herself a graduate of the Teachers' Training School at Vineland. Here the practical difficulties were much greater than at the school first mentioned. After struggling with many careless and indifferent mothers for a while Miss Young finally hit upon the expedient of keeping the capsules at school and giving one to each pupil as directed (the parents' consent having been obtained) on school days only, medication being omitted altogether on Saturdays and Sundays. This scheme worked very well, and a majority of the children tested—about sixteen in all—made more or less response; those well marked by organic defects were a uniform exception. The period of trial was five months.

All these cases have been exhaustively written up in the formal report previously referred to, but I may mention again as examples of what may be accomplished with pineal medication the cases of Hannah T. and Rose R. For brevity's sake only the essential parts of the case-histories are given here.

Case XIV.—Rose R., P. S. 12 (Miss Carol K. Young).

Weight, 60½ lbs.; height, 31½ in.; age, 9 yrs. Date first visit, November 11, 1911. Family history: Mother, 43 yrs. old; one miscarriage (2 mos.) 6 yrs. ago; 5 boys, 16, 15, 12, 5, 22 mos.; all healthy mentally. Previous personal history: 9 mos. child; mother in labor 16 hrs.; no forceps; walked 14 mos.; talked at 15 mos.; meningitis at 17 mos.; in bed 10 wks.; convulsions then; not since; been in class for defectives at P. S. 12 for 3 yrs.; making very slow progress. Status præsens: P., 80; R., good; T., normal. Color of skin: Healthy; rosy and robust appearance; bright expression. Special senses: Eyes now fitted with glasses; seems to have good vision. Treatment: Pineal capsules, 2 per day. December 30, has been away several weeks; grown ½ in.; prescribed 2 caps.; Miss Young reports favorable progress. Again Miss Young writes, February 26, 1912: "Began treatment in November. On account of illness in family did not go regularly. Her improvement has been notable since she began taking the gland. Before her lessons seemed to be a burden to her and now she seems to enjoy them. Does not fatigue so easily. She has always been very nervous and could not concentrate for any length of time. She does not get these nervous spells as often as she did, and sticks to her work until finished. She spells well—for her—recognizes words much better and reads much better than she did. There has also been improvement in number work. She knows her tables fairly well and can add, subtract, and multiply by one figure. She has made two sofa cushions and two aprons in school since taking the gland, and that is a great deal for her to accomplish, as she is so slow. She is now monitor for the lunch table, and tries to do it *well*. Six months ago I wouldn't have thought she could ever be as good as she is. Am sure her improvement is due to pineal gland. I hope to return her to the grades in June."

Case IX.—Hannah T., P. S. 12 (Miss Young). Girl 9½ years, weight and height about normal for age. Family history negative so far as it could be got. Child was born at term; labor precipitate; no instruments. Well until 5 mos. of age, then had "convulsions." Has had pneumonia and bronchial trouble several times. Color of skin: Fair. Wears glasses. Has been operated on four times for adenoids and tonsils. The thorax is rickety. Organs negative. Has been mentally retarded for a number of years past. Child got two caps. of pineal gland per day regularly from the 1st of January, 1912. On Feb. 26 Miss Young reported as follows: "This child has improved most of all since taking the gland. She began the first of the year, and has shown a decided improvement ever since. A year ago she could not write a word or sentence without help. Now she writes simple sentences in language without any help. In September she could not spell a word. At the end of January in a spelling review of 40 words she spelled 38 correctly. She reads much better than she did, and can now do simple combinations in number. She has always tried very hard to sew, and since January 1 has completed a sofa-cushion in cross-stitch embroidery. I am very proud of Hannah's improvement."

Benny W., a clinic case in my own care, also did very remarkably:

Case XXI.—Benny W., New York (Dr. Berkeley).—Weight, 42½ lbs.; height, 43½ ins.; age 7 yrs. Family history: Father not seen, but reported healthy; age not ascertained. Mother, 33 yrs. old, of excellent appearance. There are three other children, all boys, aged 13, 11 and 5 yrs. respectively; all these were seen, and all were normal, or even precocious. Date of first visit: June 15, 1911. Personal history: Child born without incident, but was always backward. Did not walk till three, and has never said any connected or intelligent words. He can repeat short sentences after his mother, but this appears to be true echolalia, as he gives little appearance of understanding what he repeats. Cannot buy a pennyworth of candy. Is said to wet himself habitually, and soils himself several times a week. Mother professed herself in despair about the child and willing to do anything for his relief. Physical examination entirely negative, except that the boy is cross-eyed (1.50 D. hyperopic astigmatism). He has no physical stigmata, but presents a vacant animal face, smiles inanely and drools continually. His muscles and skin are relaxed, and he stands with bent knees and bowed head. He is said to be very "nervous," and cries a good deal, which might be attributed to the quantity of coffee he has been allowed to have. The treatment of this case consisted solely in the giving of pineal gland. His eyes were fitted with glasses, but these he soon refused to wear, and the treatment was continued without them. June 26.—Weight 43¼ lbs. Looks brighter. Mother thinks his mental condition much improved. Has gone to toilet alone and not soiled himself at all this week. Has said some connected words; cried because younger brother was dressed before him (had never noticed this before). July 3.—Mentality still improving; talks a great deal more. Weight, 41¾ lbs.—a decline due possibly to the hot weather. July 10.—Weight, 42 lbs.; intelligence rapidly increasing; yesterday asked his mother for the key to the toilet; has entirely ceased to soil or wet himself. Height unchanged. Nurse and assistant at the Clinic remarked upon the patient's improved appearance. Aug. 14.—Weight, 44¼ lbs.; height, 44½ ins. Understands and answers simple questions, and has acquired between fifty and one hundred words. Facial expression transformed. Habits entirely correct.

Without going any further into details, I think enough has been said to justify in some measure the faith that is in us that pineal gland is going to be a remedy of great value in many cases of retarded mentality in children, and I do not think it detracts in any degree from the value of the research to admit freely that we have made only a beginning.

The cases so far showing improvement have been so different—no similarity of facies being notable, or of cutaneous nutrition or of mental condition—that the search for a definite type of *hypopinealism* or *apinealism*, has so far been elusive. Possibly my case of Benny W. (above related—Case XXI) is one of hypopinealism, but more cases must be studied by a larger number of observers before one can be sure of his ground in making generalizations of this sort.

That we "do not know just how the medicine works" is a reproach to which the plea of guilty must also be entered. I am personally convinced, in view of the relative smallness of the gland, that its secretion is simply a ferment, facilitating nitrogenous exchange in the cells of the brain. But I have not proved this statement; it is merely a hypothesis.

Reaching further into collateral lines of research, the question arises, If the gland accelerates the sluggish action of the brain in the retarded child, will it not perhaps also serve to arrest or delay certain cases of premature breakdown of the mental powers in old age? To this branch of the subject I have given a good deal of time latterly, and I have been quite astonished to see what the gland can sometimes do. It will not reduce high arterial pressure nor soften hardened arteries, nor smooth out crumpled heart valves; but in cases of premature mental failure without a distinct organic cause, it has proved of great value in about a dozen patients with whom it has received a fair trial. Some of them decline positively to be without it, and judging by their cheerfulness and mental activity while under its influence, I must conclude that it definitely stimulates the aging brain to the faster chemistry of younger days.

Finally, one must continually bear in mind, when caring for defective children, that their progress is slow, that the medicine must be systematically given for from four to six months, and that the coincident educational training must be accurately adapted to their precise mental age. The mind even of a healthy and normal child may run to weeds when no effort is made to save him from neglect.

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# LUES—THE INCORRIGIBLE.

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We have shot our last bolt, made our last bombastic boast, exploited to the limit the patented panacea of the new Apostle Paul, and we are still confronted with the unpalatable truth that in lues our medication offers no assurance of success. After a faithful adherence to the prescribed term of treatment, the luckless luetic who is entering on the long martyrdom of locomotor ataxia, might well exclaim in the manner of the Bard of Avon: "A pox on both your houses, salvarsan and mercury." It is demonstrated that the mercurial treatment does not prevent the so-called parasyphilides. Paresis and tabes, the hideous offspring of this Gorgonic plague, seem to appear indifferently to those who have and those who have not striven to avoid them. It is admitted that the salvarsan treatment is equally ineffective, because by the latest inspired utterance of the prophet of the new dispensation, it is necessary to have recourse to mercury for two years after having undergone his get-well-quick injections. It is clear that nothing more is to be expected from it than from the mercury. Therefore it is not wide of the truth to declare that we have no preventive of these deplorable consequences. Nobody will deny that salvarsan exerts an influence on the manifestations of syphilis, that is in some instances very remarkable. No fair-minded observer will deny that mercury hypodermatically does the very same thing. In fact, it is not uncommon to see routine medication by the mouth accomplish speedy and often surprising results. It is all a question, no doubt, of the relative resistance of different patients to the luetic infection. Some need much help to fight it off and some need very little. But after the obtrusive lesion has been cleared away, even after the full course of treatment decided upon for the elimination of the contamination from the blood, we have simply fought a drawn battle. The outer works may be swept clear of the enemy, but the citadel is still in its hands. And no assurance can ever be had that that citadel will not be indefinitely held and eventually destroyed by the enemy. The brain and cord are never safe in any syphilitic. No matter how faithful he may have been in following out instructions, no matter how abstemious and well ordered may have been the manner of his life after acquiring the infection, he is liable in a few years to be stricken in the center of intelligence or locomotion, and pay the price of capital punishment. And to illustrate the inconsistency and inscrutability of this mysterious disease the careless patient who has had no sustained medication and has gone cheerily on his way, indifferent to possible developments, very frequently lives to a ripe old age in full possession of his faculties. And to further emphasize its eccentricities, how often have we seen the bountiful progenitor of many abortive and infected offspring, present to the world a vigorous personality, "sans tache et sans reprôche"? To the cynic it would appear that in generously endowing his progeny with a wealth of spirochetæ, he had in some manner reduced the number of his own. These circumstances are familiar to every practitioner. They in no way militate against the wisdom of active treatment, as it is certain that in a given number of cases there will be more casualties among the lax and negligent than among the alert and steadfast. But they do drive home the conviction that we have to do with a proposition of which we do not perfectly understand the terms. We postulate the infection and the reputed remedies and the individual equation. We are perfectly familiar with the first and second, and we do not know a thing about the third. We do not know why our remedies even in moderate doses will give us immediate results in some individuals and fail us utterly in others. We do not know why the patient who has shown no symptoms for several years after the discontinuance of a long and careful course of treatment, will suddenly develop a fibrillary tremor of the lips, a steadily increasing unreliability of memory, and an alteration of disposition tending to the apathetic. If it is possible to safeguard any one against such a deplorable fate this man should have escaped. I can cite the case of a patient who is dying of paretic dementia in a nearby sanatorium, who contracted syphilis fifteen years ago, and who at once began a vigorous course of treatment which was sustained for three years. During that time his habits were exemplary. He gained in health and strength constantly until one day in his exuberance of spirits he declared that he was glad he had contracted the disease as it had weaned him from all his vicious courses and set him on the high road to financial prosperity. This high mark of physical and mental well-being was maintained for twelve years. He married and begat a perfect, healthy child. Without any premonition, without the appearance of a single sign of trouble in the interim, he began to show a change of disposition. He became dull or at times easily excited. He developed a "religious streak." He rambled in his speech and forgot the things with which he was most intimately acquainted. His condition grew so bad that restraint was demanded, and he was transferred to the sanatorium, where after a lapse of a very few months he is slowly dying with his once splendid brain capable of nothing but automatic function. If there is anything in our medication why should a case like that go wrong? A case receiving no treatment whatever could hardly have pursued a more disastrous course.

The title of this paper, therefore, in no way exaggerates the actual status of this steadily growing menace to the health of the community. It will take its ruthless reckoning despite our most determined and best conceived resistance. It is trivial indeed to point to the wiping away of surface lesions and the filling in of ulcerations, and even the rescue of an occasional nose or eye, if we are powerless to prevent the destruction of the central nervous system. It is conceded that we can remove gummatous deposits even in the central nervous system, in time to obviate permanent disability, but that subtle, insidious, insistent devitalization of its delicate functioning elements, giving absolutely no hint of its activity until the paralyzing blow is struck, is utterly beyond the influence of our intensest interference. Therefore, is lues incorrigible. We may bring about a little surface decorum, we may paint the sepulcher a most alluring white, but hidden deep within, and far beyond our reach, is this indeterminate, indefinable and undeterrable force (be it virus, be it germ, or hemic vitiation) mercilessly moving to the overthrow of the struc-

ture. Candidly, in proportion to the whole number of syphilitics, the cases of paresis and tabes and other forms of myelitis are happily infrequent. This may be due to various causes. Many victims are carried off by other diseases before these usually late developments have an opportunity to appear. Doubtless many of the infected possess a strong power of resistance to the encroachment of the spirochete. Possibly contributory causes are in a measure responsible for the centering of the assault upon the brain or cord. For instance, men of active intellect constantly demanding more and more of their cerebral cells, incessantly inciting them to greater functional extremes, are supposed to be more easily reduced to paresis than those whose mental processes are largely concerned in the direction of muscular effort. Perhaps sexual excesses are for a like reason held accountable for the incidence of the attack on the columns of Goll. Whether there is anything worth while in these suppositions, is a very difficult matter to determine, because the testimony is too contradictory and confusing. Exempli gratia, why is locomotor ataxia so much rarer in women than it is in men, when sexual abuse is certainly not a monopoly of either? What male votary at the shrine of Venus ever undergoes the persistent incredible excesses of the prostitute? Yet, taking the cases as they run, the woman with syphilis has ten chances to one in her favor of escaping this complication. Let us go a little further and admit that the few cases of tabes found in women are likely to be in those who have contracted syphilis in wedlock and have not been afflicted with nymphomania. It has been reported by Noguchi that the spirochetæ have been found in the central nervous system in some cases that have come to autopsy, but the spirochetæ have been "sparse." Evidently the destruction of the cerebral and spinal cells can be wrought by a very few of these invaders, or else the technique of finding them has not yet been brought to the requisite point of efficiency. There must be an almost impassable barrier to their entrance into the female neuroglia. The susceptibility of the female to their influence in other situations is a matter of common knowledge. She displays as many cutaneous mucous and parenchymatous lesions as the male with the single remarkable exception noted. It is obviously quite impossible to account for individual susceptibility when we cannot account for the susceptibilty of a whole sex. We know that this exists, but the why and wherefore pass our understanding. The discovery of the cause of syphilis has shed no light upon these curious problems. We have found the specific organism, and it has been of service in corroboration of some questionable diagnoses, but nothing more of practical value has resulted. The Wassermann reaction does not depend upon the recognition of the essential cause, but upon the assumption that there is such a cause tending to arouse anti-bodies in the blood. This valuable test was just as possible of discovery, and would be just as useful and decisive if the spirochetæ had never been born to our admiring gaze. We are just where we were when the accepted teaching was that tertiary syphilis was no longer active syphilis, but an altered condition of the patient's blood tending to the formation of gummatous and fibrous tissue. In other words, we are brought face to face with the fact that these so-called para-syphilides of the ancient nosology, are just as much beyond our comprehension and control as they were before we were startled by the dual discovery of the specific spiral and its numerical nemesis.

It may be objected that discussing the neurological aspects of tertiary syphilis is a peculiar and presumptuous performance for a dermatologist. In extenuation it may be urged that we have so much to do with the other manifestations of this particular preventive of over-population, that we are naturally interested in all of its developments. As we have to advise the patients in the early days of their affliction, it is right and proper that we should possess the completest knowledge of its complications and eventualities. And, if we are to draw the fullest lesson from the sins of others, we must be able to deter the budding sybarite by gruesome predictions of the horrors of luetic infection. To be effective these predictions must be truthful; therefore, they must be based upon a comprehensive grasp of the whole subject. Therefore, it is rational that the dermatologist, with whom most frequently the original diagnosis rests, should be able to discourse fluently upon every possible aspect of the subject. It would be absurd to deny him the privilege of discussing the two most lamentable terminations of this polypragmatic pestilence. If withheld by the limitations of arbitrary specialism, from a consideration of the nervous complications, he might as well be withheld from a consideration of every other manifestation save those on the skin and be reduced at once to the contemptible level of a "beauty doctor." If our ministrations are to be so confined, our business with the patient will consist in keeping his skin clear of unsightly or compromising indications. We are not to warn him of iritis, for here we should be trespassing on the preserves of the ophthalmologist, with which we are supposed to having nothing to do. We are not to warn him of aneurysm, or arteriosclerosis, because we should be running foul of the internist, whose domain for us is ticketed "no thoroughfare." We are not allowed to caution him against the probability of accusatory infantile dyscrasia because that would be an infringement on the inviolable rights of the gynecologist and pediatrist. Under such an interpretation of the distinctive rights and privileges of the various specialities we should have a complete reductio ad absurdum. Per contra, it is reasonable, and therefore right and proper for the original diagnostician to pursue the disease in all of its ramifications, provided he possesses the requisite information for its recognition and attack. The moment that special skill is demanded in any of these correlated manifestations it is his duty to turn the case over to the indicated expert. A long dissertation this on the rights of specialism, and perhaps not obviously to the point, but as the subject of this paper is the incorrigibility of lues, and as that incorrigibility is most clearly manifest in the invasion and destruction of the nervous system, the applicability of the argument is soon apparent.

Demonstrably incorrigible, are we to become callous spectators of its depredations, and make no effort to withstand them? Because up to the present our ministrations offer no assurance of complete emancipation from the horrifying possibilities of this noisome infection, it is not beyond the bounds of hope that that result may some time be attained. And it will never be anything but a hope if we do not fight for its realization. With all the means at our command, no matter how inadequate they are, we must struggle on and ever on to the

light that is vouchsafed to the undiscouraged seeker of the truth. Meanwhile we should turn to good account the grim and solemn fact that with the means at our command lues is incorrigible. To him who has already offered up his lusty manhood upon the altar of concupiscence, and has drawn the blistering, blighting bane of chancrous initiation, it is bootless to emphasize the subject of paralyzing possibilities. The mental depression might drive him into a despairing disregard for all therapeutics, and precipitate the evil we wish to avoid. To keep a patient up to the mark in his attention to his malady it is well to hint that ataxia and tabes often follow improperly treated cases. The pious fraud that careful handling will avert those consequences is admissible as a therapeutic measure to sustain the patient. And, of course, there are other avoidable fatalities which negligence would invite. There are gummata in various inconvenient and threatening situations which we may be able to forestall.

But what of the adolescent coming up to manhood still untainted but seriously tempted by the strange emotions struggling for the ascendancy? To him it will be wise and fruitful to paint in all its terrors the picture of these awful consequences that no medical science can *positively* prevent. Assure him that one indiscretion may bring upon him a train of evils whose culmination may be the asylum or the wheelchair. Here is the point to make the most of the incorrigibility of lues. Din it in, sear it in, compel him to see and be afraid. This is no sermon. This is a treatise on preventive medicine. Medical and social bodies the world over are deeply concerned with the problem of controlling venereal diseases. They would do it by legislation. But their more or less luminous suggestions have to do only with segregation, examination, and other police regulations. And the foul and fetid things will grow and multiply despite all their memorializing and experimentation. Why? Because they are beginning at the wrong end. It is practically useless to try to avoid the consequences of meretricious acts, while those acts are not only tolerated but sanctioned as necessary. If the public conscience tolerates prostitution, and the safeguarding of its patrons, there is a spirit of lascivious license generated among the young which will seek indulgence in secret and devious ways beyond the control of official regulators. The wages of sin will be exacted despite all our shuffling evasions. It is the law of compensation and it will not be denied. Prostitution defies the natural and moral law and no amount of equivocation and regulation will rob the ulcerous thing of its consequences. "What!" exclaims the special pleader for the brothel, "Is not sexual intercourse natural? In what way then does it defy the natural law?"

Yes, indeed, sexual intercourse is natural. And so indeed is its legitimate consequence, maternity. Will you call that intercourse natural where, by one device or another, maternity is avoided? Will you call the use of a condom natural? Did such a thing ever naturally appertain to a man? Will you call withdrawal natural? Will you call the use of a bichloride douche to wash away the semen natural? Will you call it natural for a woman to undergo sexual intercourse a dozen times a day and perform a dozen unnatural acts to escape conception? Is not the whole putrid business, from beginning to end a violation of all that is decent, right, and natural? Is it not certain to breed far in excess of all the efforts at misguided control the terrifying evils of blasted bodies and blighted minds? But what shall we do with the rising passions of the young? Marriage as soon as practicable. Until then self-restraint. Self-restraint is not possible? Oh, yes it is. I heard Edward L. Keyes lecture on this very point on one occasion, and he taught that the sexual function suffered no diminution by enforced inactivity even for long periods. We are compelled to control our other passions. We cannot indulge the passion of anger every time the inclination seizes us. We know that if we do we are liable to get our heads punched. Fear may be overcome. Timid men have developed into good soldiers. Decent men do not take advantage of defenceless women even with the passion of concupiscence goading fiercely. In the sacking of towns, officers, who are men, have fought to prevent the violation of women by other men. Self-restraint is possible, you see. But self-restraint is not taught in sexual matters as it is in other matters. It is indulgently conceded that the sexual pull is not to be resisted, but the same allowance is not made for the influence of anger or of fear. Consider, too, that whereas sexual laxity is permitted to the male it is absolutely denied to the female of decent communities. The female exercises a discreet and efficient self-restraint. Fear of consequences may be the determining cause. It is a wholesome fear because the consequences to the female of one lapse from continence may be speedy disgrace. Convince the young men that malignant consequences will follow the yielding to their unbridled lust and you have the same cause operating to deter *them*. The retort is made that sexual desire is in the very nature of things uncontrollable and that all the warnings ever uttered or possible of utterance will fail to swerve men from its gratification. As shown above, this is absolutely false for one whole sex, and for decent well-balanced members of the other. There are considerations outweighing the influence of sexuality. The self-respecting husband whose wife is ill will hold himself in leash. Is every husband whose wife is far advanced in pregnanacy, to be suspected of illicit intercourse? And if men can control themselves from abstract considerations of honor, is it unreasonable to believe that if properly educated they will control themselves for the preservation of life and reason?

This abstinence is not a life sentence as it is in certain religious communities. It is simply a reasonable delay in the gratification of a natural desire until it can be accomplished with decency, honor and safety. Remarkable, also, is it not, that this irresistible urging of the sex appetite can be readily enough kept in subjection when the victim has acquired a gonorrhea, a chancroid, or syphilis! Strange indeed that it cannot be mastered to *avoid* these diseases as well as to cure them. The whole argument in favor of the early indulgence of this appetite is a piece of special pleading founded upon a situation that has been created to justify it. Men have attributed an overwhelming force to their lust because they wanted an excuse to indulge it. Having full control of the law-making power, they have legislated in favor of their own depraved impulses and against those of their sisters. Law and custom punish the transgressions of women and condone those of men. The rake of twenty-five who has indulged himself with numberless women since the dawning of concupiscence, care-

fully selects a girl for his wife of certified virginity. Like Caesar's wife, she must be above suspicion. If it was impossible for him to subdue his natural inclinations until he contracted marriage, how does he suppose the girl has performed that miracle? And if hundreds of thousands of women perform it every day it is not much of a miracle anyway. Viewed in this light the hypocritical pretense of the male contention is seen in all its pitiful weakness. The male yields because he wants to and because he thinks it is reasonably safe. It should be our business to teach him that it is not reasonably safe. The incorrigibility of lues should be shaken before his eyes as a warning of the penalty he may have to pay for his sordid pleasure. In no other way except by reforming the individual voluptuary can we eliminate venereal disease. As stated above, this is not a sermon, but a treatise on preventive medicine. Not one word has been said upon the moral aspect of sex sin. The whole burden of my argument has been the physical consequences thereof. If these are persistently pictured to the minds of our youth, and if sexual indulgence is shown to be something perfectly controllable when honestly attempted, the work of limiting venereal diseases will have been incalculably advanced.

If we are to admit the impossibility of man's dominating his passions instead of his passions dominating him; if we are to admit the necessity of the continual sacrifice of female victims to the Moloch of his relentless brutality; if, for the momentary gratification of a libidinous orgasm, women must be held in the hideous bondage of professional prostitution; if, in order that men may live in satiation, women must rot in degradation: then let us cease to prate of the prophylaxis of venereal diseases, and recognize the futility of attempting to evade these compensatory sequelæ. There is an old, trite aphorism that "those who dance must pay the piper." If men will dance to the moans of outraged virtue, they will pay in the coin of idiocy, ataxia, and premature death.

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## THE PASSING OF THE STOMACH TUBE.*

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All things wax and wane. Pretty theories have their day for a few years, then grow dusty in long-forgotten books; pet practices work the salvation of the race, then cause a smile at their lost popularity. Time scorns the untrue and experience mocks the unproved. And this is all very true in present-day medicine. No longer dominated by a Hippocrates or a Galen, it now, collectively and individually, experiments, observes, and thinks for itself. It is explorative, it is critical, it is judicial. The chair of the metaphysician has given place to the stool of the experimenter, the elixir of life is forgotten in the study of life, the hands of a king are rudely supplanted by the cleaner and more knowing hands of the surgeon. There are in medicine of today three great forces, each constantly aiding and checking the others, experiment, practice, and reason. The laboratory opens new vistas for diagnosis and treatment, clinical observation augments and makes practical the former's findings; not uncommonly they clash, and it is here that medical reason must operate, and with the power and sharpness of mental training separate the false from the true, the medically valuable from the unimportant. Thus are reliable diagnosis and consistent treatment attained. The indiscriminate use of arsenobenzol as a cure gives way to its careful administration as a remedy in conjunction with mercury or potassium iodide. The unyielding restriction of carbohydrates in diabetes submits to a more tolerant diet. The unlimited dosage of nitroglycerin in hypertension is even now declining to amounts more consistent with the well-being and safety of the patient.

The evolution of medicine has been marked by the use and abuse of drugs and methods; and it is not infrequent that their overuse has resulted in an unwarranted disregard of the intrinsic worth and advantage of such drugs or methods. First recommended in 1879 by Kussmaul for therapeutic use in dilatation, the stomach tube was applied two years later by Leube in the first efforts at the estimation of the time and degree of digestion. Some years later the Boas-Ewald test-breakfast established itself, and it was then that the various gastric conditions gradually unfolded themselves and took definitive shapes. And in the three or four decades of the stomach tube it may have suffered some abuse, both as a therapeutic and a diagnostic instrument. So, for some time it has seemed well to look at this question, when should a stomach tube be passed, how should it be passed, and whether its use or its value is passing.

The question of passing the tube, whether it be for diagnostic or therapeutic purposes, rests on two prime considerations, the need and the possibility. That there may be urgent need in poisoning or serious dietary errors is self-evident. Outside of these more acute conditions what is the need of a stomach tube? There is the same need as there is for a speculum in gynecology, or a laryngoscope, or a cystoscope. A thorough general and abdominal history, in which each question is part of a purposeful cross examination and each reply a possible clue to a correct diagnosis, followed by a competent general and abdominal examination, will in a large percentage of cases give at least a tentative diagnosis. But as an honest suspicion of tuberculosis of the kidney may give way to certainty with the cystoscope, so an honest suspicion of achylia gastrica, or ulcer, or carcinoma may be certified by the stomach tube. It should be passed whenever we are not positive of a diagnosis. Medicine is nothing but an infinite attention to detail. And nowhere is this more true than in the diagnosis and treatment of abdominal diseases. Here diagnoses must be made often by exclusion, and every fact may be valuable. Every single patient and every single disease should be treated individually, and this can be done only by complete and painstaking investigation. I believe that the therapeutic success in the treatment of gastrointestinal diseases depends on the individualization of each patient, not to treat all patients, even with similar diagnoses according to one pattern. The gastric, hepatic, and intestinal functions are so intimately related, yet not infrequently so affected, that lack of knowledge of the condition of one nullifies any treatment that is directed toward only one of them. Either abdominal diagnosis must be complete and rational, or else it is of little value, and therapeutics will prove it. Incomplete and incompetent diagnoses of gastrointestinal diseases are worse than none at all; they usually result in an attempt at symptomatic treat-

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ment; the basic pathological condition is unthought and untouched, and soon the patient is the worse for loss of time. No man, however experienced, can diagnose every abdominal case in 5 or 10 minutes; it is a physical and mental impossibility, and must lead to improper diagnosis and treatment. It is often a matter of hours and days, not of seconds and minutes. Probably those who scoff most at the stomach tube are those who use it least, who realize least the necessities of thorough examination within the abdomen, and who cut all gastrointestinal diagnosis out of the same cloth of intestinal indigestion, or gastritis, or ulcer, or whatever else their idle fancy may be. The use of the tube in the diagnosis of gastrogenous diarrhea or constipation, of colitis, of gastric, or duodenal ulcer, or carcinoma cannot be questioned. But even here medical reason must rule. If a diagnosis can be made from the history and physical findings, so much the better; if a diagnosis can be made from the stool as may be done in ulcer, or cancer, or achylia gastrica, in conjunction with other symptoms and findings, so much the better; it is no great pleasure for the patient or the physician to pass a stomach tube. It may be wise at times to delay the use of a tube and depend on a subjective diagnosis, and try the consistent therapy; if the symptoms do not yield, the tube can then be used. But if there be any suspicion of cancer, whether the patient be at the dangerous age or not, the neglect to study the gastric contents is as reprehensible as the delay in removing suspicious nodules from a woman's breast. And it is just here that the man who does not believe in the stomach tube may learn to his sorrow that it may have taught him something. To the complete physician or surgeon nothing in medicine is alien; it is just this spirit of disregard, of nihilism, that renders the earlier diagnosis of gastric carcinoma difficult. The use of the *x*-ray may at times be substituted for a tube and may be of large value, but it must be remembered that the *x*-ray gives mostly an anatomical diagnosis and that it is only from a study of the history and various gastrointestinal tests that we can learn of the functional integrity of the digestive tract. I have recently seen two cases of multiple chronic ulcer of the stomach and duodenum, in both of which there was a complete absence of hydrochloric acid. *X*-ray plates showed the anatomical form of the stomachs and corroborated the diagnoses already made from subjective and objective findings, but the *x*-ray could not tell the complete lack of HCl. It may seem strange to prescribe HCl in ulcer, but then patients seek relief from unpleasant symptoms, and with *x*-ray pictures alone, they might be disappointed. The *x*-ray especially in gastric and duodenal work is largely an adjunct and a most useful one when necessary, but it also can be abused; surely cases of simple ptosis, uncomplicated cases of gastritis and ulcer, of colitis, of cholecystitis do not require *x*-ray plates for diagnosis, but rather a sensible examination of the present and causative conditions.

As regards the therapeutic employment of the tube, there can be no question as to its value in acute poisonings, acute dilatations, serious dietary errors, postoperative ileus, pyloric stenosis with stasis, ulcer or gastritis with large accumulations of gastric juice or mucus. But in the more ill-defined cases there is danger of abuse. Lavage is a legitimate procedure when indicated, but may be easily overdone, and probably many a case of simple ptosis, or a gastritis with little mucus, or a nervous or a psychic disturbance has been subjected to unnecessary discomfort, when a proper investigation and a proper diagnosis and treatment would have been of more lasting benefit. The basic condition is the important consideration, and undoubtedly the use of HCl, or an alkali, or belladonna, or lactic acid bacilli, or the drinking of the proper saline water, or an abdominal belt, or rest, or a generous diet, or an appendectomy, or a cholecystotomy, would have had a more lasting effect than the inflow and outflow of a little water that not infrequently returns as clear as it went in, if it returns at all. And even in stenosis with dilatation it would be just as rational to put the stomach completely at rest either by rectal alimentation as long as possible, or still better, to use the duodenal tube for ten or twelve days so that the stomach receive nothing in the way of food or drink.

How should a stomach tube be passed? The only way to pass it is to wait until you know all the history and physical conditions. It would be very unpleasant to rupture an aortic aneurysm, or to pass through an esophageal diverticulum into the mediastinum, or to tear a varix due to hepatic cirrhosis. If there is any question as to serious bleeding in the stomach, I believe it is wise to examine the stool first for evidence of blood, and then pass the tube if necessary, having explained conditions to someone connected with the patient. If the tube can be passed, there are two rules; pass it as comfortably as possible, and get out as quickly as possible. Twenty to twenty-five cubic centimeters of stomach contents are fully sufficient for all tests. Our aim is to examine the stomach contents, especially for acidities and blood and microscopic elements; when we have 20-25 c.c. we have sufficient for these tests and any other special test; it is well to withdraw the tube, as it is more pleasant for the patient than trying to obtain every last trace. We can tell from the microscopic appearance and examination whether there is great supersecretion or retention. Washing out the stomach after obtaining as much stomach contents as possible would seem of little diagnostic or therapeutic value, unless no contents have been obtained, or unless there is some special indication for lavage. It lengthens unnecessarily a period of unpleasantness for the patient.

If the patient takes the tube badly, it is the better part of valor and medicine to be satisfied with even 5 or 10 c.c. and to do the tests most important in that special case with such an amount. Much of the difficulty in obtaining stomach contents is unquestionably due to lack of knowledge just where the stomach and its contents lie in the abdomen. The man who does not know whether he must introduce 40 or 55 cm. of tube will naturally find trouble, for he may not reach even the surface of the stomach contents, or he may introduce so much tube that the end, after touching the greater curvature may turn around and go upward along the lesser border and so above the fluid level, or he may even poke the tube into the pyloric canal, or induce so much nausea that duodenal contents are regurgitated with a certain vitiation of the chemical findings. The acidities may not be the same in all parts of the stomach contents, and it is especially important not to obtain only the upper layer, which may contain much alkaline saliva and mucus. So it is necessary to know the position of the greater curvature of the stomach, to know

whether the stomach, an hour after the test breakfast, is comparatively full or empty, and to measure the length of tube necessary to reach from the incisor teeth to the middle of the greater curvature by placing the tube, just before it passage, along the cheek, neck, chest, and abdomen to the middle point of the greater curvature. Then we know with some accuracy just how much tube to insert, and then we can work quickly to the satisfaction of the patient and ourselves. Pass the tube once, if needed, and make the diagnosis. The more often a tube is passed for diagnosis, the more probable it is that there is no clear diagnosis, and the less chance there is of the trouble being primarily in the stomach.

If there is a question of failing HCl for the diagnosis of cancer, or of the return of HCl in subacidity, or its diminution in ulcer with reference to continued treatment, or if there be a question of variation in a short period, then the tube may be passed as seems fit. It would perhaps be wise for all those suffering from chronic gastric disorders to have a regular monthly internal gastric examination, especially those past forty and those suffering from chronic ulcer, so that any change in acidity or any appearance of blood or evidence of stenosis might give the first danger signals of beginning carcinoma. It is possible that the frequent application of the Abderhalden malignancy test might serve the same purpose. Otherwise to pass the tube once, to pass it safely and comfortably for the patient, to know where it is being passed, constitute the reasonable use of the stomach tube. Its repeated use argues for bad technique, bad diagnosis, or bad treatment.

Lastly as to the question whether the stomach tube is passing. An extended answer is hardly necessary after what has been already said as to the proper indications and use of the instrument. In one sense it is passing, and rightly so; its indiscriminate and unbased use, either for therapeutic or diagnostic purposes can be only decried by medical reason. But if it does real therapeutic service and can give positive or negative aid in abdominal diagnosis, it is not passing, and will not pass as long as there is regard for medical values and the welfare of the patient. The physician or the surgeon, who, in cases of obscure abdominal conditions, does not consider the possibilities of the stomach tube, opens himself to the charge of medical or surgical narrowness, or else lack of knowledge.

Where one sees cases of duodenal ulcer diagnosed as intestinal indigestion, colecystitis as gastritis, colitis as gall-stones, gumma of the stomach as dyspepsia, spastic constipation as appendicitis, appendicitis as ulcer, fetal membranes about the ascending colon as ovarian cyst, mucous colitis for imminent death from duodenal ulcer, it is fair to assume that the stomach tube is not passing in value or in use in the hands of those who recognize its possibilities for an accurate diagnosis and efficient medical or surgical treatment. It has been said that medicine is today so complex and voluminous, that no one human mind can be master of it all. The best we can do is to apply the rule of reason, whether in medicine or surgery. We can then reach the best diagnosis, institute the best treatment, with the greatest comfort and good of our patients and ourselves.

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## THE ETIOLOGY AND SURGICAL TREATMENT OF GASTRIC AND DUODENAL ULCER.

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From a résumé of the recent literature on chronic ulcer of the stomach and duodenum, one would gain two impressions: first, that the etiology of the disease is in doubt; and, second, that the treatment by surgical intervention is entirely satisfactory. As a matter of fact both of these impressions are only partially true.

A special committee organized in Germany to investigate the cause of ulcer of the stomach a short time ago, reported as follows: "The nature of ulcer of the stomach has not yet been explained. Even if we have been successful in producing gastric ulcers artificially with all their characteristic signs, yet the etiology of gastric ulcer in man is practically unknown." In speaking of the experimental investigators, Schültz[1] says: "All these investigators labor under the difficulty that the ulcerations which were produced experimentally resemble the ulcers observed in man in their appearance but not in their course. They have confirmed the old experience that local disturbances in circulation play a part in the production of ulcers; but they have not been able to give an adequate explanation of their peculiar course." Aschoff,[2] referring to the mechanical conditions which are of importance in the pathogenesis of gastric ulcer, concludes that although disturbances of the circulation of all sorts are important in the development of acute ulcer, mechanical conditions *not* primary disease of the blood-vessels influence their chronic character, location, and shape. Thus the prolonged contact with gastric juice, and mechanical friction and stress at the lesser curvature, act as important factors. Sherren[3] and others have called attention to the fact that although it is found possible to produce gastric ulcer experimentally as a result of injury to the mucous membrane, injury to nerves, embolism and thrombosis, and local infection, the ulcers so produced usually heal rapidly. He quotes Bolton as showing that gastric ulcers are due to the action of the gastric juice upon devitalized gastric mucous membrane. "By injecting into guinea-pigs gastrotoxic serum prepared by injecting the gastric-cells of the guinea-pig into the rabbit, areas of necrosis and punched-out ulcers were produced. The formation of these could be prevented by neutralizing the gastric juice with 20 c.c. of a 1 per cent. solution of bicarbonate of sodium. Hyperacidity of the gastric juice alone would not produce ulcers, but any excess of hydrochloric acid increased the lesion produced by the injection of gastrotoxic serum."

Ophüls[4] believes that gastric and duodenal ulcers arise primarily from vascular lesions, and calls attention to a statement of Hauser as offering an explanation of the failure to produce chronic ulcers by experiments which otherwise confirmed the theory first suggested by Virchow that local vascular disturbances influence gastric ulcer. The statement of Hauser[5] referred to, is as follows: "In case of local disease of the gastric vessels the ulcer assumes a chronic atonic character, because the development of the blood vessels can not occur normally from pathological blood vessels. The degree of vascular disease, therefore, determines the more or less chronic character of the ulcer." W. J. Mayo[6]

several years ago called attention to the appearance of an anemic spot on the duodenum on the slightest stretching. And Ophüls points out the frequent erosion of arteries at the base of the ulcer, followed by severe arterial hemorrhage, as pointing strongly to a relation of the ulceration to local disease of the arteries. "Any one who will take the trouble to dissect the arteries of the stomach," says Ophüls, "will be astonished to find how poorly supplied with arteries are those parts of the wall of the stomach and duodenum where we usually find ulcers. This is particularly true of the extreme pyloric end of the stomach at the lesser curvature and on the posterior wall, and of the beginning of the duodenum at its convexity." Ophüls draws the following conclusions from his observations: (1) "The most common type of gastric, or duodenal ulcer, at least in material obtained by necropsy, is the arteriosclerotic ulcer in persons over 30 years of age. (2) There is a second class of gastric (or duodenal) ulcer, in the young, which is probably due to local endarteritis (thrombo-arteritis). (3) In addition to these, one occasionally observes acute embolic (or thrombotic) ulcers."

D. P. D. Wilkie (Laboratory Reports of the Royal College of Physicians, Edinburgh, Vol. XII.)' found "that in infancy the veins of the portal system are provided with competent valves, but that with age the great majority of these become incompetent. After these valves no longer serve to regulate the blood-flow through the veins in which they are situated, there is a rather frequent tendency to an 'oscillation' of the blood in the portal vessels. Under the influence of changes in the blood pressure, respiratory movements, or the distention of the stomach with food, the blood returning from the omentum may be diverted from its usual course and may traverse the gastric venous plexus, which thus comes to act as a filter for the omental blood. Wilkie concludes that one of the important functions of the omentum is to aid in the localization of peritoneal inflammation and that in the performance of this function it is apt to suffer injuries from which it does not fully recover. He was able to demonstrate that thrombosis occurs readily in the thin-walled veins of this tissue and believes that thrombi in such a mobile situation would easily become broken up. In order to test out his hypothesis he produced thrombi in the omental veins by means of a simple ligation or by searing the tissues alongside the vein with a hot platinum needle."

It must appear to everyone that all these investigators are dealing with end results and not with the primary cause of ulcer of the duodenum in man.

The most attractive theory so far advanced is that of Sir Arbuthnot Lane, namely, that ileostasis plays an important part in the etiology of the disease. His theories do not conflict with those advanced by investigators who regard the action of toxins on the blood vessels as a late cause of ulcer.

The permanent relief of symptoms by surgery is successful in from 78 to 96 per cent. of the cases, the statistics varying with different operators, and the length of time from the operation to the time of report. Our personal experience is that three years after operation, 82 per cent. of our cases are still well and without symptoms.

What are the causes of failure? It has been customary to treat ulcer of the stomach or duodenum by excision of the ulcer either alone or combined with gastrojejunostomy, using either the anterior or posterior method, depending on whether the operator regarded the beneficial result as due to an anatomic drainage or entirely a physiological operation, reducing intra stomach pressure and adding to the acid chyme duodenal contents, namely, pancreatic juice and bile. It has been the habit of some operators to shirstring the ulcer, while others have punctured the ulcer and repaired the small puncture because of the known fact that cases operated upon for ruptured duodenal ulcer generally heal and remain well.

Recently there has been an honest discussion among surgeons as to whether a pylorectomy should be added to the gastrojejunostomy in every case where the ulcer involves the pylorus and where the operation was possible, and it seems to the writer from his experience, and from what is known at this time, that the whole matter of failure in a small percentage of cases must depend upon this added detail.

There are as yet very few statistics available upon this point, but taking those of Deaver, Mayo, Moynihan and a few others, it would seem as though this procedure would add about 8 to 10 per cent. to the mortality of the operation. This would be a rather larger added risk than was justifiable if this was the only point to be gained, but it is impossible to say when the ulcer is found, whether it is simple or malignant macroscopically and without microscopic section. One does not have to proceed far in stomach surgery if he is honest until he is willing to admit his inability to differentiate many of these ulcers.

The following case is illustrative:

D. F., United States, consulted me in 1911 for pain two hours after taking food, with no loss of flesh or strength, no vomiting at any time. His stomach contents were normal, chemically and microscopically. I saw him again in consultation in September, 1913. He was vomiting all food and was then emaciated. His stomach contents showed a high percentage of free and combined acids, a few red cells, a few yeast cells, and a trace of mucus, otherwise microscopically negative, no Oppler bacilli or other forms of fermentation. Physical examination was negative for tumor. Slight resistance and pain over pyloris. It was evidently a surgical case and I operated upon him the following day. There were no enlarged glands about the pylorus which was freely movable, but was the seat of a large saddle ulcer occluding the pyloric valve. There was nothing about the history or ulcer in this case that would make one think of malignancy. I did a quick anastomosis by the posterior method concluding the operation in about 33 minutes. There was nothing about the convalescence of this patient that need be noticed, except that he did not gain flesh and strength as fast as people who have a simple ulcer of the pylorus generally do after operation. Six weeks from the time of the first operation, although the patient was taking a large amount of food, he did not gain flesh and strength. I reopened the abdomen, when to my dismay I found the case was one of inoperable carcinoma—the pylorus fixed, glandular involvement everywhere, the tumor extending along the lesser curvature. In other words the carcinoma had behaved as they always do after surgical interference which does not remove the entire disease, namely, had become intensely malignant and vastly more toxic.

This is one of several cases in which my inability to differentiate the ulcer at the time of the operation has deprived the patient of a chance of cure by a radical procedure—and I am sure that this is the experience of other operators, as I have seen a number of their cases which correspond in every detail with the case reported above.

I have formulated a plan of procedure for myself which forces me to perform a pylorectomy in every case in which the ulcer involves the pylorus.

Other causes of failure to relieve symptoms *are:* (1) Imperfect technique in making the anastomosis.

(2) Refusal of the ulcer to heal, although not malignant. (3) The formation of new ulcers of the duodenum distal to the anastomosis. The first must always remain a personal equation. The second is remedied by a pylorectomy or excision. In our own personal experience we have never met with a single ulcer of the greater or lesser curvature which did not heal after gastrojejunostomy. All our failures have been cases where the ulcer involved the pylorus. The third demonstrates pretty thoroughly that we are dealing with end results, the treatment of which has in no way relieved the cause.

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## SURGICAL IONIZATION AND OTHER PHYSICAL FORCES IN THE TREATMENT OF CANCER.

By G. BETTON MASSEY, M.D.,

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THE modern revival of interest in the treatment of cancer has been stimulated in turn by the announcement of the earlier technique of the writer's method of destructive ionization with a heavy direct current of electricity, in 1895, followed a year later by the first efforts of the Roentgen ray treatment and later still by fulguration with high-frequency currents. Latest of all is the recent renewal of hope in the action of radium, under the stimulus of the expectation that larger dosage would yield results hitherto wanting from the application of the small quantities that have been available. Aside from some ineffectual experiments with sera and other biological products, it is notable that all these methods are essentially electrical, or forces resultant from ionic action, whether operating by the cataphoric conduction of ions in solution; by radiation due to ionic bombardment within the Crookes tube or the ionic decomposition of radium; or by the direct action of the ions produced by the high-frequency current.

An additional fact of interest is the possibility that the popularity of this whole group of methods, including the biological experiments, indicates a growing conviction that cancer is parasitic. This etiology would at least seem to be suggested by the successful cases of any one of these methods, for the most natural explanation of such results is an interstitial devitalization, or retardation of growth, of an endocellular hyperstimulating organism. That the surgical mind is tending in this direction also is evidenced by the recent elaborate precautions of some surgeons against reinfection during operations. It seems to the writer that this interpretation of our therapeutic efforts should be frankly faced, with a view to a possible increase in the parasiticidal effects that might flow from a clearer comprehension of their mode of action. It would by no means be the first time that a successful antiparasitic treatment had been employed in advance of laboratory corroboration of such an etiology.

Analysis of the action of the physical agencies mentioned above shows two methods of destruction or retardation of the life of lower organisms:

(1) The writer's method of massive diffusion of zinc ions, by which these ions are driven into union with the protoplasm and saline constituents of the diseased cells, is an immediate destructive agency for the growth as a whole, accomplished in from twenty to forty minutes by a process of electrochemistry. This is applicable in early or small growths at or near the surface because of its simplicity, bloodlessness, and small resultant scar. It is also strongly indicated in certain large and neglected growths that are on the borderline of knife operability, owing to the ease with which the destructive sterilization may be carried into cavities and to points of extension that could not be eradicated by excision without reimplantation of infected cells. It has the additional advantage of sealing the absorbent vessels at the periphery of the destroyed growth, thus placing the dead tissue practically outside the body, with no vascular connection with the body system and with no possibility, therefore, of producing a toxic effect. This sealing of lymphatics and veins also makes reimplantation of diseased cells impossible.

(2) Recent investigations of radium indicate that the effective gamma rays from this substance are probably identical with the penetrating rays of hard Roentgen tubes. These latter have been in the main a disappointment in the treatment of serious growths, though at times effective, and often a valuable palliative. It is likely that their curative value may be increased by improved apparatus, giving new possibilities to the method in otherwise intractable cases. Roentgen rays are contraindicated in early local growths that are amenable to quick destruction by simpler means. Their slow action permits metastases to form. It is also difficult to confine them to the diseased part, resulting in unnecessary risk of detrimental action on other portions of the body. The practice of repeatedly flooding large parts of the body with rays for the destruction of a small epithelioma of the skin seems indefensible, in view of the ease with which such a growth may be destroyed by ionization, or even by caustics.

Of the action of large quantities of radium we are not yet fully informed. That a profound effect is produced on some growths is evident from newspaper reports and the statements of the few possessors of a large dosage in this country and Europe. It is possible that the considerable mortality reported is due to the growth being killed *within the body*, with intact absorbents and no bar to the free introduction into the circulation of an overwhelming dose of toxins. That radium will kill small skin epitheliomas is more interesting than important when it is understood that 90 per cent. of these may be eradicated by a few minutes' employment of zinc ions in an office application.

Fulguration, which is not employed as a destructive agency but as a means of rendering a post-

operative wound a poor soil for the growth after its partial removal by a cutting operation, may be classed with radiation methods if the reports of its effectiveness stand the test of time.

The writer believes that these two general methods of arraying physical forces in cancer therapy should receive a discriminating consideration alongside the knife as methods of choice in individual cases, the selection of method being dictated by our present clinical experience of its efficiency in the particular situation and conditions of the growth. And it is the situation and extension of the growth rather than its histologic type that should determine choice, all types of cells being about equally affected by these physical forces.

All will agree that a local malignant growth that can be excised without risk of reimplantation should be promptly removed by the knife. When, on the other hand, surgical measures of any kind, including the ionic, are manifestly incapable of successfully removing a local growth, our present recourse must be to some form of radiation.

The ionic diffusion method occupies a middle ground between excision and radiation in its clinical indications, for by it a still local growth, including infected glands, may be destroyed in a situation impossible of successful excision. This is borne out by the writer's experience with a large number of otherwise inoperable cases, with the result of saving the lives of about thirty per cent. of this class of patients treated, who have remained free from the disease for periods of time varying from one to seventeen years.

The effectiveness of this method has been measurably increased of late by making the application bipolar, the soluble ionizing electrodes being inserted at the periphery and the other pole of the current placed in the center of the growth. This technique is best adapted to the quick destruction of large growths, for one may employ several thousand milliamperes without the current itself traversing and tetanizing nearby nerve structures, greatly shortening the time of operation. Profound local or general anesthesia is essential to thorough work, preferably preceded by the hyoscin-morphia combination.

The results in cases treated by the older, unipolar, method, in which a large pad of wet kaolin forms the negative pole on a distant skin surface, have been given in the writer's monograph on the subject.* During the last ten years 234 cases of cancer have been operated upon, mainly by the bipolar method, with the following results:

Of the 234 patients, presenting mostly inoperable growths, 95 patients, or 40.6 per cent. have remained free from manifest evidence of disease for periods of time varying from one year to ten years since treatment. Nine patients died during treatment—a mortality of 3.84 per cent.

The microscopical diagnosis and results in these cases may be tabulated as follows:

Of 111 epitheliomas, 77 were cured, 32 received temporary palliation, and 2 died.

Of 104 carcinomas, 32 were cured, 65 received temporary palliation, and 7 died.

Of 19 sarcomas, 7 were cured and 12 received temporary palliation.

The cases of epithelioma yielded 70 per cent. of cures, the carcinomas 30 per cent., and the small number of sarcomas 36 per cent. of cures.

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*"Ionic Surgery in the Treatment of Cancer." The A. L. Chatterton Co., New York, 1910.

## A SKIN VARNISH AND SUBSTITUTE FOR RUBBER GLOVES.

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Rubber operating gloves are such an article of religion with modern surgeons that he who suggests their elimination is thought heretical; yet they have their obvious disadvantages. They are not easy to operate with, particularly in intestinal operations, where the slippery gut eludes the grasp. The sense of touch is decidedly altered and deadened, not only by the interposition of the rubber itself, but also by the constriction of the fingers by the elastic tissue.

These drawbacks would not be considered were gloves perfectly safe in regard to infection. They are difficult to sterilize and require fifteen minutes' boiling in water, or one hour in the steam sterilizer at 120° with 15 pounds pressure. Braun (*Beiträge zur klin. Chir.*, 1908, LXIV. 2) found that when tightly wrapped rubber gloves required one hour's steam sterilization; three-quarters of an hour did not suffice unless the gloves were loosely packed and the fingers distended by cotton. He favors placing a cotton glove inside the rubber in order that the steam may penetrate. It is probable that most surgeons are not familiar with the difficulty of sterilizing rubber gloves. With a proper amount of sterilization rubber gloves soon deteriorate in quality.

Then, again, gloves are frequently pricked by needles, and torn, liberating bacteria suspended in the perspiration of the hand—the easiest possible form by which to transmit infection. The hands always sweat, and the sweat collects with the skin bacteria at the loose finger ends. When a needle prick comes the bacteria escape into the wound. Hellendan and Fromme (*La Semaine Medicale*, Dec. 4, 1912) found that in forty-six of ninety operations the gloves of the surgeons after operation contained liquid, sometimes to the amount of several cubic centimeters. Cultures showed that this liquid contained two, three, and even ten times the number of organisms recoverable from the hand before the glove was put on, and in some cases, more than before the hand was treated. Putting on the gloves dry did not alter the result. This is a commentary upon the danger of glove punctures and the inefficiency of present methods of hand disinfection. Bad gloves, or gloves with needle pricks, are infinitely more dangerous than the bare hands, even when these are treated in the customary inefficient manner.

Gloves are used to prevent contamination from the hand to the wound, and if this may be obtained after another fashion gloves may be dispensed with.

This may be accomplished by means of a coating of the skin by a substance which is impervious, smooth and elastic, with all movements of the hands. This is no new idea, and skin varnishes have been described by many others. Weil pasted rubber sheets to the skin of the abdomen and the surrounding of the operative field was attempted by Murphy with an acetone gutta percha solution. Menge attempted disinfection with paraffin-xylol, and Schleich used wax. Others were Lesai's varnish, Kossman's chirol, Daederlein's guanidin, Wederhake's rubber skin, Dornitz and Klarpp's chirostes, Heusner's iodine-collodion, v. Herff's benzodamar, Dubar's varnish and v. Oettinen's mastisol. I have investigated all of these that I could obtain, and few have any merit save mastisol. Rub-

ber, wax or damar solutions are too soft and pervious for any practical use.

As a result of considerable experiment, I have devised a skin coating which is impervious, easily applied and sterile. It has the following approximate composition, but requires to be standardized at the factory in regard to consistency on account of the strange ways in which soluble cotton acts in solution. It is composed of a base of pyroxylin (soluble cotton of commerce) dissolved in amyl acetate and acetone, with the addition of propyl and ethyl alcohol and saponifiable ester. It contains one per cent. of a strong oil—soluble germicide. The varnish is a golden yellow liquid, having the consistency of maple syrup.

This solution has the following advantages: It is readily applied and removed; it is insoluble in all water solutions and not affected by the heat of the body; it adheres strongly to the hand and penetrates all the crevices of the skin, fixing the bacteria; it goes readily under the nails, where the most organisms reside; it cannot be scraped off the skin with a knife, the superficial layers of the skin itself coming away along with the varnish if pressure is exerted.

After the hands are sterilized, and reasonably dry, a small quantity is poured in the palm of one hand and then rubbed over all surfaces of both hands, as if it were vaseline or other grease. Care should be taken to coat every part; as soon as stickiness begins, the hands are held quiet and waved in the air for a minute or so, until the varnish dries. If the room is hot, or it is summer, a slight stickiness or "tacky" feeling may persist; but this may be immediately removed by plunging the hands into sterile water. The varnish then is smooth, firm and elastic, and may be removed only by acetone or other solvent of collodion. The best solvent for removal is equal parts of acetone and denatured alcohol, both of which may be obtained from dealers in painters' supplies. Removal is best done by a piece of absorbent cotton and a saucer of the alcohol-acetone solution. An orange stick is useful to work under the nails.

This varnish fixes the bacteria upon the skin, as I have shown repeatedly, by the following experiment: Without any preliminary disinfection or other cleansing whatever, a twenty-four hour broth culture of *Staphylococcus pyogenes aureus* was poured on the hand and allowed to dry in. The hands were then coated with the skin varnish, which was allowed to dry as above described. Cultures were then taken by vigorous scraping with a knife from the coated surface; all were uniformly sterile. To prove that this was not due to inhibition from the germicide contained in the varnish, the plates were subsequently infected, showing vigorous growth after twenty-four hours' incubation. The germicide contained in the varnish is not in a water-soluble form, so there is no danger of it or any of the constituents of the varnish passing into the wound at operation.

The ease and skill which is gained in operating with the varnish is such that once used it is never relinquished. The retention of the sense of touch and the removal of the bonds of rubber gloves will bring to surgeons the dexterity of the old-time surgeons of the pre-anesthetic days, of whom stories of half-minute amputations are still told. I have used the varnish in the place of gloves for more than a year, and it has reduced my operating time for such operations which are technically alike, as hysterectomy for fibroids, by about forty per cent. Operating becomes a pleasure and skill is easily obtained. The skin varnish is also serviceable for many other purposes, such as protecting the skin around an artificial anus or coating over a healing wound at a second operation in another situation.

I am indebted to Mr. John Reilly of New York for much practical advice and assistance in the two years of experiments.

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## PITUITARY PREPARATIONS IN POSTOPERATIVE CONDITIONS.

By T. W. HARVEY,

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THE most troublesome symptom following laparotomies is undoubtedly the condition known in hospital wards as gas-pains. The convalescence even from the most trivial operations is often made unbearable by the discomforts due to delayed peristalsis; the paralysis that results from insults to the nerve supply of the abdominal organs.

These cases usually require the hypodermic injection of morphine. As a rule there is very little objection to the use of small hypodermics of morphine after operation but its use delays the starting up of peristalsis and in some patients causes vomiting.

The gas-pains, as is well known, last from two to six days depending on a variety of circumstances. If peritonitis is present then the delay in starting up of peristalsis is of much more serious import, and we are confronted with the danger of that condition of intestinal paralysis with great distention and persistent vomiting that marks the fatal termination of such cases.

During the last few months in our surgical work at the Orange Memorial Hospital we have been using hypodermic injections of pituitary extract ½ to 1 c.c., beginning either immediately or about 4 hours after operation and repeating as the nature of the case requires, rarely giving more than two doses. The immediate effect is to cause the patient to void urine. This is so certain that we have used it for that indication often when otherwise we would have had to use a catheter. The next effect is to stimulate peristalsis, and the patient is soon expelling gas and consequently there is very little pain and morphine is not required.

We have used the pituitary preparation in preference to eserine in those cases of suppurative peritonitis where operation has been followed by paresis of the intestines, and enemas and cathartics are ineffectual and vomiting is intractable. Here properly administered it will change the aspect of the whole situation and will stimulate the bowels to move and the stomach will recover its tone.

This particular effect of pituitary extract upon the muscular coat of the intestines and its application to postoperative conditions has not been dwelt upon in the literature of this medicinal agent, its efficiency in obstetric practice having overshadowed its good effects in surgery. Our records show that we have used this preparation in some thirty laparotomies and always with benefit.

Case I.—C. N., July 20, 1913. Gangrenous appendicitis, drainage. Three hours after operation morphine and atropine given by hypodermic for severe abdominal pain. The pain returning, pituitary extract was given twice in first twenty-four hours; the patient

had watery movements with gas the next morning. The drug was given once a day for two succeeding days, causing free expulsion of gas and relief of pain.

Case II.—J. N., September 1, 1913. Suppurative appendicitis; gangrenous appendix. Patient had a peritonitis following operation with vomiting and abdominal pain. This patient had two hypodermics of morphine and two of pituitary extract with relief of symptoms after the first forty-eight hours. In both of these cases peritonitis was so marked as to require the Murphy drip and the Fowler position.

Case III.—P. L., September 14, 1913. Admitted in a condition of collapse following rupture of a large appendical abscess. Active cardiac stimulation with Murphy drip and one small dose of morphine was given immediately; pituitary extract was given in twelve hours and again in twenty-four hours after operation; gas was passed from the bowels and there was great relief of abdominal pain and vomiting. Patient had a stormy convalescence, having a septic pneumonia, but his recovery from his general suppurative peritonitis was very rapid and satisfactory. This patient was about the sickest patient with peritonitis that I have ever seen recover. He was practically pulseless at the time of operation, which was a simple incision with drainage, and for twenty hours required constant stimulation. The administration of the pituitary extract and the starting up of peristalsis I am sure turned the scales toward recovery.

Case IV.—M. H., September 20, 1913. Pelvic peritonitis, colloid cyst of the broad ligament, many adhesions, drainage. Immediately after operation morphine was given, pituitrin was given at 8.45 P. M. and at 8 A. M. the next morning, all gas pains were relieved, pain returning the next morning, the pituitary extract was given again with early relief.

Case V.—P. M., September 25, 1913. Laparotomy for extensive adhesions about cecum and stump of appendix. Pituitary extract was used twice during second day after operation with relief of pain and the passage of gas.

Case VI.—C. B., October 1, 1913. Catarrhal appendicitis, cystic ovaries; two doses of morphine after operation, pituitary extract twice in first twenty-four hours with relief of abdominal pain.

Through the courtesy of Drs. Ranson and Blakely of the Hospital Staff I can report the following cases from Dr. Runyon's service:

December 1, 1913.—S. Ruptured pus tube, general peritonitis; pituitary extract in two hours and twenty-four hours after operation; severe abdominal pain relieved on second day by discharge of gas and feces. No morphine.

December 6, 1913.—B. Appendicitis and adhesions, pituitary extract and morphine once after operation; bowels moved twenty hours after operation.

November 21, 1913.—C. Appendicitis, Lane's "kink"; post-operative pain very severe, morphine four times, pituitary extract four times in first forty-eight hours, then relieved by bowel movement.

December 2, 1913.—S. Fibroid uterus, hysterectomy; pituitary extract once four hours after operation, no gas pains.

December 1, 1913.—M. Appendectomy and Gilliam's operation; pituitary extract ten hours and thirteen hours after operation, no gas pains, bowel movement thirty hours after operation.

December 13, 1913.—O. Appendectomy; pituitary extract four hours after operation, no post-operative pain.

December 16, 1913.—G. Appendectomy, gangrenous appendix; pituitary extract four hours after operation, no gas pains.

December 15, 1913.—W. Gillian's operation, pituitary extract and morphine once six hours after operation; no gas pains.

Many cases of appendectomy have unpleasant symptoms only during the first three days. The early use of pituitary extract will almost without fail render those first days comfortable. In cases of suppurative peritonitis many die because of the paralysis of the intestines as shown by the obstinate constipation and the vomiting. Here the early use of the remedy in one or two very bad cases has seemed life saving.

In our experience, using the small doses, there does not seem to be any contraindication. One patient who was much relieved of his abdominal symptoms by the pituitary extract had a troublesome tachycardia. In this case several doses had been given at very short intervals. The tachycardia was relieved in a few hours.

Any mechanical obstruction such as intussusception is a contraindication, but the pituitary preparation is useful in cases of fecal accumulation in the colon, and in fact in cases of intestinal stasis generally, as it always starts things moving.

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## Medicolegal Notes.

**Medical Services to Minor—Ratification of Contract.**—Action was brought for medical services rendered to the defendant while she was a minor, living with her father and supported by him. The plaintiff relied upon a voidable contract by the defendant to pay him for the services, which she, after coming of age, ratified. There was evidence that after the rendition of the services and during the defendant's minority, she told the plaintiff that she wanted him paid therefor, and recognized the bill as a proper charge against her. Whether, in the absence of other evidence, she would have been liable upon the contract thus made, in view of her infancy and her situation in her father's family, it was unnecessary to decide, there being other evidence authorizing the inference that after coming of age she ratified her voidable contract.—Smith v. Mooney, New Hampshire Supreme Court, 85 Atl. 619.

**Malpractice—Evidence.**—In a prosecution for malpractice in treating a child's eye, the defendant testified that he made but one visit in August, 1903, when he prescribed for the eye, and that the next time he was called to see the plaintiff was in January, 1904. There was no claim that the second visit had any reference to the child's eye, and the defendant testified that that was the first time he saw that the eye was out. It was held to be prejudicial error to compel the defendant to answer questions as to whether he made any inquiry or examination of the eye between the time he prescribed for it in August and the time he discovered in January that it was out. Any such inquiries or examination could prove nothing.—Shelton v. Hacelip, Alabama Court of Appeals, 60 So. 471.

**Practising Without License—Evidence.**—In proceedings for practising without a license the evidence showed that the accused, by his public advertisements in newspapers, and to others publicly offered to practise, and professed to be able to cure practically any and all diseases, and invited all afflicted to call upon him for that purpose; but in his advertisements and in his private talk to many of his patients he would tell them specifically he made no charge. In his advertisements he stated, "Positively no charges made, but the labor is worth the hire," and repeatedly stated this to his patients. Many of those whom he treated paid him indirectly. Others paid him directly. He was known as and called "Dr." It was held that the evidence sustained a conviction for unlawfully practising without a license.—Mueller v. State, Texas Criminal Appeals, 153 S. W. 1142.

**Opinion Expert Testimony—Its Limitation.**—An expert witness may properly state what facts he knows as to the treatment of the plaintiff suing for a personal injury, and he may give his medical opinion on such facts. He may also be asked his opinion on an assumed state of facts which the testimony of other witnesses tends to establish. While he may testify as to what, in his opinion, may or may not have been the cause of a given condition, he may not give his opinion as to the ultimate fact which the jury must determine. What in fact caused an injury is for the jury. What may or may not have caused it is a matter of expert testimony.—Sever v. Minneapolis & St. L. Ry. Co., Iowa Supreme Court, 137 N. W. 937.

**Attending Physician's Opinions.**—Attending physicians, of skill and good repute, who are not experts in mental diseases, may, it is held, testify as to the mental condition of their patients, and their opinions as to such condition are admissible, when the facts upon which they base their opinions are detailed to the jury, although they may not give opinions as to the direct question to be determined.—In re Whiting, Maine Supreme Court, 85 Alt. 791.

# MEDICAL RECORD.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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New York, March 21, 1914.


## THE PASSING OF THE CORONER.

THERE is a bill now before the Legislature of this State which deserves the active support, not only of every physician, but of every citizen who has the advancement of the public good at heart. We refer to the bill introduced by Mr. Brennan, entitled: "An Act to amend the Greater New York charter, creating the offices of chief medical examiner, deputy chief medical examiner, and assistant medical examiners, prescribing their powers and duties, abolishing the office of coroner, and repealing certain sections of chapter four hundred and ten of the laws of 1882 in relation to coroners." The purpose of this bill, as outlined in its title, is to substitute for the present antiquated coroner system that of medical examiners, which has existed for more than thirty-five years in Massachusetts, to the great benefit of the community.

The bill creates a new officer, to be known as the Chief Medical Examiner, upon whom, assisted by a staff of assistant examiners, etc., will devolve the responsibility of investigating the causes of violent deaths occurring in New York City. This chief medical examiner, who must be a skilled pathologist and one with at least ten years' practical experience in the performing of autopsies, will be appointed by the Mayor and will hold office until he resigns or is removed for cause and after a hearing. He in turn will appoint such assistant examiners, microscopists, pathologists, chemists, clerks, etc., as may be authorized by the Board of Estimate and Apportionment. The duties of the present coroners, after January 1, 1915, will consist only in the holding of inquests in such cases as are brought before them by the district attorney and in the exercise of the powers of magistrates in connection with such cases, the coroner's jury will be abolished, and this absurd and useless survival of a bygone age will cease to exist.

This bill, which has been endorsed by many civic, legal, and medical associations and warmly praised by the medical examiner of Suffolk County (Boston) who has the advantage of a long practical experience with the working of the system in Massachusetts, was the outcome of a conference by representatives of the City Club, Citizens' Union, Short Ballot Association, New York Academy of Medicine, Trustees of Bellevue and Allied Hospitals, the Professors of Pathology in the three leading medical schools of the city, and the District Attorney's office. It is the result of an earnest effort on the part of those who have the best interests of this city at heart to do away with one of the most wasteful, useless, and potentially evil systems in our present government. A somewhat similar bill was passed by the Legislature nine years ago, but was killed by Mayor McClellan. If the present bill is passed there is little fear that it will meet the fate of its predecessor, and to ensure its passage every physician in the city is urged to write to his Senator and Assemblymen in support of the measure. It is a good bill and its passage will bring about a reform of the greatest moment.

## THE CLINICAL VALUE OF THE WASSERMANN REACTION.

IT is now nearly eight years since the original publication of Wassermann, Neisser and Bruck, in which they described their successful adaptation of the complement-fixation reaction to the diagnosis of syphilis. As with many new things, it was at first hailed as an absolutely sure method. Later, failures were reported, and the profession for a time lost faith in its worth. More careful investigation and supervision of methods has resulted in a reinstatement of the Wassermann reaction in its proper position as a diagnostic method of high value, though it has not abolished the need for careful and painstaking physical examinations. A new edition of Boas' work on the Wassermann reaction[1] furnishes a critical discussion of the technique and clinical value of the method, and, as such, is interesting at this time. The many modifications of the original technique are discussed, and it is made plain that the latter is superior to all the modifications and changes that have since been introduced. In judging then of its value in any one instance the method used and the personality of the investigator are of the greatest importance.

One of the most important questions is: Is the Wassermann ever positive in the blood of patients who are free from lues, and if so, are such results apt to make diagnosis difficult? Boas reports the results in nearly two thousand control cases, and shows that a positive reaction may occur after anesthesia, in scarlet fever, malaria, leprosy, and trypanosomiasis, and possibly in beriberi and pellagra. The interference by narcosis is interesting rather than important. Leprosy and trypanosomiasis are diseases which would not cause much confusion in this country, and are probably fairly easy of differentiation in those places where they do occur. Its occurrence in beriberi and pellagra has not yet been sufficiently confirmed to allow of intelligent discussion. The test was positive in 6 per cent. of 617 cases of scarlet fever, but only as a temporary occurrence so that in the majority of cases a repetition of the test would expose the error. Also in the majority of cases of scarlet fever the diagnosis becomes evi-

[1] *Die Wassermannsche Reaktion* mit besonderer Berücksichtigung ihrer Klinischen Verwertbarkeit. Von Dr. Harald Boas, Privatdozent an der Universität, 1. Assistenarzt am Rudolph Bergshospital für Dermatologische und Venerische Krankheiten, Assistent am statens Seruminstitut zu Kopenhagen. Zweite Auflage. Price M. 8.80. Berlin. S. Karger. 1914.

dent later in the disease. This, then, would not lessen appreciably the value of the reaction. In malaria the Wassermann seems to be positive during the febrile stage in a majority of the cases. De Haan has investigated this disease[2] and found over 38 per cent. of positive reactions in 163 patients with malarial fever. This would seem to be an important finding, for it is not always possible to find the plasmodia in the blood of malaria patients, and serious error might result from a mistake under the circumstances. Fortunately, the Wassermann quickly becomes negative in these patients after a course of quinine treatment, and the differentiation is thus made relatively easily.

Boas found also that a positive reaction in a syphilitic might become negative after the ingestion of large quantities of alcohol, during fever and during the death agony. In syphilis the reaction usually becomes positive within four weeks after the infection, and remains so unless influenced by treatment. He is inclined to regard it as one of the symptoms of syphilis, and, as such, demanding treatment. It almost always becomes weaker or disappears under treatment, and in the majority of instances is the last symptom to disappear. It is therefore a valuable guide in treating the disease, and treatment should certainly continue as long as the Wassermann is positive. Occasionally in syphilitics a negative Wassermann becomes positive after small doses of salvarsan or neosalvarsan. The use of these so-called provocative doses has increased the field of its applicability to a very large extent.

It will be seen that a positive Wassermann has a greater value than a negative one, and Boas concludes that a positive Wassermann practically means syphilis. The whole burden of diagnosis should not, however, be placed upon the laboratory. The clinician is apparently developing an increasing tendency to demand from the pathologist, not a report, but a diagnosis, and it would seem that many of the difficulties into which he has been led have been due to the fact that he places more dependence upon the laboratory report than upon his own powers of observation. Only too often these reports are swallowed whole without any attempt at digestion. It will be exceedingly unfortunate if the improvement in the methods of laboratory diagnosis develops a type of physician who will be merely an intermediary between the pathologist and the patient.

## FRACTURES OF THE ACROMION PROCESS.

THESE fractures, which heretofore have been considered rather rare, are shown by Mencke (*Annals of Surgery*, February, 1914) to be of comparatively frequent occurrence. From the records of the German Hospital of Philadelphia for the years 1905-1912 inclusive, he was able to collect reports of 89 cases of acromial fracture. These varied in severity from a sprain fracture with slight avulsion of bony tissue to those involving a large part of the process. He finds that these fractures are conveniently divided into three classes: well marked fracture of a considerable portion of the process; separation at the epiphyseal line, and sprain fracture. Of 40 cases occurring during 1911-12, 8 belonged to the first group, 1 to the second, 25 to the third, while 6 could not be traced. Those of the first type present no especial features as to diagnosis, etc., differing from fractures in general. Epiphyseal separations he considers are, so far as etiology and symptoms go, merely a subdivision of the fractures of the first class. "True sprain fractures, by tearing due to ligamentous pull, are found in three locations: (1) most often at or above the acromioclavicular junction; (2) at the insertion of the coracoacromial ligament; (3) the upper surface of the acromion, usually the location of the smallest of the sprain fractures. * * * The fourth variety of sprain fracture or at least fracture of a very small portion of the acromial tip is due very evidently to a force exerted directly either (*a*) by the pressure of the humerus from below, or (*b*) by direct violence to the acromion process." Of the 89 cases of acromion fracture, 18 had other lesions also demonstrable by the *x*-ray, and affecting the acromial end of the clavicle, the head or neck of the humerus, or, in one instance, fracture of the coracoid process and head of the radius. As Mencke says, "It will be seen at once that these injuries associated with acromial fractures, sprain fractures or otherwise, group themselves into two great classes. (1) Conditions affecting the acromioclavicular junction; (2) associated injuries indicating a violent trauma involving the upper end of the humerus and producing either a luxation of the humerus or a fracture." The history given by the patients was usually of "a fall on the shoulder," but Mencke believes, and in this he is backed up by Codman, Thomas, and Davis, that this statement is generally incorrect. In the vast majority of cases he considers that since the arm is usually thrown out from the body and the force of impact so transmitted that the shaft of the humerus acts as the long arm of a lever, the injury is usually caused by the great tuberosity of the humerus. "The force applied to the acromion may then (*a*) clip its outer end, (*b*) spring the acromioclavicular junction, or (*c*) put too much strain on the coracoacromial ligament. In any of these conditions the acromial fracture or sprain fracture results." Such a force must also produce an accompanying injury to the contiguous soft parts. The symptomatology of even the apparently insignificant sprain fractures bears out this view. "A certain proportion of these cases show immediately after the injury only the two symptoms referable directly to the acromial condition, *i.e.* localized tenderness over the acromion at the seat of injury, and pain on abduction. * * * These symptoms should cease with proper treatment at a time when bony or fibrous union has taken place. The persistence of symptoms points to the existence of a concomitant shoulder condition. * * * We must then consider the accompanying lesion as being * * * a luxation of the head of the humerus, spontaneously reduced, or an injury just short of producing luxation but with similar injury to the joint capsule."

† Über das Vorkommen der Wassermannschen Reaktion bei akuten Malariakrankheiten in den Tropen. Von Dr. J. de Haan. Archiv f. Schiffs- u. Tropen-Hygiene. 1913, xvii, 693.

Whether the theory of the production of these fractures be right or wrong, Mencke has rendered a very positive service to surgery in calling attention to the relatively frequent occurrence of slight acromial lesions. The severe fractures are usually recognized, for ordinarily there is but little difficulty in their diagnosis. The so-called sprain fracture, however, is often unrecognized and may carry in its wake, when untreated, long-continued functional disturbances which are commonly ascribed to a subdeltoid or subacromial bursitis, or to "rheumatism." The gross lesions of the acromion are readily shown by the *x*-ray, but the finer lesions, the tearing away of merely a few fragments of bone, cannot always be appreciated when interpreting the plates. One point not mentioned by Mencke but which should be emphasized, particularly in connection with cases suggestive of slight bony lesions not shown by the *x*-ray, is the diagnostic value of slight ecchymosis appearing over the acromion 24 to 48 hours after injury. This, with local tenderness and pain, especially at the acromioclavicular junction, and with painful and limited abduction of the arm, but with no demonstrable injury to the clavicle or to the head or neck of the humerus, we have found clinically almost pathognomonic of acromial sprain fracture. In every case of this kind the shoulder should be put at rest for two or, better, three weeks. A well-applied muslin Velpeau usually suffices; but when the lesion is of sufficient extent to allow downward and forward drooping of the shoulder, a modified Sayre strapping, applied as in fractures of the clavicle, plus the Velpeau has given uniformly good results.

### The Feeble-Minded in New York.

The vital need for increased provision for the feeble-minded persons in New York shown by statistics recently issued through the Rome State Custodial Asylum, which appeals also for an enlargement of its plant. The number of feeble-minded persons in the State is approximately 32,000, or one in every 300, it is stated. Of these only 4,900 are cared for in asylums, while 4,500 are scattered among the State prisons and jails, reformatories, and almshouses. It follows that about 22,600, or almost two-thirds of the whole, are at large in the community. The danger of this condition is shown in the rapid increase of the feeble-minded population. The number of feeble-minded girls and women of child-bearing age is estimated at 10,000, of whom nearly 7,000 are free throughout the State, and in this connection it is stated that a feeble-minded girl or woman is considered to be three times as dangerous to the community as a man. As regards the provision which is being made for the care of these persons, it is recalled that in 1890 on the basis of one in every three hundred, the feeble-minded population of the State was estimated at 19,992, of whom 19,220 were at large, institutional provision being made for only 770. In 1913, the feeble-minded population had increased to 32,000, and although, as stated above, 4,500 were cared for in special institutions and 4,900 were under restraint in other places, there remainded 22,600 at large in the State. These figures show the pressing need for increased care for this class of persons, and it is believed that this need can be most promptly met by increasing the facilities of the Rome State Custodial Asylum where there is ample room for the erection of additional buildings. The economy of this is apparent when it is stated that at the Rome institution 1,250 inmates are humanely cared for at a per capita cost of $2.39 a week, while at the boys' reformatories the cost is $4.66 a week, and at the girls' reformatories $5.47. The removal of this class of persons from the reformatories would relieve the latter of a great burden, make way for the class better suited for reformatory care, and effect a great saving to the State by reducing the cost of their maintenance.

## News of the Week.

**Civil Service Examination.**—The United States Civil Service Commission announces for April 8, 1914, a competitive examination, open to both men and women, for the purpose of filling a vacancy in the position of medical interne in the Government Hospital for the Insane, Washington, D. C., at $900 per annum and maintenance, and other vacancies of the same sort as they may occur. The Government Hospital for the Insane has over 3,000 patients and about 800 employees. In addition to the general medical practice offered, the opportunities in neurology and psychiatry are unsurpassed. Candidates must be twenty years of age or older, unmarried, and graduates of a reputable medical school since 1909, unless, having graduated before that date, they have been continuously engaged since graduation in work along the lines of neurology or psychiatry. Application for the examination should be made at once to the United States Civil Service Commission, Washington, D. C. As considerable difficulty has been experienced in filling vacancies in the position of medical interne in the hospital service during the past several years owing to the limited number of eligibles available, qualified persons are urged to enter this examination.

**Rise in Death Rate.**—During the week ending March 7 the deaths in New York City numbered 1,957, giving a death rate per 1,000 of 18.28. This was a considerable increase as compared with preceding weeks or with the same week of last year when the total number of deaths was 1,723 and the death rate 16.73. The most important factor in the increased mortality was the increase in the number of deaths from influenza and from chronic oragnic diseases, in the latter instance the epidemic of influenza and the severe weather conditions during the week being responsible for the termination. There was a comparatively slight increase in the number of deaths of children, and the increased mortality was largely confined to adults and old people suffering from the chronic diseases which made them unable to stand the extreme cold.

**Dr. Harry G. Watson,** formerly of New York, has removed to the Brockman Building, Los Angeles, Cal.

**Radium Ore Bill.**—The Senate Committee on Mines and Mining has agreed to report the bill conserving the supply of radium-bearing ores. This bill provides that deposits of carnotite, pitchblende, and all other ores may be explored, occupied, or purchased under the mining laws only on condition that the radium-bearing ores shall be sold exclusively to the United States. The sum of $450,000 is appropriated for building a plant and operating it for the next fiscal year.

**"Medical Judges" Bill.**—A bill recently introduced into the New York State Legislature provides that there shall be at least one medical judge in each county, three on the Court of Appeals, and three on each Appellate Division of the Supreme Court, who shall sit when any medical evidence is to be offered. Under the bill the judges would be appointed for five-year terms at $7,200 a year with an additional allowance of $2,500 for expenses. They would sit when any evidence as to sanity was to be given, and would advise the court and instruct the jury as to the correctness of statements and conclusions of medical witnesses.

**German Postgraduate Work.**—The Düsseldorfer Akademie für praktische Medizin, Dusseldorf, Germany, announces the following courses of study for physicians to be offered during the summer and autumn of this year: 1. A fourteen-day course on social medicine, treatment of injuries, and care of chronic diseases, from July 6 to 18. 2. A course in the newer methods of surgery and gynecology, consisting of lectures, demonstrations, and operative clinics, given with the assistance of the visiting physicians as well as of those of the academy, under the direction of Prof. Dr. Witzel and Prof. Dr. Pankow, during the last week of September. 3. A course in the pathology, diagnosis, and treatment of diseases of the heart and vessels, given under the direction of Prof. Dr. Hoffmann, from October 19 to 27.

**General William C. Gorgas,** who has been in South Africa investigating the health conditions in the Rand gold mines, arrived in London on his way home on Tuesday of this week. On Monday he will be the guest of honor at a dinner given by the London medical profession.

**Rush Medical College.**—In order to carry out a plan to make the Rush Medical College an integral part of the University of Chicago, with which it is at present merely affiliated, a joint committee composed of the faculties and boards of trustees of the College and the University are at present trying to raise a fund of $1,300,000. Of this it is planned to use $300,000 to provide a building for educational purposes, while the remainder will form an endowment fund through which it will be possible to raise the standard of medical teaching in the College.

**Lecture on Cancer.**—Prof. James Ewing of Cornell University Medical School, New York, will discuss the value of radium in the treatment of cancer at a public meeting arranged by the American Society for the Control of Cancer at the Woman's Cosmopolitan Club on Monday, March 23, at 3:30 o'clock.

**Gifts to Charities.**—St. Luke's Hospital of Shanghai, China, receives a bequest of about $9,000 by the will of the late Miss Fanny Whittel of this city.

By the will of the late Mrs. John W. Minturn a bequest of $15,000 is made to the Hospital for Scarlet Fever and Diphtheria Patients, which was founded by Mr. Minturn.

The Presbyterian Hospital, New York, receives a bequest of $40,000 for the endowment of free beds, by the will of the late Mrs. Minnie Hackett Trowbridge.

The sum of $5,000 each is bequeathed to the Maternity Hospital and the Howard Hospital for Incurables of Philadelphia, by the will of the late Joseph Wright of that city.

**To Abolish Coroners.**—The Assembly Committee on Cities of the New York State Legislature gave a hearing on March 11 on the bill providing for the abolition of the office of coroner in New York City. Under this bill the bulk of the work now assigned to the coroner would be taken over by a chief medical examiner appointed by the Mayor and several deputies appointed by the chief examiner. The chief and the deputies would all be physicians. The remainder of the coroner's work would be taken over by the city magistrates. There are at present eleven coroners in New York City—four in Manhattan, two each in the Bronx, Brooklyn, and Queens, and one in Richmond.

**Lectures by Dr. Bulkley.**—The Governors of the New York Skin and Cancer Hospital announce a course of clinical lectures and demonstrations in the Out-Patient Hall of the Hospital at 4:15 on Wednesday afternoons during April by Dr. Bulkley on the general subject of syphilis. The lectures will deal with primary lesions, the early and late manifestations, marital and hereditary syphilis, and the treatment of syphilis. On Thursday afternoon, April 30, Dr. William Seamon Bainbridge will lecture in the same place on "Some Practical Phases of the Cancer Problem." The course is free to members of the medical profession on the presentation of their professional cards.

**Scotch Anesthetic Society.**—At the Balmoral Hotel, Edinburgh, on February 20, a meeting which was attended by a number of anesthetists from Edinburgh, Glasgow, Aberdeen, and Dundee, was held with Dr. D. C. A. McAllum in the chair, and it was resolved that a society be formed to be known as the Scottish Society of Anesthetists, the objects of which should be "to further the study of the science and practice of anesthetics and the proper teaching thereof." The membership of the new society is limited to those practising the specialty of anesthetics. Officers were elected, as follows: *President,* Dr. McAllum, Edinburgh; *Vice-President,* Dr. Boyd; *Secretary-Treasurer,* Dr. Stuart Ross, Edinburgh; *Executive Committee,* Dr. Torrance Thomson, Edinburgh; Dr. Lamb, Glasgow; Dr. Mills, Dundee, and Dr. Johnston, Aberdeen. Two meetings will be held yearly, in April and October.

**Pennsylvania Alumni.**—The twenty-second annual dinner of the Philadelphia Alumni Society of the Medical Department of the University of Pennsylvania was held on February 21, when the following officers were elected for the ensuing year: *President,* Dr. William E. Hughes; *Vice-Presidents,* Dr. Howard A. Sutton, Dr. Samuel M. Wilson, and Dr. William A. Guilfoyle; *Honorary Vice-President,* Provost Edgar F. Smith; *Corresponding Secretary,* Dr. B. F. Stahl; *Recording Secretary,* Dr. William S. Wray; *Treasurer,* Dr. Morris B. Miller.

**Medical Society of the Missouri Valley.**—The spring meeting of the Medical Society of the Missouri Valley will be held in Lincoln, Neb., on Thursday and Friday, March 26 and 27, under the presidency of Dr. Flavel B. Tiffany of Kansas City. On Thursday evening the Lancaster County Medical Society will entertain the members of the society at dinner, after which Dr. J. Rilus Eastman of Indianapolis will deliver the annual address in Surgery, and Dr. J. M. Bell of St. Joseph the address in Medicine. Complete programs of the clinical meetings may be obtained from the secretary, Dr. Charles Wood Fassett, St. Joseph, Mo.

**Obituary Notes.**—Dr. THOMAS WILLIAM MCMANUS of New York, a graduate of the College of Physi-

cians and Surgeons, New York, in 1896, died at his home from pneumonia on March 12, aged 48 years.

Dr. JOHN E. CONLEY of Riverside, R. I., a graduate of the Baltimore Medical College in 1908, died in Naples, Italy, on February 18, aged 33 years.

Dr. WILLIAM BASS of Lowell Mass., a graduate of the Worcester Medical College in 1856, a member of the Massachusetts Medical Society and the Middlesex North District Medical Association, a former president of the latter, and a veteran of the Civil War, died at his home from pneumonia, on February 27, aged 81 years.

Dr. JOHN H. EVANS of Palestine, Texas, a graduate of the Medical Department of the Tulane University of Louisiana, New Orleans, in 1884, president of the Texas State Board of Medical Examiners, and a member of the American Medical Association, the State Medical Association of Texas, and the Anderson County Medical Society, of which he was a former president, died at his home suddenly on February 24, aged 57 years.

Dr. JOSEPH M. O'MALLEY of Philadelphia, a graduate of the Georgetown University School of Medicine, Washington, in 1893, a member of the Philadelphia Pediatric Society, the Philadelphia Neurological Society, the Medical Society of the State of Pennsylvania, and the Philadelphia County Medical Society, and for the past fifteen years chief of staff of St. Agnes' Hospital, died at the hospital from congestion of the kidneys following exposure to the severe storms of last month, on March 3, aged 49 years.

Dr. PAUL A. HARTMANS of Harrisburg, Pa., a graduate of the Jefferson Medical College, Philadelphia, in 1874, a member of the American Medical Association, the Medical Society of the State of Pennsylvania, the Dauphin County Medical Society, in which he had served as both president and secretary, and the Harrisburg Academy of Medicine, and for many years president of the school board of Harrisburg, died at his home on March 1, aged 63 years.

Dr. ALBERT PARKE GOOD of Philadelphia, a graduate of the Jefferson Medical College in 1894, and a member of the American Medical Association, the Medical Society of the State of Pennsylvania, the Philadelphia County Medical Society, and the Philadelphia Neurological Society, died at his home from heart disease on March 5, aged 45 years.

Dr. EDWARD D. GOTTSCHALK of Woodriver, Ill., a graduate of the St. Louis University School of Medicine, St. Louis, in 1906, died at St. Joseph's Hospital, Alton, from pneumonia, on February 26, aged 34 years.

Dr. HUBERT NICHOLS of Brooklyn, N. Y., a graduate of the Bellevue Hospital Medical College, New York, in 1891, died at his home on March 8, aged 49 years.

Dr. P. VINCENT MURRAY of Warren, Pa., a graduate of the Bellevue Hospital Medical College, New York, in 1881, died suddenly on March 13 while on a visit to New York.

Dr. ERWIN G. BECKWITH, retired, of Fostoria, O., died at his home from paralysis on March 5, aged 85 years.

Dr. ALBERT R. FELLOWS of Winterport, Me., died suddenly while on a visit to a patient on March 5, aged 62 years.

Dr. WELLINGTON LOCKE of Carriere, Miss., a graduate of the Medical Department of the Tulane University of Louisiana, New Orleans, in 1900, and a member of the Mississippi State Medical Association and the Pearl River County Medical Society, died suddenly from apoplexy on March 5, aged 41 years.

Dr. HENRY TUCKER HARRISON of Loch Raven, Md., a graduate of the University of Maryland School of Medicine, Baltimore, in 1874, and a member of the American Medical Association, the Medical and Chirurgical Faculty of Maryland, and the Baltimore County Medical Society, died at his home from pneumonia after a short illness on March 4, aged 69 years.

Dr. ROBERT B. GRAMMER of Fort Worth, Texas, a graduate of the Louisville Medical College, Ky., in 1883, professor of pediatrics in the Fort Worth School of Medicine, and a member of the State Medical Association of Texas and the Tarrant County Medical Society, died at his home after a short illness from pneumonia on March 1, aged 53 years.

## Obituary.

### THOMAS MORGAN ROTCH, M.D.

BOSTON, MASS.

Dr. THOMAS MORGAN ROTCH, professor of pediatrics in the Harvard Medical School, Boston, died at his home on March 9, aged 64 years. Dr. Rotch was born in Philadelphia, December 9, 1849. He was graduated from Harvard University with the degree of A.B. in 1870, and from the Medical School in 1874, and in 1893 became professor of pediatrics in that institution. He was also at the time of his death consulting physician to the Boston City Hospital, visiting physician to the Children's Hospital, and a member of the American Medical Association, the Association of American Physicians, the Massachusetts State and Suffolk District Medical Societies, the Obstetrical Society of Boston, the American Pediatric Society, and the New England Pediatric Society. His reputation as a pediatrist was international. He was the author of a text-book on Pediatrics and had also published a valuable work on "The Roentgen Ray in Pediatrics."

## Correspondence.

### OUR LONDON LETTER.

(From Our Regular Correspondent.)

OPERATIVE TREATMENT OF FRACTURES—COAL DUST DISEASES—MOSQUITO-BORNE DISEASES—ORAL SEPSIS—TROPICAL MEDICINE EXPEDITION TO EAST—OBITUARY.

LONDON, February 27, 1914.

THE discovery of *x*-rays has placed at the disposal of surgeons a knowledge of the condition of fractures which proves a valuable guide to treatment such as those in practice only a few years could not have anticipated. Compound fractures under the antiseptic system had been assimilated to simple fractures and it followed that operations which had been regularly practised on the patella should be extended to other bones. Mr. Hey Groves devoted his Hunterian lecture to a consideration of the principles involved in such operations and their clinical application. The "wait and see" policy of tying a limb to a stick and trusting to luck he said must be replaced by an accurate method which only leaves the limb to nature if and when the bones are in good position. Another necessity is to employ a

method which is mechanically efficient not only to bring the bones together but to hold them there firmly, while early movement is carried out and until solid union has occurred. The ideals he set before himself in operative treatment were: (1) Not to operate in a case which would probably give as good result by conservative treatment. (2) To employ a method which would ensure perfect anatomical restoration of form. (3) To secure such efficiency of mechanical fixation that the bone would be stronger than before fracture. (4) To do this by a plan that would last an indefinite time and not depend on the frictional grip of nails and screws on the bone. (5) To restore the limb to a state in which it can be freely moved as soon as the skin wound has healed, *i.e.* in seven to fourteen days and used for full natural function in three weeks to three months according to the bone involved.

The Milroy Lectures at the Royal College of Physicians have just been given. Dr. Shufflebotham was the lecturer this year and took as subject the "Hygienic Aspect of the Coal-Mining Industry." In the first two lectures he discussed explosions and the poisonous gases liberated in mines to prepare for which he visited Senghenydd after the disaster. Yesterday he dealt with the effect of mine dust on the health of the workers and of the temperature and humidity of the air. He pointed out that miners' phthisis or fibrosis of the lungs had almost disappeared since the Coal Mines Regulation act which had also diminished to a large extent the number of accidents. Fibroid lung such as potters suffered from was rare among coal miners and anthracosis did not seem to entail disablement. From this he concluded that coal dust was not an irritant of the lung. But he suggested that if shale dust or flue dust were mixed with coal dust with a view of preventing explosions, their silicious character might endanger the miners' lungs. He suggested also that spraying mines to render coal dust less explosive, by adding humidity to the high temperature and darkness might be deleterious to health and favor the development of ankylostomiasis, at present practically unknown in British mines.

On Monday Sir Ronald Ross, K. C. B., F. R. S., delivered a research lecture, the first of a series, at the Institute of Hygiene on the "Prevention of Mosquito-Borne Diseases." He began with a brief historical sketch of the researches which had shown these diseases to be carried by mosquitos, illustrating his statements by lantern slides and cinematograph films. Among the reasons which had contributed to free England from malaria improved drainage had led to diminution in the number of mosquitos; at the same time the parasites in man had been largely destroyed by quinine and the withdrawal of the window tax had made glass windows possible for all. There were other factors which, if they could only be eliminated, malaria would be prevented. Sir Ronald Ross lamented that we had not yet discovered the parasite of yellow fever, but he did not despair; it only wanted a well-equipped researcher to sit down and search for it in the bodies of mosquitos for about five years. Referring to municipal hygiene Sir Ronald said it might be a mistake to give self-government too early to a town, as the people generally knew very little, if anything, about hygiene, the consequence being that their town was likely to be neglected. In taking preventive measures it had to be remembered that the epidemiology of such a disease as malaria was quite different from that of yellow fever, owing to the differences in the breeding habits of the mosquitos concerned. Malaria was a rural disease and endemic; yellow fever was a town disease and epidemic. So again filariasis was endemic; dengue epidemic. The lecturer showed diagrams illustrating the way in which the incidence of yellow fever and malaria had been diminished in various parts of the world and advocated a combination of methods for dealing with the problems involved. Thus he said mosquito nets should be systematically used, the insects should also be killed as far as possible, and quinine must be taken in a proper way. Better results would be obtained by the simultaneous use of these measures than by concentrating efforts on any one of them.

A discussion on oral sepsis in its medical and surgical aspects has been held at the Harveian Society and interested a much wider circle. Dr. Wm. Hunter opened by remarking on the importance of its association with wounds in the mouth, the anatomical disposition of the teeth rendering the proximity of sepsis especially serious. So tonsillitis and chronic inflammation in the nasopharynx aggravate the danger of oral sepsis which often extends to the stomach and the septic gastritis thus set up may give rise to septic anemia. He regarded pernicious anemia as a distinct disease, but if complicated by a like disorder of septic origin treatment directed to the latter had led to greatly improved prognosis. He did not approve the wholesale extraction of teeth sometimes performed but looked for the extension of the antiseptic system to medicine as fully as it had been applied to surgery.

Mr. W. H. Dolamore as a dental surgeon did not advocate wholesale extraction except in very rare cases involving severe systematic complications. Dr. Buttar would like wholesale extractors and vaccinists to show the proportion of cases that could be properly described as cures and how far it could justify the disappointment and distress occasioned by an edentulous lower jaw in those patients who obtained no benefit. Of 10 patients of his own treated by different specialists only one professed to have been relieved. Dr. G. Coats thought it doubtful whether chronic iridocyclitis was due as supposed by some to oral sepsis. Post-operative inflammation might be and so septic teeth should be removed before intraorbital operations. Dr. Fitzwilliams agreed with Dr. Hunter that tuberculosis was likely to become engrafted on inflamed glands due to oral sepsis.

The expedition to the East of the London School of Tropical Medicine left last Friday in charge of Dr. R. T. Leiper. It is supported by the colonial office and is to investigate the mode of spread of trematode diseases, especially bilharziasis; the relation of infections in domesticated animals to those of man and the extent to which they may act as natural reservoirs. Considering the importance of the investigations the Admiralty have appointed Surgeon E. L. Atkinson, R. N., to accompany Dr. Leiper who will also have the assistance of Mr. Cherry Garrard, assistant zoologist of the Scott Antarctic Expedition. China will be the first port investigated, the Blue River Valley and then Hong Kong. On the return probably the expedition will visit the Malay States and Ceylon. The U. S. Rubber Company has offered facilities for the study of medical problems in Sumatra plantations.

Dr. Theodore Maxwell, author of "Terminologia

Medica Polyglotta: a Concise International Dictionary of Medical Terms" has died at the age of 66.

Dr. Wm. Bryce of Edinburgh died there on the 21st inst., at the great age of 93.

Dr. R. M. Bowman of Ripon has also died at the age of 92.

## THE ADHESION-PRODUCING BACILLUS.

To the Editor of the Medical Record:

Sir:—Permit me to state for publication the correction of the term *B. adhæsioformis* to *B. adhæsioformans*, and to say that there is no doubt that Dr. Scott is correct in his suggestion. I hope that this pleasant controversy concerning the name will help to stimulate further studies on this bacterium, regarding which I feel that much more work than I have performed would be welcome.

Anthony Bassler, M.D.

New York.

## Progress of Medical Science.

**Boston Medical and Surgical Journal.**

*March* 5, 1914.

1. Relation of the General Hospital to the Training School for Nurses. H. M. Hurd.
2. The Relationship Between Epilepsy and Migraine. G. A. Waterman.
3. A Radiographic Study of the Mastoid. O. A. Lothrop.
4. Laboratory Physiology in College and in Medical School. A. D. Bush.
5. The Treatment of Uterine Carcinoma with Cancerous Ascitic Fluid. R. M. Green and F. C. W. Konrad.

**2. Relationship between Epilepsy and Migraine.**—G. A. Waterman points out that epilepsy resembles migraine in many of its aspects. Both occur with great frequency as a direct inheritance from the family of either parent. Both recur with more or less periodicity in the individual. On the other hand the picture is that of an explosion of sensory energy. Each may be preceded by an aura referable to a disturbance in a definite cortical area. Although the aura of migraine presents the visual type in the form of scotoma and hemianopsia, while epilepsy commonly exhibits the pneumogastric aura, or the sensory or motor disturbance of the arm, face, or leg; nevertheless, one may on the other hand have the migraine attack ushered in by paresthesia of the arm, lip, and tongue (with or without aphasia), while epilepsy may be preceded by visual disturbance, as dimness of vision or scotoma. Not only may the same sort of an aura introduce an attack of epilepsy or migraine in different individuals, but in both diseases the warning may make its appearance independently without being followed by an attack. Just as in epilepsy the numbness of the hand or twitching of the fingers may come daily or several times a day over varying periods of time, only to be followed by the convulsive seizure at intervals of weeks, in the same way in a subject suffering from migraine attacks every few weeks preceded by scintillating scotoma, the author has seen the appearance of daily attacks of the scotoma alone, over periods of weeks, each attack lasting from twenty to forty minutes. The occurrence of psychic symptoms associated with the attack of migraine or epilepsy has been described by various authors; and indeed the attack in either disease may be replaced by a psychic equivalent. Another common symptom frequently met with both in epilepsy and migraine is somnolence. The features indicative of a relationship between epilepsy and migraine may be classed under the following heads: (1) The interchange of one disease for the other in different generations of the same family. (2) The appearance of migraine in early life, giving place to epilepsy later, with a resulting disappearance of the migraine or diminution of the intensity of the migraine attacks. In these cases the epileptic seizures may be ushered in by the same aura which gave warning of the earlier attacks of migraine. (3) The development of migraine attacks in patients previously suffering from epilepsy, and in whom the epilepsy has been cured by bromide treatment. (4) The appearance of symptoms of epilepsy in migraine attacks of certain individuals.

**3. Radiographic Study of the Mastoid.**—O. A. Lothrop notes that the use of the *x*-ray plate for aid in diagnosis of mastoid conditions is recent and promises to be of great value, especially in differential diagnosis between an acute mastoiditis and an acute exacerbation of a chronic sclerosed mastoid. As a rule the mastoid shows a more minute change in pathology than is shown in that of the accessory nasal sinuses. The reverse is true perhaps of transillumination. For detecting changes in the antrum of Highmore, for example, the transilluminator is more accurate than the *x*-ray, but in the mastoid the *x*-ray will differentiate between a congested though cellular mastoid, one whose cells are broken down and one that is sclerosed, while the transillumination of the mastoid simply shows some pathological condition obstructing to different degrees the rays of light. The author quotes the following statistics representing the results of his study: The total number of mastoid pictures tabulated were 460. Many others were discarded either because the plates were poor or because of insufficient data. The number of pathological mastoids were about evenly divided between the right and left sides. There were many more sclerosed mastoids on the right side than on the left but the number of acute mastoids on the left side equalized the division. Although one side may prevail over the other for a given period, the average is about the same for each side. In cases where the clinical diagnosis of chronic suppurative ear was made, 94 per cent. showed total sclerosis of the mastoid and 6 per cent. semi-sclerosis. In some cases where a diagnosis of effectus ear was made, 56 per cent. were totally sclerosed, 27 per cent. semi-sclerosed, and 17 per cent. were cellular or normal. In cases where no diagnosis of a past or present suppurative process was made, 92 per cent. had normal mastoids and 8 per cent. were sclerosed or semi-sclerosed. Ten per cent. of the cases diagnosed as acute suppurative otitis media showed sclerosed or semi-sclerosed mastoids. These represent the cases of acute processes superimposed on an effectus ear, or the acute exacerbation of a chronic ear. These latter are often difficult to differentiate clinically. The conditions found at operation were compared with the clinical and *x*-ray diagnoses in seventy-five cases.

**5. The Treatment of Uterine Carcinoma with Cancerous Ascitic Fluid.**—R. M. Green and F. C. W. Konrad have had the opportunity of observing several cases of inoperable uterine carcinoma in the gynecological wards of the Boston City Hospital. In view of the occasional relief from pain and the temporary retardation of growth which Risley had observed in cases of this type, it seemed worth while to make further trial of the method of treatment with cancerous ascitic fluid. An abundance of such fluid was obtained from one of the cases in the authors' series, and with this there were made autogenous inoculations in her case, and heterogenous inoculations in five other patients. The treatment was continued in some instances over a period of four months. As the result of their experience the authors reach the following conclusions:

The cases treated all showed a slight and irregular elevation of temperature, which, however, bore no apparent relation in its oscillations to the injections of cancerous ascitic fluid, but seemed rather to be due to septic absorption from the ulcerating surface of the cancer. The results obtained correspond with those obtained at the Massachusetts General Hospital. Cases 1, 4, and 5 gave no apparent reactions. Cases 2 and 6, according to their own statement, were relieved of pain and improved in general physical condition; the third case showed an apparent temporary relief of pain, and the tumor was apparently caused to slough, as evidenced by the tissue passed by the vagina. Four of the cases died of the disease and apparently without retardation. Two other cases were discharged and lost to observation. That the injections of serum do have a beneficial effect can hardly be doubted, but whether this effect is due simply to a serum isotonic with the blood and acting as a stimulant or whether the reaction is specific, remains still to be proven. Patients with extensive cancer are usually cachectic and ill nourished, and therefore it is easy to conceive that the injection of a highly nutritive fluid, saline and isotonic with the blood, would have a stimulating effect and aid in the improvement of the general condition, and thus probably also in the resistance to the inroads of the cancer. The reaction, however, is slight, very temporary, and shows slight or no specificity.

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### New York Medical Journal.

*March* 7, 1914.

1. Erosion of Tissues by Aneurysms (with Fourteen Illustrations). A. J. Smith.
2. Lingual Tuberculosis. Primary. W. B. Trimble.
3. Soap and Water and Opticians. C. H. May.
4. Low Blood Pressure. E. E. Cornwall.
5. Food Toxemia or American Gout. R. N. Willson.
6. Serum Diagnosis. J. Diner.
7. Heredity in Exophthalmic Goitre. M. I. Moss.
8. A Special Burette for Use in the Rideal-Walker Test. H. W. Mahr.

**2. Primary Lingual Tuberculosis.**—W. B. Trimble reports two cases of this condition and states that tuberculous ulcers of the tongue have the following diagnostic points: They usually affect the free border near the tip; the dorsum is generally free; they are, as a rule, superficial; the base is generally a dirty yellow, dotted here and there with minute whitish specks, which probably represent small areas of caseation necrosis; the ulcer may be oval or gyrate, but the borders are generally sharply defined against the healthy tissue, sloping, and not undetermined; the lesions are not indurated and the neighboring glands are very slightly affected. The author reaches the following conclusions: (1) The diagnosis is extremely difficult. (2) It is almost impossible to demonstrate the bacilli in the ulcer. (3) Although lues and cancer furnish the majority of ulcerations of the tongue and mouth, they are by no means the only cause. (4) In any case of tongue ulceration, tuberculosis must be reckoned with as a factor. (5 The histopathological examination alone is practically useless as a means of diagnosis between syphilis and tuberculosis, but it is of great aid in excluding cancer. The majority of tuberculous ulcers of the tongue are, in all likelihood, secondary; it is easy to prove that an ulcer is secondary, but to prove that it is primary is quite another matter.

**4. Low Blood-Pressure.**—E. E. Cornwall concludes that a low systolic pressure, provided the diastolic pressure is correspondingly low, does not necessarily mean poor circulation, although it does imply a diminished reserve power of the circulation. A low systolic pressure with a comparatively high diastolic pressure and a consequently small pulse pressure usually means myocardial weakness, with chronic nephritis, arteriosclerosis, or arterial spasm, and may be bad prognostically. A low diastolic pressure with a comparatively high systolic pressure and consequently an excessively large pulse pressure, may mean several things, e.g., a purely functional condition, a compensated aortic regurgitation, myocardial degeneration without arteriosclerosis or nephritis, toxemic irritability of the myocardium, or vasomotor dilatation from any cause. The diastolic pressure seems to be more stable than the systolic, and to show, less often than the systolic, marked variations from its normal without definite pathological cause; and the systolic pressure seems to accommodate itself to the diastolic more easily than the diastolic to the systolic. The diastolic pressure indicates the peripheral resistance, which in many cases is determined by permanent pathological conditions. Movements of the diastolic pressure beyond the normal health range cause the pulse pressure to take on an overload if an adequate circulation is kept up. Vasodilator drugs may improve the circulation by increasing the pulse pressure. Cardiac depressant drugs may lower the diastolic pressure by diminishing the systolic force and calling for a pulse pressure overload. Toxemias, both acute and chronic, can produce low blood pressure by dilating the blood vessels and by weakening the myocardium, but the greater part of their effect in the larger number of cases is probably produced by vascular dilatation, either through the vasomotor centre or locally. Chronic tobacco poisoning is a very common cause of persistent low blood pressure. It is possible for a patient to live for several hours with a systolic pressure below 60, and for several days with a systolic pressure below 70, and to walk around without particular symptoms of circulatory distress with a systolic pressure of 90, provided the pulse pressure is sufficiently large. The pulse pressure in health usually ranges between 30 and 45 and pulse pressures as small as 20 or as large as 60, if persistent, may be considered pathological. A systolic pressure of 100 or lower in an adult usually calls for treatment. Shortly before death partial asphyxiation may cause a sudden, transient rise in the blood pressure. A fall in the systolic pressure in response to an exercise test, immediately, or after a short preliminary rise and a delay in its return to the normal, while lacking positive significance, suggests the existence of myocardial weakness, as does also a failure of the pulse pressure to show a substantial increase in size in response to such a test. The neurotic factor in the patient and the personal factor in the observer may require a considerable allowance to be made for them in the interpretation of blood pressure findings; and the clinician must constantly guard against being misled by blood pressure findings, and especially against ascribing too much importance to them when not supported by other evidences of disease.

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### Journal of the American Medical Association

*March* 7, 1914.

1. A Scale, Based on the Work at Ellis Island, for Estimating Mental Defect. H. A. Knox.
2. An Anatomic and Physiologic Method of Short-Circuiting the Colon. J. R. Eastman.
3. Progress of Orthopedic Surgery. J. D. Griffith.
4. An Evaluation of the Psychogenic Factors in the Etiology of Mental Disease, Including a Review of Psychanalysis. F. X. Dercum.
5. Rupture of the Intestine, with Special Reference to Its Early Diagnosis. M. Kahn.
6. Duodenal Toxemia Following Rupture of the Duodenum, with Remarks on Extraperitoneal Rupture and a Report of Two Cases. A. B. Kanavel.
7. Ultraviolet Light as a Germicidal Agent. Experimental Investigation of Its Possible Therapeutic Value. F. H. Verhoeff.
8. A Practical Method for Determining the Amount of Blood

Passing Over During Direct Transfusion. E. Libman.
9. The Underlying Factors in the Spread of Tuberculosis. A. P. Francine.
10. Binasal Hemianopsia Occurring in the Course of Tabetic Optic Atrophy. C. R. Heed and G. E. Price.
11. Case of Strangulated Tubo-Ovarian Hernia in an Infant. A. B. Eustace and R. W. McNealy.
12. Gonorrheal Involvement of the Skin of the Prepuce Cured by Unusual Therapeusis. M. Zigler.
13. Idiosyncrasy to Asperin (Acetylsalicylic Acid). E. N. Reed.
14. A New Sign in Pneumothorax, Particularly Artificial Pneumothorax. J. L. Pomeroy.
15. Care of the Heart in Pneumonia. R. F. Fennel.
16. A Tube for Collecting Blood for Cultures. F. A. McJunkin.
17. Recent Experiences with Blood Transfusion. V. C. David and A. H. Curtis.
18. A New Culture-Medium for the Gonococcus. J. O. Hirschfelder.

**2. Short-Circuiting the Colon.**—J. R. Eastman states that anastomosis of the caput coli at its lowest level with the rectum as a means of short-circuiting the large bowel presents all the advantages and eliminates many of the evils of the operative procedures now in use. Ileosigmoidostomy does not always drain the cecum, and while anastomosis of the terminal ileum with the rectum is somewhat more efficient, the pus formation at the blind end of the ileum, described by Werelius, may defeat the object of the operation and reversed peristalsis favor retention of fermenting food and bacteria. If the caput coli is anastomosed freely to the rectum at the lowest point possible without traction, the emptying of the cecum is favored at this point, also where direct drainage is most needed. The Murphy button may be used and is here quite safe, as it will be readily discharged here. To insure anastomosis of the most dependent part of the caput coli, the appendix should be removed if it is necessary to secure perfect drainage.

**4. Mental Disease.**—F. X. Dercum divides the causes of mental disease primarily into two groups, the intrinsic, embraced in the great factor of neuropathy, and the extrinsic causes, the infections, intoxications, visceral diseases, metabolic disorders, trauma, etc. By neuropathy he understands a fundamentally defective or aberrant nervous organization shown by peculiarities of mental development and more or less by physical abnormalities in many cases. It is not surprising that individuals with these defects should break down under the ordinary stress of living, and that such breakdowns occur early in life, giving rise to insanities of the juvenile period and puberty, and also later causing the paranoid affections of the adult. The relations of neuropathy to heredity are noticed. The hereditary factors are present in a very large proportion of the insane, especially in manic depressive insanity, dementia praecox and paranoia. This heredity is of two kinds: in one of which a specific neuropathy and in the other a more general one is transmitted, but both of these may be combined in some cases. Where the extrinsic causes come into play, the neuropathic factors in heredity are also often active. Infections, trauma, etc., are only causes of mental breakdown where the resistance is weak. The psychic causes, of which much was made by the older authors, have latterly been considered of less importance. At the most they act as an incidental support or framework on which the delusional or obsessional feeling can secure a hold or obtain concrete expression. From this point of view the author passes to the consideration of the Freudian psychology and methods of psychanalysis, which he subjects to a severe criticism. They recall the writings of Janet, to whom he thinks Freud and his followers have given too little credit. He charges them with formulating differences based on doubtful inferences and questionable hypotheses, and says that this is very evident in the Freudian explanation of dreams. According to Freud's method, the psychanalyst can find most anything that he is looking for, and there can be do doubt but that he always finds it. It is a matter of proper inquiry whether or not psychanalysis is harmful, and the author refers to Hoche's inquiry on the subject as indicating that it may be so. The psychology of insanity is one thing and psychanalysis is another, and Freud and his followers are classed by the author with the Christian scientists as a sort of an outcome of the mystic tendencies of modern times.

**6. Duodenal Rupture.**—A. B. Kanavel reports two cases of traumatic extraperitoneal rupture of the duodenum which have convinced him that a toxemia, other than bacterial, is a factor in the mortality. The ordinary type of death from peritonitis was lacking, and postmortems showed no general peritonitis such as might have been expected. The diagnosis of such cases is largely based on the excessive local tenderness and pain with nausea and vomiting shortly after the injury. The treatment must be operative. The mortality is much higher than rupture of any other part of the intestine.

**7. Ultraviolet Light as a Germicidal Agent.**—F. H. Verhoeff has shown that light cannot under any conditions destroy bacteria within the cornea, even when the latter is perfectly transparent, without at the same time severely injuring the corneal tissue. Destruction of bacteria within the transparent cornea was obtained only when a light intensity and exposure were employed sufficient to cause complete destruction of the corneal corpuscles and intense injury to the corneal lamellae. Moreover, it does not seem possible that ultraviolet light could in practice be successfully used to destroy bacteria within a corneal abscess or ulcer, that is, when the cornea was no longer clear, even with the sacrifice of corneal tissue as in the case of the actual cautery. For either the exposures would have to be impractically prolonged, or such extreme intensity of light would be required that the heating effect would exceed that of the pure ultraviolet action. It is doubtful also if ultraviolet light of such intensity could be made available for therapeutic purposes. It must be concluded, therefore, that so far as direct destruction of bacteria within any of the tissues of the body is concerned, ultraviolet light possesses no therapeutic value.

**8. A Method for Determining the Amount of Blood Passing During Transfusion.**—E. Libman and R. Ottenberg find that it is as necessary to control the amount of blood transferred during a direct transfusion as it is to control the dosage in any other therapeutic procedure. A simple arithmetical formula is given by which it is possible to calculate how much rise in the percentage of hemoglobin will be obtained by transfusion of a given volume of blood. The formula is: (Patient's blood weight × patient's hemoglobin per cent.) + (weight of blood transfused × donor's hemoglobin per cent.), divided by the patient's blood weight + weight transfused (in pounds); the quotient equals the hemoglobin per cent. reached. The patient's blood weight is estimated as one-nineteenth of the body weight. The amount to be transfused may be decided arbitrarily, with regard to the patient's need, or with regard to the donor's ability to give up blood. It is always safe to take one-fourth of the donor's blood; it is often safe to take as much as one-third of the donor's blood volume, provided the transfusion is not done too rapidly. Though the danger of overloading the circulatory system of the patient is not as great as has been thought, yet probably it is not wise to add more than one-fourth, or at most one-third, as much blood as a person of the patient's weight normally has. This needs to be taken into account only in children

or very small adults, transfused from larger donors, because in most cases a single donor will collapse before he can give enough blood to embarrass the circulation of a full-grown adult patient. If more than one donor is used this part of the calculation becomes of great importance. By means of exact weighings of either donor or patient or both, before and after transfusion, in a series of eleven cases, the authors have shown that the formula which they give corresponds quite closely to the actual amount of blood transfused. By using this calculation as a guide and determining before each transfusion the point to which the hemoglobin ought to be raised, it is possible to avoid untoward symptoms in either patient or donor. The authors have demonstrated this in a large number of transfusions. The method is of value, not only for determining the amount of blood being transferred during direct (vessels to vessel) transfusions, but also for determining beforehand how much blood ought to be transferred during indirect transfusions (whether by syringe or some other method).

## The Lancet.

*February* 21 *and* 28, 1914.

1. The Experimental Principles of the Operative Treatment of Fractures and Their Clinical Application. E. W. Hey Groves.
2. The Thyreoglossal Tract. W. G. Spencer.
3. Primary Carcinoma of the First Part of the Duodenum with Secondary Involvement of the Common Bile-Duct.
4. Methods of Increasing the Accuracy and Delicacy of the Wassermann Reaction. F. H. Thiele.
5. Decompression of the Brain in Intracranial Hemorrhage: The Value of the Operation in Cases the Outcome of Accident or Disease. L. Bathe Rawling.
6. A New Radiometer for Use with Sabouraud's Pastilles. D. Corbett.
7. Infantilism. Hastings Gilford.
8. The Morbid Anatomy of Tuberculosis in Man. T. Shennen.
9. A Comparison of the Actions of Chloroform and Ether on the Blood-Pressure. A. P. Fairlie.
10. A Case of Chronic Joint Lesions in Hemophilia. D. W. Carmalt Jones.
11. On Three Cases of Eczematous Dermatitis Produced by Poisonous Plants. A. Whitefield.
12. The Fate of a Plug of Iodoform Gauze Accidentally Left in the Abdomen. A. E. Maylard.

**1. Operative Treatment of Fractures.**—E. W. Hey Groves emphasizes the need of the more frequent employment of operative treatment in certain groups of fracture, and also the necessity of improving our operative methods. Progress in the treatment of fractures can take place only when all methods are mastered and applied with discrimination to suitable cases. There are two things necessary for a general improvement of results. The first is that anatomically accurate reposition of the fragments, as demonstrated by the *x*-rays, should be the standard by which the treatment of each case must be judged. The *laissez-faire*, or "wait-and-see" policy of tying a limb to a stick and trusting to luck must be replaced by an accurate method of treatment, which only leaves the limb to nature if and when the bones are in good position. The second is that when one does operate one must employ a method which is mechanically efficient not only in bringing the bones together but in holding them firmly, while early movement is carried out and until solid union has occurred. The ideals which the author sets before himself in the operative treatment of fractures are: (1) Not to operate upon any case which would probably give as good a result by conservative treatment. (2) To employ a method which will ensure perfect anatomical restoration of form. (3) To secure such efficiency of mechanical fixation that at the conclusion of the operation the bone is stronger than before the fracture. (4) To do this by a method of fixation which will last for an indefinite time, and does not depend upon the frictional grip of nails and screws upon the bone. (5) To restore the limb to a condition in which it can be freely moved as soon as the skin wound has healed, *i.e.* in seven to fourteen days, and used for its full natural function in a period of three weeks to three months to the bone involved.

**4. Methods of Increasing the Accuracy of the Wassermann Reaction.**—F. H. Thiele and D. Embleton conclude that it is possible to have an extremely powerful antigen which will keep its power unaltered for months. It is possible to have an antigen which is not anticomplementary, so that summation and adjuvant phenomena cannot play a part in the reaction. The use of cholesterin and other anticomplementary substances in antigens for the Wassermann reaction not only is unnecessary but introduces a very serious source of error. The author's method of increasing the delicacy of the reaction is: (1) To diminish the amount of complement used to 1½ times only, that which will cause complete hemolysis of the system adopted. (2) To use large amounts, half a cubic centimeter or more, of inactivated syphilitic serum. (3) To use 50 to 100 units of the antigen. By this method purely anticomplementary phenomena do not play a part. Anticomplementary effects being rendered obvious in the control, true complement fixation, even when minimal, can be readily demonstrated. In this way cases which would otherwise give a slight reaction, so slight as to be doubtful on the ordinary reaction, give a full fixation; cases which otherwise give a negative can be made to give a full reaction, thus bringing in a large number of latent cases; and no fallacious results with other diseases have been obtained.

**7. Infantilism.**—Hastings Gilford points out that the difference between infantilism and dwarfism is that whereas in dwarfism there is a serious delay or arrest of growth, in infantilism there is a similar imperfection of development. The one is purely quantitative, the other qualitative. Dwarfism is, therefore, usually one of the symptoms of general infantilism, but not invariably; for just as a child of twelve may be of adult stature, so also, though but seldom, does one meet with an infantilate who is not a dwarf. The author regards infantilism as a conspicuous delay or arrest of development. The lesser degrees of defective development do not constitute infantilism, seeing that they are not such a departure from the normal as to attract attention or to throw the individual or the part affected out of harmony with the surroundings. But the condition connoted by the word "infantilism" as by the word "dwarfism" is necessarily abnormal or pathological. If consideration is confined to infantilism to the human being one may recognize two kinds or classes. In the one the man is affected phylogenetically, constituting racial, ethnic, or evolutionary infantilism; in the other he is affected ontogenetically, constituting individual or developmental infantilism. In evolutionary or phylogenetic infantilism the man as an individuel is normal. He can be regarded as abnormal only when considered as the constituent of a people or race as compared with other races of mankind. For example, the Japanese, some Chinese, and the Siamese in Asia and the Bantus in Africa show evidences of being racially imperfect when compared with Caucasians. In developmental or ontogenetic infantilism just as each of the structural units of the body is liable to degenerate prematurely so also may it continue immature, and it must sometimes happen that this immaturity is of extreme degree, constituting infantilism. Infantilism of cells is indicated by the fact that in all parts of the body single cells or groups of cells are liable to stagnate or even to be arrested in their development. It has been

shown that this is particularly likely to happen in those areas in which one kind of tissue terminates abruptly in another kind of tissue or where tracts of some fetal structure have differentiated into more than one organ at a comparatively late period of development. One may speak in a similar manner of organs which have never accomplished their destiny. Symptomatic infantilism may therefore be either toxic, or correlative, or possibly deprivational. The poisons capable of setting up infantilism are many, the most important being the products of fungi or protozoa living within the body. Chief among these are the toxins of syphilis, tubercle, malaria, enteric fever, pellagra, scarlet fever, measles, and leprosy, and of those organisms responsible for the chronic diarrheal diseases of infancy. In the production of infantilism one sometimes meets with cases which cannot be accounted for by toxic influences, which are apparently not due to the withholding of food or of food stimuli, but seem to be due solely or partly to the influence of correlation. In some cases this influence seems to proceed from the derangement or incapacity of an endocrine organ. In other cases it is difficult to account for the infantilism on this score. The morbid condition apparently arises as the result of correlations of the more primitive type in which the hormones are not concerned. Correlative infantiliism may, therefore, be of two kinds: (a) endocrinous, and (b) simple correlative. As regards endocrinous infantilism it is pointed out that there is only one form of infantilism which has so far satisfactorily been proved to be due to the absence or defect of an internal secretion, and this is thyroid infantilism. In this case three requirements are fulfilled. (1) Local examination of the gland shows that it is inadequate. (2) The administration of the gland or of its extract to a normal person produces symptoms opposed to those which characterize the infantilism. (3) The gland or its extract given to the infantilate counteracts the symptoms characteristic of the infantilism.

## British Medical Journal.

*February* 21, 1914.

1. A Series of Cases of Appendicitis in Children. H. M. W. Gray and A. Mitchell.
2. Some Observations on the Operative Treatment of Fractures by Metal Plates and Screws. W. Sheen.
3. Congenital Deformity of Femur. C. Maguire.
4. A Case of Chimney-Sweep's Cancer, and a Suggestion as to the Pathology of Cancer. D. A. Crow.
5. The Tuning-Fork and Stethoscope in the Estimation of Abdominal and Thoracic Viscera. J. Cantile.
6. Epidemic Cervical Adenitis with Cardiac Complications. S. T. Pruen.
7. Epidemic Cervical Adenitis with Cardiac Complications. R. Kirkland.
8. Chronically Enlarged Tonsils and Their Treatment. W. J. Harrison.
9. Earache of Obscure Origin. W. Wilson.

**6. Epidemic Cervical Adenitis with Cardiac Complications.**—S. T. Pruen during the autumn and early winter of 1912 saw several cases of tonsillitis, accompanied by unusually tender cervical glands. Convalescence was very slow, and the author accounted for the unusual severity of these cases by calling them influenzal. The striking feature of this disease is the unusually numerous large and tender glands. But though these are the features that at once arrest the observer's attention, yet the importance of condition lies in the insidious onset of cardiac lesions, which are in most cases slight; the dilatation, under rest, is temporary, but a murmur may persist. So devoid of premonitory symptoms is this complication, and so very widespread the disease, that the author believes that there must be at the present time a large number of unsuspected cases with cardiac lesions. One may be dealing with a "silent endocarditis," not as a clinical curiosity, but as a prevalent disease. The author is not prepared to determine the nosology of this epidemic disorder. It is neither mumps, rheumatism, nor septic tonsillitis; nor, as the author was at first disposed to call it, for want of a better term, influenza; nor is it glandular fever, from which it differs by the absence of nephritis except in a few instances, and of enlargement of the spleen, liver, mesenteric, inguinal, and axillary glands, and by the presence in almost all cases of tonsillitis and pharyngitis, and in many cases of mild carditis or endocarditis. Moreover, adults are more frequently attacked than adolescents, and adolescents than children. The author is disposed to regard the condition which he describes as a new or hitherto unrecognized infectious disorder, and that it is caused by a streptococcus, probably a new variety.

## Berliner klinische Wochenschrift.

*February* 23, 1914.

**Treatment of Cirrhosis of the Liver with Keratin.**—Zypkin of Moscow gives a brief history of the use of keratin in medicine. In 1905 Danilowsky discovered that this substance was able to bind gelatine in the body (gluten of the Germans), the substance furnishing the chief constituent of the connective tissue. He first tested it in hepatic cirrhosis, and in 1905 made the first test in an advanced case of the cardiac type of the affection. Patient had been depending upon caffein and calomel and was becoming much worse. The keratin treatment was now continued for over a year, and the organ, at first enormously enlarged, became of normal size. Thus encouraged the author tried the remedy on a case of Laennec's cirrhosis. The primary dosage was small—five half gram tablets daily—because of the accompanying gastroenteric congestion. Bismuth was used as a corrigent, and the dose of keratin slowly increased. Caffein was also used steadily, along with the *x*-rays over the liver. After five months of this treatment during which three paracenteses were necessary no more ascites formed and all edema disappeared, with simultaneous diuresis. The size of the liver and spleen remained unchanged; in other words, the disease was arrested in its course, but no actual involution had occurred. In a second case the results were even more striking. He improved more rapidly and toward the last his treatment was ambulatory. The keratin was well tolerated by the intestine. As in the first case, the change wrought in the vessels of the liver had not become so marked as to affect the volume of the liver. In the third case there was not only an alcoholic but a syphilitic history—nevertheless there was the usual degree of improvement: ascites, edema, enlarged abdominal veins all diminished greatly—in fact, became quite normal. There can, therefore, be no doubt that keratin is an antisclerotic remedy of much greater value than iodides. Of great weight is the fact that during the months of use no ill effects attributable to the drug were noted.

**Relapsing Umbilical Colic in Elder Children.**—Two articles are devoted to this subject, both in partial reference to a recent paper by Küttner. One is by Moro, a pioneer in this subject, who considers in this paper older children than those mentioned by Küttner, who insisted that this colic may be evidence of appendicitis. Moro contends that the beforementioned colic was psychogenic in origin, and therefore amenable to psychotherapy. This naturally applies only to children past a certain age, and perhaps will be found to belong under the head of "Pals vascular crises." It may be likened also to migraine and periodic vomiting. Friedjung contributes the second

paper, which also opposes Küttner's appendicitis theory. A number of autopsies on these children have shown the appendix normal. Of course Küttner's claim that appendicostomy cures this colic is not contested. An occasional coincidence is of course possible and has occurred. Friedjung is among those who believe these attacks of pain to be of hysterical origin. Drastasis at the linea alba has also been attributed as a cause of umbilical colic, but is now known to be a purely physiological manifestation.

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### Münchener medizinische Wochenschrift.

*February 3, 10, and 17, 1914.*

**Icterus in Extrauterine Pregnancy.**—Schottmüller refers to icterus gravidarum, which may be due to several causes, as diseases of the biliary passages resulting from calculi or icterus catarrhalis, or to hemolytic icterus, of infectious nature and usually fatal. In many cases the hemolysis causes a degree of hemoglobinuria, and the blood serum contains, as shown by the spectroscope, either methemoglobin or hematin. From these substances the icteric hue is derived, and all icteric pigment is one and the same. After a thorough discussion of icterus gravidarum with normal pregnancy, the author comes to the same phenomenon in extrauterine pregnancy. But few such cases are upon record. In 1884 Dick reported cases in which icterus and urobilinuria existed side by side. The latter he ascribed to the absorption of blood. While such an increase in the urobilin of the urine may occur, it is a mistake to look upon the icterus as having this origin. In the author's cases the spectroscope showed in the blood hematin but no urobilin. In 1909 Lodowijks reported icterus in ectopic pregnancy and Michaelis and also Tauber hemoglobinuria in the same condition. The main question of course is as follows: Are we able to diagnosticate ectopic pregnancy through certain icteric pigmentations? The great difficulty in diagnosis of this condition makes welcome any additions to our resources. The author cites a case in point: A woman in the third month of gestation began to suffer from violent stomach pains. Diagnosis, cholelithiasis; later jaundice began to appear. The patient gradually went to pieces. Not until two weeks' delay was an interperitoneal hemorrhage suspected. Laparotomy in the dying revealed a ruptured tubal pregnancy. This case could doubtless have been saved if the hemolytic nature of the icterus had been established. In ruptured ectopic pregnancy the absorption of blood is marked by the appearance of urobilin in the urine. But this happens under various conditions, and often does not happen at all. Sometimes during menstruation we see a jaundice due to uterine hemorrhage. The author concludes that hemolytic icterus (or hemato hepatogenous icterus) or in other words hematinemia may be a symptom of present extrauterine pregnancy, and possess diagnostic significance.

**Inguinal Pain in Young Men.**—Spoerl reports an affection seen by him in several dozen cases, almost invariably in men in their twenties. These subjects believe themselves to be victims of real or prospective hernia and in that state of mind look up the medical man. As a rule they have already provided themselves with trusses, which so far from lessening the pain often increases it. The pain is described as a traction or twitching in the groin. Examination reveals a negative result, but there is a tenderness in and about the external inguinal ring. The author has assumed that the pain is seated in the spermatic cord and connected with the preparation and excretion of the semen—patients are always men in the stormy years of sexual maturity. The author treats these cases with belladonna per os or suppository with massage of the groin and bromides. A more direct plan is Braun's infiltrating anesthesia (novocaine-adrenalin). The pain may be ascribed to a colic of the spermatic cord, combined with a neuralgia in the realm of the external spermatic nerve involving the nervous genito femoralis. The first of these passes through the external inguinal ring along with the spermatic cord. The original pain is due to the pressure of the latter, swollen by the intumescence of puberty, against the nerve already mentioned. The truss is discontinued entirely.

**Impulse of the Blood Column in the Subclavian Arteries as Sign of Aortic Sclerosis.**—Trunecek has made the observation that with hardening of the aortic wall the subclavian arteries become the seat of a special pulsation. The latter is explained as follows: The normal circulation is made possible because the left ventricle propels a certain quantity of blood into the aorta. When normal the latter is distended for an instant but its elasticity causes it to resume its normal caliber. But if the aorta is hardened this change in volume becomes less marked and finally ceases altogether. The amount of blood thrown into the aorta and finding no room, becomes felt in the aortic branches. The subclavian arteries which are given off transversely from the aorta feel the impulse chiefly on the upper wall, so that the finger laid upon the vessel feels the peculiar pulsation, which is of course synchronous with the ordinary pulse beat. Through its intensity and diffusion, one may recognize the degree and amount of aortic sclerosis. The "sclerotic impulse" is as a rule readily recognized and is alone sufficient for diagnosis of aortic sclerosis. This subclavian pulse as found in this condition is not a new affair, for Faure described it in 1874. It differs from the ordinary pulse in degree. Sometimes distinctly visible in the supraclavicular fossa it is so strong as visibly to lift the finger laid gently above it.

**Blood Finds in Whooping Cough.**—Schneider sums these up as follows: In this affection there is a constant blood picture, expressed as follows: A general leucocytosis, up to the third week (usually equivalent to the acme). The normal value is increased to an average of 27.100, which after recovery becomes normal. Variations are noted in individual cases, especially with complications, so that in extreme instances the above figure may be quadrupled. The lymphocytes remain increased during the first four weeks, ranging from 58 to 63 per cent, although exceptionally much higher. The large mononuclear and transition forms are slightly increased (never above 10 per cent.). The blood finds have no prognostic significance.

**Thyroid Treatment of Hemorrhagic Metropathies.**—Schot cites 25 cases of metrorrhagia in which there were symptoms of hypothyreosis. The hemorrhage was pure, due to no local cause. These he treated with thyroid extract or substance. The cases seem to be examples of menorrhagia. When the use of the remedy was suspended there was a certain tendency to recurrence, necessitating a return to it. In endeavoring to arrive at the best dosage, blood controls were employed, as the deleterious action of excess of thyroid is present here as elsewhere. On the other hand occasional improvement in other respects than menorrhagia were noted. Here belong the results of autointoxication, spastic obstipation, and nervous disorders.

**Indifference to Adrenalin Action in Dementia Præcox.** Schmidt has tested thirty-four cases of dementia præcox in regard to the action upon them of the drug adrenalin with special reference to blood pressure.

As a result they were found to be for the most part insensitive to the action of the drug—either there was no effect whatever on the blood pressure or but a minimal one or at most a very slight one. The highest increment was about 18 mm. The usual valuation of the entire blood pressure was from 40 to 80 mm. Striking it was that the more pronounced the clinical picture the greater the degree of insensitiveness to adrenalin. Example: a medical student was admitted to the clinic in a state of severe katatonic agitation. He had in a peculiar fashion mistreated his wife and child. He showed in the clinic stupor alternating with excitement and all the symptoms of katatonia. After several months of intenation in an asylum he was discharged as relatively cured. During this entire period he was tested with adrenalin, and no rise of blood pressure was ever noted—in fact a sinking was often in evidence. As soon as the katatonic syndrome (negativism, automatism upon command and flexibility) abated, the insensitiveness of adrenalin began synchronously to disappear. Upon discharge 0.5 gm. adrenalin was able to increase blood pressure by 20 mm. Hg.

**Self-Accusation and Pathological Conditions.**—Heilbronner discusses this subject at length. Self-reproach is associated in the mind of the psychiater with depressive mental disturbances and notably in pure melancholia, although in but a small percentage of cases. The so-called "angotmelancholie" is often seen in the early stages of chronic progressive psychoses. These subjects have hallucinations of crimes committed and give themselves up to justice. In hallucinations of hearing, a man may hear accusing voices. This behavior is frequently seen in alcoholism. Self-accusation was once held to be evidence *per se* of mental alienation, or at least to cause suspicion of the same. But an innocent may pose as a guilty party to save another if family pride is involved, and submit to prison sentence or heavy fines. A criminal may confess to a lesser offence in order to avoid suspicion of a greater crime. The author does not allude to self-accusation as a means of securing free transportation to some place in which a crime has been committed, nor to similar confessions from other motives, perhaps regarding these as beyond the pale of his article.

**Salvarsan Deaths.**—Kohrs reports a case in which death occurred in about three days after an injection, with symptoms of acute encephalitis. The case was unusual in that the patient appeared to be perfectly healthy and unusually robust. The dose was 0.6 gm. and was given as a result of a Wassermann positive. This test was made because of the presence of a balanitis, and on account of this find the patient received a full inunction cure. But one intravenous injection of salvarsan was given, hence the impossibility of anaphylaxis. The clinical picture was the same as is usually seen in salvarsan deaths of this type and together with the autopsy finds indicates that arsenic has broken loose from its molecule and acted by itself in its ordinary toxic capacity. While clinically arsenical poisoning is not imitated closely for obvious reasons (intravenous injection) the autopsy finds correspond entirely, as far as the brain, kidneys, etc., are concerned, with ordinary arsenical poisoning. Epileptoid convulsions were a feature of the encephalitis and doubtless contributed very largely to the death.

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**Deutsche medizinische Wochenschrift.**

*February* 19, 1914.

**Rapid Removal of Subconjunctival Hemorrhages and Suggillation of the Lids.**—Mohr refers to cases of this sort "innocently" acquired, in the course of coughing, straining at stool, etc. These subjects are often falsely accused of fighting or alcoholic debauchery, and no treatment is generally presented for such lesions. The author practises a subconjunctival injection of a 2 per cent. to 3 per cent. sterile saline infusion, repeated at intervals; while at the same time dionin solution 5 per cent. is instilled into the conjunctival sac. A few hours should elapse between the exhibition of the two substances. Novocain should first be used, but does not always prevent after-pains. The results of the treatment is absorption of all extravasated blood in two days. Should the case be of traumatic origin the same treatment is pursued. The author is silent as to the cosmetic component and the fact that skilful "make up" readily disguises lid suggillations should be borne in mind in this connection.

**Penis Duplex.**—Lionti reports an illustrated case of this malformation, from which it appears that mating with a woman with vagina duplex, which has been suggested as the natural way out of this dilemma, is chiefly speculative and not practical. The organs differ much in size and length and are separated by a raphe, like the two halves of the scrotum. Coitus with a normal woman was naturally out of the question, so that an extirpation of the lesser penis was the sole remedy. This was done without much difficulty. From the terms "accessory" and "supernumerary" penis applied to the portion removed it is not clear that the case is one of penis duplex in the strict sense of the word. This accessory organ had no functional importance, there was a very shallow meatus, but no patent urethra. Urine and semen passed through the major penis alone. Nothing is said as to the eligibility of the lesser penis.

**Septic Anemia.**—Knauth reports a fatal case of this more or less occult affection. A soldier was seized without apparent cause (aside from a recurring tonsillitis) with great prostration, vertigo, vomiting—or rather an inclination thereto. In this state he was admitted to the garrison. Upon admission the most striking symptom was acute anemia, the only cause of which appeared to be hemorrhage of the intestines. Transfusion was at once practised and with immediate improvement. This only enabled the patient to hold his own, however, and an attempt was made to nourish the patient through a jejunal fistula. Death, however, was inevitable. Autopsy showed a number of interesting finds: pus in the left tonsil; small ulcers and hemorrhages in the stomach; polypi throughout the intestine; bone marrow showed degenerative anomalies; the spleen contained an abundance of staphylococci. The rationale of the case was in the highest degree complicated. Tonsils attacked with staphylococcic inflammation. Cryptogenetic sepsis with resulting hemolysis causing part of the anemia. Some actual escape of blood from the intestine owing to presence of polypi. This loss in the absence of the toxemia would doubtless have been trifling. The tonsillar lesion was undoubtedly chronic.

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**Case of Friedreich's Disease Following Diphtheria.**—J. Taylor reports the case of a man, aged, 21, who was admitted to the hospital December, 1907; discharged March, 1908; diagnosis, "postdiphtheritic ataxia." Readmitted October 31, 1913. Had diphtheria in April, 1907, followed apparently by postdiphtheritic paralysis—diplopia, regurgitation of fluids, weakness in legs, difficulty in walking. Now has ataxia. Knee-jerks not obtained. Plantars: Right doubtful, left extensor. Articulation peculiar; tremor; no nystagmus; slight scoliosis. No deformity of foot, although left foot different from right. Family history negative.—*Proceedings of the Royal Society of Medicine.*

## Insurance Medicine.

**The Prognosis of Traumatic Neuroses in General.**— Billström of Stockholm states that Oppenheim and with him most of the German authors regard the prognosis of traumatic neuroses as bad. Of Oppenheim's cases not one has been cured, and but seven have shown an essential improvement, although most of the subjects were controlled during an ample time. Of eleven patients cited by Nonnes, one had disappeared, one had committed suicide, eight after an eight-year period of observation showed no improvement, while but one showed improvement. Bruns believed that if all monosymptomatic cases should be classed together the prognosis would be made better than is really the case. Charcot emphasized that the prognosis of traumatic neuroses is worse than that of other kinds. Crocq made a distinction in prognosis between neuroses from head wounds and those without this causation, deciding prognostically in favor of the latter in part. A series of French writers hold that the prognosis is good. Numerous statistics are available—those of Oppenheim, Schultz, Hoche, and Putnam, for example—which show great variation. Putnam obtained by far the best figures —only 22 per cent. negative results. The statistics presented by the other reporters show that the negative results have varied from 30 per cent. to 80 per cent.

There is another mode of calculating these results, to wit, the earning capacity after injury. Thus, of Nægelis' 138 cases complete efficiency was present in 115, partial in 20 cases. The dissimilarity in all these results is explained by the fact that the prognosis in these cases is essentially good, but is made worse by a number of factors. Some of these have been considered, but others cannot be determined and are grouped together under personal equation. Under certain presuppositions one may say that the prognosis is good, and as for the mild grade of invalidism in cases of traumatic neurosis the method of indemnification in private insurance societies—cash for six months without invalidism allowance—is ideal, and should be adopted by Imperial Insurance Associations, and is best for traumatic cases.

Not only from the etiological viewpoint, but also from the prognostic (Crocq, Sachs), which separates traumatic neurosis due to trauma capitis from other species, both upon practical and technical grounds, must the latter be regarded as a special group. The prognosis is better than one is inclined to assume, and one may say that for true traumatic neurosis, at least in Sweden, the prognosis is good (over 90 per cent.), if regarded from the social viewpoint. Considered neurologically the prognosis is always doubtful. Along with an increasing period of observation the number of recoveries always increases.

Local and monosymptomatic forms of hysteria and neurasthenia give the best prognosis. When there is hereditary taint, low intelligence, high age, alcoholism (after injury), arteriosclerosis, etc., prognosis is made worse, but not absolutely bad. The social *milieu* acts both ways—for the better or worse, according to the case.

Repeated accidents are of the greatest importance, because they seem to indicate a sort of predisposition for traumatic neurosis, while in certain cases they represent relapses. The kind of injury is also of influence on the prognosis, but a relation between the localization of the injury—save head and perhaps back injuries—and the prognosis has never been found by the author.

The written opinion has a bearing on prognosis and should not be shown the patient. A general prognosis in regard to ultimate cure may be given as good. The compensation given seems to affect the prognosis, and the statute that these subjects are not to be regarded as invalids seems to have a counteracting effect. Litigation impairs the prognosis and indemnification save in the capital cases, when the reverse may be seen.—*Zeitschrift für Versicherungsmedizin*, October, 1913.

**Types of Mortality Tables.**—Mr. Franklin B. Mead, Secretary and Actuary Lincoln National Life, in discussing the three types of mortality tables, namely, the select, aggregate, and ultimate, or more properly speaking, the truncated aggregate, points out that an aggregate table of one generation may be in effect an ultimate table for the next, due to a general improvement in mortality and in the selection of risks, and cites the actuaries' table as a well-known example of this. The most refined table is the select, and probably the most satisfactory from most standpoints. The premium rates, according to it, must be loaded for adverse deviations in mortality in addition to being loaded for initial and renewal expenses. The ultimate table is highly satisfactory for all practical purposes and unquestionably the safest. As far as can be seen, in American practice, it will be used for the calculation of premiums and reserves.

Mead further states that the effects of selection are permanent. As, for instance, the elimination of many hazardous occupations, risks of general low grade, and the elimination overweights. Extra mortality on overweights increases with age and duration of years for a long period, and the elimination of such risks affects the ultimate mortality for thirty, forty, or fifty years or more.—Medical Section, American Life Convention.

**Health Work of Insurance Companies.**—About $3,000,000 was spent last year by fraternal organizations, labor unions, and insurance companies in special funds for the treatment of their tuberculous members and policyholders, according to a statement issued by the National Association for the Study and Prevention of Tuberculosis. Sanatoria for the care of tuberculous members of such organizations have been established by four fraternal orders.

Among the labor unions, the Printers and the Printing Pressmen are the only two national bodies having tuberculosis sanatoria, the former at Colorado Springs, and the latter at Rogersville, Tenn. An active propaganda against tuberculosis among their members is carried on also among the Cigarmakers' Union, the National Brotherhood of Operative Potters, the Photo-Engravers, and several other similar groups. In some of the unions funds are set aside for the care of sick members.

Insurance companies are also engaged in a tuberculosis campaign. The Metropolitan Insurance Company is building a sanatorium at Mt. McGregor, N. Y., and is spending large sums every year in caring for its sick policyholders. The Equitable, Prudential, Postal and several others of the large companies are carrying on active educational campaigns among their policyholders.—Bulletin of the Chicago School of Sanitary Instruction.

# Book Reviews.

Précis de Coprologie Clinique. By Dr. René Gaultier. 2e Edition. Price 12 francs. Paris: J. B. Baillière et Fils, 1913.

This book on stool examination appears in its second edition. It is modeled upon the same plan as the first, with numerous additions made necessary by recent advances in this department of medicine.

It is a book profusely illustrated and at the same time full of original thought, because it is not merely a compilation, as so many of its kind, but a thorough presentation of the author's own methods as well as those presented by Max Einhorn, Adolf Schmidt, Ricardo Lynch, Combe, Triboulet, Enriquez, Ambard and Sinet, Monges, J. Ch. Roux, Riva, Griffon and others, methods that were tried out by the author in his work and found of service.

Didactic in its first part, the book presents, without any superfluities, all the physician ought to know in this special branch to enable him to examine stools in a satisfactory manner; the second part is entirely clinical.

In regard to the formation of gas in the intestine the author says:

"We have already seen that the gases from the large intestine, evacuated per anum between the stools, are very similar to those produced from the stools by slow putrefaction; for, if it is true that a good many gases, products of abnormal intestinal fermentation, may be absorbed by the mucous membrane, it is also a fact equally constant that these, by the irritation they produce, are accompanied by more frequent evacuations, in which by estimation of the gases the intensity of the processes, occasioning them, can be gauged. We can thus, by the methods previously indicated, arrive at conclusions as to the influence of food and as to the diseases of the digestive tract.

"The intensity and variety of the gas depend on various factors, as the quantity and quality of the food, functional disturbances of the digestive organs and abnormal microbial pollution."

In this work practical deductions are made as to diet from the examination of the stool. Gaultier further treats of digestive insufficiency, due either to deficient mastication or to gastric intestinal, or pancreaticobiliary insufficiency. He gives example of rational dietaries, of the therapy of biliary and pancreatic affections, of duodenal dyspepsia, of constipation, and of diarrhea, particularly of acid diarrhea and tuberculous diarrhea which the author has specially studied.

The volume can be highly recommended as a work of reference in which physicians can find ample information as to these diseases.

Beriberi. By Edward B. Vedder, A.M., M.D., Captain Medical Corps, U. S. Army. Member of the United States Army Board for the Study of Tropical Diseases as they Exist in the Philippines. The Cartwright Prize of the Alumni of the College of Physicians and Surgeons, New York, for 1913. Price $4.00 net. New York: William Wood & Company, 1913.

For many years the subject of beriberi has been one on which it has been difficult or impossible to obtain any definite information. Claims and counterclaims have collected in large numbers and the enormous mass of literature has been increased by numerous polemics. Now and again the discovery of the cause of the disease has been announced only to be discredited on further research. It is perhaps rather difficult for the physician in the East to appreciate the importance of this disease on the western shores of the Pacific. But there the interest is acute and a great deal of excellent work has been accomplished. This volume presents the work of the Army Board as set forth by a man who has spent more than two years investigating the disease in the Philippines. Beginning with a discussion of the history, distribution, pathology, and symptomatology of beriberi and a chapter on rice and its preparation for food, the main portion of the book is devoted to a critical examination of the facts concerning etiology. One by one the various theories and explanations are considered and their falsities demonstrated. Vedder shows very conclusively as a result of both laboratory and clinical investigation that beriberi is caused by the deprivation of some substance which is deficient in certain kinds of food and which is present in the hull of the rice grain. This substance has actually been isolated and has proved to be a crystalline organic base which has been called "vitamine." Feeding of the vitamine brings about cure of the disease or prevents its development. The vitamines are present not only in the rice hulls, but also in certain beans and in many other foods. The necessary correction in the dietary of the Philippine Scouts has resulted in the complete elimination of this disease from this organization and the Japanese Army and Navy have also been protected by a proper diet. The subject is handled thoroughly and attractively and an exhaustive bibliography is appended. The volume is a valuable one and is well worth the award of the Cartwright Prize and reflects additional credit, were it needed, upon the medical department of the United States Army.

Causes and Cures of Crime. By Thomas Speed Mosby, Member of the American Bar; former Pardon Attorney of the State of Missouri; Member of the American Institute of Criminal Law and Criminology; Author of "Capital Punishment," "Youthful Criminals," "Alcoholism and Crime," "Mothers of Bad Boys," and other essays. Price $2.00. St. Louis: C. V. Mosby Company, 1913.

The author believes that the suppression of crime is not at all a legal question, but rather a problem for the physician and the economist. In discussing the etiology of crime he considers the cosmic, the social, and the individual factors, and while giving to the first two factors their due weight in the causation of crime, he emphasizes the individual factor as by far the most important. There are chapters reviewing the present status of eugenics and asexualization. In the chapter on education the writer arraigns the present educational system as failing to fit children for practical life and urges a system that shall train the whole child—heart, hand, and brain. The third part of the volume is devoted to the therapeutics of crime. The theory of punishment, the indeterminate sentence and parole, and the new penology are reviewed with the purpose of showing that the indeterminate sentence and parole are highly practical and that the reformatory system is far preferable to the penal. The style is simple and concise and the book presents interesting and instructive reading for the average layman as well as for the criminologist.

Chirurgische Technik zur Normalen und Pathologischen Physiologie des Verdauungsapparates. Von Adolf Bickel, M.D., and Gerhardt Katsch, M.D. With Six Plates and Numerous Illustrations in the Text. Mit 6 Tafeln und zahlreichen Textfiguren. Price 12 Marks. Berlin: August Hirschwald, 1912.

In order to afford a proper demonstration of physiological and surgical procedures as they relate to the digestive tract, the employment of animal experiments is necessary. Pavlov, a classical originator of these methods, was the first to call attention to the necessity for a proper knowledge of such technical procedures. There is a demand for a well-illustrated manual in this field and this demand has been supplied in the little work by Drs. Bickel and Katsch. They present a carefully selected list of typical operations on the digestive tract as they may be carried out in animals. The first portion of the book contains a description of the operating room, the necessary instruments, anesthetics, preparation for operation, and the general technique of laparotomies. The special portion of the book is devoted to the detailed description of various operations on the different portions of the digestive tract. The book presents a very valuable compend for laboratory workers and teachers of both physiology and surgery, and is deserving of a wide circulation. There is no book in the English language of equal value and import.

The Dandridge Volume. Being a series of papers presented at various times in the meetings of the Cincinnati Research Society, and dedicated by it to the memory of its distinguished member, Nathaniel Pendleton Dandridge, M.D. Cincinnati: 1912.

The surgeon to whom this collection of medical scientific papers is dedicated as a memorial was well worthy of the honor done him. Dr. Dandridge shone as citizen, scholar, and physician, and the form in which his memorial is presented would have commended itself to him. The papers themselves are excellent in shape and substance.

TUBERCULIN IN DIAGNOSIS AND TREATMENT. By Dr. BANDELIER and Dr. ROEPKE. Second English Edition, Translated by WILFRED B. CHRISTOPHERSON. Price $4.50 net. New York: William Wood & Co., 1914.

THIS is the second edition of Bandelier and Roepke's book in English and presents the up-to-date diagnostic methods and therapeutic procedures with the various culture products derived from the tubercle bacillus. Part one is devoted to the theoretical aspect of tuberculin reaction by modern authors, which aspect varies considerably from Koch's original theory. The latter laid emphasis on the cellular changes following a tuberculin injection. Hertwig, on the other hand, explains the tuberculin reaction on the basis of the condition of the leucocytes. It would take us too far to mention in this review the various other theories expounded, some clear and others difficult to comprehend. In the chapter on specific diagnosis of tuberculosis the well-known von Pirquet test, Detre's differentiation test, the Moro test, and the intracutaneous tests, with many modifications, are carefully described. Although ten pages are devoted to the description of the conjunctival test, the conclusions are as follows: Because of its uncertainty and the possibility of serious harm, as a rule the conjunctival test is only indicated when a therapeutic measure is dependent on its result, and definite reasons justify its preference to other diagnostic methods.

In this second edition the authors review carefully the more recent attempts at immunization, among which Friedmann's is of course mentioned. After enumerating the names of those who speak favorably of the therapeutic value of Friedmann's product and those who consider the remedy as useless if not harmful, the authors come to the following conclusions: "The results obtained with Friedmann's non-virulent tortoise bacilli at all events call for continuance of the experiments, observing all the precautions necessary in the trial of a new remedy and with careful observation, preferably in a clinical institute. With regard to this protective inoculation we feel bound to call for the most extreme caution on account of the doubts raised as to the nature of Klimmer's non-virulent tubercle bacilli, especially by Piorkowski, who is inclined to consider the so-called 'Friedmann's tortoise tubercle bacilli,' isolated in 1903, as weakened *human* tubercle bacilli."

The value of this second edition has been greatly enhanced by additional plates showing in natural colors the results of cutaneous, percutaneous, intracutaneous, and conjunctival reactions. Rather unfortunate is the translator's persistence in talking of "tubercular" reaction, "tubercular" serum, "tubercular changes for syphilitic," etc. He seems to be entirely oblivious of the fact that a "tubercular" serum would mean that the serum had a pinhead formation, and that there is a form of cutaneous manifestation of syphilis and leprosy which is called tubercular and which has nothing whatsoever to do with tuberculosis. He speaks of a "tubercular" meningitis instead of a tuberculous meningitis, etc., etc. Aside of this little ethymological criticism this second and much enlarged edition, which the authors have dedicated to the great master Robert Koch, represents perhaps the most valuable contribuion that has been made to our present-day knowledge of tuberculin therapeutics and specific diagnosis. The book is beautifully printed and handsomely gotten up, and besides the illustrations already mentioned has a number of charts showing the reactions of old tuberculin, original tuberculin T O A, tuberculin A F, new tuberculin T R, and new tuberculin bacillary emulsion.

THE SENSORY AND MOTOR DISORDERS OF THE HEART—Their Nature and Treatment. By ALEXANDER MORISON, M.D., F.R.C.P.; Senior Physician to the Great Northern Central Hospital; Physician in Charge of Heart Cases to the Mount Vernon Hospital for Consumptives and Diseases of the Chest at Hampstead and Northwood; late Physician to the Children's Hospital, Paddington Green, and to the Marylebone General Dispensary. Price $2.50 net. New York: William Wood & Company, 1914.

IN this volume Dr. Morison, from an experience of more than thirty years of observing the nature and treatment of sensory and motor disorders of the heart, offers suggestions and conclusions. The author while freely acknowledging the value of recent methods of examination in the laboratory and at the bedside introduced by Dr. Mackenzie and his followers, at the same time, is on several points not altogether in agreement with the conclusions reached thereby. He is conservative, but attributes to the nervous system in its relation to cardiac sensibility and motion a greater share than physiologists of the present day think is warranted. Though somewhat of a "laudator temporis acti" and possibly inclined to unduly praise the great men of the past, Dr. Morison has produced a book which is valuable in that it expresses the views of one who has gained a reputation as an earnest student and a keen observer.

ABHANDLUNGEN AUS DEM GEBIETE DER GEBURTSHILFE UND GYNÄKOLOGIE. Mitteilungen aus der zweiten Frauenklinik der Königl. ung. Universität zu Budapest. (Obstetrical and Gynecological Contributions from the Woman's Clinic at Buda Pesth.) Bd. II, Heft 2. Price 6 Marks. Berlin: S. Karger, 1913.

THE present issue of these transactions is devoted entirely to two articles by Scipiades. In the first of these he continues a study already begun and published in a previous number of the relations between fibroids and pregnancy, discussing the complications in labor and the puerperium associated with a myomatous uterus. His material consists of sixty-seven cases which have been carefully studied and tabulated. His conclusions are too extended to be noted in this connection, but the article itself deserves a thorough consideration as one of the most extensive in journal literature. In a second contribution to this volume Scipiades discusses pubiotomy and cesarean section in their relation to delivery in contracted pelvis. In a series of 384 cases of narrow pelvis reported during the past two years, seventy-five per cent. were delivered spontaneously with a maternal mortality of less than one per cent. This monograph also presents in a very succinct form the present-day views of this important question.

GENITOURINARY DISEASES AND SYPHILIS. By EDGAR G. BALLENGER, M.D., Adjunct Clinical Professor of genitourinary Diseases, Atlanta Medical College; Editor *Journal-Record of Medicine;* Urologist to Westley Memorial Hospital; Genitourinary surgeon to Davis-Fisher Sanatorium; Urologist to Hospital for Nervous Diseases, etc., Atlanta, Ga., assisted by OMAR F. ELDER, M.D. The Wassermann Reaction by EDGAR PAULLIN, M.D. Second Edition Revised; 527 pages, with 109 illustrations, and 5 colored plates; price $5.00 net. Atlanta, Ga.: E. W. Allen & Co., 1913.

IN presenting a new textbook to the profession on a department of medicine so replete with the output of brilliant intellects, an author either must have a great message to the world, or bring forth his smaller scientific offerings in attractive garb. This work is admirably written and is intended for the beneral practitioner and medical student, and, therefore, cannot be viewed as a competitor to the exhaustive volumes written for urologists. In the thirty-six chapters the diagnosis, treatment, and management of ambulant as well as surgical diseases of the genitourinary tract are considered. The section on syphilis is sufficiently detailed for the purpose of the work. The technical directions are good; especially praiseworthy is that section on the treatment of acute gonorrhea, in which the "sealing-in" of urethral medicaments is described. This alone is of incalculable benefit to those who must attend acute gonorrhea patients. The addenda contain practical suggestions on the elimination of gastric disturbances produced by the iodides, santal-wood oil, etc. The authors deserve praise for the fair and equitable manner in which they treat that necessary ordeal of practice, the financial arrangement with syphilitic patients, a topic so sedulously avoided by other writers. The artisanship of the book is not as good as it ought to be in view of the excellence of the contents.

THE PRACTITIONER'S PRACTICAL PRESCRIBER. An Epitome of Symptomatic Treatment. By D. M. MACDONALD, M.D., Medical Officer of Health, Leven, Fife. Price $1.50. London: Henry Frowde; and Hodder & Stoughton, 1913.

THIS little book is a convenient pocket volume. In addition to a formulary and dosage table, it contains chapters on incompatibles, emergencies in every day practice, diet tables, and other topics. Those who use the book should remember that the preparations and doses are those of the British Pharmacopœia.

# Society Reports.

## FEDERATION OF STATE MEDICAL EXAMINING BOARDS OF THE UNITED STATES.

*Second Annual Session, Held in Chicago, February 25, 1914.*

THE PRESIDENT, DR. CHARLES H. COOK, NATICK, MASS., IN THE CHAIR.

**Public Health Administration.**—Assistant Surgeon-General W. C. RUCKER, United States Public Health Service, Washington, D. C., stated that morbidity reports of the communicable diseases showed the location of cases which constituted foci from which disease might be spread to the well. The collection of morbidity reports thus made it possible to know where to take the proper precautions for the protection of persons who might be exposed to a given disease, and therefore acted as a prophylactic measure for the community at large. The knowledge of the occurrence of disease made it possible to see that the sick received proper treatment not only from a preventive but from a curative standpoint. Morbidity statistics were of value to the local health officer in that they gave him the knowledge upon which to undertake operations for the prevention of the spread of disease in his particular locality. The United States Government in its work of preventing the interstate spread of disease found that morbidity information was absolutely essential. Three things were necessary to efficient public health administration: First, the man, well trained, well remunerated, full time health officer; second, the power, the intelligent, uniform, accurate law, and the adequate appropriation; third, the knowledge of the location and prevalence of disease, in order that it may be controlled by the cooperative effort of the general public, the medical profession, and the public health administrator.

Dr. JOHN A. WITHERSPOON of Nashville said it was unfortunate that in this country we had never seemingly appreciated the real value of human life. We had never appreciated that public health was a science and one that must be carried on by the very best men of the profession. The science of medicine had developed so thoroughly in the last decade along the lines of preventive medicine that we now had broad gauged, scientific men who could handle these problems. The American people must awaken to a realization of the fact that men must be trained for this work and that politics should not enter into the work of protecting the health of the people any more than it did into our courts.

Dr. VICTOR C. VAUGHAN of Ann Arbor, Michigan, said that since the discovery of the tubercle bacillus in 1882 the death rate from tuberculosis in the United States had been reduced 54 per cent. In the past ten years 200,000 lives had been saved from tuberculosis. A battle in which 20,000 lives were lost would stir the world at the time and would fill the pages of the historian of the future. Preventive medicine in the United States had averaged 20,000 lives a year saved in the last ten years. The average of human life had been increased nearly four years in the last ten years. The average of the human life in the United States to-day was fifty years, and if we were to apply exactly what we knew to-day the average human life in this country would be increased about fifteen years more. Since he began the practice of medicine scarlet fever had been reduced in its death rate from fifty-four per 100,000 in the registered area to six; and diphtheria had been reduced from 117 to eighteen. Complete morbidity statistics would show the people their value, and he thought the people then would be intelligent enough to respond.

**Should Not the Federation of State Medical Boards of the United States Adopt a Uniform Minimum Curriculum for Medical Schools?**—Dr. JOHN L. HEFFRON of Syracuse, N. Y., pointed out that we should have a simple, straightforward statement of what were considered fundamental subjects and an outline for each, giving what were recognized as the essential principles to be mastered, and a standard by which to measure knowledge and power. With such a minimum curriculum, each college recognized by a State as worthy could offer electives in various subjects so that every student could pursue a more extended course in the particular subject which commanded his greater interest. In such a way the university idea of education could be carried out. The formulation of any curriculum should be the work of men trained in the science of education. The very terms of the law by which members of the medical examining boards in most of the States were selected made it impossible for them to be teachers. The purpose of such a law was self-evident. The cause of medical education would be forwarded if this federation should secure the cooperation of specialists in universities and in medical education and, with their aid, formulate a uniform minimum curriculum for medical schools to present for adoption to the various states of the Union, and that this great federation should endeavor to secure such an administration as would really test by practical examinations the knowledge of all applicants for the license to practice medicine.

DR. JOHN K. SCUDDER of Cincinnati doubted the advisability of attempting to adopt a uniform curriculum for medical schools, as the enforcement would have to lie with the individual board, and even then within powers written into the various state medical laws. He thought if this curriculum were hard and fast and not flexible, it would defeat the very object desired, the rational education of the student, and would prove a serious detriment to the already burdened college. Flexibility was the keynote of his argument and continuously holding in mind the teaching of medical students to think and not to make automatons of them, which was unfortunately the trend of modern education.

DR. J. M. BALDY of Philadelphia said that Pennsylvania had no idea of adopting hard and fast rules in the administration of its law. The bureau unanimously agreed that flexibility was the proper and only thing, and it was the only way any law could be intelligently enforced.

**President's Address.**—Dr. CHARLES H. COOK of Natick, Mass., delivered an address in which he outlined a number of measures which he thought would be useful for the Federation in the conduct of its work.

**Some Thoughts on the Standardization of Medical Education.**—Dr. HAROLD C. ERNST of Harvard University said it was unfortunate that the teaching of any important branch of medicine should be under the control of a single individual. The desire for standardization had extended already to an unfortunate extent in the almost universal demand that a candidate for registration to practise medicine should be the possessor of the degree of Doctor of Medicine. This demand ignored the fact that this degree was really of university grade; that it was not a prerequisite to the practice of medicine in the older countries, and that it should not be in this. What the supporters of such a requirement really meant was that the candidate should have a degree in medicine, which should be a certificate of having had proper medical training; whether it was a Doctorate or not was entirely aside from the question. This was a matter of academic standing, pure and simple. The faculty of medicine of Harvard had taken a definite position in regard to the hospital year as a prerequisite to a license to practise. After considering all the facts that could be gathered, a committee of the faculty reported that such a step was not advisable, a strong determining factor in the formation of this opinion being the rule of some of the most important hospitals that their interns must be graduates in medicine and holders of that degree.

DR. ABRAHAM JACOBI stated that the standard of medical education even now should be raised so that when young men were sent out to practise among the people they would know more than preventive medicine. The people wanted to know not only about preventive medicine, but the individual patient wanted to know what this or that doctor had done in a similar case, and whether he could be cured or not. This was just as important, from both a practical and a theoretical point of view, as to consume time in talking about preventive medicine which we did not put into practice.

Dr. N. P. COLWELL of Chicago referred to the decrease in the number of medical colleges since 1904, and said it meant a distinct advance. The diminution from 166 down to approximately 100 medical schools had been largely due to the merging of two or more medical colleges in the various States into one stronger and better equipped school. The decrease in the number of medical colleges had been largely brought about through the voluntary action of the colleges themselves. As to prescription writing, there had been a positive effort made to have medical students write prescriptions for individual cases and to discontinue the method of using numbers, as had been done in the past.

**The Use of the Government Medical Services in Standardizing Medical Education.**—LIEUTENANT COLONEL JOHN R. KEAN, Medical Corps, U. S. Army, spoke of the need of some central examining board which, while determining the competence to practise of medical graduates, might at the same time set a uniform and reasonably high standard of medical education, and confer the right to practise anywhere in the United States. If, therefore, such a board could be appointed by the President of the United States for the examination of officers for the Medical Reserve Corps, of a composition which would insure a high standard of requirement, and the State boards would agree to accept and license, without examination, the holders of Reserve Corps commissions, as was now done by many States for medical officers of the government services, the thing could be accomplished. He considered the composition of the board and the expenses incidental to the carrying on of the work of the organization.

DR. DE WITT G. WILCOX of Boston said that any physician who had given even superficial consideration to this subject would agree as to the absurdity of using forty or fifty different standards for testing the ability of physicians to practise in the United States and its dependencies. The people of Maine did not require any different therapy from the people of Florida or of California. The difficulty had been to find some method by which one board could agree to pass upon all of the graduates in medicine. There were constitutional difficulties in the way of establishing such a national board, whether it be compulsory or optional.

DR. WILLIAM L. RODMAN of Philadelphia said that inasmuch as the constitution of the United States had been amended twice recently, it would not be difficult to amend it so as to establish a national examining board, and when a man had passed such a board he should be given a license or diploma which would be broad enough to permit him to practise anywhere in the United States.

**What Instruction Ought Medical Colleges to Give in Pharmacology and Therapeutics?**—DR. SAMUEL W. LAMBERT of New York said there was a great amount of good in the older materia medica and certainly more good than could be found by the laboratory methods of pharmacology, but there was much that was inert and useless, and it was the duty of the school to select the good from the bad and to limit its teaching to the essential drugs. It should be the duty of an examiner to draw out from the student by presenting theoretical therapeutic problems the first mention of any therapeutic measure, or of any drug, and then to hold the student strictly responsible for an accurate knowledge only of the remedies mentioned and suggested by himself. The same rules could be applied to teaching the newer materia medica. The course of instruction in the laboratory of pharmacology should be given by men who had taken the M. D. degree and who had had hospital training in clinical medicine. The course should include a study of the effect of small doses of drugs upon animals and also the toxicology of larger doses in the same way. Therapeutics should be considered not as a separate department, but as a part of the department of clinical medicine, and that certain instructors should be delegated to present to the fourth year students serving as clerks, such therapeutic problems as may arise in the course of the ward service.

**The Viewpoint of the State Examiner.**—DR. WALTER L. BIERRING of Des Moines, Iowa, said that, considered as an index of the qualifications for medical practice, an examination in pharmacology should constitute one of the best criteria of a candidate's ability logically to apply knowledge acquired in a medical school. Of equal vital influence to the progress of therapeutics was the standardization of drugs, for in this way unity of knowledge was established that formed an important factor in the licensure examination. No opportunity was to be omitted to emphasize the close relation that should exist between the pharmacist and the physician. In the broader use that had been given to the term pharmacology there was included practically all non-surgical or non-operative measures in the treatment of disease. From the original drug treatment it had branched out to include chemo-therapy, organo-therapy, sero-therapy, immunotherapy, the application of various forms of physical-therapy, and perhaps to all this could properly be added psychotherapy. The proper application of physical therapy, the underlying principles of chemo-, sero-, and immunotherapy, could readily be incorporated in questions pertaining to applicable disease conditions, thus permitting a wide range in formulating the questions, yet all with some degree of practical aspects, and thus constituting a marked improvement over some of the methods that had prevailed heretofore.

DR. BERNARD FANTUS of Chicago said there was need for considerable improvement in prescription writing. This could be secured if it were realized that prescription writing could not be taught by lectures and demonstrations; that the students must be drilled in prescribing. He believed that the best results could be obtained if a course on pharmacy and prescription writing was given before the work in pharmacology was taken up. The students should be made familiar in this course with the various classes of pharmaceutical preparations and their prescribing. When the student then entered his course in pharmacology he was ready to write prescriptions from the very beginning, and he ought to be required to write prescriptions for each of the important drugs as they were studied, paying special attention to methods of pleasant and efficient administration. When the student finally advanced to the study of therapeutics he should still be required to write prescriptions now from the standpoint of the effect. If the clinical instructors would do their duty and require students to write prescriptions for the remedies needed by the patients treated in hospitals and in dispensaries, the student would leave the medical college well trained in prescribing. A general discussion followed on a model medical practice act, and also on credentials and the evil of the equivalent.

**Reciprocity.**—DR. J. M. BALDY of Philadelphia stated that the method they had adopted had been to take each individual school and judge it on its own merits, irrespective of the fact that it was in a bad environment of faulty state legislation or poorly administered state laws. Having passed on the school and found it competent, as judged by the legal standards of Pennsylvania, as well as by the enforcement of its standards and by its finished products, they registered that school and were ready to accept its graduates and endorse the licenses which they had received from any other State in the Union, it matters not what State, provided only that that State would do the same with the graduates of Pennsylvania schools. The Pennsylvania law required this. They did not even ask that their estimate of Pennsylvania schools be accepted by the other State.

**Officers.**—The following officers were elected: *President*, Dr. Charles H. Cook, Natick, Massachusetts; *Vice-President*, Dr. T. A. McCann, Dayton, Ohio; *Secretary-Treasurer*, Dr. Otto V. Huffman, Albany, New York; *Executive Committee*, Drs. J. M. Baldy, Philadelphia; Herbert Harlan, Baltimore, and Walter L. Bierring, Des Moines, Iowa.

Chicago was selected as the place of meeting for 1915.

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## NEW YORK ACADEMY OF MEDICINE.

*Stated Meeting, Held February* 5, 1914.

THE PRESIDENT, DR. WILLIAM M. POLK, IN THE CHAIR.

THE evening was devoted to a consideration of Oral Infection in Its Medical and Surgical Aspects.

**The General Practitioner and the Dentist.**—Dr. C. N. CAMAC presented this communication. He said that four influences had led him to study more closely the relation of the dentist to the general practitioner: (1) The large amount of unnecessary and sometimes harmful work done upon the teeth by dentists; (2) the systemic distrubances of a grave or destructive nature traceable directly to this harmful work or to pus areas in the teeth neglected or overlooked; (3) the statement of patients, with these conditions, that their dentist had assured them that their teeth were "all right," and (4) the ignorance of himself and other internists regarding the teeth as an important focus of infection. He spoke of the many structures, such as the tonsils, the vocal cords, the eye, the antrum, the mastoids, the parotid glands, etc., all of which received the careful attention of the general practitioner, and, if found at fault, were treated or referred to a specialist; but the teeth, in the very midst of, and in some instances in direct contact with, these structures, received but passing examination or were dismissed with the instruction to the patient that he should see his dentist. There were three aspects from which this relationship of dentist and general practitioner must be

considered: 1, the professional; 2, the educational; 3, the clinical. The author believed that the relation between physician and dentist was one of the most important factors in the development of the dental profession. Dr. Camac outlined the development of medicine and surgery and said that dentistry could be traced through somewhat the same phases. At first it was only a tooth-pulling art, but it came to involve all the problems in the development and pathology of the teeth. The dental profession had, however, been seized by three great powers of commercialism, mechanics, and cosmetics. These had held it back from scientific attainments, though it had acquired a world-wide reputation among the laity. By cosmetics the speaker said he meant the unwarranted effort to save diseased and purulent teeth in order to satisfy the patient's vanity. He did not include under this heading the efforts to correct jaw deformities and misplaced teeth. This work might well be ranked with that of the orthopedist. Conservative and temporizing work was safe in the hands of expert dentists only. With the majority of dentists it meant the doing of a large amount of harmful and even destructive mechanical work. Dr. Camac declared that fillings, caps, crowns, etc., built in, on, and around diseased teeth often covered or entrapped masses of sepsis which if in any other part of the body would be the cause of alarm and immediate surgical treatment. The surgeon neglecting to liberate the pus from such areas would make himself liable to severe criticism, to say the least. Dr. Camac quoted Hunter of London as calling such dental practice "not conservative dentistry" but "conservative sepsis." Dentists, Dr. Camac pointed out, were not alone at fault, and he further stated that not all dentists were responsible for this bad practice. The dentist must be given the credit of pioneer work in dealing radically with pyogenic infection in and about the teeth and in the use of radiography in detecting these conditions. The dentist and the internist, through the improved standard of dental work, were coming together more and more in consultation and cooperation, as was shown by the fact that the British Medical Association had a "Section on Dental Surgery" and the Americal Medical Association a "Section on Stomatology." The speaker regretted the lack of dental education among physicians and the lack of preliminary and general medical education among the dentists. He then reviewed the status of dental education in the United States and Canada. About 50 per cent. only of the dental schools in the United States and Canada had a sufficiently high standard to receive recognition by the Regents of New York. Dr. Camac pointed out that this meant that there were a large number of schools giving an inadequate education in dentistry. He added that it, moreover, encouraged incompetency and deceived young men into the impression that they had received an adequate education. He classed this with the deception and fraud which to-day vitiated American business and business methods, and declared that it tended to produce a class of men in the dental profession who could practise only by deceiving the public. Some men naturally took to such deception; others were driven to it by the exigencies of beginning life, and the realization that they had spent their money and the precious years of preparation, and that it was too late to go back or make up the deficiency. The speaker declared that the administrators of such institutions should be subject to investigation and punishment by the federal government as were the managers of fraudulent business enterprises. Fifty or sixty of the dental schools in the United States and Canada, accepted by the University of the State of New York through its regents, Dr. Camac considered in detail. These schools were placed in two groups—those "registered" and those "accredited." In the registered group the requirements were that the applicant for admission be twenty-one years of age or over, of good moral character, and have a general education equivalent to four years in high school, after eight years of elementary preparation and three years' education in a dental school. To the "Accredited" group belonged those schools not meeting these requirements. Of the fifty or sixty schools considered thirty-five met with all the requirements and twenty-two fell into the "Accredited" group. Twenty of these were accredited with only two years. Two dental schools in Canada which received full recognition by the New York Regents as registered schools had a four years course, the speaker went on to say, but in the United States, he added, there were no registered schools with a four years' course. After reviewing the state requirements for those wishing to practise dentistry the speaker concluded that dental education and the requirements for the practice of dentistry were in urgent need of a thorough revision and the raising of the standard. The medical schools should include a course of stomatology with especial reference to the relation of the teeth to systemic diseases. In speaking of the clinical aspect of this subject Dr. Camac deplored the loose way in which the terms indicative of oral sepsis were used in medical literature and by the internist. Works on dentistry dealt very thoroughly with the nature and extent of the local process, but neither these works nor writings upon general medicine recorded the relation of the local conditions to some of the most destructive systemic processes (arthritis, endocarditis, etc.). The author cited a case which showed the necessity for close cooperation between the dentist and internist. This case was typical of the subtlety of these infections, and demonstrated how the infection might remain latent over a long period between the time of the first dental infection and the severe systemic manifestations. He urged the importance of bacteriological examinations by dentists and the preparation of vaccines. He pointed out the necessity for visiting dentists and dental internes upon hospital and dispensary staffs.

**Mass of Tartar Developing Five Teeth.**—Dr. CAMAC showed this specimen. The diagnosis of epulis had been made and the mass was about to be removed when a hospital interne removed it entire with but slight traction.

**Radiograph of an Abscess Beginning in a Lower Incisor and Pointing in the Submental Region.**—Dr. CAMAC presented this specimen in which there was a marked necrosis of the lower jaw. The patient refused to have the diseased tooth removed.

**The Dental Aspects of Oral Infection.**—Dr. M. L. RHEIN presented this phase of the subject. (The paper will be published later.)

**The Surgical Relationship of Oral Infection to Secondary Infection.**—Dr. T. B. HARTZELL of Minneapolis, Minn., read this paper. He stated that the subject under discussion was one that had engrossed his entire attention for several years. It was well known that almost every type of pathogenic organism found its way into the oral cavity sooner or later. Many of them made their permanent residence there. The skin and mucous membrane which protected the balance of the body failed of their office here. This was because the teeth in erupting through the mucous membrane burst that membrane and its continuity was never restored. That mucous membrane ended abruptly about a line below its surface, thus leaving a free margin, creating a delicate crevice which was a door through which could occur inoculation. The bacterial flora on the tooth surface was always great in the mouth of every individual unless special care was given the tooth surface to free it of this bacterial coat. From this bacterial coat incursion might constantly be made into the crevice and thence into the tissues. Thus, as a rule, every individual had, to a greater or less extent, always present on the tooth surfaces at this unprotected margin the potential for the deep infection of the surrounding tissues. In recent examinations of freshly extracted living teeth they had found bacteria distributed for a considerable distance in the peridential membrane where the tissue seemed to be in a moderate state of health and presented no lesion to account for their presence there. Their presence was readily explained when one considered that where the mucous membrane ended abruptly and a line below its surface there were small open channels leading into the vascular network of the tissues. The first effect of this bacterial incursion was to create a mild gingival inflammation. This was succeeded by a more intense cellulitis with the development of pus. The greater part of this pus escaped into the oral cavity, but many microorganisms were driven directly into the tissues by the intermittent application of force in mastication. The intermittent application of force caused the teeth to alternately rise and sink in their sockets. This rise and fall occurred in most mouths thousands of times per day and made it certain that a portion of the infectious material surrounding the tooth in the deep crevice would be driven into the broken blood-vessels and lymphatics of this locality, and these microorganisms went directly into the tissues and small blood vessels in the pericemental structures. These paths led into the circulating blood. The glandular structures became involved and a part of this bacterial growth was carried into the lymphatics and lymph nodes of distant parts of the body. The weight borne in twenty-four hours by the grinding surfaces of the teeth the author estimated at 5,000 pounds per day, and it was this elastic cushion of peridental membrane that permitted the teeth to sink into their sockets and

then rebound which protected the alveolar process from rapid absorption and the teeth themselves from cleavage or splitting. Where osteomyelitis occurred in the bone of the socket, the infected area rapidly increased. The dental abscess occurring around the root ends of teeth with dead pulp was an additional source of systemic infection and the porous character of the bone, together with the constant make and break in the application of force in mastication, enabled the existence of such an abscess, without symptoms of pain and soreness, to drain for months and even years, thus affording a constant flow of bacteria into the circulation. The recent examination of pus from blind dental abscesses had revealed the presence of both aerobic and anaerobic forms of streptococci, and it was this blind dental abscess with the accompanying pyorrhea pocket which eventually broke down the resistance of many individuals, so that when they were subjected to stress of any sort the toxic habit established by these constant streams of infection made it impossible for such an individual to override disease and explained many a case of death from comparatively slight surgical operations. The metastatic possibilities of these seemingly trivial mouth infections had not until recently been apprehended by either the dental or the medical professions. That their importance was greater than had hitherto been apprehended was well illustrated by eight cases of which the author recently had made an intensive study. These cases included four of joint affections which seemed to have been benefited by the administration of vaccines: one case in which fusiform bacilli and streptococci were found in smears from the alveolar process, and in which after death cultures taken from the heart's blood and from the body of the lower jaw also showed streptococci; a case of necrosis of the upper jaw, due to necrosis around the central incisors which spread to the whole palate; a case of failing health in a man sixty-eight years of age, whose urine contained albumin and casts, whose health was greatly improved, the albumin and casts disappearing from the urine after the evacuation of the alveolar abscesses and pyorrhea pockets; and a case with a history of ulcer of the stomach in which complete recovery took place after the removal of abscessed teeth and pyorrhea pockets.

Dr. Henry James said he thought it must be admitted that the average medical man did too often neglect the conditions of the teeth in his search for etiological factors in disease. The excellent papers of the evening had only too well shown the importance and the very intimate relationship this subject held to internal medicine. The studies of William Hunter, whose little book on "Oral Sepsis" published in 1901 showed, as no other work up to that time had done, the various conditions which might be associated with infections of the teeth and gums and had been of the greatest value to him in certain rather obscure conditions which were definitely traced to trouble in these localities. The cases he had seen appeared to resolve themselves into two classes: the obvious and the obscure. The obvious comprised those whose symptoms and physical signs corresponded to some definite disease, such as arthritis, endocarditis, and the toxic gastritis and neuritis of Hunter. The obscure, those which by the variability of their symptoms could be classified according to none of the well established diseases and to which one was at a loss to put a name. In the past two or three years the speaker had been associated with several cases which to him had been interesting and most instructive. There were one or two cases which might be worthy of mention. The first, a middle aged man, whose health began gradually to be impaired with anorexia and extreme asthenia. His blood pressure was continually below 100 mm. and he had marked mental depression. There was at no time any fever or leucocytosis. For a long time he was regarded as a case of Addison's disease without pigmentation. Eventually his teeth were found to have been in very bad condition for many years. There were several roots in pus sockets with advanced Rigg's disease and much suppuration. Six months after extraction and thorough cleansing of the alveoli his health was restored and since that time, now one and one-half years, there had been no relapse. There were two or three others of like type hardly necessary to go into. The speaker said he would like to say a word about the case to which Dr. Rhein referred and whose radiograph he showed. This case first came under his care about two months ago giving a history of chills, fever, and sweats with some dyspnea on exertion. He had had mild arthritic symptoms not severe enough to put him to bed. The physical examination revealed a soft diastolic murmur along the left of the sternum with slight increase to the left of the area of cardiac dullness. Ulcerative endocarditis was naturally suspected and a blood culture showed a sure growth of *Streptococcus viridans*. Regarding the primary focus of his infection, he was questioned in respect to his teeth when it was learned that the radiogram shown by Dr. Rhein had been taken. Another plate was made confirming the presence of a granuloma above the root of the right lower bicuspid. This tooth had formerly been crowned and was to all appearances healthy, nor had it given him any sensations of discomfort whatever, but he was advised to have it out and at the operation a culture on blood agar taken from the socket resulted in almost a pure growth of *Streptococcus viridans*, thereby proving without much question the point of origin of the infection. He is now on sensitized vaccines, the outlook being most unfavorable. These two cases were sufficient to show the importance not only of a diligent search for a probable primary focus of infection in any disease of this nature, but also that of thorough examination of the oral cavity by *x*-rays where such a focus might be suspected.

Dr. Camac thanked Dr. Hartzell for his paper and said that Dr. Hartzell was the type of investigator and his work the kind that would do much to raise the standards and encourage accurate and intensive research work in dentistry. He had stated in his own paper that there were no research laboratories devoted to dentistry. Since hearing Dr. Hartzell he wished to correct that statement. Dr. Hartzell's laboratory represented the best type of Research Laboratory. The speaker said he wished to add two clinical points brought out by Dr. Hartzell. Blood cultures and cultures from joint fluids were in the large majority of cases negative for microorganisms. The finding of microorganisms in the blood was of grave prognostic significance. On the other hand fixation by the blood of organisms found in the gum and tooth cavities and other pus foci was fairly common and proved definitely a relation between the pus foci in the mouth or elsewhere and the system; the preparation of vaccines, therefore, was important, for the purulent infection might subside in the primary focus and yet the system might have developed new foci from which pus could not be obtained and which therefore vaccine alone might reach. Transmutation was a most important factor in this question of cultures and vaccines. Finally, he wished to emphasize the necessity for the early diagnosis of oral infection and the detection of pus areas in any part of the body, as in the deep urethra, the peritonsillar tissues, etc., and declared that the dispensaries were the places to detect the beginnings of destructive disease, the ruins of which they now studied in the hospitals with expensive laboratories and apparatus. Instead of the slipshod hurried work by young physicians, painstaking laboratory and clinical studies should be made on out-patients by trained clinicians.

## SECTION ON OBSTETRICS AND GYNECOLOGY.

*Stated Meeting, Held December* 23, 1913.

Dr. George Gray Ward, Jr., in the Chair.

**Nephrectomy During Pregnancy.**—Dr. Anthony Hart Harrigan reported the case of a woman, 21 years of age, who was admitted to Fordham Hospital January 24, 1913. She was pregnant four months. Her present illness began ten days prior to her admission to the hospital with an alveolar abscess which opened spontaneously. Two days later she had pain in the back and a chill. She had a temperature from 100° to 103.5° F. The pain became general over the abdomen and more severe over the right lumbar region. She was constipated. There was no increase in urination and no burning sensation. The abdomen was moderately distended, and the pregnant uterus was felt. The right kidney was enlarged and tender. There was extreme tenderness in the right costovertebral angle. Examination of the lung, heart, liver, and spleen, as well as the left renal region, was negative. The white blood count was 34,800 and the polymorphonuclears 88 per cent. The specific gravity of the urine was 1030; it contained a moderate amount of albumin but no sugar. There were present a large number of pus cells, and hyaline and granular casts. A diagnosis of infection of the right kidney was made, either a pyelonephritis secondary to a puerperal pyelitis or multiple septic infarcts of the kidney in view of the history of

the alveolar abscess. Nephrectomy was performed. The surface of the kidney presented innumerable foci of suppuration. Recovery was uneventful. There were no signs of kidney insufficiency and the patient did not abort. During the first twenty-four hours following the operation 24 ounces of urine were collected. On the second day 40 ounces were passed and this remained the daily output during the period she was under observation. She was discharged February 16. The pathologist reported that the condition was that of multiple septic infarcts of the kidney, or the so-called unilateral hematogenous infection as described by Brewer. A pure culture of the staphylococcus was isolated. Six weeks after leaving the hospital she was readmitted as her physician feared an infection of the left kidney, but a careful examination failed to reveal any signs of further infection and she was referred back to her family physician. He reported that on May 15, which was about the end of the eighth month of her pregnancy, he induced labor and this was effected without any trouble whatever. A few days prior she complained of itching of the skin and insomnia, and she was very restless and slightly jaundiced. On account of these symptoms labor was induced. The mother and baby were in perfect health.

Dr. L. FRIEDMAN asked if the ureters had been catheterized.

Dr. GEORGE GRAY WARD, JR., said that it was astonishing how much one could do in these cases without bringing on abortion and he did not see why a nephrectomy should produce such a result. Many operations of grave import were done on the pregnant uterus without causing an abortion.

Dr. HARRIGAN replied that the patient was so ill and the kidney infection so apparent that it would have been a waste of time to catheterize the ureters.

**A Simple Form of Perineal Retractor.**—Dr. A. REICH presented this instrument. (See MEDICAL RECORD, November 15, 1913).

**Chorioepithelioma Uteri with Vaginal Metastases.**—Dr. M. CATURANI reported this case. The patient was 27 years of age, had been married six years, and had three children, the last two years previously. In February, 1913, she was operated upon for hydatid mole, after four months amenorrhea. At the end of June she had a severe hemorrhage with abundant passage of clots. She was again admitted to the hospital in a markedly anemic condition. She had had chills, fever, and a very offensive discharge. The uterus was considerably enlarged, moderately contracted, and would not admit the examining finger. At the time the case was diagnosed as one of incomplete infected abortion. After moderate dilatation of the cervix by means of a holder forceps with a small sponge a few pieces of apparently necrotic placental remains were removed. No pathological examination was made of the tissue removed. The condition of the patient improved though the anemia persisted. A few weeks later a small nodule of a dark color appeared on the vestibule and this was removed and sections examined, when it was found that the condition was that of chorioepithelioma. Another vaginal metastases soon formed in the posterior fornix. Hemorrhage, dyspnea, and marked edema soon appeared. The patient died on August 18, 1913, probably from general metastases, with marked pulmonary and cardiac insufficiency. A radical operation would not at any time have been possible. The special point in the history of this case was the amenorrhea following the removal of the hydatid mole. Dr. Caturani said that in a case previously reported by him there was a similar occurrence. In all probability neither patient had conceived after the mole was removed. The amenorrhea could find an explanation in remains of the mole left in the uterus which would be sufficient to influence the ovarian function as a fetal structure in evolution, since following the delivery of the mole the patient's condition was good. This fact would be of great importance from the clinical view point. Amenorrhea, as well as metrorrhagia, should be carefully watched after the removal of a mole, as there was a possibility that the molar remains might give origin to chorioepithelioma. Pathologically the different sections of the original uterine tumor and of the metastases showed the characteristic typical structure of chorioepithelioma. The fact was worthy of note that the uterine curettings were made up mostly of Langhans' cells; in the metastases the syncital cells were relatively numerous, but there were more in the vulvar than in the vaginal sections.

**Lantern Demonstration of Specimens from a Case of Salpingitis Nodosa.**—Dr. M. RABINOVITZ called attention to the fact that the condition known as adenomyosalpingitis or salpingitis nodosa had received practically no attention in this country, probably because the malady was of more interest from the pathological than from the clinical standpoint. The three conflicting views regarding the character of the lesion were: (1) that which held the condition to be inflammatory in origin; (2) that held by Recklinghausen and his school which assumed a congenital origin, due to misplaced embryonic remnants, and (3) compromises between those two views. Many investigators were stimulated by Chiari's studies to search for additional corroboration and prominent among his supporters might be counted Martin, Orthmann, Werth, and Schauta. The foundation upon which Recklinghausen built his theory was the well-known fact that in early fetal life, as soon as the Wolffian body and its canal appeared, the Müllerian duct approached the Wolffian canal, then crossed it, and finally assumed a lateral position. At this crossing point, which was at the isthmian portion of the tube, the epithelium of the Müllerian duct came into so close contact with that of the Wolffian canal that a confluence of tissues readily took place; hence the possibility of Wolffian rests occurring in the wall of the tube. The writer described minutely these adenomatous spaces as being composed of secreting tubules, collecting tubules, terminal tubules, and pseudoglomeruli, all morphological components of the normal Wolffian body. The non-communication of these gland spaces with the tube lumen showed that they were not derived from the tubal mucosa. The presence of yellow bodies or pigmented cells in the lumina of these tubules, mainly the secreting tubules, which according to Mihalkovics, Tourneux, Balabtyne, Williams, and Czerny were constituents of the ep- and par-eophoron also supported this view, as did the ciliated character of the columnar epithelium lining the adenomata. This ciliated epithelium, according to Czerny, was found in the tubules of the organ of Giraldes in the new born sucklings, but disappeared with the advance in growth, and was wanting in even the freshly examined adult specimens. Waldeyer and Orthmann claimed that only the middle portion of the tubules contained ciliated epithelium, while the collecting and secreting tubules were devoid of it. Frey and Krause, on the other hand, described the epithelium lining the organ of Giraldes as squamous in nature. The difference between the staining properties of the epithelium of the tube and that of the gland spaces, the former presenting a deeper hue, which was peculiar to fetal tissue made it probable that the adenomatous spaces were of embryonal origin. The comparative rarity or the total absence of adenomyomatous changes in the cervix uteri was claimed as further evidence in favor of the congenital origin. Why should the cervix uteri, which under normal conditions was so abundantly provided with large glands, be free from adenomyomatous proliferation, while the fetal mucosa, which was ordinarily a glandless structure, be capable of giving rise to glandular metamorphosis? The cases were arranged in two main groups, those in which the adenomyomatous changes were limited chiefly to the mucosa, and those in which the glandular proliferation had extended to and beyond the muscular coats, thus constituting the true picture of adenomyosalpingitis. Dr. Rabinovitz showed twenty-six microphotographs on the screen and concluded as follows: 1. Adenomyosalpingitis (salpingitis nodosa) was inflammatory in origin. 2. It was one of the final stages of microbic infections of the Fallopian tube. 3. The most common microbic infections were the gonorrheal and the tuberculous; in a series recently reported the proportion was as four to one. 4. The theories that adenomyosalpingitis was a congenital or blastomatous process had thus far received no substantiation. 5. The term adenomyosalpingitis best expressed the pathogenesis of this lesion and should be generally adopted.

Dr. HERMANN GRAD said that the microscopic illustrations shown did not convince him that they showed anything of an adenomyoma of the tube. These slides showed to his mind the microscopic picture of a chronic salpingitis where the longitudinal folds of the mucous membrane of the tube had become adherent to each other, giving the appearance of glands. The open spaces shown on the slides which were outside the muscular wall of the tube were uterine glands and he was fortified in his contention by the fact that the microscopic sections were made through the interstitial portion of the tube. The sections of the tube that were

made through the isthmus and ampulla of the tube did not show these glandular structures.

Dr. M. Rabinovitz said that Dr. Grad's conception of the pathology of adenomyoma was apparently not clear, for otherwise he could not have made the assertion that the sections presented by her simply showed the ordinary changes of chronic salpingitis, that the gland-like spaces in the tube wall were prolongations of uterine mucosa, and that some of them were tubal diverticulæ or accessory tubes. Dr. Grad should read through the paper on the "Pathogenesis of Adenomyosalpingitis" and he would be convinced of the unsoundness of his criticism. The lesions in the tubes presented this evening corresponded in all particulars and details to the pathological changes described under this heading by authorities like Meyer, Morton, Werth, etc.

**Ovarian Pregnancy, with Report of a Case.**—Dr. Michele Caturani presented this communication. After reviewing the history of ovarian pregnancy, he cited evidence which led him to conclude that the diagnosis of primary ovarian pregnancy was relatively easy after a careful microscopical study of the specimen. On account of the difficulty of determining the real nature of the cases Williams divided them into positive, highly probable, probable, and doubtful. Up to 1906 he had found only thirteen cases which belonged to the first class and seventeen to the second. Norris, in 1909, reported nineteen cases, and Bryce, Lea, Rubin, Graham, and McCann had each reported one case. The real causes of ovarian pregnancy were rather obscure owing to the rare occurrence of the condition and the unsettled opinion as to the determining causes of ectopic pregnancy in general. The ingenious hypotheses of Webster did not extend to the explanation of those other ectopics occurring outside the tube. He insisted on the decidual reaction as an indispensable factor to the implantation of the ovum, and believed this reaction to be specific to the Müllerian tissue only. Under normal conditions in the human female only the uterus was able to respond to genetic influence. The tube occasionally reacted as a result of some developmental fault, or as a structural or functional reversion of the tubal mucosa to an earlier type in mammalian evolution. When these conditions existed several contributory causes, as the site of fertilization above or below the point of occurrence of the decidual reaction in the tube, would determine whether a fertilized ovum should develop in the tube or in the uterus. As a logical consequence of these views Webster refused to accept the possibility of ovarian pregnancy with the statement that there could be no pregnancy where there was no genetic reaction possible. It was the general consensus of opinion that decidual reaction in the human female was only specific to the uterus in consequence of the functional requirement, and though it occasionally occurred in the tube, it was never complete as in the uterus. There was no reason to believe that this reaction was a primary cause of ectopic pregnancy in the tube, but it was more logical to regard it as a result of the specific action of the fertilized ovum in a tissue homologous or phylogenetically analogous to the submucous layer of the uterus. It should also be remembered that ectopic pregnancy was a pathological condition and hence only pathological factors were worthy of consideration in studying its etiology. The essayist reviewed the various theories advanced as to the etiology of ovarian pregnancy and stated that he had made a most careful study of various sections and had found what might be termed an attempt at decidual formation. There were here and there scattered groups of cells of decidua-like nature, especially around the blood vessels. There was no evidence of decidual cells in any part of the fibrillar connective tissue covering the columns of the luetine cells or the fibrous septa of the same columns. If they considered the decidua as a barrier to the invasion of the fetal tissue, they could easily explain for its insufficient formation the considerable invasion of villi and chorionic cells in the ovarian stroma and in parts quite distant from the fetal tissue. These pathological facts stood against the statement that many cases considered ovarian went to term probably on account of the greater accommodation of the ovarian tissue. If they had to accept as primary the implantation of the ovum in the ovary, they could not but admit that the fertilization was ovarian also. Clinical data, supported by anatomical findings and the opinions of the majority of authors tended to attribute great importance to inflammatory processes of the tube as etiological factors of tubal gestation. The resistance of ovarian tissue to rupture by the ripening follicles and the subsequent formation of cystic conditions was familiar to all. It was quite possible that the opening in the mature follicle might be insufficient to allow the exit of the ovum, or incidental disease of the granulosa of the thecæ folliculi rendered impossible the escape of the ovum. The case reported gave a history of gonorrheal infection and of tubal ectopic gestation on the right side previous to the ectopic reported which occurred in the left side. Evidences of inflammation were clearly shown in the tube and ovary. The symptomatology was typical of ectopic gestation and offered nothing of special interest.

The patient was 33 years of age and had been married twelve years. She had had three children and five miscarriages, and had been infected with both syphilis and gonorrhea, the latter fifteen months before the first ectopic. Dr. Caturani said he had operated on her in June, 1909, removing the right tube and ovary. In January, 1912, she missed a period and in a few days showed all the symptoms of ectopic gestation. At operation, fifteen days after the initial shock, the abdomen was moderately filled with free clotted blood, clots around the left adnexa, but no distinct hematocele. The fimbriated end of the tube was open, but there was no trace of rupture in the tube. The ovary was apparently damaged and was covered with clotted blood. The tube was removed and one-third of the left ovary was resected on the distal pole. This resection was necessary on account of the absence of the right ovary. The condition was diagnosed as one of hematoma from rupture at the site of the follicle, the real nature of the condition not being discovered until microscopical examination was made. The gross specimen was made up of the left tube and part of the left ovary, still attached to the tube by a slight band of tissue. There was no marked enlargement at any point. The ampulla was thickened and hard, but there were no kinks or traces of rupture. Comparing the gross appearance with the microscopical findings the ovum seemed to be deeply embedded about one-half em. in the ovarian substance. Careful study of the macroscopical and microscopical findings led to the following conclusions:

1. The evidence established without any doubt the primary ovarian nature of the gestation. 2. The intimate relation of fetal tissue and corpus luteum in the various stages might be proof of the embedding of the ovum in the follicle. 3. Probably the formation of the corpus luteum partly assumed the function of the decidua only as a preventive of the invasion of the fetal elements. This view was in marked contrast to the views expressed by Bryce and Teacher, and with the behavior of the decidua and chorionic elements in their interlacing in the implanation site. 4. Decidual formation was only present as an incomplete attempt in the ovarian pregnancy, and as a result of the reaction of the stroma to the specific action of the ovum. Every connective tissue in the genital organs was probably able to react in the same way as the Müllerian to the genetic influence. 5. The incomplete formation of the decidua explained the tremendous invasion of the stroma and its surroundings with chorionic elements. 6. This last condition was the cause of the early interruption of ovarian pregnancy.

Dr. Hermann Grad said that the doctor had made a very careful report of this case of ovarian pregnancy and he should be congratulated on this very interesting work. The question resolved itself, in speaking of an ovarian pregnancy, whether Webster's hypothesis was or was not correct. Could the impregnated ovum engraft itself on anything but the tissues of the Müllerian ducts? If not, then was it not possible that "rests" of epithelial cell might become dislodged in the ovary and the fecundated ovum engraft itself on these "rests" and in turn these displaced cells themselves become destroyed by the trophoblast, leaving no trace of their former existence? In this way one could explain an ovarian pregnancy on the hypothesis of Webster. Perhaps the connective tissue of the ovary was capable of reacting towards a fecundated ovum in such a way as to favor its embedding.

Dr. Rabinovitz said that Dr. Caturani had presented a very interesting specimen and his paper had covered the literature on ovarian pregnancy most thoroughly. The etiology of ovarian pregnancy offered a wide field for speculation and theoretical reasoning, but one

must not lose sight of the clinical facts, namely, that most of these cases gave a history of preceding inflammatory affections of the genital tract. She believed that the most potent factor in the etiology of ovarian pregnancy was a preceding perioophoritis causing a thickening of the germinal layer and thereby preventing the escape of the impregnated ovum.

# State Medical Licensing Boards.

## STATE BOARD EXAMINATION QUESTIONS.

### Louisiana State Board of Medical Examiners.

*October 27, 28, and 29, 1913.*

*(Concluded from page 460.)*

GYNECOLOGY.

1. Name the different malignant neoplasms of the ovary.
2. (*a*) What symptoms and signs would lead you to suspect carcinoma of the body of the uterus? (*b*) Why is carcinoma of the body of the uterus less malignant than carcinoma of the cervix?
3. Name the muscles of the female perineum which may be torn during labor.
4. Describe the pathology of cystocele and of rectocele.
5. Name the causes of dysmenorrhea.
6. Differentiate between incomplete abortion and extrauterine pregnancy.
7. Name the different varieties of uterine fibroids.
8. What general and local conditions may cause amenorrhea.
9. Describe the operative treatment for prolapse of the uterus.
10. What symptoms may follow retroversion of the uterus?

SURGERY.

1. Give treatment of a compound fracture of humerus.
2. Give symptoms and treatment of tuberculous hip joint.
3. What operative measures may be indicated in exophthalmic goiter?
4. Differentiate between enlarged inguinal glands, hernia, and hydrocele.
5. Give diagnosis and treatment of epithelioma of lower lip.
6. Give symptoms of acute osteomyelitis.
7. Describe the operation of posterior gastroenterostomy. of the upper jaw will be demanded." (DaCosta's *Sur*-For what condition is it most frequently performed?
8. Give symptoms, diagnosis, and treatment of tuberculous kidney.
9. Give signs, symptoms and treatment of depressed fracture of skull.
10. Describe Colles' fracture. How is it generally produced and how should it be treated?

HYGIENE.

1. How does the expired air from persons differ in its composition from ordinary air?
2. Name at least six bacterial diseases in which the respiratory tract is the portal of entrance for the microorganism.
3. What are the advantages of pasteurized milk?
4. What is the specific gravity of normal cow's milk, and to what is it due?
5. What is understood by active and passive artificial immunity?
6. What is the value of temperatures and sunlight as physical disinfectants?
7. What is understood by an intermediary host in the transmission of infection, and give examples of diseases transmitted in this manner?
8. What measures must be instituted in the prevention of bubonic plague?
9. What is a diphtheria carrier, and what precautions should be observed with regard to the carrier and the community?
10. Which is preferable, the combined system of sewerage and drainage or the separate system, and why?

## ANSWERS.

GYNECOLOGY.

1. Malignant neoplasms of the ovary are: Carcinoma and sarcoma.

2. *Cancer of fundus of uterus* is diagnosed by the presence of tumor, cachexia, hemorrhage, pain, and offensive discharge; microscopic examination may aid in the diagnosis.

*Carcinoma of the cervix* is more apt to spread to the vagina, bladder, ureters, and surrounding tissues; also its lymphatics are larger than those of the body of the uterus, and so metastasis is more frequent.

3. *Muscles of the female perineum which may be torn during labor:* Constrictor vaginæ, transversus perinei, and sphincter ani.

4. "*Cystocele* is really a hernia of part of the bladder into the vagina, the vaginal mucous membrane forming its outer covering; or it may be expressed as a deflection of the vesico-vaginal septum toward the vagina. It forms a smooth rounded swelling, which bulges through the vulvar aperture when the patient coughs or strains.

*Rectocele* is a hernia of the rectum into the vagina, covered by the mucous membrane of the posterior vaginal wall. It forms a swelling resembling that produced by a cystocele, except that it is on the posterior aspect of the vagina. If the finger be introduced into the rectum it can be passed into the pouch in the vagina, and similarly a sound introduced into the bladder can be passed into a cystocele. A rectocele is nearly always associated with a deficient perineum; and, further, cystocele and rectocele are often found together. When this is the case the vulvar outlet, when patient strains, is occupied by two smooth swellings placed one in front of the other; between them the finger can be passed up to the cervix."—(Sutton and Giles' *Diseases of Women.*)

5. *Causes of dysmenorrhea:* Pelvic congestion, pelvic inflammation, malnutrition, overwork, lack of development, neuralgia, stenosis or obstruction of the cervix, prolapse or displacement of the uterus.

6. In *incomplete abortion,* there is persistent hemorrhage, which may become offensive; the cervix is dilated, and membranes or decidua or clot may be felt; the uterus is large and soft.

In *extrauterine pregnancy,* there will be signs of early pregnancy, hypogastric or inguinal pains, probable history of a previous sterility, probable expulsion of decidual membrane of shreds, softening of the cervix, enlargement of the uterus, presence of a distended tube, contractions of the wall of the gestation sac; if rupture occurs, there will be sudden excruciating pains over the lower abdomen and on the affected side, shock, collapse, and symptoms of internal hemorrhage.

7. Fibroids. *Varieties:* (1) Subperitoneal or subserous; (2) interstitial, in the uterine tissue; and (3) submucous in the endometrium.

8. Amenorrhea is *physiological:* Before puberty, during pregnancy and early lactation, and after the menopause. It may also be due to: Absence or imperfect development of the generative organs; also to operative removal of the uterus or its appendages. Other causative factors are: Acute infectious diseases, anemia, chlorosis, obesity, drug habits, alcoholism, overstudy, lack of exercise, exposure to cold, and various emotional causes.

9. *Ventrosuspension:* "An incision is made through the abdominal wall in the median line just above the symphysis pubis and extending upward for a distance of two inches. The index and middle fingers of the left hand are passed into the peritoneal cavity and gently inserted between the uterus and the rectum. The adhesions are then carefully separated and the fundus of the uterus lifted forward into its normal position. The peritoneum at the lower angle of the wound is seized with hemostatic forceps and drawn into the incision and the first suspension suture introduced close to its divided edge on the left side. The index and middle fingers of the left hand are then passed into the abdominal cavity and the uterus securely held while the suture is passed through the fundus. The suture is now introduced into the fundus directly on a line dividing the uterus transversely into two equal halves and buried one-quarter of an inch deep in the uterine tissue with a distance of about half an inch between the points of entrance and exit. The uterus is then released by the fingers of the left hand and the suture passed through the peritoneum opposite to its point of entrance. The second suture is now passed through the peritoneum on the left side one-quarter of an inch above the first suture. It is then passed through the fundus about one-quarter of an inch behind the first suture, and finally through the peritoneum opposite to its point of en-

trance. It is not necessary to hold the fundus between the fingers while the second suture is introduced, as the uterus can be easily controlled by making traction upon the free ends of the first suture. After both sutures have been introduced their free ends are seized with forceps and placed on each side of the abdominal incision. The through-and-through suture closing the abdominal incision are introduced and suspension sutures tied. The first three sutures closing the incision at the lower angle of the wound must be introduced so as to pass completely under the peritoneum at its points of attachment with the fundus, otherwise the weight of the uterus will cause stripping and a large dead space will result which will eventually become filled with serum or blood and suppurate. After all of the incision sutures are introduced the suspension sutures are drawn taut so as to take out the slack and bring the fundus of the uterus up against the peritoneum. The sutures are then tied and their free ends cut off close to the knots. The abdomen is closed and the wound dressed in the usual manner. The fascia is first united with a continuous suture of catgut and the wound then closed by tying the through-and-through sutures. The sutures in the lower angle of the wound are tied first, and special care must be taken to remove the slack and bring the peritoneum, at its points of attachment with the fundus, snugly against the abdominal wall."—(Ashton's *Gynecology.*)

10. The following symptoms may follow retroversion of the uterus: Backache, bearing-down pains, a feeling of pressure in the pelvis, constipation, hemorrhoids, frequent or painful urination, leucorrhea, menstrual disturbances, as dysmenorrhea or menorrhagia, sterility; there may also be *general symptoms*, as headache, indigestion, nausea, anorexia, neurasthenia, and general malaise.

SURGERY.

1. "In the treatment of compound fractures the main object is to render the wound aseptic and to give efficient exit to the discharges. For this purpose the patient should in all cases be anesthetized, the limb shaved, and thoroughly purified, and the wound enlarged and thoroughly washed out with some reliable antiseptic. It may be advisable to excise torn and dirty fragments of skin, muscle, and tendon, especially when dirt has been ground into them. Loose fragments of bone are removed and portions denuded of their periosteum may be taken away lest necrosis should ensue; where fragments retain any considerable connection with the soft parts they may be left without fear. When a sharp end of one of the fragments is protruding through a small opening in the skin it is first purified thoroughly before attempting its reduction and then replaced, after enlarging the wound in the skin, or a portion sawn off. Hemorrhage is dealt with in the usual way, and the fragments are placed as nearly as possible in their normal position. If the fragments can be brought accurately into position it is well to fix them by some mechanical appliance; but where the ends of the bone are much comminuted the small portions must be arranged in position as well as possible, and no attempt made to wire them. A good-sized drainage tube is inserted, and, if need be, counter-openings are made; the external wound is closed or not, according to circumstances, and dressed and suitable splints are then applied. Under such a régime the majority of cases do well. Immovable apparatus may be used after a time, windows being left in the plaster casing to allow wounds to be dressed."—(Rose and Carless's *Manual of Surgery.*)

2. Hip Joint Disease: *Symptoms of first stage:* Night cries, lameness in the morning; a slight limp; tendency to become tired on slight exertion; wasting; spasm; pain; swelling and deformity (either real or apparent).

*Symptoms of second stage:* Abduction; limping; pain, which is worse at night; apparent lengthening of the limb; abscess; atrophy of thigh muscles; flexion of thigh; effusion into hip joint; and there may be crepitation in the joint.

*Symptoms of third stage:* Flexion, abduction, and shortening of the limb; the joint may be dislocated or ankylosed, or suppuration may occur.

*"Treatment:* In the early stages the patient must be kept in bed, with a weight extension applied in the line which the thigh takes, and as the flexion disappears, the pulley is lowered. When the pain has disappeared and the limb is horizontal, the patient can get about with a Thomas's hip-splint, a patten on the sound leg, and a pair of crutches. These must be worn for at least six months after symptoms have disappeared. The general health must be attended to by good feeding, sunshine, and fresh air. Phelps' box is a useful apparatus in this stage. If abscesses form, they should be opened, scraped out with a flushing spoon, and stitched up. Excision of the head of the femur and free scraping out of the joint by the anterior incision is sometimes done in the early stage; but much shortening and a weak, movable joint are the results, while complete removal of all the diseased tissues is difficult. However, excision should be done where the disease progresses in spite of treatment, and where the disease is primarily acetabular. In the *late stages*, where septic sinuses are present, the head of the femur should be excised by the posterior incision, diseased bone removed from the acetabulum, and the tuberculous synovial membrane completely dissected away. Amputation is required if the disease still progresses, if amyloid disease has commenced, or if the patient's general health is too low to stand a prolonged operation."—*(Aids to Surgery.)*

3. Partial thyroidectomy, sympathectomy, and ligature of both superior and one inferior thyroid arteries.

4. *Enlarged inguinal glands* are not reducible, do not have an impulse on coughing, are tender to the touch, are not translucent.

*Hernia* may be reducible, gives an impulse on coughing, is not translucent.

*Hydrocele* is not reducible, gives no impulse on coughing, is translucent.

5. *Epithelioma of the lower lip* generally begins as a fissure, which becomes indurated, then ulcerates and extends; sometimes it is nodulated or looks like a wart. The submaxillary and submental glands become enlarged and hard. Diagnosis may be made certain by microscopical examination of a small piece removed for the purpose. Treatment consists in thorough removal of a wedge-shaped piece with at least half an inch margin. The glands should also be removed from both sides.

6. The *symptoms of acute osteomyelitis* are: Sudden onset; pain, tenderness, fever, chills, swelling of soft parts; sometimes the joint can be moved gently without pain; septicemia or pyemia, may be present.

7. *Posterior gastroentcrostomy.* "The abdomen is opened by a vertical incision to the right of the middle line above the umbilicus. The stomach, transverse colon, and omentum are drawn out of the wound and turned upwards, and an opening is made in the mesocolon near its root, so as to expose the posterior surface of the stomach; a portion of stomach at the lowest part of the greater curvature is selected for the anastomosis. The upper part of the jejunum is then found by passing the fingers along the under surface of the mesocolon immediately to the left of the spine, and the highest available portion of it brought into contact with the stomach in such a way that the loop of bowel selected runs from right to left (Mayo). An anastomosis is then made between the stomach and jejunum, an ellipse of mucous membrane being excised from each viscus. The edges of the opening in the mesocolon are then stitched over the line of junction, so as to bury it and prevent any hernial protrusion through the gap. After being cleansed, the viscera are replaced in the abdomen, and the wound in the parietes closed. When the patient has recovered from the anesthetic he is propped up in bed with pillows." (Thomson and Miles' *Surgery.*)

The operation is chiefly performed for cancer of the pylorus, stenosis of the pylorus (non-cancerous), and ulcer of stomach.

8. Tuberculous Kidney. "The *Symptoms* at first consist of aching pain in the loin and frequent micturition, not improved by rest. Hematuria comes on early without apparent cause, is not increased by movement or improved by rest. Pus is usually present in acid urine, and the *Bacillus tuberculosis* may in some cases be detected. In the late stages the kidneys may be felt much enlarged.

"The *Diagnosis* is doubtful in the early stages, unless bacilli can be demonstrated by the microscope or inoculation of a guinea-pig. The hematuria is much slighter than in cases of renal calculus, and is not influenced by rest. The hematuria is not so profuse as in cases of new growth. Slight attacks of renal colic may occur from the passage of caseous matter, but not severe attacks like those due to calculus. An

exploratory incision settles the diagnosis in doubtful cases.

"*Treatment.*—If on exposure of the kidney a limited portion is found to be diseased, a wedge-shaped portion is excised. If, as is more usual, the kidney is extensively affected, two methods may be adopted: 1. If the other kidney is healthy, nephrectomy with removal of as much of the ureter as possible is done. 2. Nephrotomy, followed by drainage, is done when the patient's condition is too bad to stand the bigger operation, or when the other kidney is also affected."—*(Aids to Surgery.)*

9. DEPRESSED FRACTURE OF THE SKULL. *Symptoms:* If there is a wound, the fracture and depression may be seen, and blood, cerebrospinal fluid, or brain, may be escaping. If there is no wound a careful examination is necessary, as a hematoma may form and obscure the depression. In cases of doubt an incision should be made.

In a *simple depressed fracture* there is usually some concussion, which is followed by compression from hemorrhage in the neighborhood. The depressed bone also causes compression later by the *spreading edema* it sets up in the brain. Death may result quickly, or the patient may recover and then become the subject of traumatic epilepsy from irritation of the cortex. If the depression is over the motor area convulsions or paralysis are quickly induced.

In a *compound depressed fracture* the blood escapes and does not produce compression. Concussion may or may not be present. The advent of sepsis produces inflammation of the bone, membranes, and brain, which may be limited if the drainage is free; but if not death soon follows from compression by the inflammatory exudation. During the stage of compression a hernia cerebri is formed. If the depressed fragments are early removed and asepsis is maintained the patient has a good chance, unless the brain itself is severely injured.

*Treatment.*—In all cases, except the saucer-like depressions which occur in young infants, it is necessary to elevate or remove the depressed fragments, stop all bleeding, and disinfect the wound. Symptoms should never be waited for, because, although the patient may recover without operation, the depressed bone may cause traumatic epilepsy or insanity. The skin is shaved and purified, and a large flap is turned down to expose the fractured area, or if a wound is present it is enlarged. Comminuted fragments are removed, and sharp edges which press on the dura mater are clipped away with Hoffman's forceps. If an elevator cannot be introduced under the depressed bone a trephine hole is made through the nearest sound bone, the elevator introduced, and the bone prised up. The piece of bone removed with the trephine should be replaced. If the dura mater is torn it should be stitched up and then the scalp flap is sutured without a drain, unless oozing is still going on. If the fracture has been compound it is better to drain it for twenty-four hours. In punctured fractures the hole must be enlarged by trephining, so as to remove the depressed spicules. After operation the patient must be kept quiet in a darkened room on liquid diet for a few days. *—(Aids to Surgery.)*

10. *Colles' fracture* is a fracture of the lower end of the radius; it is generally transverse, and is usually within an inch or an inch and a half of the articular surface. There is a characteristic deformity caused by the lower fragment, and the carpus forming a prominence on the dorsal surface; at the same time there is a projection on the palmar surface just above the wrist, caused by the upper fragment. The hand is abducted and pronated, and the styloid process of the ulna becomes very prominent. It is generally caused by a fall on the outstretched palm. *Treatment:* Disimpaction and reduction are effected by grasping the hand by the "shaking hand" grip, extending and adducting the hand and lower fragment. Put on a splint. Massage and passive movement must be started by the end of the first week.

1. HYGIENE.

| | EXPIRED AIR. | INSPIRED AIR. |
|---|---|---|
| Oxygen..... | 16.6 per cent. | 21 per cent. |
| Nitrogen..... | 79 per cent. | 79 per cent. |
| Carbon dioxide... | 4.4 per cent. | 0.04 per cent. |
| Other gases..... | Often present. | Rare. |

2. *Bacterial diseases in which the respiratory tract is the portal of entrance:*—Tuberculosis, pneumonia, diphtheria, influenza, scarlet fever, small-pox, whooping-cough, chicken-pox, measles.

3. *Advantages of Pasteurization of Milk:*—"(1) That most if not all of the common bacteria and their toxins are killed. (2) That the ordinary ferments and germicidal properties of the milk are not destroyed. (3) That the process may be accomplished on a large scale, and furnish a commercially safe milk. (4) That the taste, appearance, odor, and cream-separation quality of the milk are not altered. (5) That pasteurized milk, if kept cold, furnishes a clean, healthy milk, safe for infant food and other uses."—(Price's *Epitome of Hygiene.*)

4. The specific gravity of cow's milk, at 60° F, is about 1029 to 1032. It depends on the amount and character of the solids present in the milk.

5. *Immunity* is the power of resistance of cells and tissues to the action of pathogenic bacteria. Immunity may be either natural or acquired.

*Natural immunity* is this power of resistance, natural and inherited, and peculiar to certain groups of animals, but common to every individual of these groups.

*Acquired immunity* is this resistance acquired: (1) By a previous attack of the disease caused by the bacteria, or (2) by the person being made artificially insusceptible. The conditions which give immunity from the pathogenic action of bacteria are: (1) A previous attack of the disease; (2) inoculation with small quantities of bacteria, so as to produce a mild attack of the disease; (3) vaccination; (4) the introduction of antitoxins; (5) the introduction of the toxins of the bacteria.

"*Active acquired immunity* is produced by the action of living germs or their toxins introduced into the animal.

"*Passive acquired immunity* is obtained by a direct transference of an immunizing substance from an immune animal to a susceptible one. Active immunity takes some time to develop, but, as a rule, lasts longer than passive immunity, which is immediately established."

6. *Sunlight* is a disinfectant if the direct rays of the sun are allowed to fall on the (non-spore bearing microorganisms) for at least half an hour.

Dry heat, at boiling point, is a good disinfectant. Moist heat is better, because it has more penetrating power. Steam, under pressure, is better still. Fire is the best of all disinfectants, but its application is not always practicable.

7. "The animal in which a parasite undergoes its sexual life is called the definitive or final host, that in which it passes its larval existence the intermediary host. For example: Man is the intermediary host of the malarial parasite, the mosquito the definitive host. A single animal may, however, be both definitive and intermediary host; thus Trichinella may pass its larval existence in the muscles of man and its sexual life in his intestines."—(Stitt's *Bacteriology*, etc.)

8. *Prophylaxis of bubonic plague:* "Vermin, particularly rats and mice, are susceptible to plague; indeed, the former are believed to be the principal carriers of it. They infect the ground, dwellings, foods, and water. Therefore, safety lies in the destruction of all vermin in the houses. As dogs and cattle are also susceptible to the disease, they should be carefully protected from exposure. Screen dwelling and rooms; since the ground becomes infected by rats, and infected excreta, and because wounds of the feet and legs are frequent portals of entry for the specific bacillus, the constant wearing of shoes is a wise prophylactic." (Langfield's *Infectious Diseases.*)

9. A *diphtheria carrier* is a person in whose body the bacilli of diphtheria can be found, although the person does not, at the time, give any symptoms of the disease.

Persons in whose mouth or throat or nasal secretion the specific bacilli are found should be isolated until constant examination is negative for two weeks.

10. "In *the combined system of sewerage* the rainwater is disposed through the same pipes through which the sewage passes. This system necessitates pipes of larger caliber, in order to take care of the occasional large quantities of storm water, which water serves also to give the sewer pipes a thorough flushing. On the other hand, the large caliber sewer pipes of the combined system cause a very sluggish flow of sewage in them in ordinary times, with consequent adherence of sewage to the sides and a decomposition of sewage and creation of foul gases. The utilization of

the sewage is also more difficult in the combined system because of the large dilution of the sewage and the expense of separating the solid excreta from the fluid.

"In *the separate system of sewage* the rainwater is removed separately through a distinct system of pipes taking care of the rainwater only, and this water may safely be disposed of into rivers and nearby watercourses without special danger of contamination with sewage matter, as in the combined system. For smaller cities, with modern sewage-treatment plants, the separate system of drainage is preferable, and, although it requires a double system of pipes, etc., is cheaper in the end, and less objectionable in many respects."—(Price's *Essential of Hygiene.*)

## Books Received.

*The* MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

UBER BRÜCHE DES KNOCHERNEN TROMMELFELLRANDES. By Prof. Dr. HEINRICH WALB. Illustrated; paper; 67 pages; price 3 Mks. A. Marcus & E. Webers, Bonn, 1914.

DISEASES OF CHILDREN. A Manual for Students and Practitioners. By JOHN MCCAW, M.D., R.U.I., L.R.C.P. Cloth; 524 pages; price $3.50 net. William Wood & Company, New York.

THE SENSORY AND MOTOR DISORDERS OF THE HEART. Their Nature and Treatment. By ALEXANDER MORISON, M.D., F.R.C.P. Cloth; 261 pages; illustrated; price $2.50 net. William Wood & Company, New York.

DIE WILLENSFREIHEIT. By BERTHOLD V. KERN. Paper; 75 pages; price 2 Mks. August Hirschwald, Berlin.

KOPFSCHMERZ UND MIGRÄNE. By A. VORNELIUS. Paper; 53 pages; price 1.50 Mks. August Hirschwald, Berlin.

MORTALITY STATISTICS, 1911. Twelfth Annual Report. Prepared under the supervision of CRESSY L. WILBUR, M.D., chief statistician for vital statistics. Cloth; 572 pages. Washington, Government Printing Office.

THE INTERVERTEBRAL FORAMEN. An Atlas and Histologic Description of an Intervertebral Foramen and Its Adjacent Parts. By HAROLD SWANBERG. With an introductory note by Prof. HARRIS E. SANTEE. Cloth; 101 pages; illustrated. Chicago Scientific Publishing Company, Chicago.

TRANSACTIONS OF THE AMERICAN CLIMATOLOGICAL ASSOCIATION. For the Year 1913. Vol. XXIX. Cloth; illustrated; 367 pages. Printed for the Association. Philadelphia.

GUNSHOT INJURIES. How They Are Inflicted, Their Complications, and Treatment. By Col. LOUIS A. LAGARDE. Cloth; illustrated; 398 pages; price $4.00 net. William Wood & Company, New York.

HEALTH PRESERVATION IN WEST AFRICA. By J. CHARLES RYAN, L.R.C.P.I., L.M., L.R.C.S.I.L.M., with introduction by Sir RONALD ROSS, K.C.B., F.R.S., Nobel Laureate, M.D., D.P.H., F.R.C.S., D.Sc., LL.D. Cloth; price 5/ net; 96 pages. John Bale, Sons & Danielsson, Ltd., London.

THE HOME NURSE. By E. B. LOWRY, M.D. Cloth; price $1; illustrated, 224 pages. Forbes & Company, Chicago.

DIAGNOSTIC METHODS. By HERBERT THOMAS BROOKS, A.B., M.D. Second edition. Cloth; price $1; 82 pages. C. V. Mosby Company, St. Louis.

PRACTICAL SANITATION. A Handbook for Health Officers and Practitioners of Medicine. By FLETCHER GARDNER, M.D., and JAMES PERSONS SIMONS, B.A., M.D. Illustrated. Cloth; price $4; 403 pages. C. V. Mosby Company, St. Louis.

DEUTSCHE ZAHNHEILKUNDE IN VORTRÄGEN. By Prof. Dr. Med. JULIUS WITZEL. Paper; price 2.80 marks; illustrated; 104 pages. Georg Thieme, Leipzig.

LEHRBUCH DER ORGANOTHERAPIE. By WAGNER V. JAUREGG and GUSTAV BAYER. Illustrated; paper; price 13 marks; 516 pages. Georg Thieme, Leipzig.

DENTAL ELECTROTHERAPEUTICS. By ERNEST STURBIDGE, L.D.S., Eng., DD.S. Illustrated; cloth; 31 pages. Lea & Febiger, Philadelphia and New York.

## Miscellany.

**Medicine and the Law.**—W. Sampson Handley mentions among distinguished lawyers recruited from the ranks of medicine the Right Hon. Sir Robert Finlay, Member of Parliament for Edinburgh and St. Andrews Universities, and a former Lord Rector of his own University of Edinburgh. The son of an Edinburgh physician, he graduated in medicine at Edinburgh, and was then called to the Bar. His brilliant subsequent career as Solicitor and Attorney-General proves, at any rate, that a medical education offers no insuperable obstacle to subsequent legal success.—*Lancet.*

**First Aid in Aviation.**—At the recent International Congress on First Aid and Ambulance Work, held in Vienna, the subject of aeronautics and aviation received considerable attention. Hinterstoisser, of the Army Aeronauts, stated that first of all smoking near an airship or aeroplane was distinctly criminal. Nobody should rush to the place where any air craft was preparing to descend. Medical attendance should be obtainable within an easy distance of an aerodome, and a portable first-aid outfit should be ready at hand, as well as fire-extinguishing apparatus. Persons with an unstable circulatory or respiratory system should not meddle with areonautics, and perfect hearing was also necessary for a would-be airman.—*Lancet.*

**The Smallest Essential Part of the Automobile.**—The smallest part of an automobile that is absolutely essential to normal action is the rubber washer on the core of the tire valve. It weighs only one eighteen-hundredth of an ounce. One cent will pay for enough washers of this kind to equip ten automobiles, yet, when lost, it is one of the most difficult pieces to replace on the whole car. Fine thread soaked in rubber cement and wrapped around the valve core at just the right amount will provide a temporary repair.—*Motor.*

**A Learned Consultant.**—"Speaking of doctors that one has met in consultation," said Dr. Monroe, "puts me in mind of one that I met some years ago. It was a case of myalgia. This man examined the heart exhaustively, and in talking it over, said, 'Doctor, I think your patient is in the gravest danger.' I asked 'How do you come to that conclusion?' 'Well,' he said, 'I can hear the first and second sounds of the heart but fail to find the third sound!' A little later I happened to speak about there being sufficient compensation. 'Oh,' he said, 'they are good pay!'"—W. T. Bertrand, in "Stories of Doctors, etc."

**Warming the Carbureter.**—A 2-quart rubber hot-water bag filled with boiling hot water and placed close to the carbureter will warm it up so that starting will be facilitated.—*Motor.*

**To Stop an Oil Leak.**—A leaking transmission case may often be made to hold the oil by adding graphite to the lubricating oil. The graphite settles and plugs up the openings.—*Motor.*

**Agnosticism in Medicine.**—The contemplation of advanced cases in the medical wards of a hospital is apt to breed a spirit of agnosticism and hopelessness with regard to the capacity of medicine to relieve disease—the attitude of mind which treats a majority of cases with rest in bed and compound tincture of cardamoms. But on the firing line of the medical army, where the general practitioner spends his days and nights, such a spirit is impossible or leads to disaster to patient and practitioner alike.—*British Medical Journal.*

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## Original Articles.

### REMARKS UPON MENTAL INFANTILISM IN THE TIC NEUROSIS.*

BY L. PIERCE CLARK, M.D.,

NEW YORK.

IN my first study[1] upon mental torticollis as a form of psychoneurosis of the obsessive type, I undertook to show that certain types of tic such as mental torticollis were but continuations of habit movements. The tics remain as fragments of the complete habit and persist as crude symbols, which serve as a most intimate and deep need of the abnormal personality of the individual patient. By the analysis of an illustrative case in that paper the habit movement was traced back to earliest infantile life and found there to have been closely interwoven with the mother complex initiated by a caressing, petting act of affection by the mother. It was also shown that the mother's part of the neurosis but served to waken and fasten upon the child an autopleasurable act, which act or habit movement took on secondary autoerogenous satisfaction in later life. The act, continued and modified in later life, constituted the tic from which the patient finally sought relief. It further developed that the main reason for the habit movement and its tic successor, being irrevocably attached to the patient, was due to the inherent sense of inadequacy of feeling and will generated from the conflict of doubt, the latter conditioned upon the most primal antagonism of the hate instinct in its process of sublimation by the love instinct. The whole chain of events served to form the vacillating, indecisive character and will of the obsessive neurotic of which the torticollis was but one of the group characters in the incompletely evolved neurotic. In the second paper[2] I called attention to a second type which was termed acute mental torticollis from a breaking through of a sexual repression, the tic movement being a physical counterpart, a conversion of a hysteric complex rather than a substitution, as in the pure obsessive neuroses. The case reported in detail in the second paper possessed many features common to both types of makeup and might, therefore, be called a form of mixed neuroses, it having many attributes common to both constitutions.

In both papers the cases reported had much in common in their mental infantilism which was shown in both in adolescence and in later life. They both showed an incompletely sublimated hate instinct. They never established real friendly relations with a large group of other children; could not get *en rapport* with their social environment; had inconclusive love affairs; both were unmarried and had inadequacy of feeling and will, and lived in a vague world of doubt, indecision, and vascillation. In short, they both met on the common ground of all mental torticollitics in possessing, each in his individual way, what is termed mental infantilism.

The purpose of this third paper is to elucidate some of the main features of this mental infantilism in its broader aspects, as illustrated in an exquisite case of multiple tics. I have taken a rather ideal youthful ticeur for the pattern in order to work out the genetic values of the several characteristics of infantile life. Just as one not infrequently makes clear the underlying anatomic pathology of a rare or obscure disorder upon the maximum clinical expression of that disease—as shown, for instance, in the many studies of epilepsy that are based upon its severest manifestations—that of status epilepticus—so I have chosen this particular case for the purpose of showing a large canvass of tic disease to point out many of the salient and glaring faults in the mental makeup. It will be found a paradigm of mental infantilism, and in which there will be seen, no doubt, many characteristics but little emphasized in many another ticeur, or altogether wanting in some. In the main, however, the clinical study will serve its illustrative purpose the better, inasmuch as I propose not to detail at any great length the various mental characteristics of such individuals, for that has been thoroughly and effectively done by a host of writers before; but I hope to show how one may resolve all the successive patterns of tics into the first one great tic, and then see what may be made of its real genetic value. Thus in some measure I hope to make plain what may be considered our fundamental manner of approach to the ticeurs and their mental characteristics. I assume all will admit that to understand the real motive of the tic disorder is of little use if one fails to inaugurate either an improved system of treatment of it or at least take proper precautions to prevent its future occurrence, either by inculcating better systems of home and nursery training, or, if that be ineffectual, to teach society that such family stock should be restricted in marriage. The latter view will not be so utopian as it may seem if physicians will endeavor in future to bring to public notice exact, definite and concrete facts upon which they base their radical opinions. However, before we go so far as conjuring eugenics to our aid, it is wise for us to make every effort to inculcate better nursery education and see to what extent the primary physical and mental habits are modifiable and which ones are really benign, as it were, and may safely be left to correct themselves in adolescent growth. In order that our case study may have a proper setting foundation, we may with advantage hastily sketch some of the salient characteristics of mental infantilism as seen in ticeurs and in some meas-

*Read before the Section on Medicine, New York Academy of Medicine, January 20, 1914.

ure weigh the essential import they bear to the primary instincts.

The outlines of mental infantilism as first laid down by Charcot leaves but little to be desired as to description. His statement that the tics are physical manifestations of a psychical disorder certainly proves that as a fundamental postulate it is the surest and sanest view of the disease in modern medicine. In the further development of this idea, the French school headed by Brissaud has been most active. When we fully grasp the application of the above fact one begins to understand in some measure why voluntary and rational acts *may* become involuntary and irrational. It also gives us some hint why the inhibition of a confirmed tic is so difficult and laborious. The presence of a uniformly weakened will in the ticeur makes the extra power of inhibition of the will doubly impossible; nor is the will alone at fault; there are other peculiar eccentricities of behavior that indicate a greater or less degree of mental instability in other fields than that of the domain of will solely. This defect in will is the more difficult to describe as individual patterns differ in many respects as widely as the individual kinds of tics themselves. We may say, therefore, that mental infantilism is a polymorphic defect of the psyche. If one takes but a single particular characteristic from the ticeur's psychic makeup, one may nearly as easily find its counterpart or similitude in another not so diseased or even in a so-called sound individual. It is the *tout ensemble* that forms the true picture. Appearances in no other clinical field of the neuroses are more deceptive as to the real constitution of the inner life of the individual than in the ticeur. Many times the brilliance of mind, the genius type of ticeur, may mask his failings. His intelligence may be of a superior order, his imagination very fertile, his mind apt, alert, and original. Only painstaking analysis will remove the obvious blind to characteristics that may be hidden, but are none the less real.

A careful analysis shows the ticeur's mental defect is not so much evidenced in mental insufficiency as in an inequality of mental development. The surprising fact brought out in the analyses, even of many ticeurs of brilliant minds, is the embryonic condition of one or the other of their mental faculties. In short, these disharmonic processes of mind consist either in absence, arrest or delay, or perversion of mental growth, and, what is more pertinent, these contrary processes may coexist in the same individual. We must remember that most of these mental imperfections of mental balance are *normal* in children and in a great measure are only overcome in adolescence. In the normal infant the beginnings of mind are characterized by irregular implantation of new instincts, yet their memory associations become regular and stable as will and the higher mental functions are developed. But the ticeur's childhood is vascillating and volatile. One of my patients stated when he associated first in boyish sports he carried a stone near at hand in his left pocket. His first approach to his comrades was with mingled feelings of hate and friendship, peace and war, and he didn't care much which one should dominate. Such an attitude shows an active conflict of the love and hate instincts. The ambivalency of the emotions of the ticeurs are shown in that timidity and rashness, artlessness and obstinacy which may be present in apparent contradistinction side by side in any personality study. They laugh and cry at the same thing on different occasions. Their loves and hates are unbounded, and are many times projected alike toward the same individuals. In fine, it is greatly in the emotional field one sees the larger discrepancies of character of the ticeur which makes for a character-defect. These facts are the more glaring by comparing the individual ticeur with healthy subjects of his own age. Nor is this mental infantilism of the ticeur a mere matter of lack of disciplinary training and education during childhood, as ordinarily understood, though it is frequently increased by a misdirected teaching. The example precept of the parents and older children of the family teaches the truth of the naïve diction of Freud, that one should know there are shorter and perhaps more potent roads for the transmission of neurotic symptoms from the parents than through heredity. The point is made the more obvious when example and heredity work in unison, as they so often do in the formation of the ticeur's character and disposition. If pampering and petting are bad for normal children it is doubly ruinous for the potential ticeur in childhood where absence of restraint, negligence and weakness are allowed to develop into the adult infirmities of later life. Such individuals form the "big children," the badly bred and capricious, incapable of self control, as shown in one of Meige's cases;[1] a young man of 19 years, intelligent, educated, ready to graduate were it not for the interruptions his studies had undergone, and to all appearances he had arrived at manhood's estate. None the less, he presented the mental condition of a ten-year-old boy. He was fickle, pusillanimous, naïve and emotional; he laughed at trifles and was provoked to tears at the first harsh word; his nature was restless, his mind inconsequential; he was by turns elated or depressed for the most trivial reasons. Notwithstanding his seventy-one inches in height he was still fed, dressed and put to bed by his mother. In spite of his nineteen years, this young man still had a eunuch's voice and a minimum of axillary and pubic hair—in fact, one might say that physically he was nineteen years old and mentally ten.

Though *mental* infantilism is the distinguishing makeup, it is not without physical counterparts, as shown in the above case, and is commonly enough met with in any large clinical experience.

While it is unprofitable for us to linger too long on the more or less well-known manifestations of instability of the will in the ticeur, the contrast to normal volition is striking to any one caring to make the comparison. We shall now make further analysis of the genesis of the insufficiency of will, the irresolutions of the ticeurs. Many classic descriptions of the ticeur's character in acquiring knowledge are shown in even such simple mental processes as learning to read. The potential ticeur fails in this task, which is at once intellectual and absolutely familiar to most normal children. Read many such children cannot, and though they attempt to concentrate the attention, the will cannot hold the attention, the eye jumps erratically from line to line, and his many trials not infrequently end in his throwing the book aside, or, he is able to read only in a sing-song or childishly monotonous manner. One sees a severe arraignment of the incomplete repression of the sadistic (hate) impulse in one of Charcot's patients, who, whenever he saw a razor or a knife, began to thrill

and feel afraid. He imagined he was going to kill some one, or that some one was going to kill him. He had the same sensation when he saw a gun, or even if the notion of a gun came into his mind. The mere thought of it agonized him. The fancy of murdering some one struck him, and up to a certain point he was desirous of fulfilling the desire. Often he was conscious of an irresistible longing to fight somebody.'

It will be seen that this case is an excellent illustration of an incomplete sublimation of the hate instinct, giving rise to illusory ideas of its sadistic satisfaction. The very symbols of the instruments by which the aggressive assaults were to be made are characteristic. It is in such that infantile moods are fertile soil for the development of tics or habit movements. It has been aptly said, as these neurotic children think, so do they tic. In the majority of ticeurs, as will be shown in my case later, the pent up and unsatisfied libido overflows in a whole series of habit movements. Not infrequently a single case may show fully developed tics, habit movements and general physical and mental restlessness, which latter phenomena have not yet budded into the fruit symptoms of habits; they are veritable citrus trees of developing motor disorders, whose fruitings range all the way from buds of movements to those of the fully ripened fruit of pronounced tics. Furthermore, as mentioned before in preceding papers, the ticeur even when fully developed is but a half-way stage to a fully developed obsessive individual with fixed ideas, phobias, and various types of obsessive thinking. Not infrequently the ticeur has but a part of his real disorder expressed in an outward physical expression of the deep lying roots of the full mental disorder of obsession. Should an obsessive idea entail a motor reaction, it gives rise to a tic as stubborn of removal as the idea itself, and *vice versa*. They may also go in pairs, or even multiple of the same, if the psychomotor mechanism is complex, deep, and broad. One therefore sees the irrevocable association of the two disorders, the one, the idea defect, serving as an obverse of the physical picture of tic or coextensive with it. The obsessive thinking or the nucleus of it is probably the primary mental departure in the ticeur's thought, though it may be late in its gross and outward manifestations, as in my second ticeur, who, it will be remembered, had fear of fire, death and world-wide conflagration that showed at three years of age.

It may be urged that even in veritable obsessive individuals, those engaged in true obsessive thinking, there is no direct or obvious connection between such a patient's obsessions and his tics. This observation in some cases is quite true, but when the two disorders—the one a motor symptom and the other a pure psychic disorder—are traced to their genetic origin, one always sees there an intimate and common stock fund of energy from which both proceed. The second case study shows this in spite of the fact that Miss C. was not a true unmixed obsessive type. She could not make a broad and friendly contact with others; she regressed into infantile musings on sexuality and the meaning and end of life. The increased and pent up libido was then displaced into fire obsession and death. The same feelings being balked in the father attachment developed into an apoplexy phantasie at his death, and the tic resulted at the next great turn in the road of sexual compensation. The consciousness of guilt also played no small part in the motor transference from the psychical sphere. It is by no means a radically new idea that the ticeur has the characteristics of the obsessive individual nor that their common fault is an inadequacy of will which is generated by doubt. One may easily verify these facts in an endless evidence of clinical experiences from the literature of both tics and obsessive thinkers; but that the doubt mania physically and psychically expressed in both is due to the primary warring instincts of hate and love is new to the theory of tics. Thanks to Freud, all the foregoing theories are, however, made plain. But one may ask, why do not all children possessing mental infantilism who have a warring conflict in the hate and love instinct become ticeurs or obsessive individuals? Such children with benign conflicts, it may be answered, do not have a strong parental fixation as exists in every ticeur—I venture to say, without exception. If one pursues the point of inquiry but a step further we may answer only in uncertain and indefinite terms, that the irrevocable parental fixation is probably conditioned upon organic and structural grounds, and at this point our subject must rest for further observation and study.*

To those given a keen, critical faculty, it may seem that even now, though we accept this theory, a full and final explanation of the tics is not at hand, and that the future holds much for the real

*It may not be out of place at this point to state briefly Freud's theory for the obsessional neuroses, inasmuch as much of it is quite new and many readers may not be familiar with its essential tenets: The affect of the painful idea does not become transformed into physical symptoms, as in the *conversion* mechanism of hysteria, but affixes itself to other ideas not in themselves unbearable, thus producing by this false relationship a *substitutive* symptom, an obsession.

The full explanation of the mental technique by which this state of substitution is brought about may be reviewed at length in Hitschmann's "Freud's Theories of the Neuroses" (translated by C. R. Payne); much curtailed, the principle may be stated as follows: In all such obsessive neurotics the *transformed* reproaches which have escaped repressions are always connected with some pleasurably accomplished sexual act of childhood but may be enormously distorted and displaced so its sexual character may be almost entirely lost. The obsessive acts really represent the conflict between impulses of opposite instincts, love and hate, which are usually of equal value. The warring conflict engendered makes for a curiosity to discover the meaning of life forces (sexual largely) and the desire to know the end thereof. The nuclear-complex of all this is a precociousness of emotional life and an intensive fixation on one or the other parent or brother or sister. The intensive love fixation waxes the stronger as the unconscious hate requires increased barriers against its breaking through into the main or everyday personality. As a result of these conflicts the will is partially weakened, there is an incapacity for resolution, first in the realm of love alone; then later succeeds a diffusion or displacement of the mechanism all over the field of action. A series of secondary defense mechanisms or helps are now brought in and these may enable the obsessive person to get square in a limited way (as religious practices enable many to do). Some special adaptation is required sooner or later, and the individual, having used up all the helps, then falls back upon different forms of obsessive acts and thinking. Thus the obsessive neurosis is generated.

If one is not permitted to draw deductions from a few data as to the further genesis of the tic disorders, we may still hold out a tentative hypothesis pieced together from many sources that a certain type of nervous makeup is inherited. In such the emotional life is precocious much beyond the intellectual faculties. The ticeur in infancy has the emotional feelings of love and hate of an adult. Their very precociousness aids the parental fixation and adhesion, and makes it the more difficult for the libido to detach itself at the proper age. One should bear in mind that the parental fixation in itself does not directly produce the mishaps of adult life, but this small fault in infancy generates wider and wider maladaptations as development progresses. It is these latter glaring faults and trends that make for the character defects, and these readily break down the final effort at adaptations and adjustments producing the tic or obsessive disorder. But the essential nucleus of the defect is the lack of balance, precocious parental fixation, and continued attachment to the parent-stem, that makes the adult defect possible. The very infantile precociousness of the emotions argues for the hereditary transmission of destructive temperamental qualities. Here, as elsewhere in tracing hereditariness in the so-called functional nervosities, one should take as the unit character for study the *mental traits* or *trends* and exclude definite disease entities applied to ancestral disorders. I believe it is not too suppositious to think that many of these variant types of obsessive individuals are really atavistic in makeup and have continued on from one generation to another special defective traits of emotional makeup which are fortunately denied the average individual.

solution. The fact, however, must not be lost sight of that if opinion of the cure of the tics in the past has been so nihilistic, it has been due to the fact that the sufferers have not been approached on the right grounds and that when we do this we shall find the character material more plastic and amenable to sincere treatment. The rapid change for the better in the ticeurs shown by this treatment indicates its superior value over older methods. It is too early to speak of end results.

To retrace our steps a bit to the main theme in the elucidation of the fundamentals of mental infantilism, one sees the very sexual attachments to the parent are necessarily most infantile. Such children cannot be expected to make a normal adolescence when so primitively tethered to the parent stock and its adhesive pull against the child's advance into the normal sexuality of adolescence and adult life must be great indeed. One may rightly count that this fact alone may account for a great deal of the irregularities, the strange insufficiencies of the mental characteristics in the ticeur. This is precisely what one finds on closer analysis, that the maximum of mental faults concern the emotional sphere of the mind, and that, too, concerned or flowing out of the sexual instincts. This is remarkably demonstrated in one of my obsessive patients, a woman of 56 years of age, now married for twenty-five years, in whom the obsession of fear of death and the non-existence of life after death was finally traced to an intensive maternal fixation, which in later life resulted in an unhappy non-sexual marriage. She gained no essential peace of mind and satisfaction in life after the obsessive thinking afflicted her soon after marriage until she returned to her infantile pursuits of caring for dogs and cats, whose promiscuous sexuality and productiveness generates no obsessive thinking as her mother initiated the custom of keeping such animals in the patient's earliest infancy. In this connection it is interesting to note that my first case, after he had to some degree recovered from his tic, could walk about his old family home, indoors, on the porch, or even up and down the sidewalk in front of the house, but could not walk toward the railroad station without bringing back some remnants of his tic. The maternal attachment to the home was still so strong.

It is ironically interesting to note that a discrepancy in mental infantilism would appear to be paramount in ticeurs, in that they often show an exaggerated love of order and system, although their mental disarray is often extreme. One rarely sees this characteristic, however, in the earliest life of the ticeur; it is a defense mechanism of later life which goes to make up the grand mentality of the obsessive tic individuals. Case I. never dressed with such care as after his tic broke out; when he did not shave daily he took particular pains to overcorrect his neglect by wearing spotless linen on these days. It is also an emblem of purity, and much affected by those with irregular sexual lives who suffer from consciousness of guilt. The same interpretation, a defense mechanism, holds good for the precision of manner and conversation the ticeurs affect. In describing the symptoms of their various maladies, ticeurs rarely have a single line of bodily or mental complaints; they keep a slack line on many symptom-groups so that they can easily let go of several if the physician requires onerous tasks to correct the main cause of the personality-defect, and thus try to convince him of their betterment. Fortunately the ticeur as yet rarely realizes the importance and dominant power of the unconscious in his disease. In such one may at least fully elucidate the *raison d'être* of their sexual life without much resistance being encountered; only when the chain of cause and effect is connected up is the often silly and puerile character of infantile behavior brought out. It is probably easier to reveal the genesis of the physiomental symptoms in which a *substitution* mechanism is the case, as in the tics, than when the issue is a *conversion* mechanism, as in the physical symptoms of a hysteric complex. I believe what is made up in ease of analysis is fully compensated for by the difficulty of eliminating the tic, and, what is more important, the difficult alteration of the personality-defect based, as it is, upon the most primitive infantile sexual life and instincts.

Before closing these remarks upon some of the more essential characteristics of the mental infantilism of the ticeur, I shall attempt to summarize our theory for the mental infantilism and its particular tic disorder.

The ticeur has a strong sexual parental attachment; this is so strong that the love instinct ineffectually sublimates the hate instinct and in the warring conflict doubt and physical and psychic inadequacy arise. This situation continues and generates mental and physical infantilism, which in turn make for increased feelings of tension. Motor and psychic restlessness succeed. The motor expression manifests itself most often in habit movements of disguised sexual significance (autoerogenous pleasures), a form of physical stereotype, in its broadest psychophysical meaning. The mental state often *pari passu* takes up obsessive thinking and various physical acts and thoughts are formed as defense mechanisms, born of conscious guilt. The motor habits are usually inhibited or displaced in part, and the tic remains as a motor symbol, usually in itself nonsexual, as a fragment of the former complete habit movement. The mechanism of the completely evolved tic is either a *conversion* (hysteric) or *substitution* (obsessive) mechanism, or both.

In presenting this third illustrative case of mental infantilism, in which the habit movements, tics, panics and obsessive thinking are exquisitely shown as morbid trends in such a setting, I have purposely omitted the stages of the physical development and the neurological examination so that our attention may not be distracted by unimportant details of the patient's life and family history. I shall ask you to consider that these factors, although not mentioned, have been gone into thoroughly to make quite sure we are dealing here with the ordinary, though marked and pronounced, tic disorder.

A. C., a young man of 19, was referred to me by Dr. Walter A. Bastedo as afflicted with obsessive ideas and multiple tics, which disorders had so progressed during the past two years that his relatives had despaired of his ever recovering from them and desired his admission to some institution for custodial care. The father, who died at 53 years of age, when the boy was 11 years old, was a robust, apparently normal individual, being a foreman in a large New England factory; he never suffered from any mental peculiarity of manner or conduct. He was twice married, and by the first wife he had five children—three girls and two boys; all normal, healthy, and still living. Our patient is the only child of the second marriage; his mother has dypsomania, which really developed before her marriage with the patient's father. Aside from this defect, which several members of the mother's own

family also possessed, in consequence of which, or at least following her alcoholic habits she had a lessened sense of responsibility regarding the welfare of our patient whom she never cared for, the history was negative. A half-brother and sister have looked after our patient since the father's death, eight years ago. The personal history as regards the physical development of our patient was entirely negative. On the other hand the mental growth was peculiar. His older half-sister states that he never seemed "just right" from birth. He never grasped things as other boys did. He was very defective in learning some things and was very bright in others. He was very good in spelling, literature, English and history, but very poor in mathematics. His nervousness and oddities of manner and conduct steadily grew on him in spite of a persistent schooling and good associations. The peculiarities of manner and conduct may be seen to greater advantage in the following personality study which was obtained from the patient and his older half-sister, and is therefore a composite summary of their united assistance at several examinations.

*Personality Study.*—The young man is now about two years backward in normal education for one of his age. He has good powers of observation and is able to describe accurately what he sees or hears. He has always been deliberate in his judgment, slow in making up his mind, and has always been afflicted with a sense of inadequacy and doubt as to his ability. He has always been imaginative in fanciful day dreaming, but has little constructive imagination. For instance, several years ago he wrote a book on what he should like to do with his life, but while the things he set down to do were rationally possible for a clever, resourceful man, they were for the most part entirely beyond the patient's ability of attainment. Among other things he was to conduct a large realty concern in the city, and he was to be the general manager of it all. Again, he planned to be a builder or architect, to lay out whole cities, etc.; the patient being possessed of a slight ability to draw, this no doubt provoked some of these fancies. He plans ahead in an equally fantastic manner, but seems never to have been able to mold circumstances to win any of his goals. Even in a small way, among home surroundings and with boyish associates, he was never able to handle unusual situations, nor was he very practical in handling tools; he always got things "fussed up" even in handling nursery toys. He was rather plucky in carrying out things when they were once fully inaugurated, although he was much hampered at any new adaptation not initially planned and provided for. His nervousness, the feelings of inadequacy and doubt once overcome, he got on fairly well in routine duties. He was always very lively and nervously energetic and overactive in play. He was always more or less aware of his peculiarities and has always been rather depressed that he could not do the things he planned as other boys of his age did. He has never been self-reliant and has always leaned on someone for direction, first his father, then his half brothers and sisters. Notwithstanding this fact, he has his own opinions and doesn't depend upon the approbation of others for making or retaining them. Below the surface his egotism is rather strong and dominant, especially when he is greatly provoked or out of temper with anyone who opposes him. He has always been indifferent to dress. (At the early consultations he wore an ill fitting soiled collar and a tie much worn, spotted with stains and carelessly tied; his clothes were unkempt and much disarrayed; his hair was tousled, and he sat in a negligent attitude, although apparently with no disrespectful intent.) He has always been very sincere in his studies, work at home, and in boyish sports. He is always honest and strictly truthful. While he makes much of his nervousness he is never inclined to pity himself nor does he court sympathy. He was always afraid and shy of meeting or talking with strangers as a child, and used to hide himself behind his father when on the street, or ask to be taken up; this continued until he was eight or ten years of age.

He has always been very affectionate toward his father, and seems never to have considered his mother in any way at all; he never voluntarily mentions her, and when she is mentioned he speaks scantily of her. He often said he wished he had the half brothers and sisters' mother for his own, and reproaches his own mother for practically abandoning him to his fate. He has always liked to be with older people, although he seems aware, on the whole, that he may be in their presence only on sufferance and not as an equal; his nervousness is less marked at such times, and their influence is a quieting and soothing one rather than stimulating. He never voluntarily engages his elders in conversation, nor does he elaborate his replies to their questions. When alone, which he is not averse to being, he reads, draws, or day-dreams, as the fancy strikes him. He is fondest of walking by himself, when he builds castles in the air and romances in a peculiarly childish manner. He thus builds or recreates the world and does all sorts of autistic thinking, and at such times he possesses a mythical power of an all-powerful and benevolent God. Of late he has shown more ability to mix with other people, is submissive, and rather constrained in manner, proffering little in the way of ideas or confidences. He prefers younger boys as associates, as he feels more at ease with them, or he selects boys much older than himself for the same reason. He never played freely and naturally with other children, as he was afraid he would not play the game correctly and the boys would make fun of him, which they not infrequently did. He felt a lack of friendly and sympathetic contact with the boy group and was particularly ill at ease with rough boys. Although he makes friends slowly he has a few with whom he feels he is on a footing of equality. This latter feeling tone has, however, been slow in developing, and has taken place within the last year for the most part. He has always been generous and rather overtrustful in friendly confidences. On the whole he is keen in seeing slights where plainly none are intended. He has always been stubborn and inclined to want his own way, although he can be guided a little through his affections. While he is hypersensitive and lacking in tact, he is not offensive or quarrelsome. He has a good deal of common sense in the little affairs of life, but is only superficially satisfied with his surroundings. Of late the patient has grown to keeping to his own council as regards his nervousness, but is very anxious to be relieved of his disorders. Sometimes he is frank about his worries, but is steadily becoming more reticent. He has always been over-conscientious and very religious, usually adhering in a childish literal way to the text of biblical teaching and the dicta of the Catholic Church, to which religion he is much devoted. He has always been rather tender-minded and all his teachers were much amused at his naivete of manner in school work. He is often blocked in activities by various scruples, religious and social customs, which are often raised to an obsessive level of prohibition of whole series of everyday activities. He is very free in his criticism of the behavior of society whenever he thinks it does not square its acts with literal religious standards of conduct and morality. He doesn't, of course, square *himself* to such definite exactions. He has always been slow in mental as well as physical action; it has seemed as though he were checked or blocked by not knowing just how to study or apply himself to any task slightly different from those he has known how to do well. He has never subordinated or automatically adjusted himself to many of the everyday activities, and takes an unusually long time to dress and undress, to eat, and to make decisions which are perfectly simple to most boys of eight or ten years of age.

He is unusually submissive in his friendships, and is very imitative and suggestible to any friendly individual. He is readily taken in by any designing person and has devoted much of his spare time of late in corresponding with catch-penny "ads" in papers and magazines. The last one to engross his attention was a lengthy correspondence with a distant school which promised to teach newspaper and magazine illustrating to anyone in a few weeks. He is not able to keep his spending money long on account of the tempting appeal of the display "ad" promises. In this connection it must be said that personal adornment "ads" concern him little. On the whole, the general mood is one of well being and contentment, with an optimistic outlook in spite of momentary depressions concerning his nervous disorder. The latter make him miserable chiefly at night when he must shift for himself until the next morning and its bringing of companionship with his sister and near friends. He is habitually sober in appearance and facial expression, but can take a joke, although never known to tell one of his own accord. He likes to sing and has a very good voice, but the songs he likes are largely of a somber religious character, often out of keeping with the company he affects. To him the world seems rather serious and tragic, beset with uncertainties for one of his limitations. A certain amount of tedium vitæ has been

present for several years; a *grubelsucht* dates from earliest life (8 or 10 years). His reactions to good and bad news are not especially marked, and sad news never destroys his appetite, cause loss of sleep or emotional outbursts. He is rarely elated, and at such times he may talk rather freely without much show of enthusiasm; it is all over in a few minutes and he quickly resumes his usual quiet, rather perplexed and mildly apprehensive attitude toward friends and strangers alike (seen in the intelligence and look of dumb animals). As he has become older and is forced to rely more on himself he worries more in a fussy way. For instance, when he was to go to a sanatorium in the country last summer for a few weeks' stay during the hot weather, he was opposed to the idea, and worried continually about it, and dreamed about the parting from friends and the unpleasant prospect; but when he actually got there he quickly grew to like it, and this autumn was greatly worried and "fussed up" when he was taken away from it. Real troubles, such as the greatest one, his father's death, did profoundly depress him; he wanted to die and didn't eat or sleep well for several days. He was very emotional at the time. Even ordinary worries seem to strike rather deeply at times, such as meeting his sister or brother at a certain time and place, and on these occasions he gets much upset and all his habits, tics and phobias become marked and extreme. None of these worries last long, however, when once the situation is met or past.

There is no daily or seasoned periodicity in his state of nervousness; it is quite constant except when exaggerated by new adaptations to rather simple situations of living. Although he is not easily frightened, sudden noises affect him profoundly, especially thunder showers and rock blasting in his neighborhood. He used to dwell much on disasters, and believed the San Francisco earthquake and fire happened because the people were so bad; said God had sent a judgment upon them, etc. While he is usually of an even disposition, he is quick tempered at personal slights or fancied ones. If he thinks his company is not wanted he gets very angry, but soon gets over it. He holds grudges for a long time and never makes any amends for mistakes. If handled carefully and talked to in a simple, childish manner he may overlook the fancied slights, but it seems doubtful whether he ever really forgives injuries. For instance, his brother's wife once offended him in making a tactless, though playful remark about his dress. He became enraged, and though he quieted down in a few moments he has never treated her with friendliness since. He said: "Although she has been very nice to me on many occasions and we usually hit it off well, I think of the old remark and hate her more than ever." He has never had any love affairs or fancies, which will seem the less strange when we learn the inner history for this. The patient resembles his mother's people closely in physical and mental make-up. He is much like her, in temperament especially. He was practically brought up by his father. He was always with him when practicable. He is little interested in girls and has never willingly sought their company. In his words: "I can stand them in a mixed company."

Aside from the close attachment to the father, the patient had no strong feelings of friendship or affections for any other person in or outside the family. At fourteen he was led into the habit of masturbation by an elder boy associate; at sixteen he learned the harm of the practice and sought ineffectually to stop it by prayer, cold baths, etc. He never had much sexual curiosity, but gave the whole matter much concern two years ago. It really dates from the latter part of the sixteenth year when he strove to break off the masturbation. The seminal emissions at night are never attended by dream fancies of women. His questions and answers on sexual matters are about those found in the average boy of twelve or fourteen years of age.

To summarize the character-study given, we have here a young man of 19, who was a shy and diffident child, not able to make a broad friendly contact with reality and the social world about him. In the absence of this normal condition he became more constrained and illy adapted throughout early adolescence. As a compensation he grew more shut in, constrained in conduct, and developed a lopsided character. All these characteristics intensified his feelings of inadequacy being blocked by doubts and religious scruples. The sublimation of the dislike and indifference instinct (hate complex) was not overcome by any real push of friendliness and sympathy largely because of the sole and intensive affection for the father. In all, we have a somewhat prolonged detailed description of mental infantilism, whose lack of emotional frankness and development has retarded intellectual advancement and altogether illy adapted the young man for proper everyday life.

Having thus outlined the peculiar but none the less characteristic type of personality-subsoil, we may now build in the details of the tics and obsessions which constitute the so-called disease, but which will be shown really as types of movements and ideas that serve as deeper wishes and longings of the inner life of our patient. In the order of their occurrence the habit movements, tics, and obsessions are as follows:

1. Biting of finger nails following finger sucking.
2. Grimacing tic, involving the whole face.
3. A genuflexion tic.
4. Sighing tic.
5. Laryngeal, clicking tic.
6. Autoecholalia,* which finally ended in (7) an exclamatory tic, "Huh! huh!" a so-called assenting tic.
8. Tousling the forelock of hair, which ended in (9) the finger tic of tousling imaginary hair.
10. Picking the finger nails, which succeeded the cessation of biting the nails.
11. Picking the face, which resulted in a profuse and suppurative acne over the entire face.
12. The ablution tic, wringing the hands and washing the face.
13. Panics and fears that he was to faint, lose his mind, meet with an accident or be killed, or that he is to die.

To some extent one habit movement or tic overlaps the others. At the present time he has eight of these habits and tics. On some days three or four are present only, but on others, when to him great adaptations are called for, they all appear and make the patient's life truly miserable. By glancing at the list it will be seen that the symptoms group themselves largely into those of the face and hands. Without entering into any elaborate argument or explanation, it can be readily seen by anyone who has followed the text of the previous papers that the tics of twiddling the fingers readily goes back to the habit of tousling the hair. The school teacher broke this hair habit, and the finger twiddling tic immediately succeeded. The finger-picking is the result of a failure to bite the nails, which latter habit one of his half-sisters stopped. Before he entirely ceased biting the nails his fingers, in seeking to get to the forbidden goal of the mouth, wandered over the face and reversed the object from nails being bitten to the fingers picking (biting) the face. The laryngeal and grunting tic are the results of trying to inhibit the autoecholalia.

The genuflexion was traced by analysis as a propitiatory act of obeisance as a defense against masturbation as the patient tried to break himself of the habit at sixteen years of age. The ablution tic or habit was traced to the same source. Thus we have the grimacing habit, the echolalia, and the panics and fears of later life to account for. The grimacing tic is the very earliest one and we shall now take up something of the patient's infantile life to note what significance this really had.

The patient's first recollections are of his father's good nature and cheery manner; the father rocked and sang him to sleep, and when the boy was nearly asleep the father carried him to the boy's own room and put him to bed in the dark. He remembers "shutting out the dark by closing the eyes very tight and grimacing at the same time; he made a wry face at the dark"; in this manner he was in part able to soothe his fears of being left alone or parted from the father. He often cried until the father came back with a lamp and sat with him until he fell asleep again. Often the father stole quietly from the room, but the lamp (as a sort of symbol of the father) was permitted to remain in his sleeping room until he was a boy of eight or ten years of age.

For many years all dark rooms made him think of death and separation from the father. At such times he grimaced and shut his eyes tight, and then he seemed near his father. Even when no longer afraid of being alone in his bedroom, forcible closure of the eyes enabled him to shut out reality and make fanciful dreams of being out on larks with the father. The dark meant

*This term is employed to indicate the patient's repetition of some or all of the words in a declamatory statement. An illustration of this peculiar obsessive habit of speech is detailed later in the text.

burglars, violence, his death, and separation from the father. The father also tousled his hair on coming in from the mills and even playfully pulled his forelock until the boy's howls were silenced by renewed caresses.

The young man never had the panics and fears until the father's death. They began soon after. First they came on in the dream; in such the father came back and it seemed as though he had never been ill; then he came in dreams as though he were ill, but recovering; then he returned, was ill, and died; then he returned, was ill, died, and the patient strove to follow him, with all the feelings of the panics and fears. All the dreams ended in a nightmare illy understood until the full drama of the final act in the dream was enacted and brought into the conscious life. Then the father dreams ceased.

He now dreams rarely of the father, but has panics and fears which are, in conscious symptoms, what the pursuits of the father image in death-dreams were. A free association of death brought out an exact description of his panics and fears. All difficult or new adaptations bring on the panics, such as going away from home, meeting strangers or going to little social gatherings. He always had panics when coming to the physician for treatment until the transference took place; now they never appear, and in point of fact the physician image made by closing the eyes and grimacing (voluntary) exorcises the panics. We now can understand that the grimacing and eye tic were expressions of closing out unpleasant everyday reality, and served as a means for getting into closer relation with the father in spirit and probably have even more autepleasurable satisfactions with much deeper meaning which are still to be laid bare. We find the panics and fears are really wish death-symptoms and are used by the unconscious mind to gain the wish of death (often wished and prayed for by the patient) and a reunion with the father—not unlike the apoplexy phantasie of Miss C., detailed in my second paper.

The autoecholalia is still easier to interpret. Inasmuch as the patient has always had doubt and uncertainty of doing and saying the proper thing, he contracted the habit of repeating aloud the essentials of the sentence, the headlines of the idea, as it were, and in this manner he relieved and quieted the doubt and feelings of inadequacy. Much the same was shown later in his underscoring and repeating certain phrases and even ideas in his writing. In the process of inhibiting this disagreeable repeating of words, he first stopped repeating whole sentences, then single words, and now the phenomenon amounts to but a beginning of speech, a sort of exclamatory speech, the former intellectual act has been almost inhibited, but there still remains the semivoluntary muscular larynx and diaphragm contractions. Here we have the complete conversion of a psychic process into a physical act or tic. It has completely lost its former mental meaning.

One sees here in this young ticeur how the doubt mania has widely overflowed its original channel of love for people and gradually extended itself to inanimate things and even abstract virtues of religious tenets. In point of fact, the doubt has become all-pervasive in the whole mental field although as yet it is not very fixed or deep. While one may rightly surmise that there are many surface indications to show the possibility that the ticeur is either physically or mentally homosexual, or both, my cases are not yet sufficiently clear for me to bring forward facts to substantiate this trend. While I have hastily sketched the tic symptoms of this third case study, laying greatest stress upon the defective personality subsoil, the mental infantilism, I trust the genesis of the tic mechanism is sufficiently outlined for one to follow the general theory of development of spasm as we have endeavored to lay down, and that the whole thesis shows the enormous importance of treating all nonorganic tics as forms of the obsessive neurosis. In spite of the tedious length of the three papers, I trust I have made it plain that we must look upon the tic disorder in no other light than a psychoneurosis.

A final word as to the effects of treatment: The young man has, in the opinion of strangers, doubly widened his contact with real life of physical work, play, and study. He has taken up carpentry at an apprentice school; he is punctual, neat, and orderly in routine life. He has ceased being engrossed in the futile efforts to become rich or great quickly by answering ads. He has gained in weight; his face is nearly healed from the disfiguring acne. In short, his physical and mental restlessness, habit movements, tics and obsessions are about half as frequent as at the beginning of treatment four months ago. A few years ago the same degree of progress would have taken two or three times as long by medicopedagogic or inhibition gymnastic training. I shall take occasion to make report on all these cases at the end of a year's treatment.

At the termination of this third paper on tics, the author desires to acknowledge freely his indebtedness to Prof. Freud for his clear and precise analyses of the obsessive neuroses, and the author hopes he has proven that the tic disorders are a part of the general obsessive neurosis as laid down by Freud.

## REFERENCES.

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The following abstracts, which form the more important part of the discussion of the three papers upon tic disorders, are appended herewith as supplemental criticisms of the theory and its exposition as brought forward in the general text.

Dr. FOSTER KENNEDY said the attitude of neurologists toward many forms of abnormal movement has marvelously altered inside a very short period. The generation which laid the foundations of neurology was concerned chiefly with organic problems, and many of the phenomena investigated were proven to be dependent on gross structural change. This success resulted in the formation of purely organic hypotheses being constructed to explain many facts superficially similar, but in truth intrinsically different. This applied notably to the great group of the tics, which from the time of their first recognition to the present were explained by a score of theories, the basis of most being—nebulously—cortical irritation. Such conceptions naturally led to the application of organic therapeutics, and all of us have seen operations carried out on cases of torticollis and manual tics, with a success often inversely proportional to the severity of the surgical procedures. A complete swing of the pendulum then resulted in the production of a school of medical thought which regarded the psyche entirely apart from the soma, and while the speaker believed that facts would not justify the adoption of such a sweeping attitude, the Viennese School had succeeded in showing the value to diagnosis and treatment of personality studies when added to physical investigation. The personality study by itself was of the utmost importance in unraveling the mechanism of production of many of the neuroses and notably many of the tics, but it did not altogether answer the question: why a particular neurosis should occur in a given individual and not in another individual who has suffered perhaps precisely simiar psychic traumata. For example, Dr. Clark in his account of his last case had most exquisitely shown the various emotional trends which had had their outlet and satisfaction in various abnormal movements, but the speaker would like to ask Dr. Clark if the mother's dipsomania might not have produced in the embryo such changes as would result in an unstable and inferior nervous system in the patient. An innately suitable soil for the production and especially for the growth of a neurosis must be invariably required. There must be an inferior something behind the mere

superficial psychological mechanisms of a neurosis—possibly chemical, secretional, or germ-plasmic in character. However, until in good time we learned to recognize the ultimate factors which went to *differentiate* personalities, we must busy ourselves with trying to *understand* personalities, the deeper springs of which are, as we have seen to-night, often marvelously hidden; as one of the first fruits of such studies we have emerged from darkness to at least an early dawn in our attitude toward torticollis and allied states, and we have to thank Dr. Clark for his large share in leadership in this exodus. Apropos of the modern conception of the immediate etiological factors of torticollis, Dr. Kennedy mentioned the case of a man aged 58, a ship's carpenter in the English Navy, the greater part of whose working life had been spent in cramped quarters watching the movements of a lathe which necessitated a side-to-side movement of his head chiefly to the right. He left the service at the age of 50 and beyond the fact that he was a somewhat nervous, easily excitable individual, he looked on himself as being quite healthy. He settled with his family on a small farm in England. A few years later he saw his son drowned in the river flowing past his land. That night he began to have rhythmical movements of the head so that he was compelled to look toward the right shoulder. These increased in severity and constancy and no ultimate improvement ensued from extensive nerve and muscle resections. This case was seen before the speaker was at all familiar with the newer methods of investigating or explaining such cases, but it has since come to his mind that the movement subconsciously maintained might have been a symbol of the man's desire that he had never left his previous occupation and so had never rented his little farm, all of which events had led up to the death of his son. The resuscitation of the head movements necessary for his old trade acted as a partial fulfilment of his wish that time and circumstance for him had stopped.

Another case was that of a woman aged 42 who since the age of 17 years had had a severe and constant dragging movement of the head to the left, the chin being markedly lowered to the left clavicle. During five years she had received at the hands of innumerable physicians and surgeons every known treatment without any good results having been obtained. She was the only daughter of strait-laced New England parents, with both of whom she is still compelled to live. She had been passionately devoted to her violin and at the age of 16 years created consternation in the minds of her family by announcing her desire to adopt music as a professional career. The result of her attitude was that not only were hopes of the concert platform denied to her, but she was compelled by family fiat to abandon musical study. She became depressed, secluded, brooding, and moody, and within six months from the date of the pronunciamento began to develop the tic described above. It was precisely the head movement necessary for the holding of the instrument now denied to her; we learn that during her depression her real existence was a dream fantasy of musical triumphs, and there can be no doubt of the importance of the part played by her tic in the symbolical realization of her wishes. Undoubtedly both these cases were inherently unstable nervously in many ways not connected with their torticollic states, but a timely appreciation of the mental mechanisms underlying their movements would certainly have prevented much injudicious treatment and might with fair probability have aborted entirely the disease.

Dr. James J. Putnam of Boston said: Every neurologist must have been long aware that, although the so-called tics, even those of the type of torticollis, have sometimes a physical basis, at least to the extent that they can occasionally be helped by treatment directed to the nerves and muscles, and by persistent training, yet this statement of the etiology by no means covers the entire ground. The subject of the mental etiology may, it seems to me, be approached from at least three sides.

1. In the first place we have the important evidence for this view brought forward by such men as Brissaud, Charcot, and Meige, to which attention has abundantly been called.

2. In the next place, each of us has probably had a certain amount of experience bearing out this view. Cases of Huntington's chorea are here in point, and so, also, even if we confine ourselves to torticollis, are cases like the following. I have in mind a lady of about thirty-five, previously of splendid health, and of fine character and courage, who, after the illness and death of her husband (which had brought with them severe trials and the necessity for great self-control) found herself obliged to fit herself for business responsibilities so large that the thought of them might have made many a strong man hesitate. After a year of training, in which she was obliged to keep silent as to her plans, she succeeded in getting on her feet, and then began to be attacked by the series of tics that have pursued her ever since. These began with closure of the eyes, attended by rapid movements of the lids, such as one might see in cases of hysteria of the conversion type. After a considerable time this condition wholly passed away, the recovery being as much without obvious cause as the onset had been. Then she began to suffer from a sort of tic of the lower facial muscles and tongue, and at about the same time, or a little earlier, with a torticollis which corresponded quite closely in its behavior to the mental "type" of the French writers. I did not see her until the disorder had become chronic, and she declined the psychoanalytic treatment which I offered, but accepted other measures that were suggested, and followed them up with great fidelity. It was quite interesting to note, as illustrative of the principle of "transference" (that is, of personal influence) that with each new person and each new treatment there would be an improvement for a time, followed, however, by relapse.

3. Much information can be gained, I think, by enlarging the basis of these disorders through recognizing the similarity and analogy between them and a variety of others. Dr. Clark has, of course, insisted on this point. The nervous habits of the limbs and stammering are instances in point, and so, I think, are many conditions which ordinarily pass for normal. No one has yet tried, so far as I am aware, to go deeply into the psychonalaysis of expression, for the sake of inquiring, for example, why it is that we laugh and cry, etc. The explanations offered by Darwin and the "physiological overflow" explanations are, of course, of great value, but besides this there are obviously emotional causes which are in need of further study. These are circumstances under which even morbid silence and rigidity of expression may be as significant in this respect as are the bent-over attitudes or the open-arm attitudes expressive of well-known emotional states.

Another group of cases which has interested me very much is that very large one where patients and even so-called normal persons, instead of expressing emotional states by movements and in that way finding, as Dr. Clark has pointed out, a sort of outlet for thoughts too deep for words, seek a similar relief through the encouragement of visual phenomena. Thus, many, perhaps most persons, but especially neurotic patients, instinctively seek a relief from nervous tension by combining objects which they see, such as figures on the carpet, on window shades, or wallpapers, or larger objects in the street, or in the room, in geometric patterns, triangles, squares, etc., as if longing to find something fixed and stable for which to exchange their sentiments of instability and doubt. The subject could be almost indefinitely extended, and should then include, among other phenomena, the compulsion to seek relief from nervous tension by constant eating, so well described a few years since by Janet.

Dr. Clark, in closing the discussion, said he believed that there were types of temperament back of the precocious emotions in the infantile life of ticeurs and the other obsessive neuroses and that the disturbance of the ambivaliancy of equality of emotional attachment to each parent was due in greater part to the inheritance of a certain type of temperament which because of its strong determination to the hate polarity made one think that it was really atavistic in component. It would seem to be a predominant trait that many such individuals inherited which was fortunately eliminated in most individuals. While the whole conception of the tics as laid down by him might be somewhat differently formulated in the future, he was confident the essential foundation of the concept would remain.

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Case of Cerebellar Ataxia.—F. E. Batten reports the case of a girl, aged 5 years, who was quite well till the age of 2½, when she had an acute illness; since that time she has been unable to walk steadily. She now presents the typical picture of a cerebellar ataxia—slow articulation, hypotonia of limbs, no nystagmus, etc. Normal reflexes. When walking she has a tendency to go to the left. She is quite intelligent.—*Proceedings of the Royal Society of Medicine.*

# DETERMINATION OF THE BLOOD PRESSURE AS AN AID TO DIAGNOSIS AND PROGNOSIS IN CERTAIN DISEASES.*

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It will be recalled that the blood in the human body travels in a circle, and that the time for the complete circuit of the blood to be made in man is about 23 seconds. Approximately speaking, the heart works one-half of the time, and rests the other half. The blood is driven out of the heart into the arteries in distinct pulsations, the arterial walls being stretched at every systole of the heart. During diastole or resting stage of the heart, the elastic recoil of the arterial walls drives the blood forward into the arteries, giving rise to the "pulse," and onward into the capillaries, and this elasticity of the arterial walls spares the heart a great deal of work.[1] The heart of an ordinary sized man does as much work in 24 hours as would be required to lift his body 1,248 yards into the air. The "strenuous life," excessive use of alcohol, and overeating are three of the principal causes of arteriosclerosis met with so frequently at the present day.

The Sphygmomanometer: To determine the blood pressure in man, the sphygmomanometer is now employed. All of the readings (systolic, diastolic, and pulse pressure) of this instrument are determined in terms of millimeters of mercury, or its equivalent when mercury is not employed. The fluctuations of the needle on the dial of a metal sphygmomanometer, are based upon the fluctuations of a column of mercury, placed in a glass tube, or scale. The purpose of the sphygmomanometer is to determine the actual work or force, or propelling power of the heart itself as well as to determine the actual amount or degree of pressure exerted by the blood upon the arterial walls as the blood flows along within the arteries.

Warfield[2] defines blood pressure as being "that force which the contraction of the left ventricle of the heart exerts in propelling onward the column of blood." Faught defines blood pressure "as the term employed to indicate the degree of pressure under which the blood exists while traversing the arteries." High blood pressure does not depend alone upon the work of the heart, since in myocardial degeneration or heart weakness the blood pressure may be actually raised, in this case the blood vessels themselves being overfilled. An increase in the pulse rate does not necessarily increase blood pressure in any condition. Normally blood pressure depends upon (1) the force of the heart and the amount of blood pumped out into the arteries, (2) the resistance in the arteries, (3) the degree of elasticity of the arteries, (4) the volume of blood, and (5) the viscosity of the blood. (Faught.)

A Complete Test for Blood Pressure.—In studying blood pressure, a complete test consists in determining four things: (1) The maximal or systolic blood pressure; (2) the minimal or diastolic blood pressure; (3) the mean blood pressure, and (4) the pulse pressure (range or amplitude). The "mean blood pressure" represents the sum of the systolic and diastolic pressure divided by two. That is to say, if the systolic pressure is 130 and the diastolic 100 the mean blood pressure would be 115 mm. of mercury. The "pulse pressure" (range or amplitude) is determined by subtracting the diastolic pressure from the systolic pressure. Therefore, if the systolic pressure is 140 and the diastolic pressure is 115, the pulse pressure, range or amplitude will be 25 mm. of mercury. In the healthy man from the age of 25 to 50 years, the normal systolic blood pressure has been placed at 105 to 145 mm. of mercury, and the diastolic blood pressure at 25 to 50 mm. of mercury less than the systolic. In my opinion the minimum systolic pressure should more properly be about 100 mm. instead of 105 mm. for adult men. The pulse pressure, range or amplitude varies from 25 to 50 mm. of mercury. In advanced age, such as above 60 or 70 years, a systolic pressure of 160 mm. might be obtained, but this amount of pressure would be considered pathologic in a much younger person. It has been said that a systolic pressure above 150 mm. or below 100 mm. and a pulse pressure above 50 mm. or below 20 mm. of mercury in the adult might be regarded as being pathological. Whether this maximum and minimum figure will hold true remains to be proven. The blood pressure in women is about 10 mm. of mercury, less than for men. Cowing[3] gives the following table for systolic pressure:

Children from 10 to 17 years, 85 to 110 mm. mercury; 18 to 40 years, 121 to 130 mm.; 40 to 50 years, 130 to 135 mm.; 50 to 60 years, 135 to 145 mm.

To remember what the normal systolic blood pressure should be at any age, Faught has formulated the following rule: "Consider the normal average systolic pressure of a male person at 20 years of age to be 120 mm. mercury, then add 1 mm. to every two years of life. The systolic pressure in a person aged 30 years would be 125 mm. and at 60 years would be 140 mm. For females the pressure would be approximately 10 mm. less than for males." The maximum systolic blood pressure being about 145 mm., the young business man or professional man leading the "strenuous life" and having a blood pressure of 145 mm., or with a pulse pressure of 45 or 50 mm., should receive a word of warning, and in which case the blood pressure should frequently be taken. The pulse pressure (range or amplitude) is of much importance in the study of cardiac muscular inefficiency (myocardial degeneration) and valvular diseases of the heart, and especially regarding the prognosis of such conditions. In these instances an exceedingly high, or an exceedingly low pulse pressure, portends evil.

A temporary or transient rise in the blood pressure—either systolic or diastolic might not necessarily indicate disease, but when the blood pressure is *constantly higher* than normal the condition is regarded as being pathologic.

For this reason to obtain accurate results with the sphygmomanometer the systolic and diastolic blood pressure should be taken more than one time, and on different days, and at the same relative time of day, and under the same conditions. A slight variation occurs from day to day in the blood pressure in any individual case, but this maximum should not, as a rule, be above 10 to 15 mm. of mercury. Hypertension means the alteration in which the blood pressure remains constantly above the normal, and hypotension when the blood pressure remains constantly below the normal.

*Read by invitation before the Dallas County Medical Society, Dallas, Texas, December 15, 1913.

Method of Taking the Blood Pressure.—Blood pressure readings are now obtained from pulsations of the brachial artery just above the bend of the elbow. The arm should be bare and the left arm selected. The standard cuff to encircle the arm should have a compression surface of 4½ to 5 inches (11 to 13 cm.). If the cuff is narrow the readings will be apt to be higher. Before taking the blood pressure the patient should be requested to take a rest of 10 to 15 minutes. After doing so the left arm is bared and the patient allowed to be seated (if not too ill), with arm resting upon a table or desk, and the arm relaxed, being about on the same level with the heart. The cuff is then adjusted smoothly around the arm, and if made of silk the tip end left after rolling should be tucked under the folds. Care should be exercised to see that the rubber bag of the pad fits directly over the brachial artery. The systolic pressure in the standing position is 2 to 6 mm. higher than when sitting down and 6 to 10 mm. higher when standing than when lying down.

The systolic blood pressure should be taken first; then, working very quickly and carefully, the diastolic pressure should be taken. Prolonged pressure of the pad at times seems to change the pitch of tone of the artery and occasionally makes it almost inaudible. To obtain a check on the results obtained at the first reading about 5 or 10 minutes should elapse, and a second reading then made, taking the systolic pressure first. More correct results can be obtained as stated by taking the blood pressure on several successive days. The auscultation method of determining blood pressure is to be preferred to any other method. In listening for the sound of the brachial artery the bowl of the stethoscope should be placed directly in the center of the bend of the left elbow, below the pad, and, while the arm is relaxed and elbow bent at an angle of about 20 to 30 degrees. The arm should not be rigid.

Conditions Which Influence Blood Pressure.—As stated by Faught[4], the blood pressure is influenced normally by (1) age, being higher as old age advances (the saying "A man is as old as his arteries" is almost a truism); (2) sex, being higher in the male than in the female; (3) time of day, the blood pressure being slightly lower in the early morning hours than toward the afternoon or evening; (4) size and temperament, in highly nervous persons the blood pressure being high; (5) digestion, the blood pressure is believed to be slightly higher after meals; (6) muscular development (in the muscular person the blood pressure is believed to be some 5 to 10 mm. higher than in the weak person; (7) muscular exertion or exercise (exercise raises the blood pressure, and this rise might be sudden and sharp, amounting to 5 to 15 mm.); and (8) mental anxiety or fatigue; fatigue after prolonged exercise or exhaustion lowers the blood pressure. To these we may also add (9) position of the body, the blood pressure being lowest while lying down, somewhat higher in the sitting position, and highest of all while standing; (10) altitude, Faught being of the opinion that considerable reduction in the barometric pressure in a high altitude lowers the blood pressure of persons in health, but in the tuberculous the blood pressure is increased. Peters and Bullock in a study of 600 cases state that at an elevation of 6,000 feet the blood pressure is increased, and that in persons in health, and consumptives the blood pressure is higher at 6,000 feet than at the sea level. Prolonged stay in an altitude of 6,000 feet seems to increase the blood pressure up to certain limits; (11) bathing (water, either hot or cold, applied to the surface of the body has been found by most observers to cause at first a transient rise in blood pressure, soon followed by reduction in blood pressure. Hinsdale says: "Baths between 95° F. and 104° F. produce a preliminary rise; a secondary fall below normal, then a rise. Baths above 104° F. increase the blood pressure and slow the pulse rate, the pressure remaining high."

When the blood pressure is already too high (hypertension) the application of a sudden cold bath, such as a plunge into the sea, might become dangerous on account of the tendency to produce a rapid rise of blood pressure resulting in heart failure, or rupture of a blood vessel in the brain, causing apoplexy.

The Different Sounds Noted in the Brachial Pulse in the Change from the Systolic to Diastolic Phase.—Stone[5] describes the different tones or sounds heard over the brachial artery by means of a stethoscope after compression by the cuff as follows: first phase, a phase of clear tones which is soon replaced by the second phase; second phase, a phase of muffled tones with a series of murmurs; third phase, a phase of clear tones (the diastolic phase), which suddenly becomes markedly dull; fourth phase, a phase of dull tones; fifth phase, disappearance of all sounds. It has been shown by Fischer, Lang, and Manswetona (1908) and proven by Warfield (1912) that the diastolic blood pressure coincides with that point at which the *third phase of clear loud tones becomes suddenly and markedly dull.* Miller (1913) agrees with the view of Fischer and the other writers. The diastolic blood pressure, therefore should *not* be taken at the time of disappearance of all sounds of the brachial pulse (fifth phase), but only at the third phase of tones or where the clear loud tones suddenly become markedly dull.

How to Determine the Systolic or Maximal Blood Pressure with the Mercury Sphygmomanometer.—(Riva-Rocci-Cook's modification, Faught, Janeway, etc. The Riva-Rocci instrument must be provided with a rubber cuff covered with silk, see dimensions above).—In order to determine the systolic blood pressure, either one of two methods may be followed—namely: (1) The auscultation method, which is the one to be always preferred, or (2) the palpation method.

The Auscultation Method: The rubber cuff with silk covering is applied smoothly around the arm just above the bend of the elbow, the tip of the cuff being tucked underneath the folds of the silk band, and the rubber cuff is distended with air. As this is done the column of mercury is seen to gradually ascend in the glass tube or scale, due to the pressure of air in the rubber bag or cuff and pressure against the tissues below the cuff. The end of a Bowle's stethoscope is now pressed lightly in the center of the bend of elbow and directly over the brachial artery, or at that point (half inch below bend of elbow) where the brachial artery bifurcates into the radial and ulnar arteries, and the air is forced into the cuff until the pulse ceases to be heard, and so continued until the column of mercury is forced upward some 10 mm. above the point where no sound of the pulsating artery can be heard. The air in the cuff is now very carefully and slowly released (or through yielding of the

rubber tubes if, Riva-Rocci instrument) when the mercury column gradually descends until a loud sharp "thump" of the returning pulse is heard, and the precise mark on the scale where this first loud "thump" is heard marks the point of *systolic blood pressure.* If there is a high bifurcation of the brachial artery the bowl of stethoscope must be placed slightly above bend of elbow. If the sound of the brachial artery cannot be heard at either of these regions, the sound may sometimes be brought out more clearly by removing the cuff and swinging the arms around, as in taking calisthenic exercises. If the sound of artery is not brought out after this mild exercise the palpation method must be employed. In listening for the sound of brachial artery as previously mentioned the arm must be relaxed, and elbow bent at an angle of about 20 or 30 degrees.

The Palpation Method with the Mercury Sphygmomanometer.—After applying the rubber cuff above bend of elbow as described, place two fingers over the radial artery at the wrist. Air is then forced into the rubber cuff until the radial pulse can no longer be felt by the palpating fingers and by forcing more air into the cuff the column of mercury is forced about 10 mm. above the point where the pulse first becomes obliterated. The air in the cuff is now very gradually released (or until yielding of the rubber tubes if Riva-Rocci instrument is used), and the column of mercury is allowed to very slowly descend. At first the radial pulse will return very weak and thready, and that point where the first full and bounding pulse is felt marks the *systolic pressure.*

How to Determine the Diastolic or Minimal Blood Pressure with the Mercury Sphygmomanometer.—(Faught, Riva-Rocci—Cook's modification, Janeway, etc.) To determine the diastolic pressure with the mercury sphygmomanometer there are two methods: (1) The auscultation method, which is the one to be always preferred, and (2) the visible method (Riva-Rocci, with Cook's modfiication).

The Ascultation Method of Taking the Diastolic Blood Pressure.—Apply the cuff above the bend of the elbow as usual and listening at the sound of the brachial artery with stethoscope placed below the cuff take the systolic blood pressure. The air in the tube is now allowed to gradually escape (or through yielding of the rubber tubes if Riva-Rocci sphygmomanometer is used), when the column of mercury slowly descends until the loud, clear sound of the brachial artery *suddenly becomes markedly dull* (third phase of sounds), and the occurrence of this dull sound denotes the *diastolic blood pressure.*

(2) The Visible Method of Taking the Diastolic Blood Pressure with the Mercury Sphygmomanometer (Riva-Rocci—Cook's Modification.)—Take the systolic blood pressure and release the air in the cuff, or through yielding of the rubber tubing the mercury in the glass tube slowly descends, and bounding upward with each pulsation of the artery (the mercury rising and falling), and at that point where the movement up and down of the mercury in the glass scale suddenly becomes less, marks the point of *diastolic pressure,* the lowest point on scale or base of excursion of mercury being selected. This visible method I have confirmed by the auscultation method, and by the oscillation method with sphygmomanometers other than mercury.

The statement has meen made that it is an impossibility to take the diastolic blood pressure with a mercury sphygmomanometer for the reason that mercury requires 1½ seconds to recover itself, while in one second of time there will have been 1¼ heart impulses. But this objection I have found is doubtful.

On November 25, 1913, I made a comparison of the results obtained in two persons in health (and each 27 years of age) with the Tycos and Faught metal sphygmomanometers (oscillation method), and the visible method with the Riva-Rocci instrument with a wide silk cuff, as above described, and my results were as follows:

No. 1 (adult male).—Tycos—Systolic, 105 mm.; diastolic, 85 mm. Riva-Rocci—Systolic, 105 mm.; diastolic, 88 mm.; Faught—Systolic, 100 mm.; diastolic, 80 mm.

No. 2 (adult female).—Tycos—Systolic, 98 mm.; diastolic, 82 mm. Riva-Rocci—Systolic, 92 mm.; diastolic, 74 mm. Faught—Systolic, 88 mm.; diastolic, 68 mm.

A second test made with Riva-Rocci instrument gave in No. 1 systolic 104 and diastolic 80; a third reading with same instrument gave systolic 104 and diastolic 80 mm.

The Methods of Determining the Systolic Blood Pressure by Means of Sphygmomanometers, Other Than Those Using Mercury As An Indicator. (Tycos, Faught).—To determine the systolic pressure with such instruments there are two methods: (1) the auscultation method (which is the one to be preferred); (2) the palpation method.

The Auscultation Method.—The rubber bag or cuff is applied around the arm just above the bend of elbow as usual, and the end of a Bowle's stethoscope is placed below the cuff over brachial artery in median line at bend of elbow, and air is forced into the rubber bag or cuff until the pulsation in brachial artery can no longer be heard. Continue to force air into cuff until the needle on dial runs up about 10 mm. above the point where the sound of pulse becomes obliterated, and then gradually release the air in the cuff, and the needle descends on the scale until a loud "thump" of the returning pulse is heard, and the needle on the dial read at this moment, marks the *systolic pressure.*

Palpation Method.—Is the same, as when mercury sphygmomanometers are employed (see above-palpation method).

The Methods of Determining the Diastolic Blood Pressure by Means of Sphygmomanometers, Other Than Those Using Mercury As An Indicator. (Tycos, Faught).—To determine the diastolic pressure by such instruments there are two methods, namely: (1) auscultation method, and (2) the visible or oscillation method. The auscultation method (the method to be preferred).

After the cuff has been applied in the usual manner, place the end of a stethoscope below the cuff over the brachial artery at bend of elbow and take the systolic pressure, then gradually release the air in the cuff 3 to 5 millimeters at a time until the loud clear tone *suddenly* changes to a markedly *dull tone* (3d phase), and the lowest point of the excursion of the hand on the dial while oscillating marks the *diastolic blood pressure.* This reading must be made the instant the loud clear tone suddenly changes into a markedly dull tone. On November 24, 1913, I made a comparison of the results obtained by the auscultation method with the Tycos, Riva-Rocci (Cook's modification), and the Faught sphygmomanometers, in person No. 1 reported above, and the results were as follows:

Tycos, systolic, 102; Riva-Rocci, systolic, 106; Faught, systolic, 102; Tycos, diastolic, 84; Riva-Rocci, diastolic, 84; Faught, diastolic, 84.

The second reading made with Riva-Rocci was: systolic, 104; diastolic, 84 mm.

The Oscillation or Visible Method of Taking the Diastolic Blood Pressure with Faught or Tycos Sphygmomanometer.—Apply the cuff as usual and take the systolic pressure, in the manner described above, and when this has been determined, slowly release the air in the cuff 3 to 5 millimeters at a time, and at the lowest point of the greatest excursion of the needle on the dial taken when it is swinging at its greatest excursion (maximum oscillation) marks the *diastolic pressure*. (See results obtained by oscillation method with different kinds of sphygmomanometers.

The Importance of Taking the Diastolic Blood Pressure.—In view of recent investigations made it now appears that the determination of the diastolic and pulse pressures are of almost equal importance to the systolic pressure. According to Stone,[5] the systolic and pulse pressures represent myocardial values, while the diastolic pressure signifies arterial resistance. The pulse pressure alone represents the intermittent burden of pressure imposed on the arteries by the heart's energy during systole in order to force the blood onward to the periphery and maintain the circulation. The pulse pressure therefore represents that part of the heart's energy which produces distension in the arteries and recognized as the "pulse." As further stated by Stone, the pulse pressure shows the "load" and "overload" of the heart. If the systolic pressure would be 120 and the diastolic pressure 80, the pulse pressure or load of the heart would be 40 80 or 50 per cent, of the diastolic pressure. In 61 normal people Warfield found the average pulse pressure to be 40 mm. Stone regards the normal load of the heart to be 50 per cent. of the diastolic pressure. If the systolic pressure is found to be 170 mm. and the diastolic 100 this would be 70 minus 50 or an overload of 20 per cent. When the pulse pressure is over 50 per cent. of the diastolic pressure he considers the heart "overloaded" and there may be danger of myocardial exhaustion at any time from slight strain. The greater the overload the greater the danger. In myocardial fatigue if the pulse pressure falls to 15 to 20 mm. of mercury, he believes that actual circulatory embarrassment has already occurred. The danger from surgical operations in such cases is referred to by Stone who reports a case in which the systolic pressure was 145, the diastolic 75 mm., or a pulse pressure of 70 mm., or an overload of 25 per cent. In one instance the heart load was 93 per cent., or an overload of 43 per cent., and in this case an operation was performed, one lobe of the thyroid being removed, and the patient died five hours afterward, gas-oxygen anesthesia being used.

The Blood Pressure in Heart Disease.—It has been stated that the sphygmomanometer may show evidence of cardiac disease before the development of a murmur. In beginning myocardial degeneration (myocarditis) there may be an irregular rhythm of the heart and the blood pressure may be high in some cases, and Faught says this latter sign comes on earlier than any other condition noted. Very late in this affection the blood pressure falls. If the pulse pressure be over 50 per cent. of the diastolic pressure in myocardial degeneration failure of the heart may occur. As a further means of diagnosis of myocardial degeneration the Graupner and the Schapiro tests may be employed and as referred to by Faught. The Graupner test consists in having the patient while standing take mild exercise, such as bending over ten times and touching the floor with finger tips. In normal persons there should be a slight rise of blood pressure, but with a failing heart the blood pressure falls. This test might be dangerous in those patients who are much weakened, or in whom the systolic pressure is over 200 mm. The Schapiro test consists in comparing the number of pulse beats per minute while standing with the number while lying down. Faught says that normally the pulse rate while standing is 7 to 10 beats faster than when lying down. In the case of a failing heart the irregular pulse may be as fast in the recumbent position as the standing. In organic heart trouble when the compensation is good there may be no change in the normal blood pressure for the given individual, but if the pulse pressure should suddenly mount up to 50 or 60 mm. it might indicate an overloaded or failing heart with a warning of loss of compensation and make the prognosis more unfavorable. Faught says that in aortic regurgitation the blood pressure is unusually high and is accompanied by a low diastolic pressure giving rise to a high amplitude (pulse pressure) said to be quite characteristic of this condition. In mitral stenosis the blood pressure is low on account of the small volume of blood passing through the valves from left auricle into left ventricle. Disease of the mitral valves may show no change in the blood pressure. Valvular disease of the heart tends to myocardial degeneration. To determine whether or not a cardiac stimulant such as tincture of digitalis is producing the proper physiologic effect the blood pressure should be often obtained.

The Blood Pressure in Pregnancy.—During pregnancy the blood pressure should be frequently taken. In 100 nonpregnant women Hirst[6] found the normal pressure to be 112 mm. In another series of 100 pregnant women he found the systolic pressure 118 mm. up to the seventh month, when a gradual rise occurred until the last month of pregnancy at which time the systolic pressure averaged 124 mm. He found that one of the earliest and most constant signs of toxemia in the latter half of pregnancy was a constantly increasing high blood pressure, and this symptom preceded the occurrence of albuminuria in those cases in which eclamptic convulsions occurred.

The Blood Pressure in Life Insurance.—At the present time life insurance companies hesitate to accept a risk of the adult when the systolic pressure is over 150 mm., or under 95 to 100 mm. Fisher[7] found that in a series of 2,668 persons insured in which the systolic pressure had been 140 to 149 mm. there had been 31 actual deaths or 37 per cent. of the table. Of 782 persons declined for insurance in whom the systolic pressure was 171.03 mm. there were 32 actual deaths or 155.27 per cent. of the table. In taking the blood pressure for life insurance companies it would be always best to determine the diastolic as well as the systolic pressure. The most favorable time to take the blood pressure would be in the morning several hours after a meal, and after the applicant has taken a rest of 10 to 15 minutes.

The Blood Pressure in Surgery.—In abdominal surgery it has been suggested that if the systolic

pressure falls to a point below 100 mm. that the operation be stopped and salines used to prevent further shock. Shock during operation or hemorrhage after operation is manifested by a sudden fall in the blood pressure and increased pulse rate. During ether anesthesia if the blood pressure should fall suddenly and the pulse rate rise, one should look out for danger from further shock. Nitrous oxide causes a high rise in the blood pressure; ether, a moderate rise from the very beginning and continuing unless the heart begins to fail; chloroform produces a fall in the blood pressure from the very beginning of its administration to the end; nitrous oxide combined with oxygen produces no effect on the blood pressure, unless the operation is prolonged. It has been stated by Cowing[3] that cataract occurring after middle life is always indicative of arteriosclerosis and the blood pressure is high and Peter was of the opinion that intraocular hemorrhage after cataract extraction was due to the hypertension present. In glaucoma Cowing found the blood pressure high and seems to be of the opinion that hypertension might be a factor in the production of glaucoma.

The Blood Pressure in Bright's Disease.—In chronic interstitial nephritis the systolic pressure is persistently high (175 to 250 mm.) together with a low diastolic pressure, and these clinical signs found with the sphygmomanometer are said to be present even before the occurrence of albumin or tube casts in the urine. In parenchymatous nephritis the blood pressure does not seem to be so materially increased.

Janeway[8] says that in a study of 500 persons showing a systolic pressure of over 170 mm. seen by himself and father during eight years, 150 of these patients were known to have died. For 100 of these he obtained the cause of death and of these 100 cases 79 died of nephritis. In 220 cases of diabetes seen by Janeway 50 showed a high blood pressure, doubtless being due to the supervention of nephritis. In diabetes ordinarily the blood pressure is said to be reduced and often below 100 mm. Of 53 cases who died of different diseases and went to autopsy at the Massachusetts General Hospital, in which the systolic pressure was over 160 mm. Lee[9] reports that some kidney lesion was found in 38 cases or 71 per cent. All of the patients with persistent systolic pressure of over 200 mm. showed some kidney lesion. The results obtained by Lee were also confirmed by Miller.[10]

In my experience the sphygmomanometer is of great advantage as an aid to the diagnosis of Bright's disease, especially when there is no microscope at hand, for in this condition the blood pressure will generally be found above the normal. Of several patients who have come to me for treatment and who imagined they might be suffering from kidney trouble, my examinations showed that in nearly every instance, when the systolic pressure was normal I found no albumin or tube casts in the urine, while in other instances when the systolic pressure was over 175 mm., both albumin and tube casts were present. In one adult I found the systolic pressure 100 mm., and both hyalin and granular casts, but this low blood pressure was doubtless due to a late stage of myocardial degeneration death occurring soon afterward.

Until a few years ago the subject of blood pressure received only slight notice, but now since the findings determined by the sphygmomanometer have proved to be of such real merit that the more careful physician in his every day work might hesitate to risk a diagnosis, or prognosis in certain diseases unless his opinion has been first confirmed by the results obtained by this instrument.

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## THE TRAIL OF THE SERPENT.*

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ARISTOTLE said the most difficult thing for man to learn was to be secret and silent. Probably this accounts for the high esteem the serpent held in the minds of early man. No animal more quietly nor more gracefully carries itself over the ground, through the leaves, and away from danger. It is clean, slick, pleasing in curves, never obtrusive. Primitive man, given to deification, seeing in all life a symbol, a sign, or an indication, would naturally attribute to the snake the qualities which befitted the characteristics appreciated. In its gentle, quiet, sinuous movement was discovered subtlety. In its ability to quickly and easily pass from sight without evidence of haste or means of motion was seen wisdom. The casting off of its skin at intervals led to ideas of regeneration, immortality, and eternity. Some of the early sects deified it to such an extent that it was personified with qualities of kindness and virtue.

We find the serpent associated with three professions which held prominence with the people. It twines on the rod of Æsculapius. Whether the rod be a limb of a tree or phallyc expression, the serpent typifies wisdom, healing, and life. With the tripod of Delphus (the shrine of political prophecy), it indicates cunning and cleverness. At the shrine of Cassandra, whose prophecies brought trouble and foretold disaster, the serpent denotes subtlety.

Thus we see the snake associated with learning, wisdom, magic, cunning, religion, and deification. However, the belief in the serpent was not held by priests and soothsayers only, but it was evidently held largely by the people. The earliest treatment for disease discovered in writings in the tombs was an amulet made to represent a serpent.

For many hundreds of years medicine as practised and taught was amalgamated with the religions, philosophies, and magic of the day. This was not only because primitive man had so little else for mental entertainment, nor was it because man of that day was not as bright and intelligent and keen as in later periods, but because mankind himself tends naturally to religion, to the mysterious, and to that which appeals to the senses and is easily appreciated by ordinary mental processes.

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In the beginning of things pains and distresses were instinctively treated by each individual, undoubtedly very much as animals treat themselves to-day, and, with the community spirit, sympathies were aroused and endeavors made to relieve the complaints of others. As minds developed and experience increased, merely passive attention to body ailments was augmented by the use of such herbs as by their appearance appealed to the individual, or through chance usage happened to be associated with relief of symptoms. A large experience in the employment of roots, leaves, etc., must have been obtained, and with crude reasoning a correlation of effect noticed. The principal disorders in the life of primeval man undoubtedly were the result of gluttony or indiscretion of diet, and, as many herbs have an enemetic or cathartic effect, relief would follow.

Minds becoming more developed and reasoning powers enlarged, a natural delving into the cause of distresses ensued. Pains were brought about by the presence of the evil one. To be sick was to be possessed of the devil. This was the logic, therefore the remedy was to dispossess the body or the member of the presence of this unwelcome guest. All early therapy is suggestive of methods of attack and defense—the rubbing of the part was to rub out the devil that was in it, and the relief obtained seemed to prove the reasoning correct.

As time progressed, the treatment of disease fell to those who were the wiser ones of the day, and being largely speculative and associated with religious emotions, we find an amalgamation of religion and philosophy. Being poorly comprehended and leaning to the mystical in treatment, the magical was ascribed. So we see that the foundation of medicine was closely related to philosophy as well as to the magics, and things not understood were deemed supernatural. The knowledge pertaining to the healing art of that day was obtained through chance and empiricism.

The origin of civilization is believed to be in Mesopotamia. Our earliest records date back some four thousand years B. C. The life of the people there, their method of government, their social and political views, their incomplete knowledge, all tended to foster this composite of the several clubs; medicine, speculative philosophy, and the magical. Individualism, new thought, and development were suppressed. There was little tendency toward branching out. Beliefs were entirely connected with the senses. Things seen were connected with conditions felt. The onset of disease was ascribed to the state of the moon, to the position of the stars, or to the passing of birds. Natural occurrences led to fantastical reasoning. A special divinity or demon was ascribed as the cause of individual unexplainable conditions. Sickness was looked upon as a punishment for evil doing. Dreams were remembered and considered as the visitation of spirits portending good or evil. So in the medicine of those days, the visitation of the evil one was met by religious exercises. The mystical was treated with magic. All disease was mystical. All cure was magical. Therapy was to break natural laws rather than to aid Nature.

The cure by magic was the earliest known. Amulets were worn in order to pacify the evil one. Parts of other animals, teeth, claws, and paws were carried in order to turn away the evil one and protect one from illness. Superstitions were so great that a potent influence was supposed to be obtained through them. The same as to-day we see the horseshoe over the door, the scapula, the amber beads around the neck, the rabbit's foot, and the potato kept in the pocket to ward off rheumatism.

In the religious method of treatment we have sacrifices and fumigation to appeal to the ritualistic sense, and through these hundreds of years we find that man's nature is not satisfied except he unbend to this great tendency to ritualism, fumigating, burning, and destroying. Fasting and persecuting the body cleared the alimentary tract and satisfied religious thought, hence the present-day Lent. Blood-letting to allow the demon to come out; cupping to draw it from some particular region; massaging to drive it away—these are all religious ceremonies and were conventional in the early days and explained by the theologian.

Certain men were more clever than others. They believed in themselves. They believed in their treatment, and the more others believed in them the more satisfied they were in their conceit. These men withdrew from the society of others. Their minds became narrowed. They speculated in philosophy. They experimented in medicine. They held the populace by their mystical methods.

In course of time civilization and knowledge passed over into Greece. Here we find a different people and a different government. Instead of a monarchy we have an approach to a democracy. Instead of suppression of thought we find thought individualized. Instead of mystery we have broad culture. And here for the first time we find marked individual prominence, associated with gradual separation of the three fundamentals of medicine, philosophy, and practice.

Plato was the exponent of speculative philosophy; Socrates the exponent of applied philosophy. In Hippocrates we see that wonderful development of mind which occurs but rarely in the history of civilized man. Considering the knowledge of the day, his surroundings, the tremendous and overwhelming influence of existing conditions and the knowledge of medicine evinced by him, he seems the greatest man of all time. The big men of medicine through all history have been hippocratic. They were known as healers, but they were really students of symptoms. The work of Hippocrates is one grand illumination of the symptoms and signs of disease states. His philosophy is aphoristic and not speculative.

The impetus given to medical thought and medical growth dates back to ancient Greece. From this land of freedom and potent mentality medicine passed over to Egypt, where under conditions existing there another aspect of medicine developed—preventive medicine. The wonderful chapters on sanitation in the Bible undoubtedly had their origin in the laws of Egypt.

It is not to be believed, however, that medicine had entirely separated itself from its incubus of primitive times. The history of medicine is largely made up of the lives and doings of its prominent men. True medicine should be considered properly from the evolutionary standpoint and should be developed from the common beliefs and customs. It should be viewed from the outside, not from the professional side. It is not as we see ourselves or like to see ourselves, but as the public sees us that we should be judged. Medicine had not even then thrown off the shackles and become independent of magic or theosophy.

After the birth of Christ Rome enlarged. Communication with distant countries was opened up

and the philosophies carried abroad. Then came cross-fertilization of minds of different types, tendencies of various kinds, an dthe stimulation of several climates, but theology did not let go its hold. All the other philosophies were suppressed and medicine with them, and for a long period there was no great growth in medical thought or therapeutic action.

The Christian religion appealed to the senses as did no other. As in political life the rulers and those in power were desperate autocrats, selfishly excluding those of other opinions, so all previous religions had been those of fear and awe rather than of love and simple faith. The sage and the peasant were carried away with it, and for many centuries it occupied the minds at the expense of all other lines of learning. Theology grew wildly, as had medicine in the past. The controversies were fierce and concerned not only the mind but the body. Time was given up to the discussion of religious matters and beliefs and medicine and all the sciences were relegated to the background.

Growth of mental activities can be compared with the growth of the body. It must pass from infancy to adult productive life, and only at the end do we find the fruit, the result of vitality of roots and leaves. So, Christianity delivered the soul to a faith; the French Revolution delivered the body politic in hope; while the Renaissance made for intellectual charity for all. And in the Renaissance we come to the time when the tree of knowledge began to bear fruit—the period of criticism.

Versalius, in his pointed, accurate, and destructive attack on Galen, was the first physician to open up paths illuminating the science of medicine. From his time the history of medicine shows an increasing number of those who ceased to look upon disease condition as a morbid entity, chemical, physical, or supernatural, for even then there were prominent men who felt that after the fashion of Galen they could explain bodily discomforts and defects as simple obsessions, but their theories were quickly controverted, short-lived, and but steppingstones back to the truth. They were mainly relics of the old tendency—philosophical discussion rampant with wild logic or tinctured strongly with religious thought or attempt to explain everything by literal interpretations of the Bible.

In Sydenham we have another Hippocrates; a man of large mind, clear logic, keen observation, and an innate ability to dislodge the fetters of the past and appreciate the idleness of theory and the value of individual observation. Like all great men, he was ahead of his time. His contemporary, Boerhaave, with equal acumen, appreciated the position of Sydenham but saw the necessity of studying the ancients to comprehend their minds (placed as they were in semi-darkness) in order that a comparative study might give additional impetus to medical knowledge.

These three men were the saviours of medicine. Their great work, their prominence in the profession, the great change coming over all Europe, and the timeliness of their expositions placed medicine on the crest of a wave that carried it way beyond the dangers of speculation, religious autocracy, and the deductive meddlesomeness of magical superstition.

But how about the medicine of to-day? What are *our* faults? What will be said of us a hundred years hence? How will our history be written? Are we as placid in conceit and self-satisfaction as were the men of olden times? Are we swayed by the prominent thoughts of the day? Perhaps we are on the pendulum. Perhaps science in time may be considered as deleterious and perverting to true medicine as even the several frames of mind enunciated. Are we taking proper advantage of all that pertains to relief of body ills? Are we not still in the thrall of Galen?

A hundred years or more ago Hahnemann noted that certain drugs given in small doses produced an effect quite similar to the disease which it might cure, and instituted the doctrine of similars. Had he been satisfied with this truthful and simple observation homeopathy would have held its own, but, like most parents of single children, his mind wandered, he overestimated its importance, and his theorizing passed beyond the ground of fact and reason. He ascribed to medication dynamic spirits possessing power over disease states and by attenuation, rubbing, and shaking of solutions he claimed to be able to liberate the spirits so they might have a more positive effect.

This was in Germany, where the people were tired of blood-letting, purging, nauseous medicines, and coming to their own in other ways through the Reformation, and the homeopathic doctor soon became popular because he gave the same promise and his medicines were more pleasant. From then on this deistic medicine held sway not because of its theory, but because true medicine was altogether disagreeable. This is the beginning of the supremacy of the patient over the physician.

Schlatter, in this country, noting that the medical profession had carelessly allowed massage to decline and had turned it over in large part like obstetrics of old to women, and seeing his opportunity to attain fame and livelihood, developed another bogus theory of disease in order that active dynamic massage might be exploited for the benefit of its cult and the patient. His theory was irrational, but in a sense clever, because here again the medical profession had been thinking of themselves and their own knowledge and forgetting the patient. Like all quackery it will soon die out and medicine in its slow amebic way will have given to it another process of treatment which it had neglected.

What we have learned from the irregular in these two instances we have been compelled to learn from others at various times. As Galen worried because there were half a dozen dogmatists in his day, so now we have forced down our throat truths from the Christian Scientists and members of the Emmanuel Movement.

One schism has arisen of late years which appeals to the senses as magical and being weird is much in vogue with surgeons and physicians as objective therapy, and that is, spectacular electricity, great promise being given of cures.

Therapeutics as taught in the schools is very largely the therapy of drugs, and the young man leaving college sees in each medicament a specific action. Philosophically to each drug is ascribed a supernatural action. It is entertaining to watch the therapy of the average practitioner of to-day, young or old, and to note the deification, as it were, of the medicines he is using. He stimulates his patient with a cocktail of therapy and an abundance of faith that makes one wonder at the credulity of the public and the calm tolerance of the medical profession. One man is having a lower death rate than all his friends because he is giving aconite to every case of pneumonia; another man with equally lax

philosophy has a belief in the magical effect of belladonna, and is congratulating himself. Look at the wonderful cure and reliefs obtained through antiphlogistine. How it is controlling appendicitis, pleurisy, and other inflammatory states! Our therapeutics is not made by our brains through careful study but is brought to us by the traveling salesman who tells us what we should do and very often we do it. There never was a clergyman who dropped theology and became a competent physician, neither can we with incomplete knowledge of drug action, through supernatural agencies, force medicines to cure disease states. Nature must be aided and such therapy disturbs her in her processes.

What greater reproach could there be to the healing art than the tremendous size of our National Standard Dispensatory? How well we know that there are a very few medicaments that can heal and cure. How resigned we must be in many a case as we stand by and feel ourselves powerless as lesions advance! We are judged by our promises and is not our massive pharmacopœia a sort of guarantee to the people of a vast importance we cannot stand for?

Surgery even demonstrates abhorrent philosophy and a sanctified scalpel, evidenced by the frequency with which ovaries and appendices are removed for right-sided pain, the pain not being removed, and the readiness to use the knife on meager symptomatological study. We have seen normal colons removed without any satisfactory demonstration that efforts had been made on logical lines to control intestinal stasis. The work of the scalpel has been carried too far in our nomad societies. One of our leading societies until recently held exhibitions of skill in special work in the town of reception. Almost without exception the operator was nervous and disturbed by an unusual audience. Mistakes were made and unnecessary deaths resulted. If we are credibly informed, the Surgical Congress is soon to be discontinued and one of the reasons whispered is that the death rate is saddening.

Perhaps when our history is made up in true perspective some generations hence we may be accused of being too pathological and too scientific in a terminal sense. What the eye sees makes the strongest impression. The lesion of the autopsy room has been overworshipped. Terminal pathology has dictated lines of thought and systems of cure. There may be as much insanity in the pathological era as in those of the past. If we read aright in the good time coming that to be studied will be economy and efficiency—from the side of the profession, physiology (normal and morbid); from the side of the clinician and the public, the efficiency of each cell of the body to maintain for itself and for the body as a whole a dynamic potentiality which will materially and with certainty aid Nature in her great work for the prolongation of life.

Medicine is a science and is becoming more scientific. The healing art we practise is a personal matter and will always be subject to the personal equation. Through inheritance and evolution man is and will be an animal appealed to through his senses, who loves to be humbugged, who has some kind of religion, and who will ever and anon be speculative.

The religion of the true physician is the purest, truest and most untheological of all the Christianities. The physician himself lives and acts more on the lines of the Divinity than any one of another class. He is by the education of his life and by nature of his profession best able to understand man and the humanities. Why should he then be taught in our colleges to treat the *disease?* Why should he not be taught that the great physicians, Hippocrates and Sydenham, treated the patient that the patient might thereby better cure himself, for disease is Nature's fight, and to disturb Nature is to protect rather than lessen.

Man to-day is essentially what he was in the early ages. He who recognizes this and in the recognition practises the art of healing not through Galenic therapy alone, but through an appeal properly guided to the religious man and through an expression of philosophy will lighten man's intelligence and through a proper, careful dignity lead the patient to believe in a physician's second sight.

Can we not appreciate the stubborn facts that medicine through all these ages has been demonstrating the frailties of the human mind, that all the qualities imputed to the serpent have traveled down through the history of medicine and to the present day and that we are still biased by personal speculations, by unfortunate deification of therapeutic agents, and by undue willingness to employ the mystical?

From all this there is but one way out. All our medical colleges should have lectures by competent professors in mental philosophy, whose teachings shall be the physician's attitude toward man and the profession, also lectures by some divine with big brains, not a theologian but one who comprehends man's deeper nature and can explain it. Instead of the Galenicals let us teach the physician, the nurse, and the public the great value of body efficiency and how best to obtain it, and when this has been accomplished it can be said that the healing art has come into its own.

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## NERVE INJURIES.*

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The period at which nerves commence to exhibit a return of function is uncertain and laboratory statistics are not available, for in practice the trauma plays a rôle that can in no wise be estimated. Experiments give results that are fairly constant but it is easy to appreciate that there are other factors involved in the nature of an injury, so that the prognosis in general can be determined only by a consideration of personal experience as well as a careful study of published cases. The subject of nerve regeneration has been carefully investigated and much has been written about it, but nevertheless there still remains a wide divergence of opinion regarding the process of repair.

According to Murphy†, "The adherents to the theory of central regeneration, Waldeyer and His for example, hold that after division of a nerve a new axis cylinder grows downward into the degenerated peripheral nerve, replacing that which has undergone degeneration.

*Read before the San Francisco County Medical Society, August, 1913.

†*Surgery, Gynecology, and Obstetrics*, April, 1907.

"The neuron theory is based upon the following data: (1) The nervous system consists of innumerable and anatomical independent neurons which are in juxtaposition. (2) An axone is an embryological outgrowth of a nerve cell. (3) The various neurons are anatomically independent and there is no anastomosis of the arborization which terminates in end knots. (4) The axis cylinder separated from its trophic center degenerates but the degeneration does not involve the neighboring neurons. The opponents of the neuron theory hold: (1) That contiguous cells exist only in the embryo and lower animals. (2) That the knots of the arborizations described in support of the 'Central School' are claimed to be artegacts. (3) Clinical experience shows that peripheral regeneration which is quite independent of the central nervous system is possible; in other words, the cells in the anterior horns and spinal ganglia are not necessarily the trophic cells of the axis cylinder. (4) The axis cylinders are not the result of the outgrowth of cells of the nervous system, but arise independently in the periphery from chains of cells which ultimately represent the sheath of Schwann or neurilemma and which only secondarily become united to the central cells.

"The theory of the 'Central School' assumes that regeneration takes place only after degeneration is complete while the 'Peripheral School' holds that regeneration is independent of degeneration. The latter views are the result of histological investigation. When a nerve is divided the peripheral part develops a bulbous end which is due to a curling back of the fibres upon themselves; the neurilemma cells produce small islands of axis cylinders and medullary sheaths; these elongate and place themselves alongside of each other, become fused and eventually form long fibres that unite with those above. In the distal part of a divided nerve which has been united to the proximal, the neurilemma cells are arranged longitudinally and are separated by connective tissue; the *neurilemma* cells are the cells upon which the regeneration of nerves depend."

It is now generally conceded that when a nerve is divided and the axons are brought in terminal contact without intervening connective tissue, restoration of function will practically always occur. The element of time between section and subsequent union of the nerve does not seem to influence the ultimate outcome if all of the indications of the operation have been fulfilled. These indications are as follows: (1) There should be no traction or pressure upon the divided ends of the nerve. (2) The bulbous part of the proximal end must be removed so that the axons project with the appearance of tiny bristles or fibrils which is the sign that all of the connective tissue which interferes with healing has been removed. The same must be done with the distal end. (3) The suture of the connective tissue sheath which brings both ends in terminal approximation should not pass through the nerve proper as is indicated in most treatises on surgery. Murphy speaks of this suture as a "paraneural" suture. (4) The place of union should be surrounded by a layer of fat or muscle; I have employed vaseline, silver leaf, and gutta percha tissue with fair satisfaction, but fat or muscle is probably better, the object being to prevent scar tissue formation and its consequent contraction which produces pressure atrophy with its interference in the transmission of nerve impulses. Dr. A. A. Berg of Mount Sinai Hospital informed me in a recent conversation that he was employing veins with good results to envelop the nerve anastomosis. If the latter procedure works out practically it has many obvious advantages. (5) Muscles must be supported and over-corrected to prevent contractures.

As stated above, all information in connection with the prognosis must be based upon published cases or personal observations and for this reason the following histories are presented.

Case I.—The patient was injured by an exploding gas grate; he had an incised wound below the head of the left fibula. Examination revealed a fracture of the head of this bone and a complete paralysis of all of the extensor muscles of the foot as well as the peroneal muscles. The diagnosis of an injury and probable division of the external popliteal nerve was made. Operation was performed the following day and a division of the anterior tibial nerve was found; this was sutured; the muscular cutaneous nerve was almost but not quite divided; this was also sutured. One year later there was a return of function of all of the muscles with the exception of the extensor longus pollicis. The patient had to lift his foot with a stepping gait when walking on account of a dropping of the great toe. One year later which was two years following the injury, return of function of this muscle is not yet complete but the condition is slowly improving.

Case II.—The patient fell from a stepladder while cleaning gas globes; the globe that she held on her arm broke and made a deep incised wound over the inner posterior third of the forearm; she had the characteristic picture of ulnar paralysis; anesthesia and paralysis of the small finger and the ulnar half of the ring finger; hyper-extension of the small and ring fingers due to a paralysis of the outer head of the flexor prof. digit, and paralysis of the adductors of the thumb. Operation revealed a complete division of the ulnar nerve which was sutured. Ten months later there was a restoration of function of all of the muscles that had been paralyzed excepting the adductor pollicis; after two years the patient had difficulty holding her fork while eating, and after five years while adduction is much stronger, the thumb still remains quite weak.

Case III.—Patient fractured his arm at its lower third; he had a drop wrist and a paralysis of the supinator longus and extensor carpi radialis; operation four weeks later revealed a compression of the nerve by a sequestrum; the sequestrum was replaced and the bone plated; three months later some motion was observed in the supinator group; four months later he had 20° of flexion in his hand; nine months following the injury there was a complete return of function in all of the muscles.

Case IV.—Patient was run over by an automobile March 22, 1913, which produced a fracture of the head of the fibula; following the injury he had a drop foot without sensory change. Operation performed two months subsequent to the injury revealed the nerve drawn tightly over the fractured head of the fibula; the lower part of the nerve was thin, flabby and fatty in appearance while the upper extremity was pinkish and normal in appearance. The end of the bone was chiseled off and the tension of the nerve was relieved. One week later the patient commenced to move his toes slightly and one month later flexion of the foot was evident. Three months later the foot is stronger but flexion is still imperfect. October 27, 1913.—Abduction is complete; the flexors of the foot have not shown any improvement since the last examination.

Case V.—The patient, a boy of six years, was run over by a wagon August 5, 1912, which produced a compound fracture of the upper third of the femur together with an injury to the sciatic nerve below the point of injury. Examination showed a complete sensory and motor paralysis of all of the muscles of the leg and foot; the patient had a drop foot and the question of the flexion of the leg upon the thigh was not possible to determine; there was no sensation whatever in the leg below the knee, although the patient had slight sensation on the inner side of the great toe and the dorsum of the foot which was probably due to the internal saphenous nerve. No attempt was made to determine whether the nerve was severed at the time of the injury on account of a compound fracture that

was present and it was felt advisable to await developments. November 4, 1912.—There was some attempt at adduction of the foot due to a contraction of the posterior tibial muscle; movement of the toes was not possible; a faradic current produced no contraction whatever. December 26, 1912.—There is more sensation at the region of the internal malleolus, although anesthesia is marked all over the foot; there is some sensation in front of the knee below the patella; the foot, however, is quite cold. January 1, 1913.—The surface temperature of the leg is much improved; the foot, however, up to the middle of the leg is cold. February 5, 1913.—The entire foot is warm having the full body temperature; the foot upon contraction is markedly inverted showing the muscles innervated by the posterior tibial nerve to be very active, while those muscles of the peroneal group and the flexors of the foot are practically inactive. April 1, 1913.—The patient has decided flexor movements in his toes, which were never there before; the gastrocnemius muscle contracts well and there has been a complete return of function in all of the flexor muscles of the foot. August 1, 1913.—There has been a complete return of function of all of the muscles of the entire leg and foot. October 15, 1913.—The patient is practically well.

Case VI.—The history of this patient is of more than passing interest. He first noticed a lump on his cheek at the angle of the jaw that was due to a dropping of the facial muscles; he then recognized that one side of his face was paralyzed. After fifteen months the patient consulted me; this paralysis was still present; at this time he complained of pain in the mastoid region which was agonizing when his head was rubbed by a barber. Examination showed a complete peripheral paralysis. He was unable to wrinkle his forehead; taste perception in the anterior part of his tongue was less acute than on the corresponding side. Mastoid very sensitive to pressure; this is probably periosteal tenderness. Middle ear examined by a specialist is found normal; scars and thickening over the tibia present. There was a history of lues present, also a positive Wassermann reaction, which suggested that the trouble might be of luetic origin and appropriate treatment was instituted. He was given two injections of salvarsan which relieved the periosteal pain at once and with the aid of more treatment the paralysis gradually subsided so that after one year, as seen by photographs, the condition was greatly improved; that muscle which has not responded to treatment altogether has been the occipito frontalis. The diagnosis here was evidently a gumma producing pressure on the facial. A most unusual condition.

There have been several occasions where the branch of the facial that dips down below the horizontal ramus of the jaw and which goes to the levator labii inferioris has been injured in the course of gland operations of the neck; following the operation in these cases the deformity has been marked, but in each instance regeneration has been complete.

350 Post Street.

## A CASE OF SYPHILIS CURED APPARENTLY BY ACCIDENT.

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This extraordinary occurrence seems to me to be worthy of reporting, as the simple facts of the case furnish suggestions on the therapeutics of syphilis which have not to my knowledge been previously pursued by the medical mind:

April 1, 1905, an Irishman, M. C., a robust mechanic, of temperate habits, aged 27, came to me with the following history: Two months previously he had noticed a sore on the penis, which appeared about two weeks after a sexual exposure, and for which he sought no medical attention; but the development of a rash on his body and a sore throat had caused him to seek medical advice. The physical examination showed the entire body to be covered with a perfectly typical macular rash. There was a general adenitis and a characteristic pharyngitis. The diagnosis of syphilis was unfalteringly made.

The reader will note that the date was just previous to the announcement of Schaudinn and Hoffmann's discovery of the *Spirocheta pallida*. It must also be borne in mind that the serum reaction of Wassermann was, at that time, unknown, so of necessity the diagnosis had only the support of the clinical evidence, but this evidence was so frank that it left no doubt as to the certainty of the case being one of syphilis.

The patient was started on the inunction plan of treatment and given a prescription for 2 ounces of unguentum hydrargyri with directions as to how he should use it, in proportions of about 1 dram to a rubbing. This explanation had evidently missed the mark, as he returned in four days time, having used the entire 2 ounces in the space of four rubbings, and rubbed it in over the entire body. By April 7 there was a decided diminution of the macular rash, and as he showed no toxic effects, he was again started on inunctions, and made to understand how to proportion the amount used at each rubbing and told to use it this time but every other day.

This treatment was continued until May 3, which will be noticed was a period of just one month's duration. The patient at that time left the city. From then until May 6, 1911, just six years after, I heard or saw nothing of him. When he returned to me he stated that during that period he had no treatment or care of any kind; that he felt perfectly well and had seen no signs of the disease. Having heard about the new treatment of syphilis with salvarsan, he thought perhaps it might be well to have an injection of this new remedy. He looked and seemed to me to be entirely well and healthy, and a careful search revealed no signs of the old infection, so I advised him before considering any further treatment to allow me to make a blood test. The Wassermann reaction proved to be entirely negative. I therefore told him I saw no necessity for treatment, but suggested his coming in in a few days' time to check up the blood test by another. I saw nothing of him after that time until December 15, 1912, when he came in suffering with a furunculosis, which he thought might be syphilis. A Wassermann reaction again proved negative. May 13, 1913, or about six months subsequent to his last visit, he presented himself again in order to have, as had been previously requested, another blood test made. This again was entirely negative.

There are but two conclusions possible to be drawn drom this case, assuming that the diagnosis was correct and that the Wassermann tests can be depended upon. The first and unimportant conclusion was that this man was one of those persons in whom the natural resistance of the body is sufficient to overcome and cure the disease. The second conclusion forms the basis for a rather fascinating speculation, to which we may turn in the form of the following questions:

Is not the amount of mercury which the body can endure, barring the corrosive salts, very much greater than is commonly supposed? Is it not within the province of reasonable speculation that we may come as near to a therapic sterilans magna with mercury as with an arsenical preparation?

616 Madison Avenue.

## STREPTOCOCCIC INFECTION OF THE CERVIX UTERI.

By E. A. PETERSON, M.D.,

MOBILE, ALA.

THE following case is of unusual interest, because of the paucity of the literature on the subject, either in the journals, or in the text books, as well as because of the intense suffering which it may produce and the length of time during which it may prevail unless the proper treatment is instituted. It may be possible that any portion of the female generative tract may become the site of a primary infection, which may confine itself to this particular location, but this case is the only one that has come to my notice:

CASE.—The patient, a young woman eighteen years of age, unmarried, came to me in the early part of January, 1913, suffering from an intense infection of the vulva. She was well nourished, belonged to the better classes of society, had never had any severe illness other than an attack of appendicitis, for which she had been successfully operated upon three years before. She had no abdominal or pelvic tenderness, was regular in her menstrual life, except for slight pains the first day of her menstruation, and up to a few months before this time had never had the slightest trace of leucorrhea. At this time she had taken up her residence with a sister who had been operated upon for pus-tubes, and who still had an offensive leucorrhea, and she slept with two nieces, nearly her age, who also suffered with leucorrhea, and to these she attributed the source of her infection. Examination of the vulva showed an intense erysipeloid inflammation involving entirely the external genitals and the surrounding skin for a distance of one inch. This was accompanied by itching and burning, which became almost unbearable especially when the clothes were allowed to touch the parts. Believing that I had a case of pruritis vulvæ to contend with I ordered the patient to remain in bed, and general antiphlogistic treatment was instituted, with a douche for the leucorrhea. An intact hymen precluded a vaginal examination at this time. A week's treatment of this kind sufficed to overcome all external symptoms, except the leucorrhea. Two weeks later, however, the same condition appeared again in spite of the continuation of antiseptic douches. Three weeks later, while in another city, the patient suffered another attack of the same kind, which confined her to the house for two weeks, during which period she was under the treatment of another physician. On March 16 she had another attack. She was then taken to the sanatorium, a vaginal examination was made, and it was found that the cervix on almost all of its vaginal extent was the site of a fiery red erysipelatous eruption. It appeared as if the vaginal mucosa had been carefully dissected from this portion. The line of demarcation between the inflamed surface and the very pale vaginal mucous membrane was strikingly distinct and no other inflamed area could be discovered in the vagina. The cervix was thoroughly cauterized with carbolic acid and the cervix was dilated under ether anesthesia, but the uterine mucosa presented as healthy an appearance as the vaginal. About one month's local treatment consisting of the daily application of argyrol tampons around the denuded area, sufficed for its healing. Boroglyceride and carbolic acid applications were also used, but these did not seem to have anything like the effect of the argyrol. It was interesting to watch the daily growth of mucosa over the raw surface, this taking place in offshoots from the healthy mucosa, with the filling in of the interspaces. The patient has had no further trouble for nearly a year. Bacteriological examination showed an immense number of streptococci, mostly in chains of from four to six organisms. The examination of swabs from the uterine mucosa was negative.

The case described must not be confounded with the condition commonly known as cervical erosions, as in this condition we have an eversion of the endocervical mucosa, and it is this portion of the tissue that is inflamed, while in the case presented, the inflammation was confined to the vaginal portion of the mucosa. Cervical erosions are confined, I believe, to the cervices of women who have borne children, and who have had a slight tear of the cervix, thus allowing a prolapse of the endometrium of the cervix, with its consequent inflammation.

It would be interesting to know what percentage of girls suffering from leucorrhea, of which we see numbers, are affected in a similar way. This case illustrates as fully as it can, the futility of treating with douches the symptom ordinarily known as leucorrhea, or "whites," without a vaginal examination, and the determination of the cause of the condition.

BIENVILLE HOTEL.

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**Pneumococcal Infection of the Pharynx and Larynx.**—P. Turner and W. M. Mollison report the case of a man aged 23, who was admitted to Guy's Hospital in April last, on account of tenseness and a brawny swelling in the right submaxillary region; this was incised under an anesthetic. During the course of the operation the patient developed so much dyspnea as to necessitate a laryngotomy; the tube was removed in a day or two and the patient made a fair recovery, though he had all the time some swelling about the pharynx and tonsils. In July the patient was readmitted with increasing dyspnea. Tracheotomy had to be performed and ever since the tube has been worn. Examination of the larynx before readmission had shown edema of the epiglottis and arytenoid regions. In August a further examination of the patient was made under an anesthetic; it was found that the soft palate and uvula were edematous and the tonsils large and ragged. The right tonsil contained a cavity into which the tip of the finger could be introduced; it was enucleated, and on bacteriological examination a pure culture of pneumococcus was obtained. The edematous epiglottis was punctured and cultures taken from the serum were obtained; these cultures showed the pneumococcus and the *Bacillus catarrhalis*. The patient still has much swelling about the upper aperture of the larynx, and is unable to dispense with the tracheotomy tube. The temperature has varied from 99° to 97° F., except for two days following the tracheotomy. Two weeks previously the patient had a quinsy on the left side.—*Proceedings of the Royal Society of Medicine.*

**A Case of Mesenteric Cyst Simulating an Intussusception.**—P. Turner and H. Tipping report the case of a male infant aged four months who was admitted to Guy's Hospital for passage of blood from the anus. Until a week before admission the child had been perfectly well, but during this week he had been slightly irritable, had not been sleeping as well as usual, and had had several "crying fits." On the morning of admission he did not have a good stool. In the evening blood was passed and he was taken to the hospital. On admission the child did not appear to be in pain, and nothing could be felt on abdominal palpation; a rectal examination, however, showed the presence of recent blood. An anesthetic was given and then a small movable lump was felt just below and to the right of the umbilicus. A diagnosis of intussusception was made and the abdomen was at once opened. The lump was found to be a tense cyst, about one inch in diameter, situated in the mesentery in the angle between the ileum and the colon. It bulged into both these portions of the intestine, causing obstruction at the ileocecal valve. An attempt was made to remove the cyst, but though it was easily separated from the mesentery its walls appeared to be absolutely incorporated with the wall of the ileum and cecum. As it seemed certain that any further attempt at removal would result in damage to the bowel, the cyst was incised and a quantity of white, odorless, glairy fluid was evacuated. There was no communication between the cavity of the cyst and the bowel. The greater part of the cyst wall was cut away and the edges were then sewn to the parietal peritoneum. The cavity was drained and the rest of the wound closed. The first stool after the operation contained blood, but afterward the bowels acted regularly and the stools were normal. Mucoid material discharged from the wound for some time, but this eventually healed. Since then, on two occasions, incisions were required to allow of the escape of mucoid material. A section of the cyst wall showed a structure closely resembling small intestine.—*Proceedings of the Royal Society of Medicine.*

MEDICAL RECORD.

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## THE CLINICAL SIGNIFICANCE OF THE VITAMINES.

It is a little over two years since Casimir Funk announced the discovery of a class of chemical compounds to which he gave the name the "vitamines." He isolated these substances from rice polishings, in which they are present in the minute proportion of not more than one-tenth of a gram to a kilogram of rice. The clinical importance of this discovery resides in the fact that the administration of a small amount of the vitamines cures the polyneuritis of birds, a disease which is apparently identical with human beriberi. In his earlier experiments Funk found that the neuritis-preventing principle of rice-polishings is an organic base, which is completely precipitated by phosphotungstic acid and by silver nitrate and baryta. It crystallizes in colorless needles which melt at 233°, and appears to have the formula $C_{11}H_{20}N_2O_7$. Of this substance 0.02 gram effects a rapid cure of polyneuritis in pigeons.

The vitamines are present in other substances besides rice polishings. Eykman showed that they can be extracted from yeast by means of alcohol. But Funk showed that a greater portion of the vitamines is present in the yeast in a combined state from which it cannot be extracted by means of prolonged boiling with alcohol. Employing elaborate methods of extraction, Funk succeeded in isolating the neuritis-preventing principle in its pure state from yeast, and found that 2 to 4 centigrams of the active principle are sufficient to cure polyneuritis in pigeons. The name "vitamine" was suggested for this substance, minute quantities of which are essential in the diet of man and other animals. The vitamines are regarded as bases probably belonging to the pyramidine group, and a constituent of nucleic acid. The vitamines have also been isolated from milk and from brain tissue, and a neuritis-preventing substance probably identical with or related to the vitamines has been extracted from lime-juice.

The vitamines are destroyed by a temperature of 120° centigrade, and also by prolonged boiling. The importance of this fact should be considered in connection with what is known regarding the etiology not only of beriberi but also of scurvy and infantile scurvy, and possibly of rickets. The absence from the diet of fresh vegetables or of fruit juices, both of which are known to contain the essential vitamines, has for a long time been recognized as the cause of scurvy. Likewise the use of boiled milk as an exclusive diet for infants has been regarded as the important factor in the etiology of infantile scorbutus. If this theory is correct, it can readily be understood how boiling, by destroying the vitamines, is the factor that is chiefly at fault in the production of this condition. If boiling destroys the vitamines, however, it is not easy to understand why the use of unpolished rice, which is boiled equally with polished rice before being eaten, should prevent beriberi. Within recent years the use of fresh vegetables or of vegetable juices has been extolled in the treatment of diseases other than scurvy, particularly in tuberculosis.

It is probable that the vitamines include a series of substances differing in certain respects from one another. Indeed Vedder in his recent work on beriberi suggests that the wet and the dry forms of this disease may be caused by a deficiency of one or another vitamine, the lack of one of which causes prostration, heart failure, and dropsy, while that of another causes neuritis.

The process of isolating the vitamines from the pericarp of rice or from other foodstuffs is a laborious one, and large quantities of the substance must be handled before even an appreciable amount of the active principle can be obtained. It is to be hoped that other sources for the vitamines may be discovered, in order that they may be available for therapeutic purposes in beriberi and scurvy and possibly in other diseases accompanied by disturbances of nutrition.

## OPERATIVE TREATMENT OF MALIGNANT DISEASE OF THE LARGE INTESTINE.

The large intestine is more frequently the seat of malignant disease than any of the internal organs, and from its situation is not easily amenable to treatment. Radium and the *x*-rays are not available for treatment of cancer of the large intestine and thus the only possible remedial or curative methods are those of surgery. Provided the disease is diagnosed at an early stage, surgical measures in the hands of the experienced operator frequently show satisfactory results.

At the International Congress of Medicine held in London during the past summer Dr. Raffaele Bastianelli of Rome read a paper on the operative treatment of malignant disease of the large intestine in which he gave the following table, the cases having been collected from the data of a few surgeons of wide experience: Total number of cases operated on more than three years ago, 239; operative cures, 140; alive and well three years after, 68, or 42.8 per cent. of the survivors from the operation, or 28.8 per cent. of all operated upon.

According to Bastianelli the location of the tumor is of great importance. It seems that those of the cecum give about double the percentage of permanent cures as compared with those of the left side, and this may be due not only to the prevail-

ing adenomatous type of the first, but also to the possibility of an earlier discovery and a more extensive operation. Bastianelli ends by saying: "The percentage of definite cures given above is by no means a full expression of the truth. If we consider that in every set of statistics cases are reported dying from recurrence after three, four, five, and six years, there is good reason to doubt the value of some optimistic views. If we consider that at most half of all large bowel tumors are not operable, and that 75 or somewhat more per cent. of the other half survive the operation, and of these only about 43 per cent. are well after three years, and that not a few die from recurrence after three years, it is easy to see that at the present stage of our diagnostic and therapeutic resources we can save only a very small proportion of all the people suffering from this disease, perhaps 15 per cent. or something like that. An early diagnosis and a small operative mortality will increase immensely our therapeutic power and the recent progress in both lines makes it possible to hope for a great improvement in the statistics of the next decennium."

An early diagnosis of malignant disease of the large intestine and a lower operative mortality doubtless go hand in hand. If the malady can be diagnosed at a sufficiently early stage naturally the operation should be more successful and more complete in every way. Unfortunately, the early diagnosis is, as Bastianelli says, a rare and doubtful possibility. He believes that Boas is within certain limits right when he remarks "the stage in which a really early diagnosis would be very hopeful is for the patient and for us beyond our means of investigation." The most hopeful feature of the situation is that methods of diagnosis are rapidly improving. Proctosigmoidoscopy and *x*-ray bismuth examinations already have rendered possible the detection of malignant disease of the large intestine at a stage in which operative measures hold out good hopes for a curative result. As our means of diagnosis improve so will the future be more hopeful.

## CEREBRAL POSTDIPHTHERITIC PARALYSIS.

A GREAT deal has been written on the subject of cerebral paralysis following the various acute infectious diseases. There has been abundant postmortem evidence that the paralysis is due in some of these cases to cerebral embolism or thrombosis and in other cases to encephalitis. In diphtheria the occurrence of paralysis is particularly common and has been attributed as a rule to a toxic peripheral neuritis. Nevertheless there has arisen a conception that many of the cases of postdiphtheritic paralysis are the result of changes in the central nervous system, either of an inflammatory or of a degenerative nature. As in the case of poliomyelitis, one is justified in assuming in diphtheria a generalized intoxication of the entire nervous system, an intoxication which may be so mild as to give no outward symptoms or so severe as to cause more or less extensive paralysis or sudden death. More than forty years ago McDonald pointed out that in a large percentage of cases of diphtheria there is an absence of the knee-jerk. This indicates a certain degree of involvement of the nerve paths leading into or from the spinal cord or of the ganglia and tracts of the spinal cord itself. Cases of postdiphtheritic paralysis resembling Landry's paralysis, other cases resembling hemiplegia, and still other cases resembling acute bulbar paralysis have been described.

The latest contribution to this subject has been made by A. L. Dynkin in the *Jahrbuch für Kinderheilkunde*, July, 1913. He finds that the cerebral paralyses occur only after the severe forms of diphtheria. In these cases one may find a history of cardiac weakness, as evidenced by arrhythmia, increased dullness, and murmurs. Cerebral paralyses in the form of hemiplegia occur from two to five, and most frequently from three to four weeks after the beginning of the acute illness. Coincident with the hemiplegia one may frequently observe a paresis of the facial and hypoglossal nerves as well as aphasia. In many cases cerebral paralyses are combined with the peripheral ones, such as paralysis of the soft palate and of the muscles of accommodation, the loss of the knee reflex, and the loss of control of the sphincters. The outcome is generally fatal, occurring as the result of heart paralysis, or after a longer or shorter time, usually one month after the beginning of the original attack, as a result of intercurrent complications. In many cases recovery ensues with a return of power to the limbs and a restoration of speech. The complete and rapid disappearance of all cerebral symptoms is, however, seldom observed. The cause of postdiphtheritic paralysis is in the majority of cases embolism resulting from cardiac thrombosis or less frequently it may be thrombosis of the cerebral blood-vessels. It is quite doubtful whether hemorrhage into the brain occurs in partly uncomplicated cases. The author believes that no case has yet been reported in which the paralysis was the result of an encephalitis. Since, however, the literature contains undoubted cases of encephalitis which are not associated with hemiplegia, the author believes that it is not unlikely that such an association between encephalitis and hemiplegia may occasionally occur after diphtheria.

## NATIONAL INSURANCE IN ENGLAND AND THE HOSPITALS.

NATIONAL insurance has been on trial in England for a sufficiently long period now to allow of a certain amount of judgment as to its effect on the medical profession. On the whole, from the pecuniary standpoint, at any rate, medical men do not seem to have suffered as a result of the passing of the Insurance Act. Indeed, it is stated in some quarters to have benefited medical men generally. If Mr. Lloyd George is to be believed it has been already of incalculable benefit to the profession. However, the dicta of professional politicians in no country can be taken altogether seriously, and the Insurance Act in England must be on trial

for a much longer time ere a final judgment can be passed on it. The German Insurance Act—which has had a far more extended trial than the English act and which in some respects is more advantageous to the medical man—is by no means popular with the medical profession of Germany.

The effect of the law on the hospitals of England is problematical. The outstanding feature of the English hospital system is its voluntary character and it would appear that the act cannot but have a profound influence, probably a disturbing influence, on the system. As is pointed out by Dr. Donald Mackintosh of Glasgow in a paper read at Boston in August, 1913, and published in the *Canadian Journal of Preventive Medicine and Sociology* for January and February, 1914, the National Insurance Act in England was drafted apparently on the understanding that these conditions would continue and this has proved to be the case so far. The act takes cognizance of hospitals in only two clauses, one of which places the hospitals at a manifest disadvantage and the other makes it lawful for an approved society to grant such subscriptions or donations as it may think fit to hospitals, dispensaries, or other charitable institutions. As a matter of fact, the act strikes at the root of the whole voluntary principle, and it may not be long before those responsible for the management of English hospitals will clash with government officials. Mr. Lloyd George is naturally optimistic, but it is likely that he would not concern himself greatly if the voluntary system were to be abandoned. His chief adviser in the drafting of the Insurance Act was a retired medical man of distinctly socialistic tendencies, and the leaning of the political party with which he is allied appears to be toward nationalization of the medical service of England and the hospitals. The National Insurance Act looks as if it were intended as the thin end of the wedge. Medical men in England have no political organization and consequently their political power is a negligible quantity. The Insurance Act was not meant to benefit the medical profession, but was launched as a means of gaining popularity with the masses, and with regard to the hospitals of England the signs assuredly seem to point to the abolition of the existing system.

### Noma.

The gradual disappearance of this disease from literature has led to speculations as to the noma of prescientific days, which was believed to refer to a gangrenous termination of a number of local affections. Von Brunns once collected notes of over 400 cases, and in the great majority some infectious disease, notably measles, had acted as a forerunner. The affection is very rare in both nurslings and adults. Quite often the child seemed in good condition when attacked. At a recent meeting of the Berlin Laryngological Society (*Berliner klinische Wochenschrift*, 1914, No. 4) Claus reported a case occurring in a woman with chronic polyarthritis, including a heart lesion. Recently acute endocarditis developed, with hemorrhages into the conjunctivæ. Soon afterwards the right cheek was seen to be swollen. On the inner aspect a gangrenous bleb was found in the typical location, *i.e.* midway between the opening of Steno's duct and the angle of the mouth. The outward swelling extended as high up as the eye and zygomatic process. Next a small bleb appeared on the outside of the cheek. The odor was horrible. Before the disease had progressed far, death occurred from a complication—aspiration pneumonia. The upper and lower maxillary bones had been denuded and the pterygoid muscles were exposed. The affection appeared to be due to a mixture of infections in which Vincent's bacillus and spirocheta were prominent. In the present instances the forerunner was evidently rheumatism, which first caused an exacerbation of the old cardiac lesion.

### Contraindications to Vaccination.

As a rule cases in which vaccination is followed by untoward effects, even when all precautions are used, exhibit certain peculiarities which, if carefully investigated ought to cause a postponement of the operation. Groth in a paper published in the *Münchener medizinische Wochenschrift*, February 3, restricts the subject to children. Even the law forbids revaccination of children with such acute or chronic disease as interferes with nutrition. Irrespective of this provision of the law Groth gives the following conditions temporarily rendering the case unsuitable for vaccination: severe acute diseases, mild disturbances of nutrition, bronchitis, open tuberculosis, severe rickets, the exudative diathesis (as expressed in various forms of eczema), impetigo contagiosa, etc. These exceptions are made in part for moral effect, for in such children their infirmities are constantly becoming better or worse and an exacerbation is readily set down to vaccination, which indeed sometimes seems to cause latent affections to become manifest.

## News of the Week.

**Death Rate Falls.**—For the week ending March 14 the death rate in New York City was 15.93 per 1,000 of population, representing a total of 1,705 deaths or 215 less than during the same week of 1913 when the death rate was 17.94. For the preceding week of this year the death rate was 18.28, and the total number of deaths 1,957. For the first eleven weeks of 1914 the death rate was 15.45, a decrease of 0.34 from that for the corresponding period of 1913.

**Montefiore Home.**—The twenty-ninth annual report of the Montefiore Home for Chronic Invalids, New York, shows that 1,083 patients were cared for during the past year, of whom 472 remained under treatment at the close of the year. With the exception of forty-three, all of these were treated free of charge. The new building on Gun Hill road and Jerome avenue, to which the home was recently moved, was erected at a cost of $1,965,000 and with the country home for tuberculosis patients has a capacity of 700 beds. Twenty-nine years ago when the home was established at Avenue A and Eighty-fourth street it provided accommodation for twenty-six patients.

**Christian Scientists Score.**—The New York Senate on March 20 passed the McClelland-Thorn bill which legalizes Christian Science healing by amending the Medical Practice Act so as to exempt from its provisions "any person who ministers to or treats the sick or suffering by mental or spiritual

means without the use of drugs or any material remedy."

**Personals.**—Prof. T. Mitchell Prudden of New York has been appointed by Governor Glynn a member of the New York State Public Health Council.

Dr. Thomas Darlington of New York has been appointed as a member of the commission to administer the law under the Workmen's Compensation bill which was signed by Governor Glynn on March 16.

Dr. Samuel Graham Underhill of Groton, Mass., has been elected superintendent of the Lynn Hospital, Lynn, Mass.

Dr. Forrest C. Tyson of Bangor, Me., will shortly take up his new duties as superintendent of the Augusta Hospital, Augusta.

Dr. Robert G. Devereux of Philadelphia has been appointed assistant medical inspector to the Philadelphia Board of Health in succession to Dr. A. C. Marshall resigned.

Drs. Wilfred W. Hawke and Alfred J. Ostheimer of Philadelphia have been appointed committing physicians to the Psychopathic Ward of the Philadelphia General Hospital.

Dr. Martin E. Rehfuss has returned from Paris and resumed practice in Philadelphia.

Dr. William H. Walsh has been appointed chief resident physician to the Philadelphia General Hospital in succession to Dr. Henry Sykes deceased.

**Canal Zone Appointments.**—The details of officers of the army and navy to positions in the permanent government of the Panama Canal were announced at the War Department, Washington, on March 20. The appointments in the Health Department are as follows: Chief Health Officer, Lieut.-Col. Charles F. Mason, Medical Corps, U. S. Army; Superintendent of Hospital, Lieut.-Col. George D. Deshon, Medical Corps, U. S. Army; Chief Officer of the Quarantine Division, Passed Assistant Surgeon Marshall C. Guthrie, U. S. Bureau of Public Health.

**Health of the Canal Zone.**—During the month of January, 1914, the total number of deaths from all causes among the employees of the Isthmian Canal Commission was 33, of which 20 were due to disease and 13 to violence, making a total annual average death rate per 1,000 of 8.03. The annual average death rate per 1,000 in the cities of Panama and Colon and the Canal Zone, including both employees and civil population for the month was 25.94, a considerable increase over last year and over 1912 when the record for the month was 17.67. Among employees, deaths from the principal diseases during the month were as follows: Dysentery, 1; lobar pneumonia, 4; malarial fever, 1; tuberculosis, 7. No cases of yellow fever, smallpox, or plague originated on or were brought to the Isthmus during the month.

**Dr. Rotch's Will.**—By the will of Prof. Thomas Morgan Rotch of the Harvard Medical School, who died recently, the largest part of his estate will, on the death of his wife, go to the Infants' Hospital, Boston, to be used in connection with the Thomas Morgan Rotch, Jr., Memorial Building, which was erected not long ago by friends of Professor Rotch in memory of his son. A portion of the income of the estate may be paid, at the discretion of the trustees, to the Harvard Medical School, to be used for the department of pediatrics. The value of the estate has not been determined.

**Nurses Graduate.**—At the graduation exercises of the New York Hospital Training School for Nurses on March 18, diplomas were bestowed on thirty-four nurses by Mr. George L. Rives, president of the hospital.

**Public Meetings on Cancer.**—The American Society for the Control of Cancer has arranged for two public meetings in connection with the congress of the American Surgical Association in New York next month. The first meeting will be held at the Academy of Medicine on Friday evening, April 10, when Dr. William J. Mayo of Rochester, Minn., and Mr. Frederick L. Hoffman of the Prudential Insurance Company, will discuss the problem of cancer and its control; Prof. Francis Carter Wood, Director of the Crocker Special Research Fund of Columbia University, will speak on the effect of radium on malignant growths; and Dr. J. Collins Warren, chairman of the Cancer Commission of Harvard University, will tell of the work being carried on at Harvard. The second meeting will be held on Saturday morning, April 11, at eleven o'clock at the Hudson Theater, and the speaker will be Mr. Frederick L. Hoffman, who will take for his subject "The Menance and Control of Cancer." The public is invited to attend both of these meetings.

**Brooklyn Pathological Society.**—At the meeting of this society, to be held on April 9, Dr. Wm. T. Councilman of the Harvard Medical School will deliver an address on "Glioma." A number of neurologists in Manhattan and Brooklyn have accepted the invitation to discuss this subject.

**The Chi Zeta Chi.**—At the annual meeting of this society held March 5 at the residence of Dr. Leo Petersen the following officers for the ensuing year were elected: Dr. Robert H. M. Dawbarn, *President;* Dr. Evan Evans, *First Vice-President;* Dr. J. E. Donelly, *Second Vice-President;* Dr. C. B. Fluker, *Secretary and Treasurer.* The next meeting will be held at the residence of Dr. Dawbarn, at 8.30 on the first Thursday evening in April.

**Legislation Against Wood Alcohol.**—The Codes Committees of the New York State Senate and Assembly held a joint hearing on March 18 on the Griffin-Thorn bill which prohibits the manufacture and sale of wood alcohol combinations without the poison label. The bill, which was drafted by the New York Committee for the Prevention of Blindness and has the support of a number of influential organizations, prohibits the manufacture or sale of any article of food or drink containing methyl alcohol, or of any preparation or mixture containing methyl alcohol intended for internal use by man; and provides also that no person or corporation shall sell or offer for sale methyl alcohol in any form, or any preparation or mixture containing methyl alcohol, under any name or trademark, unless there be affixed to the bottle or vessel containing the same a conspicuous label bearing the words: "Poison—Likely to Cause Blindness or Death," together with a skull and cross bones, all printed in red ink. Violation of the provisions of the bill is made a misdemeanor.

**Bequests to Charities.**—The German Hospital and St. Catherine's Hospital, Brooklyn, receive $5,000 each by the will of the late Louis Bossert of that city.

By the will of the late Mrs. Mathilda E. Webb of Brooklyn the Long Island College Hospital, the Brooklyn Home for Consumptives, the Brooklyn Hospital, and the House of St. Giles the Cripple receive each one-tenth of an estate estimated at $200,000.

The Presbyterian Hospital, the Knickerbocker Hospital, and the New York Red Cross Hospital, New York, receive $500 each by the will of the late Miss Julia A. Crawford of this city.

By the will of the late Mrs. E. N. Andreas of Brooklyn the sum of $3,000 each is left to the Stony Wold Sanatorium, St. Rose's Free Home for Incurable Cancer, and the New York Medical College and Hospital for Women.

**Medical Society Elections.**—At the thirteenth annual meeting of the Seventh District Medical Society, Georgia, held at Rome on March 11, the following officers were elected for the ensuing year: *President*, Dr. William G. England, Cedartown; *Vice-President*, Dr. J. Hill Hammond, Lafayette; *Secretary*, Dr. William Littell Funkhouser, Rome.

At a meeting of the Milam County, Texas, Medical Society at Cameron on March 10, officers were elected as follows: *President*, Dr. Hiram F. Coulter, Rockdale; *Secretary*, Dr. Green B. Taylor, Cameron.

**The Late Dr. Simpson.**—The following minute was adopted at a meeting of the Medical Board of the Presbyterian Hospital on March 9: "In the death of Dr. William Kelly Simpson, Special Consultant in Laryngology, the Medical Board of the Presbyterian Hospital has suffered an unusual loss. An early graduate of the Hospital, familiar with its men and its history, and embodying in himself its traditions of intelligent, devoted service, Dr. Simpson had served this institution in his earlier years in the Dispensary, more recently as Consulting Otologist and Laryngologist, practically throughout his professional life. On many occasions he was called upon for help in cases not coming strictly within the limits of his official position, but whatever call was made upon him in the name of the Presbyterian Hospital was always answered at once. His willingness to give any service within his power was as notable as the skill and fidelity with which the service was rendered. Even when himself suffering, he gave up his work for others only when compelled to do so. All his service was rendered with a kindliness and a great humor which multiplied its value. For more than thirty years he has given us his best aid. To most of us his genial presence and winning personality had become seemingly essential parts of this institution. In the days before us we shall miss the services of a devoted and skillful surgeon, we shall miss still more our friend.

"As an expression of our appreciation and our sympathy, this minute is directed to be entered in the records of the Board and to be transmitted to the family of our late colleague."

**Obituary Notes.**—Dr. William Bedford Brown of New York, a graduate of the Jefferson Medical College, Philadelphia, in 1889, professor of dermatology in the New York Post-Graduate Medical School, a member of the New York State and County Medical Societies, the Manhattan Dermatological Society, and the Greater New York Medical Society, and dermatologist to the Samaritan Hospital of Brooklyn and the Demilt Dispensary, New York, died on March 9.

Dr. Christopher C. Walker of Gainesville, Tex., a graduate of the Medical Department of the Tulane University of Louisiana, New Orleans, in 1866, died on February 24 at Los Angeles, Cal., where he had gone in search of health, aged 73 years.

Dr. John Laing Leal of Paterson, N. J., a graduate of the College of Physicians and Surgeons, New York, in 1884, a member of the Medical Society of New Jersey and the Passaic County Medical Society, president of the New Jersey State Sanitary Association, and ex-president of the Board of Health of Paterson, died at St. Joseph's Hospital in that city from diabetes on March 13, aged 55 years.

Dr. James Nicholas Butler of New York, a graduate of the Bellevue Hospital Medical College, New York, in 1888, died at his home on March 14, aged 53 years.

Dr. Samuel Schaie of New York, a graduate of the University of Berlin, Germany, in 1875, and a member of the German Medical Society, died suddenly, from heart disease, at his home on March 19, aged 63 years.

Dr. Daniel Simmons of Brooklyn, N. Y., a graduate of the New York Homeopathic Medical College and Hospital in 1873, a member of the American Institute of Homeopathy and the New York State Homeopathic Medical Society, and consulting physician to the Cumberland Street Hospital, Brooklyn, died at his home, on March 18, aged 70 years.

Dr. George Oakley Welshman of Newark, N. J., a graduate of the College of Physicians and Surgeons, New York, in 1895, was instantly killed on March 16, when the automobile which he was driving was struck by an express train at the North Grove street crossing of the Lackawanna Railroad. Dr. Welshman was a member of the American Medical Association and the New Jersey State and Essex County Medical Societies.

Dr. Conrad R. Bready of Philadelphia, Pa., a graduate of the Jefferson Medical College of Philadelphia, in 1880, and a member of the Medical Society of the State of Pennsylvania and the Philadelphia County Medical Society, died at his home, on March 10, aged 54 years.

Dr. Woodward D. Carter of Philadelphia, a graduate of the Hahnemann Medical College and Hospital, Philadelphia, in 1894, died at his home, on March 18, aged 47 years.

Dr. Henry Sykes, for the past eight years Chief Resident Physician to the Philadelphia General Hospital, died at Jefferson Hospital, on March 19, at the age of 53 years, as the result of carcinoma of the lower jaw, for the relief of which operation had been undertaken. Dr. Sykes was born in Nova Scotia and was graduated from the Medical Department of the University of Pennsylvania in the class of 1884. He subsequently served as resident physician in the University Hospital, Wills Eye Hospital, and the Pennsylvania State Hospital for the Insane at Norristown, and later he became Chief Resident Physician to the Episcopal Hospital at Philadelphia, serving in this latter capacity for eighteen years.

Dr. Charles H. Dwyer of Philadelphia, a graduate of the Jefferson Medical College, Philadelphia, in 1883, died at his home, on March 12, aged 67 years.

Dr. Thomas Dyer Henderson of Philadelphia, a graduate of the Medical Department of the University of Pennsylvania, Philadelphia, in 1901, died at the Presbyterian Hospital in that city, from pleurisy, on March 9, aged 36 years.

Dr. William DeHaven Eaches of Phœnixville, Pa., a graduate of the Hahnemann Medical College and Hospital, Philadelphia, in 1894, died at his home on March 11, aged 41 years.

Dr. Henry A. Grim of Allentown, Pa., a graduate of the Medical Department of the University of

Pennsylvania, Philadelphia, in 1855, and a surgeon in the United States Army during the Civil War, for a time chief surgeon to the First Division of the Army of the Potomac, and active in the battles of Antietam, Fredericksburg, and Gettysburg, died at his home, on March 8, aged 82 years.

Dr. William Coe Monroe of Woonsocket, R. I., a graduate of the Bellevue Hospital Medical College, New York, in 1876, health officer of Woonsocket, chief of staff of the Woonsocket Hospital, a member of the Board of Trustees of the Rhode Island State Sanatorium, chairman of the medical board of the Woonsocket Hospital, and a member of the American Medical Association and the Rhode Island and Providence District Medical Societies, died at his home from edema of the lungs, on March 11, aged 64 years.

Dr. James A. Anderson of Lynchburg, Va., a graduate of the University of Virginia, Department of Medicine, Charlottesville, in 1879, and a member of the Medical Society of Virginia and the Lynchburg Academy, died suddenly from acute indigestion on March 13.

Dr. Benjamin Grigsby Copeland of Birmingham, Ala., a graduate of the Jefferson Medical College, Philadelphia, in 1883, professor of surgical anatomy and clinical surgery in the Birmingham Medical College, and a member of the Medical Association of the State of Alabama and the Jefferson County Medical Society, died at his home, after a short illness from tetanus following a slight scratch on the leg, on March 11, aged 53 years.

Dr. Van Buren Potts of Maplesville, Ala., a graduate of the University of Alabama, Medical Department, Mobile, in 1904, and a member of the Medical Association of the State of Alabama and the Chilton County Medical Society, died at the Burwell Infirmary, Selma, Ala., from pneumonia, after a short illness, on March 7, aged 34 years.

Dr. N. B. Coffman of Healdsburg, Cal., a graduate of the Miami Medical College, Cincinnati, Ohio, in 1883, died at San Francisco, from apoplexy, suddenly on March 5.

Dr. Charles A. Smith of East St. Louis, Ill., a graduate of the Barnes Medical College, St. Louis, in 1897, died at Chicago, after a long illness, on March 8, aged 45 years.

## Obituary.

### GEORGE McNAUGHTON, M.D.,

NEW YORK.

Dr. George McNaughton, clinical professor of gynecology in the Long Island College Hospital, Brooklyn, died at his home from heart disease, after a long illness, on March 17, aged 57 years. Dr. McNaughton was graduated from the Bellevue Hospital Medical College, New York, in 1878, and had practised in Brooklyn since that time. He was a member of the American Medical Association, the New York State and Kings County Medical Societies, the Academy of Medicine, the New York Obstetrical Society, the Brooklyn Gynecological Society, and the Brooklyn Pathological Society, visiting gynecologist to the Long Island College Hospital, the Kings County Hospital, and the Brooklyn Eastern District Dispensary, consulting gynecologist to the Long Island State Hospital and the Brooklyn Central Dispensary, and chief of the gynecological division of the Jewish Hospital, Brooklyn.

## Correspondence.

### OUR LONDON LETTER.

(From Our Regular Correspondent.)

MILROY LECTURES AT ROYAL COLLEGE OF PHYSICIANS —SPREAD OF BACTERIAL INFECTION: ABSORPTION —REGISTRATION OF NURSES' BILL—LONDON HOSPITAL ATTACKED—ANNUAL MEETING MIDDLESEX HOSPITAL—LISTER M'MORIAL—RESEARCH COMMITTEE AND ADVISORY COMMITTEE—OBITUARY.

London, March 6, 1914.

At the Royal College of Physicians last evening Dr. Shufflebotham delivered the concluding lecture of the Milroy course. He has dealt freely with the hygiene of coal mining and the diseases of that industry and pointed out that although much has been done to improve the health of miners the death toll is still too high and the non-fatal injuries should also be reduced. He advocates thorough and systematic inspection of mines and suggests that the time has come for specialization in mining and more extended training of the engineers in the sciences involved. So, too, he thought something has been lacking in the medical schools which have not made specialties of industrial diseases. Considering the tens of thousands of pounds spent on tropical diseases and with very good results, the lecturer thought it strange that so little had been done for these industrial diseases prevailing in our midst. Thousands of practitioners working in mining districts have never received a lesson on diseases they were continually called upon to diagnose and treat. Their experience had been acquired at the expense of their patients, and he held that it would be well if instruction on this branch were given in the universities and schools. Then young men who intended to practise in industrial districts could become conversant with the conditions which would specially concern them.

There is much to be said for the lecturer's suggestion—particularly perhaps in relation to injuries, the surgical division—but it may be said, on the other hand, that college courses are not everything and the curriculum is very full. And respecting those who know they will practise in these districts, they have opportunities of making especial preparation for doing so.

A plan I have known adopted and which deserves commendation is to serve for a time under an experienced practitioner either as an assistant or junior partner in a locality affording the desired opportunity of studying the diseases and injuries in question.

An interesting account of work on the channels of spread in bacterial infection carried on by Drs. Thiele and Embleton has been communicated to the Pathological Section of the Royal Society of Medicine. They show that the mucous membrane of the urethra is very permeable to the organisms which reach the heart's blood and become generally disseminated within two hours. They spread by way of periureteral lymphatics to the capsular lymphatics of the kidney to the thoracic duct, and it was suggested that this rapid passage might account for catheter fever. The vaginal membrane did not seem permeable, nor did the conjunctiva. By feeding animals with bacteria infection occurred through the buccal membrane by way of lymphatics to the salivary glands and the lymphatics connected with them and the cervical glands. The lungs did not keep back bac-

teria reaching them by way of the thoracic duct from which they were generally disseminated. Inoculated into serous cavities the organisms were entirely absorbed along the lymphatics. The absorption was extremely rapid as they were demonstrated in the blood within two minutes after intraperitoneal inoculation. Diffusible substances were absorbed both by lymphatics and blood channels. From their experiments the authors deduce the following conclusions: 1. Bacterial spread is primarily by way of the lymphatics, the bacteria rapidly passing to the thoracic duct and blood stream and undergoing general dissemination. 2. Bacteria do not have specific sites of predilection peculiar to themselves; with every infection after gaining access to the thoracic duct general dissemination occurs, and if looked for at the proper time can be found in every tissue, the sites in which they can ultimately be found depending on the rate at which they are destroyed in the organ. 3. The lungs do not act as filters. 4. Whenever bacteria occur in the blood they are excreted in the urine, and there is no need to suppose increased permeability of the kidney for this purpose. 5. Bacteria cannot pass from the lymphatics into the urine: the capsular lymphatics of the kidney may be full of bacteria, but they only get into the urine after gaining access to the blood. 6. Even when general bacterial dissemination occurs the serous cavities remain free from infection for a very long time.

A bill for the registration of nurses was introduced into the House of Commons on Tuesday by Dr. Chapple, who produced a good deal of indignation by making an attack on the London Hospital, which is not in favor of the project and which he charged with exploiting nurses for its own financial interests. Protests were raised at his statements and an appeal made to the Speaker, who rebuked the honorable member, informing him that the proper course to take in introducing a bill is to state its objects and explain its causes, not to make attacks on institutions with no representation present. Dr. Chapple asserted his bill had the support of the General Medical Council of the British Medical Association and of all institutions connected with nursing. But he can hardly deny that the largest hospital is connected with nursing, and many will be inclined to consider its experience of more value than his opinion.

Possibly registration may be desirable, though many objections may be raised. Good nurses have no need to protect their interests and their merits have been fully recognized by the public and the profession. Inferior ones are to be found and they are generally forward to assert themselves and even to usurp the function of the doctor. Registration would hardly check this defect and certainly would not eliminate such persons.

As to the London Hospital, so improperly attacked, important developments were reported at a meeting of governors on Wednesday. The quinquennial appeal realized over £100,000, or more than £30,000 above the amount in 1908. During the past year 17,096 in-patients were treated, the daily average being 795, a decrease in the meantime of each patient's residence (17.78 days, compared with 18.59 days in 1912), was considered as probably due to the development of modern surgery, operations being attended with less shock and therefore patients being able to leave the hospital sooner. During the year anesthetics were given in 22,080 cases; out of this number only seven fatalities occurred, and they were mostly of patients already *in extremis*. Out-patients showed considerable decrease, perhaps due to the insurance act. A development about to be taken in hand is the building of special wards for the treatment of syphilis, toward which the Grocers' Company has offered £10,000. The wards will consist of separate rooms, with laboratories, and the committee states that in undertaking this advance they regard it as a "momentous step" and one which "it is hoped will be followed by other hospitals throughout the country" with a view to the "ultimate eradication of syphilis." Further plans have been drawn up for building aural wards, and a site has been selected for a hostel for the resident medical staff, which will set free rooms for extending other departments.

The chairman of the hospital, Viscount Knutsford, so long known as Hon. Sydney Holland, has undergone an operation and it was announced at the meeting that he was doing as well as possible.

At the annual meeting of governors of the Middlesex Hospital on Friday it was stated that the donor of the £15,000 for building an institute of pathology was Sir John Bland-Sutton, who at that time desired to remain anonymous for reasons no longer existing. Prince Alexander of Teck said mere words could not express their obligations for this munificence and he looked for some one else who could afford it to help them in the same spirit to maintain the new instrument put in their hands. Sir R. Douglas Powell testified to the efficiency of the in-patient department and Lord Cheylesmore to the satisfactory financial status of the hospital on the whole.

The committee of the Lister Memorial Fund has commissioned Sir Thos. Brock, R. A., to execute the medallion portrait to be placed in Westminster Abbey, forming part of the International Memorial.

A medical research committee to administer the funds available for research under the insurance act has been constituted by regulations published yesterday. An advisory council of research has also been appointed. The research committee, it is laid down, shall from time to time prepare schemes for research, including, if the committee think fit, schemes for inquiries and the collection and publication of information and statistics, and shall submit such schemes to the chairman of the Nation Health Insurance Joint Committee for approval. Before giving his approval the chairman shall consult the advisory council.

Dr. George Moore, Deputy Inspector-General of Hospitals and Fleets, died at the age of 86. He entered the naval medical service in 1848, became staff surgeon in 1857, fleet surgeon in 1870 and department inspector-general in 1882, retiring the same year. He served in the Russian War, 1854-5. In 1856 he had medical charge of expedition against Indian tribes in Vancouver Island and was specially commended for his services. He has also been surgeon at the Royal Dockyards at Chatham and Portsmouth and P. M. O. at Pembroke Dock.

## OUR LETTER FROM THE PHILIPPINES.

(From Our Regular Correspondent.)

### WORK OF THE BUREAU OF HEALTH—STERILIZATION OF WATER.

MANILA, P. I., January 31, 1914.

THE semi-annual report of the Bureau of Health states "that there are now over 60,000 fewer deaths in the Philippines per annum than there were in

1905. This reduction has occurred almost entirely among the preventable diseases and may therefore be regarded as an index of the effect of health work in the Philippine Islands. There is room, however, for further improvement. Tuberculosis, malaria, beriberi, and intestinal diseases, all of which are preventable, are still responsible for more than a hundred thousand deaths annually. The results which have already been achieved should act as a stimulant to the effort to make a large reduction in this number during the next few years. The knowledge with which to accomplish this is available and it is only necessary to apply it faithfully. A substantial start toward this goal has been made.

"It is estimated that malaria is responsible for at least 25,000 deaths annually. If each of these victims could have been treated with an adequate amount of quinine, practically all of these lives could have been saved. By the cooperation of various branches of the Government, arrangements have now been completed for the sale of quinine at a nominal rate by over 700 municipal and township treasurers throughout the Islands. In addition, several million doses of quinine are being distributed gratuitously among the poor.

"Knowledge with regard to the manner in which beriberi may be prevented is being rapidly disseminated among the masses and a reduction in the number of deaths from this disease may now be expected.

"A circular of information as to the proper disposal of human excreta has been completed and a general adoption of the system therein advocated will result in the saving of many thousands of lives.

"The Manila and provincial hospital system has now been extended to the full limit of the amount of Insular aid which may reasonably be expected for its maintenance, and further progress along these lines should come from funds made available by provincial or municipal governments or private individuals.

"Briefly, there is enough work outlined, the accomplishment of which will pay heavy dividends in the form of lives saved, to use up all of the appropriations which are in sight. Until more money is available, additional projects which require the expenditure of substantial amounts can at present not be undertaken.

"It is doubtful whether any country has ever reaped such large returns in improved health and reduced mortality as have been realized in the Philippine Islands. The tremendous reduction in the death rate referred to above has been brought about by an expenditure of about 20 centavos per capita per annum, and when it is remembered that the results were obtained under a strictly civil régime where each obstacle had to be conquered by persuasion or laboriously fought through the courts, it is indeed remarkable that the results should compare so favorably with those achieved under military régime."

In order that small restaurants, eating houses, refreshment counters, etc., may furnish a safe drinking water to the public at a reasonable cost, the Bureau of Health has recommended that all of them install plain teakettles for rendering drinking water sterile. From time to time prosecutions are made, whenever it can be shown that the water contained amebæ or pathogenic bacteria, this being considered evidence that the water has not been properly sterilized and protected. Some complaint has been made by the persons affected, who stated that the water had been properly boiled and that it must have been contaminated later. In order to have definite information available, an investigation was made at the Bureau of Science. It was found that water that had been thoroughly boiled and left exposed to the room atmosphere and then examined bacteriologically gave the following results:

| | 16 Hrs. | 22½ Hrs. | 41 Hrs. | 3 Days | 5 Days | 7 Days | 9 Days | 12 Days | 14 Days |
|---|---|---|---|---|---|---|---|---|---|
| No of colonies per c.c. | 8 | 8 | 74,183 | 31,550 | 279,000 | 172,000 | 134,850 | ..... | 260,000 |
| Presumptive test | — | — | — | + | — | — | — | — | — |
| Attempt to isolate *B.coli*. | — | — | — | — | — | — | — | — | — |
| Amebæ | — | — | — | — | — | — | + | + | + |
| Ciliates | — | — | — | — | — | — | — | — | — |
| Flagellates | — | — | — | — | — | — | — | + | — |

When a similar receptacle was loosely covered by a box, the results were as follows:

| | 16 Hrs. | 22½ Hrs. | 41 Hrs. | 3 Days | 5 Days | 7 Days | 9 Days | 12 Days | 14 Days |
|---|---|---|---|---|---|---|---|---|---|
| No. of colonies per c.c. | 2 | 70 | 149,800 | 976,500 | 290,625 | 93,000 | 18,317 | 508 | 18 |
| Presumptive test | — | — | — | — | — | — | — | — | — |
| Attempt to isolate *B. coli* | — | — | — | — | — | — | — | — | — |
| Amebæ | — | — | — | — | — | — | — | — | — |
| Ciliates | — | — | — | — | — | — | — | — | — |
| Flagellates | — | — | — | — | — | — | — | — | — |

Water similarly boiled and exposed to the dust of an animal house gave the following results:

| | 18 Hours | 3 Days | 5 Days | 10 Days | 12 Days |
|---|---|---|---|---|---|
| No. of colonies per c.c. | 376 | 558,000 | 325,200 | 74,400 | 111,600 |
| Presumptive test | — | + | + | + | + |
| Attempt to isolate *B. coli* | — | — | — | — | — |
| Amebæ | — | — | — | — | — |
| Ciliates | — | — | — | — | — |
| Flagellates | — | + | + | + | + |

When loosely covered with a box the presumptive test was negative and no organisms could be found at the end of 12 days. The numbers of colonies were as follows: 18 hours, 8; 3 days, 3,816; 5 days, 26,737; 10 days, 20,925; 12 days, 6,754. From the foregoing experiments it is shown that there is a progressive increase in the number of bacilli and then a diminution. The contamination is very much less in a covered can. It will therefore be apparent that laboratory examination for the presence of amebæ and pathogenic bacteria in water that is presumed to have been boiled within 48 hours from the time that it is used may serve as satisfactory evidence to present before a court.

## Progress of Medical Science.

**Boston Medical and Surgical Journal.**

*March* 12, 1914.

1. Vaccination Efficiently Performed. E. F. Cody.
2. Correlation of Cerebrospinal Examinations with Psychiatric Diagnoses. A Study of 140 Cases. Mary E. Morse.
3. Two Cases of Lung Abscess Cured by Operation. W. Whittemore.
4. Prostatectomy Without Irrigation. A. E. Rockey.
5. A New Operation for Hip Contractures in Poliomyelitis. R. Soutter.
6. The Trephine Operation in Glaucoma. M. Standish.
7. The Simplification of the Technique of Reposition of the Retroverted Uterus. J. T. Williams.

**1. Vaccination Efficiently Performed.**—E. F. Cody points out that variola no longer prevails in countries where vaccination is regularly and efficiently performed. Where this important sanitary measure is irregularly practised, as in the United States, the disease recurs at

intervals, less severe than in former times, but nevertheless with considerable mortality and at a large cost to the community. The progress of preventing smallpox in a country like ours, where vaccination is optional after the age of entrance to public schools, is rendered difficult by persons who would have others believe that the procedure is useless, harmful, or fatal. The author concludes that vaccination is a surgical procedure and demands surgical asepsis. The patient must be under the supervision of the physician until scar formation, when a certificate may be given. He should be told that his immunity is for a limited time; if liable to exposure he should be revaccinated. As those countries are most free from smallpox where vaccination is regularly imposed, a revaccination of all persons should be required at stated intervals. Vaccination should be done with a minimum of trauma. The experience of most observers warrants two or more incisions. Vaccination efficiently performed protects against smallpox. Vaccination efficiently performed silences opposition.

2. **Cerebrospinal Fluid in Psychiatry.**—Mary E. Morse concludes that the scarcity of actual correlations between findings in the cerebrospinal fluid and psychiatric diagnoses in any considerable series of cases makes of value a review of the results in a large general hospital. The examination of the serum and cerebrospinal fluid leads to a reduction in the number of cases diagnosed as general paralysis. The cases which have been found most difficult to differentiate from paresis without examination of the serum and cerebrospinal fluid are cerebral syphilis and arteriosclerosis and Korsakow's psychosis. In regard to cerebral syphilis, however, it must be said that although the findings in the serum and cerebrospinal fluids are supposed to be sufficiently characteristic to permit a differential diagnosis from paresis, in the individual case they frequently leave one in doubt. In a large insane hospital the routine examination of the serum and cerebrospinal fluid finds, perhaps, its most immediate value in the rapid confirmation or elimination of the suspicion of paresis in new patients and in revision of the diagnoses of certain patients admitted in pre-Wassermann days.

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### New York Medical Journal.

*March* 14, 1914.

1. Diverticulitis of the Colon. J. J. Erdman.
2. Experimental Study of Tubercle Bacilli Submerged in Water. R. C. Rosenberger.
3. Gastric Flatulence and Disturbances of the Heart. H. Stern and L. B. Sachs.
4. Dyspepsia Due to Chronic Appendicitis. J. J. Gilbride.
5. Tobacco Smoking and Mental Efficiency. A. D. Bush.
6. Psychological Pitfalls. H. A. Knox.
7. Quinine and Urea Hydrochloride in Nose and Throat Surgery. A. J. Herzig.
8. Medical Contract Practice. S. A. Tannenbaum.

1. **Diverticulitis of the Colon.**—J. J. Erdman points out that left-sided appendicitis is the rare rather than the occasional cause of involvement of the left side. If there is left-sided pain with a mass or not, with tenderness, rigidity, etc., one can be relatively certain of diverticulitis. In cases of previously known or surmised malignancy of the sigmoid, such acute evidences point to an ulcerating perforation above the malignancy. Prolonged chronic diverticulitis frequently becomes cancerous. Many heretofore reported instances of cancer of the intestine have been cases of chronic diverticulitis only.

2. **Tubercle Bacilli Submerged in Water.**—R. C. Rosenberger concludes from his studies that the most important point in the prevention of tuberculosis is insistence upon the complete disinfection of the feces of a tuberculous subject, as well as of the sputum and urine, with a powerful germicidal agent. There should be a more rigid inspection and examination of dairy cattle for the detection of tuberculosis, and the presence of tubercle bacilli in the milk and feces of apparently healthy animals. The water supply of a village, town, or city should be safeguarded principally by the prohibition of dumping sludge in streams; the proper filtration of water; where there are no facilities for filtration, the boiling of water for drinking purposes; the rigid inspection of drainage of sanatoria for the care of tuberculous subjects; and the prohibition of dumping slaughterhouse refuse into streams; that one should insist upon the pasteurization of milk for infant feeding, or the general heating of this food for twenty minutes at 60° C. for the destruction of tubercle bacilli and other toxicogenic bacteria and products. Sludge retained in septic tanks should not be used for fertilizer unless sterilized. Instead of allowing sludge to accumulate for several months before cleaning the tanks, these receptacles should be cleaned at regular stated intervals, say once a month, and the sediment then sterilized or collected, dried, and incinerated. The cremation of those dead from tuberculosis, should be demanded, because of the great vitality and resistance of the tubercle bacilli.

5. **Tobacco and Mental Efficiency.**—A. D. Bush performed a series of 120 tests on each of fifteen men, in several different psychic fields, which tests apparently show that tobacco smoking produces a 10.5 per cent. decrease in mental efficiency. The greatest actual loss was in the field of imagery, twenty-two per cent. The three greatest losses were in the fields of imagery, perception, and association. The greatest loss occurred with cigarettes. Nicotine was not found in the smoke of any tobacco, except that of cigarettes, and then only in traces. Nicotine was found in the distillates of all tobacco tested. Pyridine was found in the smoke of all tobaccos tested, and seems to be the principal toxic factor in the smoke.

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### Journal of the American Medical Association.

*March* 14, 1914.

1. Medicine a Function of the State. A. D. Bevan.
2. The Danger to the Maintenance of High Standards from Excessive Formalism. A. L. Lowell.
3. Administering the Preliminary College Year in Chemistry, Biology, Physics and Modern Language. R. H. Whitehead.
4. Hospitals and Their Relation to Medical Colleges and the Training of Interns. C. R. Holmes.
5. Registration Under the Canada Medical Act. R. W. Powell.
6. Adenomyoma of the Rectovaginal Septum. T. S. Cullen.
7. Dangers Attending Injections of the Kidney Pelvis for Pyelography. J. M. Mason.
8. Radium in the Treatment of Blastomycosis, with Report of a Case. F. E. Simpson.
9. Mental Healing. An Admonition. J. V. Haberman.
10. Primary Carcinoma of the Pancreas in a Patient Twenty-Two Years Old. J. Bourke.
11. Perimyositis Crepitans. Report of a Case. A. E. Hoag and Max Soletsky.
12. Ophthalmoplegic Migraine, with Report of a Case of Recurrent Paralysis of the Right External Rectus Muscle following Parturition. A. Brav.

6. **Adenomyoma of the Rectovaginal Septum.**—T. S. Cullen reports two cases of adenomyoma of the rectovaginal septum. This condition is of considerable surgical interest; it is not histologically malignant and does not give rise to metastases. In the early stages, as shown in one of the cases, the growth can be removed without injury to the rectum but when the rectal involvement is extensive, resection will as a rule be needed. The immediate differential diagnosis between the adenomyomas and cancer of the bowel is of the utmost importance. If the uterus contains myomas the probability of an adenomyoma is strengthened. If the growth appears to be muscular, it is still more probably an adenomyoma and if the growth is cystic, it is al-

most certainly a myoma. There is no rectal hemorrhage and the only symptom is pain on defecation. The removal must be complete, as portions left will continue to grow and cause complications. The operation for cancer must necessarily be more extensive. The cases reported emphasize the necessity of careful microscopic control of all rectal growths as they might easily be mistaken for carcinomas. The author insists upon the careful isolation of the ureters and the removal of the uterus altogether as in the Wertheim operation. It would be wise to place a delicate protective drain but to keep it away from the suture line in the bowel. If a large part of the lumen of the bowel is involved, its resection will be necessary. The author believes that with the careful examination of all rectal or perirectal growths, many cases similar to those reported will be found.

7. **Dangers Attending Pyelography.**—J. M. Mason states that pyelography by use of collargol injections and the roentgenogram has come into favor to a considerable extent in this country chiefly through the writings of Braasch and the reports of the Mayo clinic in none of which has the author found reference to any injurious effects following the use of the method. He reports two cases of his in one of which the patient suffered intensely from pain, nausea, and vomiting and had a slight rise of temperature for four days. When the kidney was removed five days later its surface showed numerous nodules with black discoloration beneath the capsule. On section each nodule proved to be the outer surface of an infarcted area, deeply stained with collargol and the different infarcted areas showed different degrees of inflammation. No collargol remained in the kidney pelvis. A few days later a patient with renal tumor—a hypernephroma—was injected with collargol, care being taken to use a smaller quantity and to stop at the first appearance of pain and leave the catheter in the ureter until it was thought the collargol had all drained away. No special constitutional effects were noted but on removing the tumor ten days later, there were found a few of the discolored nodules on its surface and the same black infarcts on section. The kidney contained a quantity of precipated collargol. The microscopic examination showed widespread collargol deposit in the kidney substance, collargol stained deposits and granular casts throughout the tubules and many of the malpighian corpuscles showed collargol masses within the capsule of Bowman. No definite evidence of inflammatory reaction was seen in the collargol-containing tubules outside the necrotic areas but in some areas tube-casts both stained and unstained were more numerous than one would expect as a result of the primary condition. A definite sequence of events follows injection of the renal pelvis, if the intrapelvic pressure is raised beyond a certain unknown point. The pelvis is overfilled and the injected material, together with any infectious matter in the pelvis, passes up into the convolnted tubules and glomerated capsules, and may be followed by rupture of the tubules and production of infarcts or abscesses. Whether or not the collargol has any irritating or cauterizing action in the process is in dispute. Damage may result from conditions not entirely under one's control in the injection of the kidney and that such injection is contraindicated in the presence of infection and where the integrity of the kidney has been impaired by injury or disease.

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## The Lancet.

*March 7, 1914.*

1. Glycosuria and the Albuminuria of Adolescents. Sir James F. Goodhart.
2. Infantilism. Hastings Gilford.
3. The Morbid Anatomy of Tuberculosis in Man. T. Shennan.
4. The Significance of Diabetic Family History in Life Assurance. O. May.
5. The Pathological Changes of the Thyroid in Disease. R. Farrant.
6. Case of Acute Suppurative Appendicitis Complicated by Gangrene of the Ileum. B. Hughes.

1. **Glycosuria and the Albuminuria of Adolescents.**—Sir James F. Goodhart notes that the presence of sugar in the urine of young people means diabetes, and diabetes usually of a severe grade; but that in those of advancing years it by no means necessarily means diabetes, or, at any rate, that the disease is far less likely to be of grave import. True diabetes, commencing as such, with all the classical symptoms, may, under treatment, continue for many years, and even into the declining decades of existence. The author is even strongly inclined to believe that all glycosurias, no matter at what time of life they occur, have something in common—an epileptiform or migrainous paroxysmalism. For many years these people are not in danger so much from their glycosuria as such—with which alone indeed they may live many years, or to old age—as they are from a slowly maturing chronic Bright's disease or what is now called arteriosclerosis. These are the cases that exhibit retinal changes with their glycosuria. Adolescent albuminuria presents another problem in biochemistry. The author refers to it as the paroxysmal albuminuria of the young. It is not ill-coupled with glycosuria, for each is both paroxysmal and functional. It is an albuminuria of more or less, sometimes of large, quantity, found in boys and youths from any age up to 19 or 20, and may be in young men up to 24 or 25 occasionally. It is not known to be nearly as frequent in girls, but this may be because the urine in them is not so often examined, and the periodical function interferes with, perhaps even prevents the occurrence of albuminuria. The condition occurs preponderatingly in overgrown and weedy youths, in those, at any rate, who have been growing rapidly, and also in the food bolter, but there are frequent exceptions. It may be present in many individuals in whom it is hard to say there is any ill health. It sometimes disappears almost as soon as it is noticed, but more characteristically it comes and goes over a long period, maybe of months or years. But the cardinal characteristic of the affection is that at one time of day—usually the first thing in the morning—there is only a trace of albumin or none at all, at another there may be a large quantity. One other feature is that invariably in these cases a precipitate of globulin is obtained from the urine by adding a drop or two of strong acetic acid.

2. **Infantilism.**—Hastings Gilford presents the second of his lectures on this subject. He notes that ateleiosis is prone to be associated with other anomalies of development, such as anomalies in the organs of sex, thyroid insufficiency, and abnormalities of the pituitary body. The most rational explanation of these errors by defect is that they are reversionary. The dwarf races of Asia and Africa represent peoples in a state of racial stagnation or infantilism.

3. **Morbid Anatomy of Tuberculosis.**—T. Shennan states that in Scotland the maximum death rate from tuberculosis occurs during the 25-35 age-period; in England during the 35-45 age-period. In Scotland the maximum percentage death-rate from tuberculosis calculated on the number of deaths from all causes, at each age-period, occurs in the female during the 15-20 age-period, and in the male during the 20-25 age-period. The percentage of deaths from tuberculosis in females during the 15-20 age-period is 52.69. The death-rates from tuberculosis in different towns and

cities in Scotland bear no clear relationship to the number of inhabitants or to the density of population. Other factors must be involved. Hypersensitiveness due to a primary infection is probably of great importance in relation to reinfections. Reinfections arise not necessarily from a previous focus in the body, but must frequently be new infections from without. The majority of cases of tuberculosis of the lungs and their regional glands are the result of aerogenic infection. Retrograde infections do occur. There is no evidence in favor of a spread by direct continuity from the deep cervical glands to the lungs. The right lung and its regional glands are more often the seat of tuberculosis than the left. In children manifest tuberculosis of the lung is very frequently a sequel of tuberculosis of the bronchial glands. Little satisfactory is known of the factors which determine the localization of the disease in the lung. Chronic fibro-caseous tuberculous foci in the lungs and caseation of the related bronchial glands may be caused by separate infections. In Scotland bovine infections in childhood are commoner than in most other parts of the world. The relative frequency with which bovine or human infections occur in any given organ or tissue, and the differing incidence of these infections in different localities, depend on the relative general frequency of infections with these two types of the tubercle bacillus. This differs in different localities.

## British Medical Journal.

*February 28 and March 7, 1914.*

1. An Anthropological Study of Some Portraits of Shakespeare and of Burns. A. Keith.
2. The Hygienic Aspect of the Coal-mining Industry in the United Kingdom. F. Shufflebotham.
3. The Pathological Changes of the Thyroid in Disease. R. Farrant.
4. Dissemination in Carcinoma of the Rectum. J. W. Heslop.
5. Some Observations on the Effects of Adrenalin. M. Donaldson.
6. Alcohol, Housing Conditions, and Consumption. H. Vallow.
7. The Visceral Lesions of Purpura and Allied Conditions. Sir William Osler.
8. Oral Sepsis Simulating Henoch's Purpura. T. S. Bradburn.
9. Further Note Upon a Case of Hysterical Monoplegia Following Electric Shock. Purves Stewart.

**1. Anthropology of Shakespeare and of Burns.**—A. Keith has made a careful study of certain portraits of the above poets, and has compared them with prehistoric skulls found in England. He finds that the two national poets are representative of two of the most divergent of European stocks. If the term "Celt" is used in the same sense as it is employed on the continent of Europe then Shakespeare must be called a Celt—a descendant of the round-headed people who invaded England in the Bronze Age. Burns is from the western fringe, usually called Celtic, but which is pre-Celtic. He comes of the long-headed stock which inhabited England before the Bronze Age—probably before the Neolithic Age dawned. Possibly the extraordinary difference in the working of their brains is to be explained by the diversity of their racial origin.

**3. Pathological Changes of the Thyroid in Disease.**—R. Farrant has shown that the pathological changes of exophthalmic goiter could only to a certain extent be reproduced by thyroid feeding in cats, rabbits, guinea-pigs, and dormice, and, as was to be expected, hyperplasia of the thyroid was one of the changes that could not be reproduced. He has also demonstrated that a hyperplasia of the thyroid microscopically similar to that of exophthalmic goiter was to be found in diseases such as infantile diarrhea, measles, diphtheria, and whooping-cough, and that it could be artificially induced in guinea-pigs by the injection of diphtheria toxin. The following diseases induce a colloid chronic hyperplasia: chronic coliform infection; chronic tuberculosis; Malta fever, meningococcus infection, tertiary syphilis, actinomycosis, poliomyelitis, rheumatism, scarlet fever, chronic nephritis, and pernicious anemia. The diseases which cause a complete or acute hyperplasia are infections with *Aerogenes capsulatus* (?), anthrax, colon bacillus in guinea-pigs, diphtheria in man, diphtheria toxin in horses and guinea-pigs, dysentery, Gaertner bacillus, glanders, tetanus, acute tuberculosis, *Micrococcus catarrhalis*, secondary syphilis, malaria, measles, bronchopneumonia, and smallpox (?); and whooping-cough and chronic nephritis, cirrhosis of the liver, and the artificial toxemias caused by abrin, ricin, and the diphtheria toxin.

**4. Dissemination in Carcinoma of the Rectum.**—J. W. Heslop reports a case of carcinoma of the rectum in a man aged 26 years. The history of this case brings out a number of important points. It shows that the extramural spread of carcinoma of the rectum may be very far advanced, even into the abdomen, whilst the primary focus in the wall is small and difficult of recognition. It demonstrates the value of the laparotomy which necessarily precedes abdominoperineal resection of the rectum in determining the presence or absence of secondary intraperitoneal deposits, which may contraindicate an extensive and useless removal. Limited removal as obtained by perineal excision, or even Kraske's operation, in this case would have left most of the disease uneradicated, despite the low position of the malignant ulcer on the rectal wall. Occurring in a young man, it shows that the age incidence of carcinoma is variable, and that its virulence is probably greater in the young than in the old.

**6. Alcohol, Housing Conditions, and Tuberculosis.**—H. Vallow notes that alcoholism is more prevalent amongst the male consumptive patients than amongst the normal male population, and also appears to be in excess amongst the females. This does not necessarily mean that alcohol, of itself, has a great deal to do with the onset or progression of consumption, but it does mean that alcoholism, with its associates—late hours, irregular feeding, the poverty which it may entail, the crowding together in ill-ventilated public-houses where the best hygienic conditions do not obtain—has a considerable bearing on the consumptive question. If alcohol habits can be taken as an indication of the habits of consumptive patients of the poorer class, the author's figures point to the conclusion which he has held for some time—that if consumption is to be eradicated the habits of a large number of the patients will have to be greatly improved. As regards housing conditions in relation to tuberculosis, the author points out that there is more phthisis in back-to-back houses with no through ventilation than in good, through, well ventilated houses. As contact with tuberculosis cases is likely to play an important part in the spread of the disease, it is necessary that the people concerned should be told of the great danger they are running, as there is ample proof that such a danger does exist.

**7. Visceral Lesions of Purpura.**—Sir William Osler states that the visceral lesions in this disease are of two types. First, mechanical, due to the presence of exudate in the walls of the stomach or intestine, effusion of blood on a mucous surface, or into the substance of an organ; secondly, inflammatory, as nephritis, less often endocarditis, pleurisy, pericarditis, pneumonia, or peritonitis. The cases have a dual etiology, infectious and metabolic. Purpura, with or without erythema and exudative lesions, may follow gonorrhea, otitis media, parturition, phimosis, and local lesions of the skin. The rheumatic poison is believed to be responsible for a large group; and in the case of a child with severe purpura in the third and again in the fifth year, chorea in the sixth without

endocarditis, severe urticaria in the same year with ill health, chills, fever, and well-marked endocarditis, such a view is probably correct. The arthritis, too, is held to indicate the same cause, but it may have a very different explanation. The bacteriological examination of these cases has not been very satisfactory—no unanimity has been reached as to the organisms. On the other hand, there is a large group in which the lesions are an expression of perverted metabolism. Chronic angioneurotic edema, urticaria, and some forms of purpura are possibly anaphylactic phenomena in persons sensitized for certain protein substances. It is interesting to note that experimental sensitization may be transmitted. Hay fever, the idiosyncrasy to iodine, quinine, to strawberries and shellfish, are all manifestations of this supersensitiveness. The phenomena of serum sickness reproduce in a graphic way the features of the skin diseases which the French group under erythema. The local edemas, the urticaria, the purpura, the arthritis, the vomiting, and the persistence for years of the sensitiveness, are paralleled by the lifelong liability to recurrence in some cases of angioneurotic edema and of purpura. With reference to the cerebral manifestations the author notes that there are two groups of cases—the one with transient attacks of paresis, such as occur in Raynaud's disease and in arteriosclerosis; the other in which the paralysis is due to coarse hemorrhage. As regards ocular lesions the author points out that in anemia and leucemia, in cachectic states, and in arteriosclerosis retinal hemorrhage is common, conjunctival less frequent. In the hemorrhagic types of the specific fevers extensive bleeding may take place, and in black smallpox. The author has seen the corneæ sunk in a wall of subconjunctival hemorrhage. In purpura hæmorrhagica bleeding may take place into the eyeball. To the gastrointestinal symptoms the most distressing though not the most dangerous of the visceral complications, the name of Henoch is given when associated with purpura, though they occur with any member of the erythema group of skin lesions. The manifestations may be for years abdominal without skin eruptions. Colic is the common symptom, and occurred in 25 out of 29 cases analyzed in 1904. The attacks may be transient, lasting only a few minutes, but recurring several times during the course of the day. They may be of great severity, causing the patient to writhe in the bed. They occur most frequently at night. The attacks are independent of diet, and occur with the skin rash or in the intervals of the outbreaks until the rash fades. In protracted cases the colic may not appear for a couple of months, and then be very severe. The position of the pain is usually central, and may radiate to all parts; very often the child cannot fix upon the spot accurately. The author never met with an instance in which the pain was limited to the right iliac fossa. The abdomen is usually flat, not painful on pressure, without increase in the muscle tension, though it may often be difficult to palpate the child satisfactorily. There may be marked tenderness along the transverse colon. Vomiting, with or without pain, is perhaps quite as frequent as colic, with which it is very often associated. The renal complications are the most serious of the whole group. They fall into three groups: (1) those which run an acute course with dropsy and death in uremia within three months. In a second group the albumin disappears and the patients get perfectly well. In a fortunately small number of cases the nephritis becomes chronic.

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Berliner klinische Wochenschrift.

*March* 2, 1914.

**Experimental Vaccine.**—Gins refers to Fornet's recent work in ether sterilization of ordinary vaccine and in cultivation of the exciting cause of variola. This is not the ordinary sort of bacterial cultivation after complete isolation of the microorganism, but an indirect cultivation of germs embedded in the so-called vaccine corpuscles. Aside from Fornet himself, investigators do not find evidence that any increase in germ life occurs through the use of the raw material for inoculation. The vaccine corpuscles, in other words, do not come up to the requirements of a specific virus. It has also been shown that heat above 37° C. may prejudice the activity of the virus, just as when ether is used for quick sterilization of vaccine lymph. The author also takes up Rabinowitsch's claim and contends, along with Fornet, that the streptodiplococcus of the Russian cannot be the cause of variola. As far as priority claims exist between Fornet and Rabinowitsch, that of Belin (1909) should also enter into competition. The author's technique is borrowed in part from that of workers in other kinds of virus. In diluted vaccine lymph shaking up with kaolin causes the virus to adhere to the kaolin sediment, the fluid remaining for the most part free. In other words, a most vigorous absorption between the kaolin and virus has resulted. That no mere mechanical adhesion is involved is shown by the fact that washings from the kaolin show no virus present. The author sees in this phenomenon a promise of future success.

**A New Manifestation of Hypothyreosis.**—Heinrich Stern of New York claims to have discovered in this condition a peculiar doughy submucous infiltration of the lower urinary tract hitherto undescribed. The subject is not a new one outright, but in the older literature a different interpretation has been given. Of four of the author's cases but one was in a man, and all the patients showed the ordinary phenomena of myxedema, which robs them of a certain amount of interest. The author sums up his cases and their type as follows: in a case of hypothyreosis with frequent or painful desire to urinate, one should perform cystoscopy. In the case of children, as expressed by enuresis, the cystoscope need not be used, but in either case thyroid preparations should be given.

**Forced Feeding in Childhood.**—Engel refers to the older ideas on this subject, which emphasize the difficulty of making children eat, or at least to eat by rule. To stuff children may mean to take away what appetite they may have. In the majority of these cases if cream can be taken daily the problem is solved. The author prefers to give the cream all at once, so as to leave the stomach to itself for the balance of the day. The cream is best given at bedtime, beginning with a small dose and increasing it indefinitely. Take the example of a ten year old boy who weighs 30 kilo (normal) and whose rest requirement of caloric is 1250. This must be supplied from the ordinary diet, leaving the cream as a surplus. It may be made to supply from 30 per cent. to 50 per cent. more of the diet, the patient still being at rest. To promote or facilitate rest the author would give some form of bromide. Fowler's solution should also be given. When the weight has been brought up to normal, the cream should still be given, even during school life.

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Münchener medizinische Wochenschrift.

*February* 24, 1914.

**Case of Polyneuritis and Korsakow's Psychosis After Neosalvarsan; Fatal Ending.**—Pürckhauer and Mauss seem to have shown that toxic substances other than alcohol are able to produce the Korsakow syndrome. A woman aged 57 with marked history of syphilis was

just developing tabes. When first seen was well nourished and sound mentally. No signs of approaching paresis. A few symptoms of pretabes; Wassermann reaction positive. Two injections of neosalvarsan, one week apart, the first without reaction. After the second, fatigue set in with somnolence and anorexia. No further symptoms. Two days later failing memory apparent. As the other symptoms receded the memory failure increased, especially for recent events. It also showed individual peculiarities in connection with present events. No speech disorders, and no other psychic symptoms save those due to the memory failure. After a physical examination the diagnosis was tabes, polyneuritis, and Korsakoff's psychosis. The latter rapidly developed disorientation and complete confusion. Intellect preserved. Patient knew her condition, answering rationally. She perished slowly of asthenia and autopsy was refused. Aside from tabetic symptoms, patient presented a classical Korsakoff or amnestic psychosis. The extreme muscular fatigue was the result of polyneuritis. It may of course be asserted that the cerebropathy following directly upon incipient tabes argues for a form of paresis; also that tabes is sometimes closely simulated by polyneuritis. The author defends his diagnosis without difficulty, but the question remains "how can salvarsan cause Korsakoff's syndrome?" The arsenic could explain the polyneuritis; to account for the psychosis is more difficult. But we know that certain toxic substances simultaneously attack the nerves and brain (alcohol, lead); and it is probable that arsenic caused the cerebropathy as well as the polyneuritis.

**Grape Juice in Europe.**—Bender writes at length of this drink as a possible substitute for alcoholic beverages. Any reference to the U. S. A. or to Secretary Bryan in this connection is not to be found. One method of preparation consists of heating the must to about 95° C. until all germs are destroyed, and most of the albumin thrown out (this furnishes the pabulum for the germs). The supernatant fluid is now bottled airtight and pasteurized. The sugar remains, but the bouquet and nitrogenous matter are lost. Heating gives a tamarind taste, which is unpleasant to many. It is also impossible to place the article on the market at a low price. To improve conditions Monti in Italy freezes the must in part, the remaining solution being well condensed. To supply the wine flavor an aqueous extract of the remains of the grapes is added, so that the tartaric and tannic acids are preserved. Specimens by this method are without the disagreeable taste already mentioned. The Italian juice like the German must be bottled airtight and then sterilized. Dilution with three or four parts of water is advisable for economy's sake. When grape juice is evaporated, it is known as grape honey and in this form may be readily marketed. Diluted with water it becomes grape juice. As honey it possesses the power of taking up albumins, sugars, etc., and "tinctures" of drugs may be prepared from it instead of alcohol. In the former capacity it possesses great feeding possibilities, as solutions of eggs, milk, casein, etc., are clear. The rationale of this "predigestion" is not explained.

## Deutsche medizinische Wochenschrift.

*February 26, 1914.*

**Eugenics and Gynecology.**—Veits' lecture on this subject may prove to be a classic. He begins with an account of a chondrodystrophic dwarf, pregnant, in whom naturally normal parturition was out of the question. Cesarean section gave birth to a fine, healthy boy. On the very same day a girl of statuesque beauty gave birth to a dead anencephalus. An outsider was struck by the logic of the coincidence, which would have passed unnoticed in a large clinic, and it became apparent that the opportunities of the obstetrician in the direction of eugenics were superior in character. In the first place he has the opportunity of recognizing tuberculosis in the newly born—in such cases as have not undergone therapeutic abortion. If a woman is known to be tuberculous, she should be sterilized or at least if pregnant, submit to interruption of pregnancy. All these measures belong to the "eugenic sterilization" of Hirsch. The taint of epilepsy and imbecility has not yet been cleared up in full. The author has seen children of pronounced epileptics who possessed a high degree of mental excellence with no suggestion of epilepsy. The entire progeny of epileptics does not show any general inferiority. The same may not apply to the imbecile, for data are absent. It is true, however, that in a sound stock, an idiot may be born. This is explained apparently by heredity. Whenever the entire family tree can be traced, there will be found as equivalents, malformed children, cretins, etc., among the ascendants. In certain families chronic alcoholism in an ascendant is made to account for degeneracy in the progeny. The mere fact that a single descendant shows the taint is not sufficient to condemn the entire race. On account of lack of space an abstract cannot do justice to this long article, which could readily be expanded into a brochure.

**Prolonged Latency of Syphilis.**—Stern concludes his article on this subject. He arrives at various conclusions. Thus a single inunction cure will render 10 per cent. of all patients sound, as measured by absence of relapses. This takes no account of the Wassermann reaction which would no doubt reduce this 10 per cent. Lexer obtained an almost exact reversal of these percentages, for only 9 per cent. of prostitutes showed relapses after an intensive inunction cure. We must remember that in but a small percentage of infected do secondary relapses occur as far as the skin and mucosæ are concerned, because the spirochete has an overwhelming preference for the viscera. But a spot of irritation in the body may cause the appearances there of a virulent spirochete focus. The author has seen broad condylomata on the genitals of prostitutes from five to eight years after infection. Many old authors are quoted freely, and their finds given the same status as those whose opinions rule today. The final conclusions based on old and new matter are naturally somewhat paradoxic. Thus at least 50 per cent. of all syphilitics show no true secondary manifestations. Of the other 50 per cent. a large number are really tertiary. The quaternary lesions are especially liable to appear in subjects who have had no secondaries. Intensive treatment with Hg can reduce the relapses from 9 per cent. to 15 per cent. To control relapses is not to cure the disease. Syphilis is an "internal" disease as a rule.

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**Case of Toxic Polyneuritis Due to the Virus of Poliomyelitis.**—F. E. Batten reports the case of a man, aged 20, who had an acute attack of "influenza" in August, 1898, when aged 5. This was followed by paralysis, and he was in the Children's Hospital, Great Ormond Street, suffering from a condition which was variously diagnosed as peripheral neuritis and poliomyelitis. Pain and tenderness were a marked feature of his illness, but he never had any loss of sensation. The boy slowly recovered, and now, fifteen years after the illness, presents a dwarfed appearance, being only 4 ft. 2 in. in height. He has a marked lateral curvature of the back, a general wasted condition of the legs and arms, but with no such local wasting of muscles as is commonly seen in most cases of poliomyelitis.—*Proceedings of the Royal Society of Medicine.*

## Insurance Medicine.

**The Need in Our Medical Schools of a Practical Course of Instruction in Life Insurance Examining.**—An insurance company must depend so absolutely upon the integrity and ability of its medical examiners that their selection is necessarily a problem of the greatest importance, and, while the methods of choice vary very much, there is unanimity of effort on the part of all companies to create a corps of well-trained examiners, and comparative efficiency once attained, to preserve it by a constant weeding out of the inefficient. Dr. C. T. Gaillard, in a paper on this subject, makes a plea for a systematic course of practical instruction in life insurance examining as a part of the curriculum in our medical schools. That such instruction is sadly needed is realized by all those who encounter and suffer from the raw work of an untrained examiner, and he expresses astonishment that so few medical colleges have recognized the advantages which might be derived by their graduates from such a course.

A few colleges do include a course, but the instruction is in general most inadequate, the subject being treated in a broad way in a short course of didactic lectures. Gaillard considers that the course should be made a practical one, which would make the graduate a more or less experienced examiner. In order to do this, the following few points should be thoroughly taught the undergraduate, preferably in his senior year:

First, the student should be taught the absolute necessity of rigid care in seeing that each and every question on the blank is answered. This is of utmost importance to the Home Office and also to the agent, who has a right to expect a quick action in a good case. The omission of a single "yes" or "no" requires a letter to the examiner, and the policy cannot be issued until his reply is received. Secondly, prompt replies to all correspondence from the Head Office is of vital importance. Failure in this respect allows of the delay in issuing a policy, or competition to step in and secure the applicant, or the change of mind of the applicant, disgusted through waiting.

The next most important point for the examiner is the ability to obtain a clear and correct personal history of the applicant. This gift is almost intuitive with some examiners, but is also the result of good training and experience. Training would teach the student the error of lengthy explanations of non-essentials, while, on the other hand, he would learn what details of history, etc., would require definite and specific information. To be practical and interesting to the student, he should be required to make actual examinations, using the blanks of the various companies so that he may familiarize himself with the different kinds in use. These blanks should be corrected by the lecturer and errors pointed out to the whole class. This course would be in no sense one in physical diagnosis, as that branch should be acquired in the regular course, but the student would thus learn how to use his general medical knowledge in a practical way for the real insurance work he may be called upon to do.

Gaillard insists that this course should be included in the curriculum of every medical college, as competition for appointments as insurance examiners is always keen, and the recent graduate's first effort toward increasing his income usually takes the form of making application for such appointments. His chances for appointment are immeasurably greater when he is able to show that he has received a practical course of instruction from his medical college. It is simply a business proposition of giving the preference to a partially trained man rather than to one wholly lacking in experience, taking it for granted that other professional training has been equal.

Considering the financial end of the question, it is estimated that insurance companies pay to the medical profession over six million dollars a year, which is earned by the examiners in the field and does not include the salaries of Home Office officials. This money is easily earned and is a most welcome addition to the income of a young physician, and the companies have a right to expect in return honest, intelligent and faithful service. That they do not receive it is another reason for this plea for instruction in medical insurance work for the undergraduate.—*Lancet-Clinic.*

**Cardiac Disturbances of Nervous Origin.**—Hoeflmayr states that in 1895 he recommended for insurance a risk with slight enlargement of the right heart, and an intermittent systolic murmur at the base. The medical director of the company protested, and a distinguished referee sustained the author. About a year later the latter's view was upheld by normal heart finds. Fifteen years later the author looked up the risk for self-satisfaction. The heart was normal in size and position. There was a slight initial systolic murmur, both on lying and standing. Pulse on standing, 100. General slight tremor, very nervous. Patient a mountain climber, taking prolonged tours without subjective or objective difficulties. Several other cases are given, which tend to emphasize the difficulty of differential diagnosis between organic and functional cardiac disorders. In one type of case serious symptoms of organic disease are found later to have vanished. There is, however, no means to foresee whether they will vanish. The author quotes freely from several standard writers on this subject.

When a number of components can be isolated—syphilis, alcohol, severe physical labor, athletics, previous history of heart disease—the chance of functional amelioration is slight. The author's conclusions are based on the results of Erben's method of procedure for the diagnosis of nervous heart. If a man squats deeply, with head inclined forward, the pulse after five or ten beats suddenly slows up. After about ten prolonged diastoles, the heart irrespective of posture, the beat slowly becomes more rapid and attains a frequency beyond the original. Latter repetitions of the test may give better results. The phenomenon may be more clean cut if some twenty deep knee flexions have been practised beforehand to cause acceleration of the pulse. Erben has tested this resource for ten years, and has found that in many cases it means a nervous heart only, which will not become organic. A gradual slowing of the pulse is physiological only. —*Blätter für Vertrauensärzte der Lebensversicherung*, Nov.-Dec., 1913.

**Informing the Unsuccessful Applicant of the Cause of His Rejection.**—In an address before the Life Underwriters' Association of New York on March 24, Dr. Oscar H. Rogers, medical director of the New York Life, said that when an insurance company rejected the application of any one for a policy the applicant should be informed of the reason for the rejection so that he might take advantage of the knowledge to improve his health.

# Book Reviews.

Radium Therapeutics. By N. S. Finzi, M.B. (Lond.), M.R.C.S., L.R.C.P., L.S.A., chief assistant in the *x*-ray department, St. Bartholomew's Hospital. Price, $2.00. London: Henry Frowde and Hodder and Stoughton; New York: Oxford University Press, 1913.

The newspaper notoriety which the alleged therapeutic powers of radium have recently received renders this small volume especially timely because of the judgment and extreme caution with which the subject is handled. It furnishes a wholesome check to the belief in the panacea-like qualities which radium is popularly supposed to possess. The introductory chapter offers a very satisfactory résumé of the more important physical qualities of radium and its radiations. In view of recent statements, it is interesting to note that the writer gives a diagram for the arrangement of an electromagnet by which the alpha, beta, and gamma rays of radium can be separated for experimental purposes, but points out that practically this method is limited in its application. He does not, however, call attention to the well-known fact that we have no means of separating the action on the tissues of the gamma and beta rays, because the beta rays are changed when they impinge on any substance into secondary gamma rays and these again are altered into secondary betas. It is, therefore, impossible at the present time to decide whether the action of radium on tissues is due to the beta rays or to the gamma rays or both. He also does not insist sufficiently upon the necessity for accurate quantitative determinations of the amount of rays in order to judge whether they are stimulating or destructive. The mere exposure of tissues growing *in vitro* to the gamma or beta rays will either stimulate or check growth according to the quantity and time of application, though most of the investigators who have worked on the subject so far seem to have been utterly oblivious to this important fact. The second chapter is devoted to the internal administration of radium and its emanations; the third, to the histological effects of the rays of tissues; the fourth, to apparatus and methods of application; and the remainder of the book to treatment. In this latter portion there is a certain vagueness of expression which is characteristic of a good deal of the radium literature. "Often" and "sometimes" occur very frequently. On page 75, for example, the author states that squamous-cell epitheliomata while they do not respond very readily "can be got rid of with a fair degree of certainty in early cases." On page 85, he states that "On the whole, squamous epithelioma does not react well." Any one who has seen the rapid growth of epitheliomata of the lip under the stimulating action of radium will agree that squamous-cell epithelioma of the ordinary type is not within the scope of radium therapy. The author also calls attention to the fact that tumors of the same morphological type may vary in their reaction to radium. This is the crux of the whole situation. In all tumors surgical removal should be the first step, and radium should be used only when operation is refused or on recurrent nodules, because it is impossible to foretell either clinically or microscopically which form of tumor will react favorably. Another point which it is well to remember is clearly brought out, that the application of 100 milligrams of radium bromide for one hour is much more effective than the application of 10 milligrams for ten hours. The great danger in the present state of radium investigation is that small and untested amounts of radium are used which act only in a stimulating way on the tumors. Only a few of those working on the subject of radium therapeutics have sufficient radium to obtain satisfactory results.

Surgery of the Abdomen. In Two Volumes. By John B. Deaver, M.D., Sc.D., LL.D., and Astley Paston Cooper Ashhurst, A.B., M.D. Vol. II.—Surgery of the Gall-Bladder, Liver, Pancreas, and Spleen. With 52 Illustrations. Price $5.00 net. Philadelphia: P. Blakiston's Son & Co., 1913.

The present volume completes the work of these two authors on the surgery of the upper abdomen, the first volume of which appeared about four years ago. In addition to the authors' personal experience in this field of surgery, they have incorporated a thorough review of all the more recent sources of information in this important department. The contents include chapters on the surgical diseases of the biliary tract, the gall-bladder, and bile ducts, and the liver. The pancreas and the spleen are considered in several additional chapters, and the concluding portion of the book is devoted to the technique of operation. In the preparation of the abdomen before operation, the authors have become converts to the iodine method, although they fail to record a warning against the accidental contamination of the peritoneum with the iodized skin. Not only the common, but the more unusual operations involved, are carefully described. The book may be regarded as the final word in the surgery of the upper abdomen, written by two men who are particularly well qualified for this task. The book is very well printed and satisfactorily illustrated, and a complete list of references is appended after every topic considered.

The Surgical Clinics of John B. Murphy, M.D. Volume II, Number VI (December). Octavo of 186 pages; illustrated. Price, per year, paper, $8.00; cloth, $12.00. Philadelphia and London: W. B. Saunders Company, 1913.

In comparison with the preceding number this is distinctly inferior, although this does not mean that it will not well repay careful reading. This number takes up the following subjects: Tuberculosis of the lung; Production of artificial pneumothorax by injection of nitrogen according to Dr. Murphy's method; Bone cyst of the radius; Pyonephrosis, drainage; Exostosis of radius and ulna; Ununited fracture of the radius previously plated, transplantation of bone; Ankylosis of elbow; Laminectomy for tuberculoma of spinal column, with compression of spinal cord, kyphosis and lateral curvature, motor paralysis; Subcutaneous abscess following tuberculosis of the spine, aspiration and injection of formalin and glycerin solution; Undescended testicle in inguinal canal; Cholelithiasis, stones in common duct, with intense jaundice; Metastatic carcinoma of femur; Traumatic sarcoma of femur. Then follows a list of 149 cases operated on and demonstrated during the week of the Clinical Congress of Surgeons of North America, and the index to Volume II. The discussion of the surgical treatment of pulmonary tuberculosis is especially timely in view of the renewed interest that is now being taken in the subject. In making the diagnosis of pyonephrosis, Murphy discusses briefly tumors of the kidney and calls attention to the statement he made about ten years ago that there was "no authentically recorded case of true *sarcoma* in the kidney that had survived beyond two or three years without a return of the disease either *in loco* or in the other kidney." Thus no one should remove a sarcomatous kidney because the patients will average more than that period of life if they are let alone. The last two subjects on the list were discussed at a students' clinic and, in our opinion, should have been condensed at least one-half for publication. The question and answer process is instructive to the student, but a waste of time for the men who read these Clinics. The editor himself appreciates this point and promises that it will not occur again.

The Human Body and Its Enemies. A Text-book of Physiology and Hygiene and Sanitation, by Carl Hartman, B.A., M.D., Instructor in Zoology, University of Texas; and L. B. Bibb, B.A., M.D., attending physician Austin Sanatorium. 247 illustrations. Price, 84 cents. Yonkers on the Hudson: World Book Company, 1913.

The most important thing to emphasize in school physiologies is no longer anatomy or physiology but hygiene, particularly the parts dealing with the prevention of germ diseases. This text-book complies with the new ideas, not minimizing any of the phases of the subject but preserving the correct proportion among them. A summary of the most important points and questions is added at the end of each chapter. Numerous experiments easy to perform are scattered throughout the book. The illustrations are numerous and have a pedagogic value.

First Book of Health, a Text-book of the Personal Hygiene for Pupils in the Lower Grades, by Carl Hartman, B.A., M.D., Instructor in Zoology, University of Texas, and L. B. Bibb, B.A., M.D., Attending Physician Austin Sanatorium. Yonkers on the Hudson: World Book Company, 1913.

This book attempts to inculcate correct habits of living in the very young in simple language, intelligible to school children in the lower grades. It puts the pupil in possession of some of the great principles of sanitation, teaching him to be cleanly in person and how to escape from diseases that he himself has the power to avoid.

Diseases of Women, Medical and Surgical Gynecology. By Charles A. L. Reed, A.M., F.C.S., M.D. With Four Hundred and Forty-eight Illustrations in the Text. New York and London: D. Appleton & Co., 1913.

The preface of a new work is necessarily of interest to the reviewer as the author of the work usually employs this means to place before the reader his particular purposes in writing the same. The preface to Dr. Reed's very interesting work presents his purposes more clearly than is usually the case, and one cannot do better than to abstract the same and then venture to submit conclusions as to whether these purposes have been fulfilled. The book is stated to have been written exclusively to meet the demands of utility, and the writer believes that a practitioner, whether general or restricted, demands primarily a knowledge of the various pathological conditions peculiar to women, then the ability to determine the diagnosis of the particular case in hand, and finally a knowledge of what to do for it. A teacher of gynecology requires as a reference book for himself and as a textbook for his students, a work that is at once systematic, direct, and brief, without being synoptic; that is comprehensive without being discursive. A writer on gynecology needs a convenient text covering the particular status of the subject at hand. Dr. Reed has set himself to meet all these requirements in the present volume. His first departure is an omission of elementary anatomy, pathology, and bacteriology, all of which it is presupposed that the reader is familiar with. The usual bibliographical tables are also omitted for the reason that they can be found in a more satisfactory form in the *Index Medicus*. In addition to the topics usually considered under the head of gynecology the book also includes the surgery of the rectum, certain obstetrical operations, and surgical conditions of the kidney and ureters. The author states that he has made no effort to write a monograph containing his individual opinions on every topic considered, but, on the contrary, to give the actual status of each subject as it existed at the moment of writing. The judgment which he has been compelled to exercise may be stated to be a very satisfactory one. Diagnostic measures as they exist to-day are emphasized because of the conviction that careful training in this respect is not sufficiently developed in the profession. Medical and hygienic measures are featured in the initial stages of many cases belonging to the category embraced in this work, and the author is careful to insist on a sharp line of distinction being drawn between what may be classified as medical and surgical conditions. Dr. Reed is to be commended for his insistence that prolonged medical treatment in cases that require surgical measures often amounts to criminal negligence, the responsibility for which must be defined in courts of law. In recommendation of the fact that gynecology is a department of surgery, the author has described in detail something over two hundred operative procedures in which he has tried as nearly as possible to place the knife in the hands of the reader and then to tell him how to use it by directing him through each succeeding step. He is careful to state, however, that the presentation of such details does not warrant any one to undertake these procedures unless he has been properly drilled and apprenticed in surgical technique. The author is to be commended for calling attention to the fact that a practical knowledge of gynecology cannot be gained from any book, but must be acquired by actual observation and apprenticeship.

A careful examination of the book shows that the task which the author has set himself to do as outlined in his preface is satisfactorily carried out, both in the text and illustrations. Dr. Reed's own contributions to gynecology are so extensive that they occupy many pages, but credit is given wherever it is due to other workers in this field. The application of the originator's name to so many operative procedures may perhaps be questioned and descriptive terms would be more satisfactory than the application of a particular operator's name to some definite operative procedure. For example, in the description of cesarean section which we find in an excellent chapter on "Surgical Intervention in Dystocia," Cameron, Sänger, and Mann are all distinguished by having their names applied to certain procedures which might have been labeled much more satisfactorily in other ways. Reed favors the abdominal cesarean operation in preference to the vaginal route, which seems a strange admission by a gynecologist, in view of the fact that those who advocate the latter procedure are particular in asserting that a gynecological training will better fit one to carry it out. There is a definite field for this operation in cases where the abdominal cesarean is inapplicable, and although its use is restricted it is deserving of more attention than the author is inclined to extend to the same. The author fails to note the high abdominal incision as practised successfully by A. B. Davis. In the section on plastic operations the various accepted procedures are most satisfactorily presented and afford an excellent idea of the treatment of this class of cases. Among them considerable interest attaches to the procedure for correcting flexions of the uterus by excision of a wedge-shaped segment from the anterior or posterior wall by the abdominal route. A similar procedure by the vaginal route has been suggested by Coffey and others. A description of gonococcus infections is very commendable and the author gives to this important subject the attention which it deserves. The book contains a great many admirable features which should commend it to the practitioner and specialist. It constitutes a praiseworthy addition to American literature on gynecology and is worthy of the serious attention which the well-known abilities of the writer unquestionably command.

Bibliography of the Education and Care of Crippled Children. A Manual and Guide to the Literature Relating to Cripples, together with an Analytical Index. By Douglas C. McMurtrie. First Edition. New York: Douglas C. McMurtrie, 1913.

The importance of a volume of this kind can be fully appreciated only by one who has vainly sought references to the literature pertaining to the education and care of crippled children. The author has performed an invaluable service to sociologists, physicians, charity workers, and educators in compiling all the available literature on this subject. The volume is divided into three parts. In the first part there are 432 entries arranged alphabetically, according to the authors' names. In the second part there are 292 anonymous entries, also arranged alphabetically, according to the main subject matter. The third part comprises an analytical index, in which all the articles recorded in the first two parts are again referred to by number, entries being indexed by subjects, geographically, and by proper names, either of authors or of persons mentioned in the titles or annotations. The volume is handsomely printed and bound and fittingly represents a labor of love.

The Healthy Marriage. A Medical and Psychological Guide for Wives. By G. T. Wrench, M.D., B.S., (Lond.), Past Assistant Master of the Rotunda Hospital, Dublin. Price, $1.50 net. New York: Paul B. Hoeber, 1914.

This small book is designed for the instruction of married women and serves its purpose fairly well. The first chapter on The Value of Marriage is perhaps the most interesting. The subjects of Hygiene, Menstruation, Pregnancy, Labor, and Lactation are discussed in a clear, non-technical fashion and will be easily understood by the layman. The author makes one statement to which we must take decided exception. On page 110 he says, "The chief pollution of the air that is to be feared by a lying-in woman is that from drains, for such air can, it has been proved, be the cause of serious lying-in or puerperal fever." To find such a statement in a book published in 1914 is astounding to say the least. If any one thing in all medicine has been definitely proven it is the infectious nature of puerperal fever. The author's apparent recommendation of the purchase and casual use of such drugs as phenacetin and veronal without a physician's orders certainly should not be encouraged.

Moderne Radium and Thorium Therapie bei der Behandlung der Geschwülste, der Gicht, der rheumatischen Erkrankungen, der Neuralgien, und der Blutkrankheiten. Von Dr. Med. Adolph Bickel, Professor an der Universität, Berlin. Vortrag, gehalten on Fortbildungskurs, für praktische Aertze am 13 November, 1913. Price 1 Mk. Berlin: August Hirschwald, 1914.

This brochure discusses the physical, biological, and medical aspects of radium and thorium. Particular stress is laid upon the nutritive, functional, and formative effects of the rays on cell life of normal and pathological tissues.

# Society Reports.

## NEW YORK ACADEMY OF MEDICINE.

*Stated Meeting, Held February 19, 1914.*

THE PRESIDENT, DR. WILLIAM M. POLK, IN THE CHAIR.

### SYMPOSIUM ON THE PSYCHOPATHIES OF CHILDREN.

**The Education of High-Grade Defectives.**—Dr. B. SACHS presented this communication in which he declared that if medical men would bestir themselves, not only to offer aid in the solution of the problem of the education of defective children, but to first become acquainted with the efforts which had already been made by our public school authorities, some good might result. The force of medical opinion was needed in order that a constructive program might be carried out satisfactorily in this city. Dr. Sachs said there might be some doubt as to the duty which the public school had with reference to the low-grade defectives, the imbeciles, and the idiots, but there could be no doubt in regard to the high-grade defectives, who often differed but little from the supposedly normal child. Unusual and unnecessary stress had been laid upon the relation of crime to mental deficiency. The essayist had found that there was no need of putting this additional stigma of immorality upon families that were unfortunate enough to have defective children; in his opinion hereditary and prenatal influences bearing upon the development of criminals could be largely neutralized by proper environment. In this field there was a vast opportunity for the social worker. So far as possible the attempt must be made to secure proper environment for such children as came under the notice of the public authorities. In the entire movement for the care of defective children there must be hearty cooperation between the teacher, the social worker, and the physician. After calling attention to the work that had been accomplished by our school system Dr. Sachs said that it was very evident that the public school system had the entire machinery for the proper investigation of these defective children and for the means of placing them under proper supervision. In the ungraded class the children with varying degrees of mental defect were grouped together and one teacher was supposed to handle the entire class. As there was as great a difference in the mental powers of the high-grade defectives as in that of normal children it was easy to understand what an unfruitful task was the endeavor to educate all in the same class. If the ungraded class was to be the solution of this problem they must at least insist that there be different grades of ungraded classes. The ideal plan would be to have special schools scattered throughout the various districts in the city for the training of defective children. The school authorities had insisted that there would be serious opposition to the creation of such schools and that the public would resist sending their children to such schools upon which a certain stigma would rest. The Board of Education reported that special schools of this kind in Pennsylvania and Massachusets had to be abandoned, and it was doubtful if this objection should be encouraged. A change in name would often change the attitude of the public, as was seen by the fact that many did not hesitate to send a member of their family to a sanatorium who would object to sending the same individual to an asylum. If auxiliary schools were created, and if they were to include classes not only for the purely mental defective but also for those who had some other infirmity, say, for stammerers, for the deaf, and possibly for blind children, the stigma resting upon such auxiliary school would not be so keenly felt by the community. A moderate estimate seemed to indicate that there were fully 3½ to 4 per cent. of the school population needing some form of special training. The high-grade defective differed only slightly from the normal; there was a very gradual transition from the child who had normal powers of perception, or vision, of reasoning, and of memory, to the child who was slow of perception, chronically defective in its judgment, and somewhat slow in memorizing. The high-grade defectives were at a special disadvantage at the present day because of the modern methods of instruction in which the child acquired a knowledge of reading, writing, and spelling more by visual and auditory impression than by the development of memory, as was the case by the older methods of education. Many a child who was slow of perception could much more readily develop the power of memory, and yet the modern teacher of the normal child had no sympathy for the older methods of instruction. Curiously memory seemed to have fallen to a rather low degree in the estimation of the teachers, and the speaker said he could not see why that should be the case. This brought up the question of competent teachers—a very vital one. The teachers who were to care for defective children must necessarily be instructed in special methods and must possess special innate qualifications, so that among each class of teachers there could necessarily be only a limited number who would be at all fitted for this special work. It required an enormous amount of patience and a power to analyze the mind which few teachers and few individuals, on the whole, possessed. Dr. Sachs reviewed a case which illustrated the fact that frequently a speech defect was responsible for a teacher considering a child as mentally defective when in reality his mental faculties were quite up to the normal. In connection with speech defects the correctly called psychic speech defects as well as the mechanical should be considered and provided for in the special schools. Stammerers and all those who had similar defects should be treated in these schools. The high-grade defective child was at a great disadvantage because he was placed in a class with the lower grade defective or the idiot, and after all his mind and brain matter were not very much inferior to those of the supposedly normal child, and putting him with the low-grade defectives was doing him more harm than placing him among normal children. Therefore, if there was to be an ungraded class in the average public school, it should answer the purpose for the high-grade defective. If the public schools would care for these high-grade defectives they would be doing a very important duty because from this class useful citizens might be made, and with patience these minor defects might be overcome. Dr. Sachs, in closing, urged the medical men to stand back of the Board of Education in urging that the proper amount of attention and money be devoted to this special form of instruction.

**A Comparison of Certain Methods of Primary Education of Children with Reference to Their Value in Lessening the Liability to Psychoneuroses.**—Dr. JAMES J. PUTNAM of Boston read this paper in which he dwelt upon the importance, and also the difficulty, of training children from infancy onward, and during infancy, in such a way as to prevent them, so far as possible, from developing neurotic tendencies in later years. The carrying out of this difficult task devolved primarily on the mother, secondarily on the teacher; and the important thing for which physicians should strive was that these two classes of persons should be themselves trained to know more in detail about the psychology of infants and young children, on the one hand, and on the other hand to have strong and definite views about the goal of education at its best. A knowledge of childhood was not to be obtained except through an acquaintance with the principles and facts discovered or emphasized through the psychoanalytic movement. Young children began to find themselves, from birth onward, exposed to a double tendency—namely, that of seeking their own pleasure or their own advancement, in and for themselves alone, or that of recognizing, even dimly, that their lives belonged in part to the community, and could not be developed properly except in relation to the community, in an actual and an ideal sense. While, in consequence of this tendency to be drawn into paths that were not the best, the child was exposed to constant danger, yet nature was fortunately generous in offering more than one opportunity to every one to work out his development with some prospect of success. Parents and teachers should not, therefore, be too ready to assume that threatening symptoms necessarily mean a seriously bad outcome. Each person carried in himself an almost inexhaustible elasticity, and a longing, often misunderstood, toward some better course than that which showed itself at first. Referring more especially to the means of overcoming the dangers to which the child was exposed, on the one hand, and of promoting the best sort of forward development on the other hand, Dr. Putnam spoke of the importance of gaining an adequate knowledge of the psychology of childhood, as developed through psychoanalysis, and also an adequate knowledge of the real obligations and opportunities of the adult, and of the manner in which ordinary faults of character, which were practically nervous symptoms in disguise, interfered with the carrying out of these obligations. If the mother could learn to know something of her own childhood, and through this could acquire patience and recognize the importance of a

sympathetic attention to her child's intentions and troubles, she could put herself in a position to enable him to utilize his first mistakes as a means toward something better, while at the same time avoiding the blunder of encouraging a harsh unsympathetic repression on the child's part. As regarded the second portion of the advice, Dr. Putnam spoke at considerable length of the value of methods of training of which the kindergarten system of Froebel was the best example and type. The essential element in this system was that it encouraged the recognition, on the part of each child, and eventually of each adult, that he was at once a constituent part and a representative of the community, taken in a constantly wider and wider sense. The child could not be taught directly to entertain ideas of this sort, but if the mother entertained them, and had made them an integral part of her own life, the child would tend to become gradually imbued with corresponding feelings. To teach the child in this way meant to convey to him religious ideas in the best and simplest form. Psychoanalysis was of value here also, because its scrutinizing tendency laid bare false and sentimental attitudes which might be called religious, but which had little in common with religion or philosophy, in the best sense. With reference to the details of the psychology of childhood, as brought out through the psychoanalytic method, Dr. Putnam referred, among other sources of information, to a book by Dr. Von Hug-Hellmuth, called "Das Seelenleben des Kindes." Psychoanalysis itself should be considered as a phase of education, and pursued as being a partial science of human motives, and needed to be viewed on the background of a final nd inclusive science of human motives. The essential point then in the training of the child was that every mother and every teacher should, on the one hand, learn to know more in detail about the child's dangers, and on the other hand, should have far higher standards than were at all uniformly prevalent with reference to ethical needs and possibilities, in order that they might impart these to the child, not so much in words as through an unseen influence. The child should be regarded then, not alone from the side of his defects and faults, and as a troublesome member of society whom it was our duty to correct, but as a being animated by some rays of an immense power which we should learn to recognize and foster. But at the same time it was not enough to say that the education of the child should be conducted, for example, in a religious spirit, for this spirit needed the critical pruning and scrutiny that only an adequate psychoanalytic method of illumination could supply.

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SECTION ON OBSTETRICS AND GYNECOLOGY.

*Stated Meeting, Held January 27, 1914.*

DR. ASA B. DAVIS IN THE CHAIR.

**Report of Two Cases of Ectopic Pregnancy. Presentation of Patients and Specimens.**—Dr. ALFRED M. HELLMAN made this presentation. He stated that the patients entered the Lebanon Hospital the same day and the specimens obtained from them were unusual.

CASE I.—This patient was 30 years of age and her last period was ten weeks before her admission to the hospital. She had been married nine weeks. Four weeks before admission to the hospital, or about January 3, she began to stain slightly and had cramps in the lower abdomen. This stopped but began again two weeks later and continued up to the time of admission. At 8 A.M. of the day of admission she was seized with sudden dizziness, blurring of vision, and fainting. She presented the usual symptoms of ruptured ectopic pregnancy. Upon the arrival of the patient at the hospital, a median incision under ether anesthesia, and a saline infusion were started at the same time. The left bleeding tube was easily found and tied. The patient's condition rapidly improved during the operation. The rupture in the tube was so close to the cornu of the uterus that it was necessary to resect a large fibroid which was pinned to the uterus. As it was impossible to arrest the bleeding from the base of the fibroid a simple typical supravaginal hysterectomy was done. The patient was returned to bed and given another infusion. She made a rapid and uneventful recovery. The specimen was a uterus with multiple fibroids, the largest one arising at the left cornu and right next to the point of rupture of the ectopic.

CASE II.—This patient, 26 years of age, was admitted to the hospital with the following history: She had been married four years, had two children, the youngest eight months of age. Her labors had been uncomplicated. After her last labor amenorrhea persisted for six months. On November 10, bleeding occurred and continued until she was admitted to the hospital. On December 15, when riding on a street car, she was severely jolted and thrown, when she was immediately seized with severe cramps in the lower abdomen and had vaginal bleeding. One week before admission the cramps again became worse and from that time defecation was extremely painful. When she was admitted on January 3 she had a temperature of 106 F., tenderness over the lower abdomen, and exquisite tenderness and a rounded mass in the cul-de-sac of Douglas. The temperature rapidly became normal and four days later the specimen presented was removed, and the patient made an uneventful recovery. The specimen was a distended tube which had ruptured along its upper border though the opening was closed by clots. The ovum was intact and adherent to the posterior wall.

**Report on a Case Presenting Three Ureters; One Opening Extravesically. Operation Followed by Relief.**—Dr. HENRY DAWSON FURNISS reported this case. The patient was a young woman, 20 years of age, first seen by him in June, 1913. She stated that ever since she could remember she had been constantly wet with urine day and night, and that rest made no difference. She complained of no other symptoms. A ureter opening extravesically was suspected. The patient was given indigo-carmine intravenously and the vagina and vestibule packed with wet cotton. After fifteen minutes it was seen that the cotton over the urethra was faintly stained. A small opening was found just underneath the urethral meatus. This could be catheterized only one inch and a half, and from it the catheter seemed to run to the left. Cystoscopy showed a normal bladder and ureters discharging normally. A diagnosis of supernumerary extravesical ureter was made. At the Post-Graduate Hospital, June 28, 1913, under ether anesthesia, the supernumerary ureter was catheterized for four inches. An incision was made with scissors into the mucosa covering the under surface of the urethra over the catheter. Unfortunately the incision went into the ureter, which was here dilated to the size of a large lead pencil. A sound was then passed into the bladder and the bladder mucosa and the mucosa of the sac were united with fine catgut in such a way that the distal end was obstructed. Thus the ureter was made to enter the sac and from the sac to the bladder a fistula was formed. The original plan was to dissect out the ureter for a distance of one and one-half to two inches; then make an opening into the bladder from the bed from which the ureter was dissected, and through this to put the ureter into the bladder. The change in method of operating was due to the dilatation of the distal end of the ureter, which thinned out the ureteral wall and to the thinness of the mucosa covering the ureter. After the operation there was no leakage for two days. The catheter was removed from the bladder on the third day and the patient began to wet herself as usual. On July 11 the following operation was done: The ureter was dissected backward for one and one-half inches. The ureter increased in size toward the renal end and was about one-half the thickness of a led pencil. A suture was placed through the end of the ureter, and a sound was passed into the bladder which was made to bulge the bladder wall backwards and to the left, and over this a small incision was made. The suture was held to the sound and the ureter pulled into the bladder where it was held with one suture through the bladder and a part of the ureter. The suture that pulled the ureter into the bladder was sutured just below the clitoris. A permanent catheter was left in the bladder for four days. Following the operation the patient developed a marked cystitis, which responded readily to irrigations of nitrate of silver. Since this operation there had been no leakage of urine and the patient had been entirely relieved of her troublesome condition.

**A Case of Reported Adenocarcinoma Cured by Curetting.**—Dr. HERMAN J. BOLDT read this report. The patient had consulted him the day after she had left Dr. Ladinski's care. She wanted to know whether a hysterectomy was necessary, because she had been told that she had cancer. After putting himself in communication with the pathologist Dr. Boldt said he had failed to get a copy of his report, or the specimen, or

the slides upon which the diagnosis had been based. Not finding, upon the most careful examination, the slightest subjective or objective evidence of carcinoma, he had proposed a curettage and an additional examination of the scrapings. About two weeks later, after the report on the examination of the second curretting specimens had been received, Dr. Ladinski's pathologist lent him the slides which were made from the block in which, he said, the scrapings from the patient were embedded, and he was astonished to find an adenocarcinoma, far advanced, as was indicated by the slide on exhibition. On the second slide was an area of carcinoma not much resembling the character of the cancer observed on the first slide. A study of the sections failed to show a transitional stage. Other competent experts had also failed to find a transitional stage. All stated that it was not an early stage of adenocarcinoma. So Dr. Ladinski's case, considering all features, must be considered unique. Dr. Ladinski was to be congratulated on being so singularly fortunate as to have, as seemed evident, the first case which had been cured of advanced adenocarcinoma by curretting for diagnosis. There had been a few cases of adenocarcinoma reported cured by curetting for diagnosis but they did not resemble this case. It was evident that the disease was not in the early stage; it had transgressed, as one of the sections showed, full into the muscularis. Whereas serial sections of the curettings obtained two weeks later from the same patient, and the scrapings were done very thoroughly, not missing any part of the endometrium, showed practically a normal mucosa. In order to illustrate how unusual Dr. Ladinski's case was Dr. Boldt submitted the written reports from two pathologists, whose ability and competency could not be denied, Professor William H. Welch of Johns Hopkins, who had no superior living to-day; and Dr. Noujean, of the Practitioners' Laboratory, who had experience under von Recklinghausen and Baumgarten beside clinical experience as assistant in the leading gynecological clinics of Europe. Some other experts in pathology expressed the opinion that the case was so "unparalleled that it was more natural to suppose that a mistake had been made in the specimens, which might occur and repeatedly had occurred, no matter how carefully laboratory work was conducted." But in this particular instance this seemed impossible from what the pathologist who examined Dr. Ladinski's specimen said. Dr. Boldt recalled another instance, seen in consultation with Dr. Ladinski some seven or eight years ago, under somewhat similar circumstances. That patient was seen by the speaker three years later, and was in perfect health, despite the fact that her uterus had not been removed, because of Dr. Boldt's opposition, though it was asserted by Dr. Ladinski to be the seat of malignant neoplasm, and that the patient would die if the uterus were not removed.

Although only a few weeks had passed in this last case, yet a most careful intrauterine exploration, made on January 20 revealed nothing suspicious. If one could get a cure, judging entirely from the pathological report, from an ordinary curetting for diagnosis, it would seem that those—and the speaker said he belonged to that number—who insisted upon the desirability of doing a radical operation, in the early stages of carcinoma of the uterus, were subjecting their patients to an unjustifiable risk and their conception of cancer of the body of the uterus was faulty, and they ought to remodel their therapy in instances of malignant disease of the body of the uterus. Dr. Boldt then read the reports of Dr. William H. Welch and Dr. Victor Neujean, both of which concurred in finding absolutely no evidence of adenocarcinoma or other serious abnormality.

Dr. Louis J. Ladinski said that the question of pathological diagnosis in this case would have to be settled by the pathologists. He was glad that Dr. Boldt had reported the case in full, and that it would only be necessary for him to give the history of the case up to the time when Dr. Boldt had first seen the patient. Dr. Ladinski said that he took exception to the reference made by Dr. Boldt to another case, seen some seven or eight years ago by him at Beth Israel Hospital with Dr. Ladinski, as being similar to the case just reported. In that case Dr. Ladinski advised an exploratory curettage on a woman who had aborted and who bled profusely and persistently, in order to ascertain whether malignancy were present, and if present, a hysterectomy was proposed. When Dr. Boldt made a digital examination of the uterine cavity, he did not think there was malignancy; a curettage was then done, and as the specimen examined showed nothing abnormal a hysterectomy was not done. That case was not one of adenocarcinoma cured by curettage. The case reported by Dr. Boldt was seen by Dr. Ladinski at his office for the first time on October 7, 1913. She was 47 years of age, had been married twenty-two years, and had never conceived. She had menstruated regularly every four weeks, from one to five days, until two years ago, when the menses ceased for a whole year. For the past year, however, she had bled irregularly on and off. She complained of no pain. On examination the uterus was found somewhat larger than would have been expected in a woman who had never conceived and had begun the menopause two years ago. A small bleeding mucous polypus protruded from the os. This the speaker said he clipped off. As the bleeding continued in spite of several intrauterine applications of iodine for five weeks after the removal of the polypus, he had advised a curettage for diagnostic purposes. He continually assured the patient that the bleeding was not caused by any malignant disease, even when he had removed the tissue from the uterus. Much to his chagrin Dr. Eli Moschcowitz, the pathologist, reported that the scrapings showed adenocarcinoma. The patient was taken home to recuperate for a hysterectomy, when her relatives asked for a consultation with Dr. Coe, and he had concurred with the speaker as to the advisability of a hysterectomy. The patient then went to Dr. Boldt. The interesting feature of this case was the coincidence of mucous cervical polypus which marked the history and clinical symptoms of what would otherwise have been looked upon as almost pathognomonic of malignancy, so that the curettage was postponed for about six weeks. This case taught that with the suspicious history that was here presented it was imperative to take nothing for granted, but to do a curettage for diagnostic purposes. Had he performed a diagnostic curettage when the patient came to him she would have consented to a hysterectomy and would now be free from a uterus which was positively the seat of adenocarcinoma a few months ago, and should, therefore, be removed. As an instance that a case of adenocarcinoma could not be considered cured because the second scrapings done two months after the first did not confirm the presence of malignancy Dr. Ladinski read the report of a case reported before the Section May 25, 1911, and published in the *American Journal of Obstetrics and Diseases of Women and Children*, August, 1911.

Dr. Eli Moschcowitz said that in this instance a mistake arising from incorrect numbering of the slides in the laboratory could be excluded. The specimen could be definitely traced from the operating room to the fully prepared slide; moreover, no case of adenocarcinoma of the uterus came to the laboratory for many weeks before and after this incident. Dr. Moschcowitz defined what he understood by the terms "precancerous stage" and "early" cancer. He did not believe the term "precancerous stage" was justified. A tumor was either a cancer or not a cancer. He did not deny that there were predisposing conditions, but these were not cancer. He understood the term "early" cancer as signifying size rather than precise microscopic picture. The microscopic unit of every variety of carcinoma was the same, whether the cancer was small or large in size. It was, therefore, impossible from a given microscopic picture to determine whether a cancer was in the early or late stage. The fact that Dr. Ladinski's specimen showed extension into the musculature did not, therefore, necessarily prove that the carcinoma was advanced. This extension into the musculature was demonstrable in practically every case of carcinoma of the corpus uteri; indeed, he did not recall any case of carcinoma of the corpus uteri which was strictly limited to the mucosa. There was only one conclusion to be derived from the course of events occurring in Dr. Ladinski's case and that was that at the first curettage the entire carcinomatous area was removed. In the past few months four cases of similar nature had been reported in the German literature. Many pathologists to whom Dr. Moschcowitz had spoken related similar experiences, namely, that they had reported adenocarcinoma upon exploratory curettings, and examination of the uterus after hysterectomy showed no further traces of malignancy. Dr. Moschcowitz did not believe that Dr. Boldt was justified in reporting the case as "cured." . . . The case would be of even

greater interest if reported three years from now.

Dr. BOLDT, in closing the discussion, said that he had nothing to add about this case, but that he remembered the case referred to which he had seen seven or eight years ago. A hysterectomy was to have been performed on a certain day and the husband came to him and urged him to see the case and advise in regard to the proposed operation. He at first refused, but it was finally arranged that he should see the patient. Dr. Ladinski made the statement that he was going to do a hysterectomy as the condition was one of malignancy. Dr. Boldt said that from the clinical evidence he differed in regard to this diagnosis. There had been no profuse hemorrhage, only slight hemorrhage at intervals. He had suggested that Dr. Ladinski do a curettage and not a hysterectomy.

Dr. LADINSKI, in closing the discussion, said, in regard to Dr. Boldt's statement concerning the case referred to as occurring seven or eight years ago, he would like to ask Dr. Boldt to say whether scrapings had been made and whether a pathological diagnosis had been made before Dr. Boldt saw the case; furthermore, whether Dr. Ladinski had advised a hysterectomy when a microscopical diagnosis had not been made. Dr. Ladinski declared that it was quite impossible that he could have advised a hysterectomy for carcinoma without a laboratory diagnosis of the curettings. That was not his custom.

**Two Cases of Congenital Absence of the Vagina.**—Dr. HERMAN J. BOLDT reported these cases. The first case showed absence of the vagina, a rudimentary uterine cavity, and cystic degeneration of both ovaries. The second case showed the anatomical conditions usually found in such cases, rudimentary uterus and tube, and ovary somewhat elongated and in cystic degeneration. In both of these instances a vagina was made by intestinal implantation, using a part of the colon. The results appeared to be successful, but he did not know about the function in the sexual relation. He had lost sight of the first patient and the second had been deserted by her husband because of the absence of the vagina and had not returned. Dr. Boldt felt sure that the result would remain perfect as it was a physical impossibility for contraction to occur with the normal mucous membrane.

Dr. HENRY DAWSON FURNISS said he had seen two instances of complete absence of the vagina, one of which had been operated upon. Two of the cases had come to the clinic because they were contemplating marriage and wanted to know if marriage would bring about the establishment of the menstrual function. In these two instances no evidences of genital organs could be found. In the case operated upon an attempt was made to line the vagina with skin flaps, but the result was exceedingly unsatisfactory. In his opinion the method used by Dr. Boldt was the one of choice.

**Report on a Case of Cesarean Section Followed by Hysterectomy for Dystocia Due to Fibroid in the Lower Uterine Segment.**—Dr. GEORGE W. KOSMAK reported this case and presented specimens and diagrams. He stated that the case was reported as an instance of absolute dystocia due to a hard fibroid mass which occupied the greater part of the pelvic inlet. The patient was 33 years of age, and married for the second time in October, 1912. She had never been pregnant before and her menstrual history was normal in every respect. Her last regular period occurred on February 14, 1913. During the last week in April the peivic tumor was diagnosed for the first time and the patient was advised to have her pregnancy terminated. She concluded, however, that she would try to carry the child to term. She was first seen by Dr. Kosmak on September 20, 1913, when the fetus was found to be about seven and one-half months. Vaginal examination showed the pelvis obstructed by a large rounded mass above which the fetal head could be distinctly palpated. The cervix was small, moderately softened, not dilated, and occupied a position back of the symphysis where it could be reached with difficulty. The patient was seen at regular intervals and the growth of the fundus followed. She was admitted to the Lying-In Hospital on November 27, the end of the pregnancy having been calculated for November 21. As the pelvic mass seemed firmly fixed and it was impossible to displace it a cesarean section was decided upon and the patient was operated upon on November 29, 1913. A hypodermic of ergotole was administered at the beginning of the anesthetic. In view of the necessity for doing a hysterectomy, the incision was made in the median line below the umbilicus and within three inches of the symphysis. On entering the abdomen the uterus was found to be irregular in shape with firm walls containing a number of fibroid nodules. The peritoneum was loosely attached over the entire anterior aspect of the uterus and the vessels on the surface were greatly distended. The incision in the uterus was made in the median line and the wall found to be at least two inches thick. The membranes were freed, the sac ruptured and the fetus extracted by the breech. It was readily resuscitated. The friable placenta was extracted completely together with the membranes; both showed decided yellow tinge. There were numerous large and small fibroid masses present over the entire segment of the uterus and the lower portion was likewise made up of a rounded fibroid mass which almost completely filled the pelvis. As the patient was in good condition a hysterectomy was decided upon. Owing to adhesions and the varicose condition of the surrounding veins it was not possible to save the ovaries. A supravaginal amputation was successfully done and the cervical stump then sewed over with interrupted chromic gut. During the early stages of the hysterectomy the patient's pulse began to go up and 1,000 c.c. of salt solution were introduced under the breasts. On the left side the descending colon was bared because of its adhesions to the uterus. This was carefully sewed over and gave no further trouble. The patient made a perfectly uninterrupted recovery with the exception of a slight pyelitis. Both she and the baby left the hospital in excellent condition. The case with the specimen shown demonstrated conclusively the inadvisability of waiting too long in the presence of this form of dystocia before resorting to radical operation. The question of doing the hysterectomy at a later time was answered by the favorable recovery which resulted in comparison with the possible sloughing and degeneration which might have occurred in this fibroid mass had it not been removed.

**Chronic Cystic Mastitis or Abnormal Involution of the Breast.**—Dr. PARKER SYMS presented this communication. He stated that little or nothing was known of the etiology of this condition. The histological changes were of such a variety that the disease had received a great many names, most of them indicative of some characteristics of the pathological changes; and these changes varied so much in different cases that an observer was very apt to give a name to the process depending on those changes which had appeared most prominent in the cases that he had studied. An incomplete list of the titles which had been given to this condition included chronic mammary tumor, cystic disease of the breast, or intraacinous cystic epithelioma, epithelial cirrhosis, interstitial mastitis, chronic cystic mastitis, nodular mastitis, fibroma mammæ tuberosum, cyst adenoma, mammary cirrhosis, cystic epitheliomata, papillary epitheliomata, chronic mastitis, mastitis chronica fibrosa, epithelial polycystoma, fibrous and glandular hyperplasia with retention cysts, senile parenchymatous hypertrophy, abnormal involution of the breast, mastitis of the menopause, chronic diffuse mastitis. The disease usually occurred after the thirtieth year in women who had borne children, in married women who had not borne children, and among single women who had not borne children. It also occurred in men. Owing to the fact that it occurred during the age period above cited it represented a change taking place in the breast during the actual cancer period. Owing to the remarkable changes which took place in the epithelium, and the fact that a very large proportion of these cases became cancerous, it was proper that it be considered as one of the precancerous conditions. Acute mastitis sometimes preceded the development of this chronic form, and it was doubtless an etiological factor in a small proportion of cases. There was little if any evidence to show that traumatism had acted as a causative factor in this condition. Being an inflammation it must be assumed that the phenomena were really a response to some form of irritation, either mechanical, bacterial, or chemical. There were some who claimed that all such hyperplastic inflammations were due to autotoxication. The essayist thought that it was more likely that they would find its explanation in the very unstable nature of the physiological functions of the gland. He reviewed the changes coincident with puberty, menstruation, lactation, and the menopause, which showed that the gland throughout life was subject to rapid evolutions and involutions. The epithelium was singularly unstable and

subject to change in both its quantity and its quality, and in relation to itself and the other structures of the gland. There was a singular analogy between his condition and the condition commonly known as senile hypertrophy of the prostate. Senile hypertrophy of the prostate was really a chronic cystic prostatitis. The two conditions were similar in their liability to transformation into cancer. From the names given to this condition it would be seen that some authors considered it to be purely an inflammatory process; others considered it entirely hyperplasia; while still others had seen only the evidence of tumor formation. Probably no one name in the entirely list given gave a sufficiently comprehensive idea of the condition except the indefinite one of Warren, namely, abnormal involution of the breast. Whitney had probably come nearer to it and his title would have been correct had he amplified it thus, chronic mastitis, with fibrous and glandular hyperplasia with retention cysts. The various pathological changes found represented either distinct stages of the disease, or its development according to certain tendencies. Thus, different cases would represent a great variety of processes, and one might find different parts of the same breast showing a variety of pathological changes, almost contradictory in their character. After reviewing the pathology of cyst formation the writer said that it was chiefly with the behavior of the glandular epithelium that they were concerned. It depended on just how far these cells had departed from the normal whether or not transformation into a carcinoma had or had not taken place. Undoubtedly the determining point was the fact that masses of epithelial cells had so infiltrated the surrounding structures that they had penetrated their basement membrane. This corresponded with Adami's definition, "We regard as cancer all cases in which there is infiltrative, and apparently independent, growth of epithelial or gland cells into the surrounding tissues, and this whether of only slightly atypical or markedly atypical cells." The epithelium could go through a very wide range of changes without evincing cancer, but when there was penetration of the cells through their basement membrane, with rupture or loss of basement membrane, this was cancer. In summing up these processes it would be seen that this disease was a very complex one, consisting of chronic inflammation, of hyperplasia of certain of the structures, of the production of fibroepithelial tumors, which were really more than hyperplasias, and finally of the production of cancer. There was no doubt that these various histological changes really represented progressive stages of the disease. The symptoms of this condition were usually tenderness, sometimes pain, in the breast affected; the disease was frequently bilateral. It was characterized by more or less indistinct swelling often amounting to distinct tumor-like masses. The lesions were found principally in the periphery of the breast. There was more a change in texture than a hypertrophy. There was seldom evidence of an active inflammatory process. Retraction of the nipple was not characteristic nor a part of this disease, neither was adhesion of the skin or fixation of the gland to the deeper structures. The progress of the disease was slow and chronic, but it was not steadily progressive. During the earlier stages more or less resolution might take place, but when there had been the production of much hyperplasia restitution to the normal could hardly be conceived. After the menopause complete atrophy might take place. The disease might reach a certain height and remain stationary, or it might undergo transformation into carcinoma. In reply to the question, "Have we any means of determining clinically just what pathological change is present or is taking place!" Dr. Syms said that in a way they had not. There were no reliable statistics to show just what proportion of these cases became cancerous. Finney, quoting other authorities, placed the proportion of cancer at from 10 to 50 per cent. Some clinicians, while vague as to statistics, emphasized the fact that they should be on the lookout for evidences of transformation into cancer, but they failed to tell what these evidences were. Some claimed that one should always regard this condition as being a precancerous state, and that it should always be treated as such, that was by unsparing ablation. Others claimed that one had sufficiently performed his duty if he removed apparent tumor formation. This disease really presented to the surgeon a new problem as he had been seeing these tumors when they were in a full state of development, but the information given the public through the cancer campaign was now bringing these conditions to the notice of the surgeon at an early stage. The surgeon of the future would be seeing a very different type of cases from those that had presented themselves hitherto. A thorough research of the literature showed that there was no unanimity of opinion in regard to the treatment of this condition. The treatment outlined by many was not a logical sequence of their own statements. This condition of chronic cystic mastitis should be regarded as more than a possible cancer; it should be regarded as a precancerous condition, and each case should be considered as a potential cancer. It should be treated as a cancer in embryo, that was by radical ablation of the breast. Simple amputation of the breast was not so effective. The radical operation was no more disfiguring, no more mutilating, no more disabling, and no more dangerous than the lesser and less effective procedure. By pursuing this plan some breasts that might have been preserved would be sacrificed, and an unnecessary major operation would sometimes be performed, but it would result in the greatest ultimate conservatism. If, on the other hand, these patients were watched and the endeavor made to detect signs of cancer formation many mistakes would be made, and if the attempt was made to treat them by partial operation mistakes would be made. In a certain proportion of cases they would remove benign tumors and leave malignant growths behind. If they depended on the microscopic examination of frozen specimens they would be misled in at least a small proportion of cases. This was one of the conditions in which frozen sections should not be relied upon. Early radical operation would result successfully in 100 per cent. of cases; the waiting and watching policy, or treatment by incomplete operation, would result in a certain percentage of failures.

Dr. A. Ernest Gallant said that he had first come to the decision that it was necessary to remove these breasts *in toto* from cases seen at the General Memorial Hospital in 1892. This view had been confirmed later when he heard a paper by Dr. W. W. Keen, in which he showed that every neoplasm, of whatever variety, had in some instances sooner or later degenerated into the malignant type, and he recommended the earliest removal by radical operation of all breasts in which any other than a temporary galactocele was found. Dr. Gallant said that that very day he had seen a nurse whose breast presented the condition so graphically described by Dr. Syms. As the engorgement varied with each menstrual period, and as the periods recurred every three weeks he had advised her to have the metrorrhagia corrected at the source and then be guided by the after effect on the glandular mastitis. The small size of these nodulations could not be taken as a criterion of their benign or malignant nature. Dr. Gallant related the history of a case which seemed to be a simple galactocele which was dissipated by snugly bandaging the breast, but it only made clear the presence of a hickorynut sized tumor. A radical operation was done, but the patient died within twelve months of mediastinal carcinoma. The small nodule proved to be adenocarcinoma. Prompt, radical operation was the only hope of saving these unfortunate women from the danger of malignant disease.

Dr. Forbes Hawkes recalled two cases that had been under the care of Dr. McCosh at the Presbyterian Hospital, in which a cyst had been removed for chronic cystic mastitis and in which there was no suspicion of malignancy; both patients, however, had died within a year and a half of the operation from general carcinomatosis. In cases of so-called chronic cystic mastitis it was better to remove the whole breast by a radical operation for otherwise portions might be left behind containing malignant cells. Many cases of chronic cystic mastitis had enlarged axiliary glands on the same side. He had never had a report of carcinoma on such glands, but thought it was wiser to remove them at the time of the mastectomy.

Dr. Syms, in closing the discussion, said that while one must be convinced of the advisability of a radical operation in these cases, when it came to individuals and became a personal matter the problem was very difficult and one was tempted to do less than his best. Assuming that one in ten of these cases was cancer, then by resorting to the incomplete operation one would be right nine times out of ten, but he would be wrong once in ten cases. This was too great a risk to recommend. There was only one safe advice to give, and that was radical operation. Dr. Syms said that he had

recently been consulted by a young woman about to be married. She had a chronic cystic mastitis with a benign fibroepithelial tumor. Under the circumstances he did not feel like subjecting her to a radical operation. Although Dr. Sendorn had reported that there was no evidence of malignant growth, he would watch the future of that breast with great anxiety and with a great sense of responsibility.

## SECTION ON SURGERY.

*Stated Meeting, Held January 2, 1914.*

DR. CLARENCE A. MCWILLIAMS IN THE CHAIR.

**Case of Syphilitic Splenomegaly.**—Dr. WALTON MARTIN presented this patient with a marked anemia and gummata of the spleen. Cross sections showed two or three little nodules in the spleen, each three or four millimeters in diameter. The spleen was adherent to the diaphragm and when separated there were many places of bleeding. The case was of special interest because of a mistaken diagnosis. Gummata were found all over and through the liver.

**Splenomegaly with Anemia in a Syphilitic Patient.**—Dr. JOHN A. HARTWELL presented this patient, who had lived in the West Indies until 1912. When five years of age he had had a severe dysentery, and when thirteen an illness with fever. He denied any venereal infection. He first began to suffer with slight pain in the splenic region in 1910. It recently had grown severe, and after a severe attack he noticed that his stools would be dark in color and afterward the pain would be relieved. In 1913 he first vomited blood in a large quantity, which necessitated his staying in bed. Examination on admission to the hospital showed anemia and a large spleen, extending seven cm. below the costal margin. The liver was normal in size and there was no evidence of ascites. The blood examination showed red blood corpuscles 1,700,000; hemoglobin 25 per cent.; white blood corpuscles 9,000; polymorphonuclears 75 per cent.; lymphocytes 20 per cent.; large mononuclears 1.5 per cent.; eosinophiles two per cent. Three days after his admission to the hospital they received blood from a man whose blood showed no hemolysis with that of the patient. The patient's spleen increased in size, being eleven and one-half cm. below the costal margin. On April 23, one week after admission to the hospital, the patient received 750 c.c. of the blood referred to. On April 26 there was no marked increase in hemoglobin, but the red blood corpuscles increased to 2,500,000. There were some normoblasts seen. On April 28th the hemoglobin was 20 per cent., and the red blood corpuscles 2,550,000. The patient vomited blood and passed it in the stools in large quantities on April 28 and again on May 9. On May 6 the Wassermann test was strongly positive. Neosalvarsan was administered and also mercuric salicylate and potassium iodide. On June 5th these drugs were discontinued and iron and arsenic were given. The patient continued to improve until July 30th. At various times there were small petechial hemorrhages on the skin and on one occasion in the retina. The patient was readmitted to the hospital on August 15th with a history of having vomited blood and again become weak and pale. The spleen was 9½ cm. below the costal margin. There was liver dulness from the fourth rib to two fingers below the ribs. There was no fluid in the peritoneum. In September the patient developed acute otitis media with pus which healed kindly. On October 3rd there were signs of fluid in the abdomen; on the 6th blood in the stools, and on the 13th the spleen was 15½ cm. below the ribs, and 22 x 21 cm. in extent. The condition of the patient grew worse and on November 18th splenectomy was performed. The spleen weighed 1200 c.c. There was some hemorrhage and a transfusion was done. The patient developed pneumonia and the usual response in leucocytosis. The pathologist reported this to be a case of chronic passive congestion with thickening of the trabeculæ, chronic perisplenitis and large and numerous splenic follicles with fibroid centers. The eosinophile and myoelocytic changes suggested those found in cirrhosis of the liver. Following the operation the patient promptly improved in his blood condition and in two weeks the hemoglobin was 80 per cent. and the red cells were 5,100,000. This case was undoubtedly one of syphilitic cirrhosis with splenomegaly.

**Tuberculosis of the Spleen. Septic Infarction, Polycythemia. Splenectomy.**—Dr. JOHN DOUGLAS and Dr. A. B. EISENBREY presented this communication. They declared that secondary tuberculosis of the spleen was not uncommon, but that true primary tuberculosis of the spleen was probably extremely rare. In cases of so-called primary tuberculosis of the spleen described in the literature, the tuberculous process in the spleen formed the main lesion, the probable original focus of point of entry remaining quiescent or healing, while the process in the spleen developed. The most recent and complete article on this subject was that of Winternitz, who had collected and tabulated fifty-one cases from the literature. Sixteen of these had been operated on with nine recoveries or a percentage of 56. His analysis and summary of these cases were so complete that the conclusions found might be given as follows: "Tuberculosis of the spleen seemed to be equally frequent in the male and female sex. It was most frequent between the ages of twenty and forty, but might occur at any age, the youngest in his list being one year and the oldest eighty years. The symptoms might run an acute or a chronic course; in the acute cases the symptoms were those of an acute systemic infection, while in the chronic cases the onset was characterized by pain or tumor in the splenic region in 70 per cent. of the cases. There might be in addition gastrointestinal or respiratory disturbances. In the list of fifty-one cases the blood count was given in twenty-six. It was normal in nine, or 34.61 per cent., showed anemia in eleven, or 42.30 per cent.; polycythemia in six, or 23.08 per cent. The anemia was not marked in any instance, 3,200,000 being the lowest count. As a rule the leucocytes were not increased, and their number seemed totally independent of the number of red blood cells. Winternitz stated that death always followed if the spleen was not removed. In contrast to this statement they had that of Osler in an article on erythrocythemia who declared that "Splenectomy should never be done in these cases." The list of cases in which the blood picture showed a true polycythemia bore out this latter conclusion. In view of the fact that in their case tuberculosis of the spleen and polycythemia coexisted, these conflicting statements made the question of the treatment of such cases a difficult one. The essayists gave a review of the literature on the subject of polycythemia and reviewed the five theories as to its etiology calling attention to the syndrome first brought into notice by Turk in 1904, namely, enlarged spleen, cyanosis, and high red count. The review of the literature indicated how little really had been definitely determined as to the etiology and essential pathology of polycythemia. The direct relation between polycythemia and tuberculosis of the spleen was open to question.

The case reported was that of a man, 39 years of age, a salesman, whose family history was irrelevant, save that his mother died of nephritis. As a child he had had chills and fever and severe nose bleed. In 1902 he had pneumonia, followed by pleurisy. The previous history of the patient covered seven years. His history taken in 1905 stated that there had been no recent cough, catarrh, or pleurisy, but that during the previous year he had begun to have frequent attacks, during which his face turned purple, and he became very nervous, but he never lost consciousness. In 1907 he complained of momentary attacks of blindness of the right eye from one to six times a day. An oculist reported that his eyes were normal and that the trouble was due to vasomotor disturbance. In 1908 the spleen was palpable one inch below the ribs on deep inspiration. Urinary examination in 1909 showed the presence of albumin, acid reaction, granular and hyaline casts, pus cells, and spermatozoa. The quantity of urine was two quarts in twenty-four hours. Shortly after this he had a severe hemorrhage from the stomach and bowels. He gave a history at this time of cyanosis, flushing, gastric splashing, insomnia, constipation and momentary loss of consciousness. After that he spent a year in the West and made a stay there, from which he returned somewhat improved in health. In November, 1912, he had been suffering from indigestion and pain in the region of the spleen. His chief complaints at this time were severe pain in the left hypochondriac region, radiating toward the midline and across the abdomen, extreme weakness, and a feeling of fullness in the head. His temperature was 101° F. Physical examination of the lungs was negative. There was an indistinct systolic murmur at the apex. The pulse in the right radial was only slightly above normal; in the left radial it was absent. The spleen was palpable about three inches below the free border

of the ribs, and extremely tender. The leucocytes varied between 30,000 and 40,000, and polymorphonuclears were 92 per cent. The condition of the patient remained the same for several days except for a rise in temperature. Believing that he had an abscess or some septic process in the spleen, immediate operation was advised. At operation the spleen was found studded with small white areas which looked like tubercles or miliary abscesses; there was also a large softened area, evidently an infarction. The spleen was only moderately adherent and no tubercles were seen elsewhere in the peritoneum. The liver was apparently normal. After the fourth day the patient appeared to improve for several days, but on the eighth day he became worse; on the ninth day he died. After reviewing the autopsy findings the following anatomical diagnosis was made: Gangrene of the intestines with peritonitis; thrombosis of the aorta, superior mesenteric and common iliac arteries; obstructive arteritis of the celic axis, the superior and inferior mesenteric and left subclavian arteries; tuberculous peritonitis; pulmonary tuberculosis; tuberculosis of the liver; parenchymatous degeneration of the liver and kidneys; acute vegetative endocarditis; theroma of arteries, and hyperplasia of the bone marrow. Smears from the lungs and bronchial glands showed a few tubercle bacilli. Material from the lesion in the apex of the heart inoculated into guinea pigs produced typical tuberculous lesions from which tubercle bacilli were recovered. After reviewing the microscopical findings of the various organs, the essayists stated that a review of the history of this case for the purpose of ascertaining the sequence and possible etiology of lesions gave but little aid. From a clinical standpoint the existence of the marked polycythemia was the most interesting feature of the case. The tuberculous lesion in the spleen would seem to offer a simple explanation for this, and, in fact, attention was called to the enlargement of this organ as early as 1908. The symptoms of flushing and congestion of the face, which continued intermittently throughout and which might or might not have had a possible cause in the polycythemia, began three years before, 1905. Moreover, repeated examinations of the heart and lungs failed to reveal either a circulatory or a pulmonary lesion; nor was there any other evidence of tuberculosis noted. Many of the symptoms referable to the digestive tract were readily explained if it was agreed that the lesions found in the walls of the arteries were of ten years' duration. The lesions themselves offered little suggestion as to their origin, or to any etiological association with the polycythemia. The most obvious cause of death was the gangrene of the digestive tract, which must be attributed to the lesions found in its arterial supply. Obviously there was little possibility of any inferences being drawn as to the results of the operation in cases of tuberculosis of the spleen, or of polycythemia, from their experience in this case. The autopsy findings showed plainly the futility of any therapeutic measures in this particular case. It was of interest to note that for nine days after the operation the red cell count remained high, from 8,000,000 to 7,400,000, while the hemoglobin remained at over 120 per cent. One would expect this result of the "Spleen was the graveyard of the red blood corpuscles" in the adult. The condition of the bone marrow in this and in other cases, and the blood picture after splenectomy, would seem to indicate that whatever its cause the polycythemia, and in this case it was a polycythemia and not an erythrocythemia alone, had its direct pathological factor in the overproduction and over-functionating of the bone marrow. If this presumption was correct the enlargement of the spleen could be explained by an hypertrophy due to an effort to destroy the overproduction of red cells. Finally, if there was a focus of tuberculosis elsewhere in the body from which the tubercle bacilli might enter the blood stream, it would find in the spleen a place of diminished resistance. Thus, rather than as an etiological factor, the tuberculous spleen would be the result of the polycythemia. While they might agree with Winternitz that in cases of tuberculosis of the spleen, when other tuberculous foci were not demonstrable, splenectomy might effect a cure, although their case proved nothing, it afforded some additional weight to the statement of Osler that splenectomy was contraindicated in erythrocythemia.

**A Simple Stitch for Inverting the Appendix Stump.**—Dr. L. MILLER KAHN demonstrated his method of inverting the stump of the appendix which he believed was an improvement over the Dawbarn method.

## SECTION ON MEDICINE.

*Stated Meeting, Held January 20, 1914.*

DR. JOSEPH C. ROPER IN THE CHAIR.

**The Form of the Electrocardiogram; Diagnostic Significance of Its Variations.**—Dr. H. E. B. PARDEE presented this communication. He stated that when the heart muscle contracted electricity was produced by the fibers which were entering into contraction. The direction of the flow of the current depended upon where within the heart the greater amount of electricity was produced. The body tissues conducted this current readily and by putting a galvanometer in the circuit this current might be recorded on a photographic plate. Three leads were used, from right arm to left arm, from right arm to left leg, from left arm to left leg, called lead I, lead II, and lead III. The instrument was connected to the extremities in a constant manner and was standardized so that a movement of one centimeter indicated a current of one millivolt. The direction of the deflection recorded in the leads depended upon the direction of the current within the heart. This direction might be designated by degrees of deviation below having a plus sign, and above having a minus sign, the horizontal with zero degrees lying to the patient's left, and 180° to the patient's right. If the direction within the heart lay between plus 30° and plus 90° then the deflection in each lead would be upward. If the current was opposite to this, that was, between minus 90° and minus 150°, the deflection would be downward in each lead. If the deflection was between plus 30° and minus 30° leads I and II would show an upward deflection; lead III a downward deflection. If the direction was opposite to this, between plus 150° and minus 150°, leads I and II were downward; lead III upward. If the flow was between plus 90° and plus 150° lead I was downward; leads II and III upward, and if the flow was opposite to this, between minus 30° and minus 90°, lead I was upward; leads II and III downward. If the angle of a current approached the border of one of these sectors the value of one of the leads would become very small and would be zero if the angle was exactly on the border. With the angle at the center of the sector the maximum value would be recorded in one of the leads. The amount of the current recorded in the leads, then, depended not only upon the amount produced within the heart, but also upon the direction of the amount to the direction of the line of the lead, and also the value in lead I plus the value in lead III was equal to the value in lead II. The normal electrocardiogram consisted of five waves called P, A, R, S, and T. A certain wave in a certain lead was designated by affixing the numeral of the lead as $P_1$, $P_{II}$. All of these peaks varied greatly within normal limits. The P wave was due to the action of the auricle. It was a rounded elevation with a recorded value of 0.1 to 0.2 millivolts. The angle of its current usually lay between plus 30° and plus 90°, so that it was directed upward in all three leads. Hypertrophy of the auricle resulted in an increase in the maximum value of P. A premature auricular contraction resulted in a P wave of abnormal form. The wave was absent in auricular fibrillation, being replaced by a series of small undulations in the line of the record, best seen in lead III, and considered to be due to the muscle bundles of the auricle contracting incoordinately. Between P and Q was an interval during which the record remained at zero. During this time the impulse was passing along the bundle of His and had not yet caused the ventricles to contract. The interval from the beginning of P to the Q wave was usually about 0.18 of a second, not over 0.2 of a second unless some degree of heart block was present. The waves Q, R, and S were due to the rapidly changing currents at the beginning of ventricular systole. Their combined duration was not over 0.08 to 0.09 seconds, and if greater than this indicated myocardial impairment. R represented the direction of the predominant current of this period. Its angle lay between plus 30° and plus 90°, so that $R_I$, $R_{II}$, $R_{III}$ were upward. $R_{II}$ was the largest and varied from 1.0 to 2.0 millivolts. The direction of the current producing R changed with cardiac hypertrophy. If left ventricle hypertrophy predominated the angle was deviated toward the left and lay above plus 30° so that $R_{III}$ was downward. In extreme cases it might lie above minus 30° so that $R_{II}$ was downward also. When hypertrophy of the right ventricle predominated the angle was deviated to the right and lay above plus 90°

so that $R_I$ was downward. In marked cases $R_{III}$ might also be downward. When the heart was dilated there was no change in the angle of R, but the weakness of the contraction resulted in R having a small maximum value. In strongly contracting hearts this value was large. At the end of S the whole ventricular mass was contracting so that the potentials neutralized each other and the record stayed at zero. The T wave followed, was usually upward in all leads, and had a maximum value in hearts with poor myocardium. Premature ventricular contractions resulted in a characteristic complex. First a very large deflection remaining away from the base line for 0.1 of a second or more and then a swollen deflection usually in the opposite direction, and, though larger, bearing a resemblance to a T wave. This unusual form was due to an abnormal course of the contraction through the ventricles. If the contraction originated in the right ventricle, the first limit was upward in lead III; if in the left ventricle, it was downward in lead III. Displacement of the heart affected the angle of the peaks and therefore the form of the electrocardiogram. The expiratory movement of the diaphragm, as also abdominal distension by gas or fluid, would displace the apex upward. The base was held by the blood vessels and could not follow so that the point was rotated upon the basal region at a fixed point. This changed the angle of the waves and all the waves were changed in the same direction. Respiration appeared as a rhythmical waxing and waning of the peaks and in the normal electrocardiogram they increased in lead III on inspiration and decreased on expiration. In lead I the behavior was opposite. Lateral displacement of the heart, as by air or fluid in the pleura, fibrosis of the lung, or tumor, carried the base with the apex so the heart was not rotated and the angle of the peaks was unchanged. Thus a normal angle of the R wave, if the area of dullness was changed, spoke against hypertrophy and for displacement or dilatation as possible causes.

Dr. Horatio B. Williams called attention to the fact that although there were many things not known in regard to the electrocardiogram it was a significant fact that its study gave them considerable aid; because a certain part of the curve was not known did not necessarily mean that the method did not possess great utility and importance. Clinicians observed complicated phenomena which were unknown to them, yet the observation of the same was of importance. By the observation and groupings of certain facts they were able to arrive at conclusions. To say in an empirical way that it was impossible to attach any clinical significance to the variations in the curve, even though one could not know precisely what their physiological significance was in every case, would be a mistake. One of the important clinical facts was that in the same person, provided the heart was not diseased, the form of curve was constant. The method of attaching the instrument should be studied carefully if the record was to come out the same. This differed from taking the pulse rate. It should be remembered that even the skilled operator was not always the same on different days. Changes in the heart itself were shown in the electrocardiams which were not often misleading. They might have a precise knowledge of their clinical significance, and again they might not. Hitherto certain changes had been grouped together. In an irregular heart some located the irregularities as starting in the auricles, others in the ventricles. In the course of years he hoped they would be able to determine which irregularities were innocent and which not. The conclusion must be that the use of the electrocardiograms was quite justifiable.

Dr. Neuhof reported the case of a girl, sixteen years of age, who presented clinically very marked left ventricular hypertrophy but who did not show the electrocardiogram of this condition. The orthodiascopic tracing showed that the heart was also considerably enlarged to the right; this counterbalancing enlargement may have accounted for the absence of electrocardiographic evidence of left ventricular hypertrophy. He also reported the case of a woman, 26 years of age, whose heart was absolutely normal, yet the electrocardiogram showed the complex of right ventricular hypertrophy. By orthodiascopy the heart was found lying flatter than normal, an example of the "flabby heart" of Waller. This apparently accounted for the rotation of the ventricular axis from the normal, the first thus becoming the "strong" lead. These cases alone show that other factors besides hypertrophies had to be considered as causes of the complexes of ventricular hypertrophy, and that clinical and particularly orthodiascopic examinations were very important in the study of these complexes.

Dr. H. E. B. Pardee, in closing the discussion, said they could not take the electrocardiogram alone any more than they could any other one method of examining the heart. This fact was mentioned under respiratory variations. In one case of aortic insufficiency the electrocardiogram showed the picture of a right hypertrophy; why it showed that he did not know, but he expected as our knowledge progressed we would be able to understand these apparent paradoxes.

**Some of the Psychic Mechanisms in the Organic Amnesias.**—Dr. S. P. Goodhart presented this communication. He stated that the relationship between certain of the psychic manifestations, hitherto regarded as purely functional, and symptoms of organic origin was becoming more apparent. The domain of psychology offered opportunities for limitless observation of what appeared to be purely functional symptoms on the one hand, and organic symptoms on the other. A study of the amnesias opened this relationship to view. Memory might be considered as primarily a simple organic process, developing later higher biological features. In its developed form as we know it, especially in its relation to ego-consciousness, it was really something superadded to the organic memory. There was no one center in the brain that could be regarded as the memory center; in other words, memory was brought about by combinations of visual, auditory, tactile and motor images. Much of the so-called organic memory became relegated to the subconscious. During the past few years the essayist said he had observed a number of cases of amnesia in neuropathic individuals in whom the etiology indirectly was nicotine, or the toxin of malaria, or, as in one very interesting case, of traumatic origin. In all of these cases there was one psychological mechanism which formed the direct exciting factor and that was repression, the desire to eliminate and to stamp out from consciousness a part or the whole of the past, a forcing into the subconscious of unpleasant experiences. In all of these cases there was strong internal emotional conflict. The case of Professor X represented the influence of the psychic factor in the toxic amnesias. This patient was fifty years of age and had a good family and personal history. Though highly intellectual and cultured he was of the neurotic type, and since boyhood had used tobacco excessively as a solace to depressing experiences and mental strain of a personal character. The amnesia came on suddenly, shortly after indulgence in the usual allowance of tobacco in addition to a quantity of strong coffee. The patient became suddenly dazed, and although fully conscious lost entire recognition of environment and personality. While the ego-consciousness was preserved, cognitive memory was lost. This condition continued for three weeks when complete re-establishment of the mental association took place more or less suddenly. The three weeks of lost memories were obliterated as a unit from the patient's life and there still remained, after seven years, only a vague recollection of the experience. Nutrition, absolute rest and withdrawal of all tobacco were the only remedies. Periodic excesses in tobacco were even now followed by slight amnesic seizures and intense paroxysms of hemicrania. In this case he had not deemed it wise to restore the dissociated conscious fragments of memory to the control of the upper consciousness. Wisdom might dictate this, for the reason that psychanalysis had taught them that it was as a rule best to place these emotional experiences within the grasp and recognition of the ego-consciousness. The element of repression was an intense emotional upheaval preceding the amnesia, and on the day of its sudden appearance and shortly before there had occurred a psychic trauma, which the patient would naturally and did try to suppress. Dr. Goodhart then related the history of a teacher, twenty-seven years of age, who lost memory as to personality and environment after intense emotional strain in whom the exciting factor was the malarial toxin. The dissociation covered events and experiences of the immediate past and part of the preceding Summer. This patient fully realized her condition and it perplexed her. The writer referred to an interesting case reported by Grey and Emerson in a recent number of the *Journal of the American Medical Association*, in which apparently lost visualizing power stored away in the subconscious was restored in the course of a few hours after the removal

of a small cerebral tumor from the right parietal region. From a study of this case it was evident that she last the power of visualizing images after a skull injury sustained at the age of eight or ten years. The interesting psychological study of the waking and dream states, in this case, strikingly suggested the repressive element, probably suddenly induced by the original cranial injury, and as suddenly relieved by the removal of the small tumor. It seemed hardly possible that both occipital lobes, the seat of visual cortical representation, should have been affected by this small growth, especially as it was evident that the amnesia dated from the cranial trauma and thus before the probable development of the tumor, and yet removal of the tumor instantaneously brought about reappearance of memory. Another case cited illustrated the value of psychanalysis, though the psychic state of phobia and physical manifestations were apparently the result of tobacco intoxication. These methods developed the origin of his phobias and some obsessions as being of a sexual character, though the writer said that he did not believe with Freud that they invariably were. The attempt to submerge the memory of the past in complete oblivion was brought out thoroughly by the case of a young clergyman, a man of culture and education, who suffered a severe head injury as the result of a fall. Recovering consciousness at the end of two hours, though there was no evidence of external injury, his memory for the entire past, including knowledge of his environment and his personal identity, was gone absolutely. There was no objective evidence of lesion to the nervous system. The loss of memory was so complete in this case as to include even the elementary knowledge of the simple functions of the body; that was he could not interpret hunger, did not know how to walk, etc. Time relationships were likewise lost. There was a complete splitting off of the entire past from conscious life. After six weeks of re-education the knowledge at his conscious disposal represented the acquired experiences of the time from the date of the accident. By the study of his dreams and other psychological methods they were able to show the presence of past memories hidden in the subconscious. By applied psychological methods they were able to stimulate the mass of experiences representing the sleeping self into activity. This personality represented the life experience up to the time of the accident and was an entirely different individual. The two personalities finally alternated, leaving the man in that condition known as dual personality. In their endeavor therapeutically to stimulate the two personalities by psychological methods, the patient cooperated, but at the cost of intense emotional conflict. It was as though the one personality were trying to suppress the other. The one personality was that of the man before the accident, being an individual of esthetic tastes, intense spiritual feelings, and firm religious belief. The second personality was entirely different, seemingly having none of the religious feeling and being more worldly. The case represented a true dissociation of consciousness, a complete amnesia. Its direct etiology was traumatism. The true psychological element was internal conflict, the result of an effort at suppression. There could have been no localized lesion to have caused such an amnesia. The past memories really were present, though lost for the time being to the upper consciousness. The fact was that this young man wished to suppress the past in some details vital to his life. It developed that he wished to throw off the shackles that held him to his profession as a clergyman. There were other emotional experiences that were likewise repressed, as was developed in the course of their psychological investigation. The limitations of the clerical life were contrary to his inherent philosophical and analytical mind. There was necessarily a conflict. The stronger personality in this case was that dating its re-education from the time of the fall. Thus it was seen how much easier it was for the new personality to assert itself. What was known as the intermediary state in these cases, that representing the transformation from one personality to the other, was really identical with the psychic and physical state at the time of the trauma which split the consciousness. This final intermediary state was attended with great physical prostration, a very slow pulse, and almost complete anesthesia for all forms of sensation, while the psychic state was undergoing the conflict of the two personalities. There was no doubt that had they not stimulated the hidden memories of the primary personality the person would have remained in the secondary state. Further studies along these lines would doubtless enable them to see much closer relationships betwen psychic symptoms and organic causes. There was a border line land in which lay hidden lines of cleavage in consciousness which might be completely disassociated by organic processes.

**Remarks upon Mental Infantilism in the Tic Neurosis.**—Dr. L. PIERCE CLARK read this paper. (See p. 553.)

Dr. FOSTER KENNEDY said that the pendulum had swung as regarded the attitude of the neurologist toward spasm, particularly the tics. It was not long since torticollis was operated upon because the condition was looked upon as of organic nature. This condition was in a genesis absolutely psychological. Dr. Clark had shown the psychological mechanism, and accounted for the swing of the pendulum from the organic viewpoint. Some of them looked upon the tics as purely neurological. Dr. Kennedy thought this was going further than the facts would warrant. In regard to the last case spoken of by Dr. Clark, might not the dipsomania of the mother have been a contributing factor? And, further, might not the offspring of an alcoholic mother provide a good soil for the tic? There must have been some determining factor not yet spoken of which when thrown off permitted the patient to become a normal steady man. Some further investigation should be carried on to find the difference in the psychopathic personalities and the normal individual from a precise analysis of the mechanism itself.

Dr. A. A. BRILL said he was much interested in Dr. Clark's paper. He considered tics and mental torticolles as psychoneurotic manifestations and always found them as symptoms of some particular neurosis. The treatment which he found to be most efficacious after he had tried all other recommended treatments was psychanalysis. Some of these patients were psychopathic individuals from the beginning and were therefore difficult to cure. Some got well and some did not. Dr. Brill said he agreed with Dr. Kennedy that there may be something physical at the bases of these neuroses, but as it had not been found yet, and as physiotherapy was of no avail, it was only reasonable that they should be treated by psychotherapy. The possibility of a physical basis was also thought of by Freud, who stated that in more than half of the severe cases of psychoneuroses he positively succeeded in demonstrating syphilis in their fathers before marriage. The patients themselves showed absolutely no sign of hereditary lues, so that the abnormal sexual constitution was to be considered as the last offshoot of the luetic heredity. In his own cases Dr. Brill did not find that heredity played any definite part. That was whenever the patient was mentally normal—all other things being favorable—a cure could always be effected by psychanalysis irrespective of hereditary taints. As to infantilism, all such patients show in their symptoms infantile components. By a process of regression the symptoms were either direct or negative infantile manifestations. Dr. Brill found very few ticuers among homosexuals.

Dr. LOUIS CASAMAJOR said he was most interested in the etiology. If one went back and read over some of the textbooks he would find tabes and paralyses written with the etiological factors of alcohol and tobacco, wet, cold, and trauma. Tabetic trauma played a minor part in the formation of these amnesias. They should get away from their stereotyped ideas regarding the etiology. If these others were taken away they would only have syphilis to fall back on. These things represented an obscure element, forgotten unpleasant incidents. If an individual could forget some unpleasant incident, forget some large section of his life, and get interested in something, you might cure him. He recalled the case of a young man who was absolutely amnesic after a tumble. There was a period of unconsciousness and then amnesia. In studying the case and the elements which led up to the amnesia a plan was formed which resulted in his recovery. The point of the matter was that the man was found to be mixed up in crooked politics and so forth and was in danger of a jail sentence because of the misappropriation of funds. The interesting point centered in the personality of the man. He asked what became of the man Dr. Goodhart reported. Was there a mean between two personalities? The study of the character of these individuals was interesting. These people did not do things well. They were neurotics and were looked upon as fools. After an analysis they did not seem to be the sort of fool thought at first. He believed the swing of the pendulum was going too far and it might be better to consider operations upon patients with torticollis. He re-

called one patient who was cured by a section of the spinal accessory nerve on the wrong side.

Dr. L. PIERCE CLARK, closing the discussion, believed that the point was well taken and that undoubtedly individuals were predisposed. Many of them had an unusual susceptibility and were highly emotional in the early stages. Dr. Clark believed that in time these cases would be based as temperamental. They all found them temperamental and not purely physical.

### THE PATHOLOGICAL SOCIETY OF PHILADELPHIA.

AT a stated meeting held February 12 Dr. ALFRED STENGEL exhibited a specimen of "Hydatid Cyst of the Liver." The patient was a Russian Hebrew who had come to the United States from Northeastern Germany, and who presented a tumor in the right hypochondrium, for the relief of which operation was performed and the surgeon, discovering globular masses in the liver that he took for malignant disease, closed the wound without removing the diseased tissue. The symptoms continuing and a leucocytosis being present operation was undertaken a second time at a later date, when fluid was evacuated and drainage provided for. Through the opening thus left grape-like masses made their escape, and these on examination were found to contain scolices and hooklets characteristic of cysticercus cellulosæ. Under a persistence of the treatment the discharge ceased in the course of a short time and eventually the wound closed, leaving the patient quite well.

Drs. JOHN A. KOLMER and ROBERT S. MCCOMBS presented a specimen of "Sarcoma of the Esophagus" and one of "Carcinoma of the Esophagus." With respect to the former it could not be determined definitely whether it had arisen as a primary growth in the esophagus or had extended to this tube from mediastinal glands involved in the disease. Metastasis had taken place to the liver and other organs, and rupture had occurred into the posterior mediastinum. In connection with the second specimen perforation had taken place into the left primary bronchus, and of this communication the patient was conscious, food ingested in the ordinary way being returned by vomiting. Death resulted from aspiration pneumonia.

Drs. JOHN H. JOPSON and JOHN A. KOLMER presented a specimen of "Carotid Tumor." The growth was removed from the neck of a patient on the supposition that it was a tuberculous gland. It was found attached to the external carotid artery, which had to be ligated to permit of the removal of the mass, and on histologic study it was found to present the appearances of an endothelioma.

Dr. M. B. HARTZELL presented a specimen of "Colloid Degeneration of the Skin."

Dr. ROBERT N. WILLSON, JR., presented the heart, kidneys, and brain from a case of uremia. The patient was a man with Cheyne-Stokes breathing, high blood-pressure, signs of arteriosclerosis and albumin, and tube-casts in the urine. The patient denied syphilitic infection, and the Wassermann reaction was negative. After death the heart was found to be enormously enlarged, but without valvular lesion, and all of the cavities, with the exception of the left auricle, contained masses of chicken-fat clot adherent to their respective walls. The descending thoracic and the abdominal aorta was the seat of extreme atheromatous ulceration, and the cerebral vessels were stiff and patulous. The kidneys were small, although the capsules stripped readily, and there was little change in the relations between cortex and medulla. One kidney contained a moderate-sized cyst.

Dr. A. H. HOPKINS presented a communication entitled "Preliminary Report on the Determination of Blood-sugar by the Micro-method of Bang." The method was found entirely reliable, its great advantage consisting in the small amount of blood, only three drops required.

Dr. HERBERT FOX read a paper entitled "Pathology of the Thyroid Gland in Wild Animals." He reported the results of observations made on animals dying at the Philadelphia Zoological Gardens over a period of ten years and he described the various forms of thyroid disease encountered.

Drs. JAY F. SCHAMBERG and JOHN A. KOLMER presented a communication entitled "A Study of the Germicidal Action of Chrysarobin and Other Drugs Used in the Treatment of Psoriasis." The tests were made with the *Staphylococcus epidermidis albus* as the organism most commonly found in the skin in connection with the lesions of the disease. In addition to chrysarobin, pyrogallic acid and preparations of arsenic and also calomel were studied. Of all of these only the last exhibited any germicidal influence.

## Books Received.

*The* MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

DIAGNOSEN AV BARNETUBERKULOSENS KLINISKE INITIALFORMER. HERMAN G. GADE. Paper; illustrated; 112 pages. Steen'ske Bogtrykkeri, Kristiania.

DIE HOMOSEXUALITÄT DES MANNES UND DES WEIBES. By Dr. Med. MAGNUS HIRSCHFELD. Paper; 1067 pages; price 12 marks. Louis Marcus, Berlin.

STUDIES FROM THE DEPARTMENT OF PATHOLOGY OF THE COLLEGE OF PHYSICIANS AND SURGEONS, Columbia University, N. Y. Vol. XIII, 1913. Reprints. Paper; illustrated; 501 pages.

THE UNEXPURGATED CASE AGAINST WOMAN SUFFRAGE. By Sir ALMROTH E. WRIGHT, M.D., F.R.S. Price $1 net; cloth; 188 pages. Paul B. Hoeber, New York.

GEBURTENRÜCKGANG UND MÄNNLICHE SEXUAL IMPOTENZ. By Dr. P. LISSMANN. Paper; price 1.50 marks; 37 pages. Curt Kabitzsch, Wurzburg.

THE BIOLOGY OF THE BLOOD-CELLS. By O. C. GRUNER, M.D. Cloth; price $6 net; 392 pages. William Wood & Co., New York.

MORTALITY STATISTICS, 1912—Thirteenth Annual Report. Department of Commerce, Bureau of the Census. Wm. J. Harris, Director. Prepared under the supervision of CRESSY L. WILEUR, M.D. Cloth; 382 pages. Government Printing Office, Washington.

HANDBOOK OF MEDICAL TREATMENT. By JAMES BURNET, M.A., M.D., M.R.C.P. Cloth; price $1.25 net; 168 pages. Adam and Charles Black, London.

CHRONIC COLITIS. By GEORGE HERSCHELL, M.D., and ADOLPHE ABRAHAMS, M.D. Cloth; price $2 net; 276 pages. Longmans, Green & Co., London, New York, Bombay and Calcutta.

DENTAL DISEASES IN RELATION TO PUBLIC HEALTH. By J. SIM WALLACE, D.Sc., M.D., L.D.S. Cloth; price 3/ net; 90 pages. Published at the Office of The Dental Record, London.

FORTY-FOURTH ANNUAL REPORT OF THE STATE BOARD OF HEALTH OF MASSACHUSETTS, 1912. Cloth; 779 pages. Wright & Potter Printing Company, Boston.

THE UNCONSCIOUS. The Fundamentals of Human Personality, Normal and Abnormal. By MORTON PRINCE, M.D., LL.D. Cloth; 549 pages; price $2.00. The Macmillan Company, New York.

OUTLINES OF GREEK AND ROMAN MEDICINE. By JAMES SANDS ELLIOTT, M.D., Ch.B. Cloth; illustrated; 165 pages; price $2.50 net. William Wood & Company, New York.

DIE SPASTISCHEN ERKRANKUNGEN DES VERDAUUNGSKANALES. By Prof. Dr. KARL WALKO. Paper; 58 pages; price 1.50 M. Carl Marhold, Halle a. S.

DIE RÖNTGENDIAGNOSTIK DER MAGENKRANKHEITEN. By Dr. M. FAULHABER. Paper; illustrated; 96 pages; price 3.00 M. Carl Marhold, Halle a. S.

SCROFULOSIS. By Prof. Dr. G. CORNET. Translated from the second German edition by J. E. BULLOCK, M.D. Cloth; 515 pages; price $5.00 net. William Wood & Company, New York.

LE TRAITEMENT DE LA SYPHILIS EN CLIENTÈLE. By H. GOUGEROT. Paper; illustrated; 492 pages; price 10 fr. A. Maloine, Editeur, Paris.

L'ENFANT ET SON MEDECIN. By Dr. ALBERT B. BALL. Cloth; 379 pages. A Maloine, Paris.

REPORT OF THE VETERINARY DIRECTOR GENERAL. For the Year Ending March 31, 1913. Paper; illustrated; 110 pages; price 10 cents. C. H. Parmelee, Ottawa.

STUDIES FROM THE DEPARTMENT OF PHARMACOLOGY. Cornell University *Medical Bulletin*. Vol. III, No. 3, January, 1914. Paper; illustrated. Published by Cornell University, New York City.

STATISTICA SANITARIA DELL' ARMATA. Per GLI ANNI. 1909 e 1910. Paper; illustrated; 280 pages. Officina Poligrafica Italiana, Roma.

TRANSACTIONS OF THE AMERICAN ASSOCIATION OF GENITOURINARY SURGEONS. Vol. VIII, 1913. Paper; illustrated; 313 pages. Frederick H. Hitchcock, New York.

BURDETT'S HOSPITALS AND CHARITIES, 1914. Being the Year Book of Philanthropy and the Hospital Annual. By Sir HENRY BURDETT, K.C.B., K.C.V.O. Twenty-fifth Year. Cloth; 986 pages; price 10/6 net. The Scientific Press, London.

PHARMACEUTICAL BOTANY. By HEBER W. YOUNGKEN, Ph.G., A.M. Illustrated; cloth; 106 pages; price $1.00 net. P. Blakiston's Son & Company, Philadelphia.

HANDBUCH DER SPEZIELLEN CHIRURGIE DES OHRES UND DER OBEREN LUFTWEGE. Herausgegeben von Dr. L. KATZ. Paper; illustrated; price 3 Mks. Curt Kabitzsch, Würzburg.

GERIATRICS. The Diseases of Old Age and Their Treatment. By I. L. NASCHER, M.D. With an introduction by A. JACOBI, M.D. Cloth; illustrated; 517 pages; price $5.00 net. P. Blakiston's Son & Company, Philadelphia.

BEITRÄGE ZUR KLINIK DER INFEKTIONSKRANKHEITEN UND ZUR IMMUNITÄTSFORSCHUNG. By Prof. Dr. L. BRAUER. Paper; price 6 Mks. Vol. II, part 2. Curt Kabitzsch, Würzburg.

DIAGNOSIS IN THE OFFICE AND AT THE BEDSIDE. The Use of Symptoms and Physical Signs in the Diagnosis of Diseases. By HOBART AMORY HARE, M.D. New (7th) edition, thoroughly revised and rewritten. 547 pages; illustrated; cloth; price $4.00 net. Lea & Febiger, Philadelphia and New York.

MANUEL PRATIQUE DE LA MÉDICATION HYPODERMIQUE. By G. BOSC and various other authors. Second Edition. Paper; illustrated; 280 pages; price 2 frs. Laboratoire D'Hypodermie, Paris.

INFECTIONS OF THE HAND. By ALLEN B. KANAVEL, M.D. Second Edition, thoroughly revised. Illustrated; 463 pages; cloth. Lea & Febiger, Philadelphia and New York.

PRACTICAL PATHOLOGY, including Morbid Anatomy and Post-mortem Technique. By JAMES MILLER, M.D., D.Sc., F.R.C.P.R. Cloth; illustrated; 444 pages; price $2.50 net. The Macmillan Company, New York.

THE CLINICS OF JOHN B. MURPHY, M.D. At Mercy Hospital, Chicago, February, 1914. Vol. III, No. 1. Paper; illustrated; 190 pages. W. B. Saunders Company, Philadelphia and London.

PHARMACOLOGY, CLINICAL AND EXPERIMENTAL. By Dr. HANS H. MEYER and Dr. R. GOTTLIEB. Cloth; 604 pages; price $6.00. J. B. Lippincott Company, Philadelphia and London.

THE PRACTICE OF PEDIATRICS. By CHARLES GILMORE KERLEY. Illustrated; 878 pages; cloth; price $7.50 net. W. B. Saunders Company, Philadelphia and London.

MEDICAL GYNECOLOGY. By SAMUEL WYLLIS BANDLER, M.D. Third Edition, thoroughly revised. Illustrated; 790 pages; cloth; price $5.00 net. W. B. Saunders Company, Philadelphia and London.

ANNUAL REPORT OF THE SURGEON GENERAL OF THE PUBLIC HEALTH SERVICE OF THE UNITED STATES. For the Fiscal Year 1913. Cloth; 318 pages. Government Printing Office, Washington.

TRANSACTIONS OF THE BRITISH PROCTOLOGICAL SOCIETY. For the Year 1913, with a list of officers, etc. Edited by W. S. HANDLEY. Cloth; 30 pages; illustraed; price 2/6 net. H. K. Lewis, London.

INDEX-CATALOGUE OF THE LIBRARY OF THE SURGEON GENERAL'S OFFICE, United States Army. Second Series, Vol. XVIII. 1057 pages; cloth. Government Printing Office, Washington.

LES TECHNIQUES ANATOMO-PATHOLOGIQUES DU SYSTÈME NERVEUX. Par GUSTAVE and JEAN I. HERMITTE. Cloth; 255 pages; price 5 frs. Masson et Cie, Editeurs, Paris.

KLINIK FUR PSYCHISCHE UND NERVÖSE KRANKHEITEN. Herausgegeben von ROBERT SOMMER. Vol. VIII, Part 4. Paper; price 3 mks. Carl Marhold, Halle a. S.

BLOOD PRESSURE IN GENERAL PRACTICE. By PERCIVAL NICHOLSON, M.D. Second Edition, Illustrated; cloth; 167 pages; price $1.50 net. J. B. Lippincott Company, Philadelphia and London.

MODERN MEDICINE. Its Theory and Practice. Edited by Sir WILLIAM OSLER, Bart., M.D., F.R.S., and THOMAS MCCRAE, M.D. Vol. II. Second Edition, thoroughly revised. Illustrated; cloth; 1144 pages. Lea & Febiger, Philadelphia and New York.

DIE MODERNE THERAPIE DER GONORRHOE BEIM MANNE. By Prof. Dr. PAUL ASCH. Paper; 84 pages; illustrated; price 3.20 M. A. Marcus & E. Webbers, Bonn, 1914.

## Therapeutic Hints.

**A Prescription for Gastric Hyperacidity.**—W. Wolff recommends the following combination:

℞ Extract of belladonna, 0.2 gram.
Bismuth carbonate,
Calcined magnesia, of each, 7.5 grams.
Sodium citrate, 15 grams.

Of this powder the tip of a knife bladeful is to be taken every three hours, between meals.—"Taschenbuch der Magen und Darmkrankheiten."

**Liquor Ammonii Anisatus.**—This preparation of the German Pharmacopœia, as well as of most of the other pharmacopœias of Europe, is not as well known among American physicians as it should be. It is a valuable expectorant, consisting of 1 part of anise oil, 5 parts of ammonia water, and 24 parts of alcohol. The dose is 0.25 to 0.75 gram or 5 to 15 drops three times daily. It is usually given in mixtures with other expectorants, as follows:

℞ Infusion of ipecac root, 150 grams.
Ammonium chloride, 5 grams.
Liquor ammonii anisatus, 5 grams.
Syrup of senega, 25 grams.

The dose is 1 tablespoonful. This mixture may be prescribed for patients suffering from bronchitis, who give evidence of prostration and who are not running a temperature.

℞ Liquor ammonii anisatus, 1 gram.
Infusion of senega root, 100 grams.
Syrup of fennel, 25 grams.

The dose is one-half teaspoonful every hour, as an expectorant following acute bronchitis in children.

℞ Liquor ammonii anisatus, 5 grams.
Bitter almond water, 10 grams.
Orange flower water, 50 grams.

The dose is 1 teaspoonful to be taken 2 or 3 times a day in a teacupful of a demulcent drink, such as slippery-elm tea.

An old preparation known as "Liquor pectoralis" has the following formula:

℞ Liquor ammonii anisatus, 5 grams.
Syrup of althea, 30 grams.
Distilled water, ad 200 grams.

The dose for an adult is 1 teaspoonful three times daily.

**Gelatin as a Hemostatic.**—The action of gelatin in favoring the coagulation of the blood has long been known. It has been employed subcutaneously and intravenously in internal hemorrhage, in hemophilia, in purpura, in the hemoptyses of tuberculosis, and in the various hematemeses. The best results have been obtained apparently in the treatment of aneurysm, chiefly of the aorta. The formula for the "gelatinized serum" is as follows:

℞ Sterile gelatin, 10 grams.
Sodium chloride, 7 grams.
Distilled water, 1,000 c.c.

The solution should not be acid. The possible presence of the spores of tetanus in commercial gelatin demands rigid sterilization. The gelatinized serum should be kept at 110° C. for at least a half-hour. It may be administered in doses of from 20 to 200 c.c. per day. The liquid should be injected at 37° C. into the subcutaneous tissue of the thigh or abdomen. The intravenous route is rarely employed. Gelatin has been injected directly into the cavities of aneurysms, in some instances with good results.

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## Original Articles.

### A METHOD FOR PLICATING VOLUMINOUS CECA.*

By JOSEPH A. BLAKE, M.D.,

AND

JAMES N. WORCESTER, M.D.,

NEW YORK.

Two years ago I described this operation before the New York Surgical Society and exhibited a patient, upon whom I had used it.†

At that time several patients had been operated upon but the time elapsed from their operations had been so short, only two months in the earliest case, that no deductions could be made as to the results obtained from the operation.

Since that time quite a large number of patients have been operated upon by my colleagues and myself without any deleterious effect upon them and apparently with sufficient betterment of their symptoms to warrant the belief that the operation is of enough value to again call attention to it.

The condition for which the operation was devised presents a well-defined symptom complex in which the major symptom is pain in the right lower quadrant, occurring in ill-defined attacks and associated with gas. There is also, as a rule, constipation, and in many cases general evidences of intestinal autointoxication. There may be a more or less well-developed colitis. Upon examination of one of these patients one finds evidences of distention of the cecum, marked by tympany and splashing, and usually, the balloon-like cecum may be felt or even seen. Radiography with the aid of bismuth, shows the cecum to be large both in diameter and in length, to often hang into or lie in the true pelvis, and also that it fails to empty itself in the normal period.

Upon operation the cecum is found to have a more or less free mesentery and to be more than usually movable, hence the term cecum mobile, which is usually used to describe the condition.

It is my conviction, however, that it is not the mobility of the cecum but rather its lack of tone and its dilatation that are the causes of the symptoms. The importance of this question is at once manifest. For, on the one hand, if the symptoms are to be explained by too much mobility, fixation would be the better treatment; on the other hand, if they are due to atony and dilatation any method of fixation, which necessarily must embarrass the contractility of the intestine, is contraindicated and an operation enabling the intestine to empty itself more efficiently should be sought for. Apparently, surgeons are becoming convinced that mobility of the intestine does not interfere with its motility and contractility; and operations for the fixation of the cecum are becoming less popular. However, there is a marked tendency to attribute overdistention of the cecum and stasis there and in the lower ileum to peritoneal folds producing constrictions and kinks; and we are hearing continually of Jackson's membrane and Lane's kinks. As has been well shown Jackson's membrane is a normal structure, present in nearly all individuals although undoubtedly more marked in some, and it has yet to be demonstrated that compression by it or kinking of the ileum by the variable peritoneal folds of the ileocecal region are sufficient to cause obstructive symptoms. One who has observed the hypertrophy of the muscularis that occurs in long-continued obstructions of the intestine cannot reconcile the thin atonic muscularis of the voluminous cecum with the theory that it is dilated because of obstruction.

In 1905 I described a condition productive of many of the symptoms we are considering, in which the end of the cecum was suspended as it were by the mesoappendix in some cases in which that organ passed upward and inward behind the ileum or ileocolic junction. Removal of the appendix in these cases freed the cecum and the pain was relieved. The possibility of kinking of the ileum over the mesoappendix was mentioned also.*

What the cause of the voluminous atonic cecum is is not altogether clear, but it would seem to be due to several factors acting together. I think I am correct in stating that intestinal autointoxication is very rarely observed in people who have short, large intestines; while it is relatively common in people in whom particularly the first part of the large intestine is long and voluminous.

While it seems most probable that the size of the cecum and colon is dependent upon congenital influences, undoubtedly stasis is a more or less acquired condition. Nearly all patients suffering from stasis have a weak and atonic musculature, both skeletal and intestinal. If the muscular tone is increased and the abdominal muscles strengthened so that they afford real active contractile support, and even a sort of massage to the intestines, instead of the abdominal wall being simply a bag, intestinal stasis can hardly exist. Even if one fills the abdominal cavity with that inert and incommoding substance fat, the patients are improved. Intraabdominal pressure, in other words, is most necessary. Support must be afforded to the large abdominal veins, otherwise the portal circulation is slow and the intestinal muscularis becomes atonic.

While myasthenia is a cause of intestinal stasis,

* Read at the 260th meeting of the Practitioners' Society Feb. 6, 1914.

† A New Method for Operating upon Voluminous Ceca or Cecum Mobile. *Annals of Surgery*, Vol. LV, p. 767, 1912.

*"Annals of Surgery," Vol. XLII, page 394, 1905.

it is none the less a result, and these wretched patients become the victims of a vicious circle, to which is often added neurasthenia with its hyperesthesias of the abdominal type.

Unfortunately most abdominal operations weaken

FIG. 1.—Introduction of first stitch of suture and method of tying first knot, after inversion of stump of appendix with pursestring.
FIG. 2. Entire suture introduced; in practice each stitch is drawn tight before introducing the next.
FIG. 3. Suture introduced, drawn tight, and tied, thus diminishing the length as well as the diameter of the intestine.

the abdominal wall and it becomes relaxed, particularly if the patient cannot exercise the abdominal muscles for fear of producing hernia. Belts and supports only help passively in maintaining intra-abdominal pressure, and should never be used when a good abdominal musculature can be obtained by proper exercise.

In considering the treatment of stasis we must not lose sight of the fact that it is the normal function of the cecum; for it is evident from comparative studies that the cecum is designed to be a macerating chamber. We cannot control this function except by hurrying things through it, diminishing its capacity, or doing away with it altogether. On the other hand we can obviate some of the bad effects of stasis and absorption if we put things into it that do not in undergoing decomposition form hurtful products. But as the stimulation of peristalsis is largely dependent upon the bulk of the intestinal contents a large amount is necessary to provoke activity in a large cecum. If the cecum is proportionately larger than the rest of the intestinal tract, manifestly stasis will occur unless a larger amount of food is ingested than the rest of the intestine can take care of, and, therefore it is imperfectly digested and harmful fermentation and decomposition take place.

I have made this excursion into the causes and effects of intestinal stasis in order to explain the *raison d'être* of the operation I am about to describe.

An operation for overcoming intestinal stasis must either be so radical and so certain, in itself, of giving relief, as to negative its effect upon the system of the patient and particularly the risk, inherent to large incisions, of weakening the abdominal walls; or it may be designed to simply aid the patient by breaking one of the links in the chain, thus enabling him to overcome the rest. Manifestly such an operation must be slight and must not jeopardize the integrity of the abdominal walls.

The only operation that promises complete relief from intestinal stasis is excision of the cecum, the ascending and part of transverse colon. In a paper read before the American Surgical Association in 1910* I advocated this, but questioned its advisability except in the very worst cases that had resisted every other method of treatment. In fact I have only advised it in two patients and neither of them have consented, probably because my statement of its benefits were none too sanguine. I still believe, however, from the good results I have obtained when excising this portion of the colon for carcinoma, that it would in all probability give relief. If done, the ileum should be implanted into the remnant of the transverse colon and not into the sigmoid flexure; because the functional result is better from the former method.

The operation, the results of which I am about to report, was devised as a merely palliative one and only to be done when the abdomen had been opened for another purpose. In other words its results were too problematical to warrant its performance for the treatment of stasis alone.

It has been nearly always done during an operation for appendicitis when from the symptoms and the appearance of the colon it was judged that there was too much stasis and retardation in the cecum and ascending colon.

The operation is a very simple one as can be seen by reference to the figures (Figs. 1, 2 and 3), and consists simply in stitching the ventral and

FIG. 4.—Before operation; large cecum hanging over the brim of the pelvis.

lateral teniæ together after the appendix has been removed; thus folding in or plicating the cecum and ascending colon. A non-absorbable suture of silk or linen is used, and the stitches

*Surgery, Gynecology, and Obstetrics*, July, 1910.

are taken a long way apart, usually about two centimeters or a little less, so that when the stitch is drawn tight the length as well as the diameter of the gut is diminished. The stitching is carried aborally as far as is practicable, usually for ten to fifteen centimeters. The contractility of the gut is not impaired as it would be if part of the wall were excised, and it is believed that on account of its diminished capacity there is not so great a tendency to accumulation and stasis. Apparently the results confirm the reasonableness of this belief. The procedure only adds three or four minutes to the length of an operation, and, so far, apparently, has not influenced the postoperative recovery.

Since the plication has only been done in the course of an operation for appendicitis or some other condition it has not been always clear how much benefit has accrued from the plication itself, yet in the majority of the patients improvement in certain symptoms has resulted which could hardly be explained in any other way.

Fourteen patients have been followed from one to a little over two years; the first plication having been done in November, 1911.

Subsequent radiographs to show the size and position of the cecum have been taken in only one patient. Those taken three months after operation showed the cecum to be much smaller and higher up than before operation. (Figs. 4, 5 and 6.)

The morbid condition present, as shown by the pathological reports, were chronic appendicitis in ten, subacute appendicitis in one, and acute appendicitis in one. One patient had an umbilical hernia and a normal appendix. In one the appendix was not examined but was probably nearly nor-

Fig. 5.—Immediately after operation; bismuth scarcely enters the cecum.

mal. Three patients had cystic ovaries, two had lacerations of the cervix and one had retroversion of the uterus. Reports were obtained from these patients upon their symptoms which were classified for comparison into *pain, constipation, gas* and *intestinal distention, gastric symptoms* and *intestinal autointoxication.*

*Pain.*—All the patients with one exception had suffered pain. It was entirely cured in six (46 per cent.), much improved in one, and improved in five

Fig. 6.—Three months after operation; the cecum has regained some of its caliber, but is still short.

(38 per cent.). One patient was unimproved (8 per cent.).

*Constipation.*—No note was made as to constipation in one patient and it was not complained of by three. Of the remaining ten it was obstinate in three, marked in five, and moderate in two; seven (70 per cent.), were permanently improved, one was temporarily improved, and in two (20 per cent.) there was no improvement.

*Gas and Intestinal Distention.*—Were not noted in two. They were marked in nine patients and only moderately complained of by three. Of these twelve, one (8.5 per cent.) was entirely cured; eight (66 per cent.) were improved, one (8.5 per cent.) was temporarily improved, and two (17 per cent.) were not improved.

*Gastric Symptoms.*—Seven patients complained of marked gastric symptoms. These were improved in five (71 per cent.) and unimproved in two (28 per cent.).

*Intestinal Autointoxication.*—Six patients suffered from marked symptoms of autointoxication. Of these five were improved and one unimproved.

Eleven patients expressed themselves as generally much improved; one as improved for six months when she developed uterine fibroids, for which she has since been operated.

Two patients were not improved as to their general health: One of these apparently was at the commencement of a nervous breakdown at the time of operation and now has nervous prostration. One patient attributed most of her benefit to the after treatment.

It is difficult to draw definite conclusions from a stilted report of symptoms, but both Dr. Worcester and myself have been impressed that these

patients received more benefit than they would have without the plication. Manifestly it cannot be considered a curative measure worthy of being performed by itself, but it appears to be well worth doing in the course of an operation for something else when the symptoms call for it.

## DRAINAGE OF THE BLADDER FOLLOWING SUPRAPUBIC OPERATIONS.

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Most of us well appreciate the great importance of efficient vesical drainage in connection with the high operation, on account of the faulty mechanical conditions that necessarily attend this procedure, which are more especially objectionable when the bladder is the site of an old chronic lesion, accompanied by decomposing urine and inflammatory products. The excellent opportunity of approaching the bladder afforded by this method, however, has given an impetus to the development of a proper means of drainage thereafter, which seems to have been productive of only a moderate success. Among different expedients tried have been the trap and syphon, used primarily by dentists, and a tip cup contrivance, that is regulated to overflow at required intervals and provide intermittent syphonage.

I especially recognized the value of the successful accomplishment of good bladder drainage attending a suprapubic operation, this past winter, for the removal of an enlarged prostate and vesical stones in a patient who weighed over 300 pounds, and whose abdominal wall was lined with a fatty layer of 3 or 4 inches' thickness. The result in this case was satisfactory beyond expectation. There was no fat necrosis, which so often occurs in such cases; there was no sloughing of purulent membrane during repair, and the bladder wound was practically healed three weeks after operation, the patient having been kept continuously dry for the entire period that is otherwise usually so uncomfortable. This was attained, not by the ordinary method, but by the adaptation of the laboratory hydraulic pump, as has been utilized in operative procedures upon other parts of the body, and consists of a metallic hydraulic suction pump, attached to a convenient water tap, an aspirating bottle, and a fenestrated tube, with a small interior cannula, for introduction in the wound or cavity to be aspirated (Fig. 1). For the bladder, a somewhat different arrangement is required at the wound. In the beginning a large drainage tube is inserted in the bladder, in the interior of which is a smaller rectangular hard-rubber or glass suction tube. The water is at first allowed to run continuously, so as to keep up the suction, and as the wound heals and retention within the bladder commences, the nurse is instructed to start the suction apparatus at stated intervals, to be determined by the rapidity with which the accumulation of urine occurs.

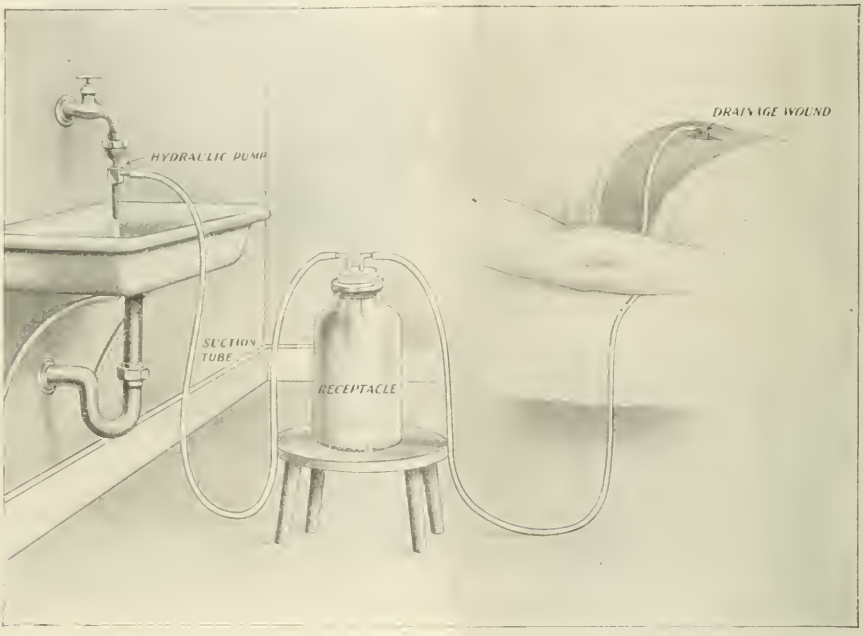


Fig. 1.

When the patient is able to get up out of bed, he is still attached to his suction apparatus, and the smaller tube is inserted far enough into the suprapubic wound to reach the summit of the bladder, and the accumulation of fluid is thus immediately withdrawn by the action of the suction apparatus.

This method works better than any previous expedient employed, but it is not always possible to obtain a constant and unvarying water pressure. Therefore, I have experimented with an electrically run aspirating pump, to be attached to any electri-

cal outlet, and also have endeavored to substitute compressed air as a means of suction in place of the hydraulic system. The trouble is, however, in all instances, when the suction tube is obstructed by the accumulation of mucus or pus, the entire pressure of the vacuum in a tank or at a pump is exerted, which is likely to be excessive, and in some cases to do harm. I have seen a hemorrhage started under such circumstances.

According to the principles of physics, if we have a vacuum of 25 inches in a tank, and an outlet valve which cuts it down to 3 to 5 inches, that is all right so long as no undue suction is exerted; but the minute unusual resistance occurs, the pressure to the total amount of the vacumm within the tank is exerted. On the other hand, most pumps which are so small as to provide only a moderate suction for all requirements, cannot do service for 24 hours in a day, and for consecutive days, without heating up.

After studying the situation out, we find the problem is to have a motor of low speed and a pump heavy in construction and also of low speed, so that both apparatus can be run continuously, day in and day out. Again, it is necessary, after setting the suction for the maximum requirements of the thicker substances that accumulate within the bladder, to provide a safety device that will blow out when the resistance exceeds a certain degree.

These requirements are all embraced in the apparatus which is here shown (Fig. 2) and which has proven its practical utility. The motor is 1/12th horse power, belted down to low speed; the pump is an inverted positive pressure blower used for air blast, of low speed, made very heavy, and heavily oiled. A small reducing needle valve is attached to the tube connecting with the drainage bottle, in which the amount of pressure is regulated, and after regulation the safety valve prevents any excess of suction. The amount of this pressure may be measured by means of a vacuum gauge. This apparatus, on account of its very heavy construction, can be run continuously without heating up. It is all enclosed in a sound-proof box, so as to avoid the annoyance to the patient that might arise from the sound of the continuous action. This may be attached to any electrical outlet, and is constructed for both alternating and direct current.

Another feature of such an apparatus is that in a ward where more than one patient requires its use, all can be attached to the same system by additional pipe connection.

The advantages of this effective means of drainage are: First, the possibility of leaving a smaller suprapubic opening than is ordinarily required; second, the constant removal of fluid blood, thus avoiding clot formation and undue discomfort and strain; third, the surfaces of the abdominal cut are kept clean, instead of being bathed in fetid urine.

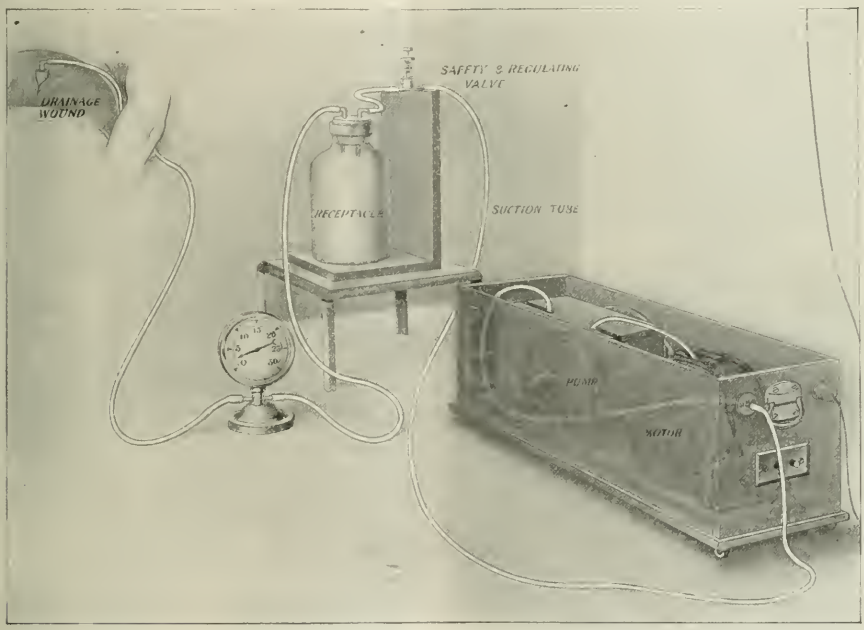


Fig. 2.

All of these advantages combine to insure a more rapid healing, with the patient out of bed in a minimum period, thus removing from the suprapubic operation, which all grant is a superior method of approach, that which, more than any other reason, has made it compare unfavorably with the perineal operation, namely, absence of adequate surgical drainage. In a large number of my cases I have found it entirely impracticable to eliminate the requirement of suprapubic drainage, notably in prostatectomy. There are some cases of stone in the bladder where the stone can be removed and drainage obtained by way of the urethra. Such cases are the exception, and not the rule. This method of obtaining bladder drainage does not complicate the management of the after-treatment by

adding to the difficulties, is really a practical solution of the main disadvantages attending the suprapubic operation, and consequently possesses real merit in expediting recovery and even in lessening some of the attendant dangers.

25 Park Avenue.

## THE DENTAL ASPECT OF ORAL INFECTION.*

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The study of the anatomy, physiology, and pathology of every part of the human body, with the exception of the dental organs, is a part of the medical curriculum. These organs consist of the teeth, their lining membrane, the pericementum, the alveolar structure and the gums. They guard the vestibule of the digestive tract and their normal use is an important phase of the first scene in food digestion and assimilation. They are at different times surrounded by many pathogenic microorganisms, and any deviation from a physiological status must surely tend to interfere with normal digestion and food assimilation. Nothwithstanding the important rôle which these organs play in health conservation, the young physician starts in to practice without having received any proper instruction concerning them either in health or in disease. Consequently, without proper postgraduate study it is impossible for him to appreciate the difference between good and bad dental therapy.

I bring to the Fellows of the New York Academy of Medicine a plea for recognition of a specialty whose highest aim is to preserve the health and integrity of the portal of the digestive tract.

Bacteriology during its relentless conquest of empirical medicine has shown the mouth to be the most prominent propagating point for almost every kind of microorganism. The knowledge already obtained of the etiological relation of the dental organs to infectious diseases must surely bring the entire medical profession to a realization of the fact that their duty to the public health de-

Fig. 1.—This is the photograph of a very thin ground section of one-half of the mandible in which blind abscesses are seen attached to the ends of the roots of the first molar. The one attached to the distal root is the larger of the two. The infiltration of the septic substance through the cryptlike cells is well shown.

mands that they should obtain such knowledge, that they will at least be able to judge as correctly the merits of the dental services rendered to their patients as of services rendered through any other specialty. The dental organs, like the hair and nails, can be classed as end-organs, and consequently are very impressionable to any nutritional impairment. The alveolar portion of the jaws con-

Fig. 2 is a roentgenogram illustration of a blind abscess over an upper lateral incisor.

Fig. 3 is a picture of the same tooth seven months later and shows the growth in size of the granuloma during this period.

sists of a buccal and lingual plate of bone between which are masses of bone divided into crypt-like cells filled in with a mixture of fibrous embryonal and degenerative remnants of epithelial structure. The roots of the teeth are imbedded in this structure and united to it by tendons and a membrane known as the pericementum or the peridental membrane, which in turn unites with the periosteum. Bloodvessels and nerve fibers pass through foramina at the ends of the roots and lead through the root canals to the pulp chamber which is filled with a jellylike mass of embryonal tissue. The gums are especially marked by their great vascularity. This tissue is ramified by a vast network of anastomosing capillaries and is a covering to the alveolar structure.

Septic conditions of the dental organs can be divided into three classes. First, where there is a free purulent discharge into the mouth. This may come from a sinus which has burrowed through the alveolar plate and through which is discharging an alveolar abscess emanating from a putrescent pulp. Or there may be a discharge of pus from pockets alongside of the roots of the teeth without having any connection with the pulp of the tooth. This condition is generally known as pyorrhea alveolaris. The etiology of this latter lesion is very varied. In all forms of malnutrition this pathological state may become a very marked symptom, depending largely on how much the resistance of the individual has become impaired.

Realizing that we are dealing with end tissue it is not surprising that the first symptoms of any form of malnutrition should be manifested around the gums with its vast network of anastomosing capillaries. "It is not unreasonable to suppose that the chemical change that takes place in the blood under such circumstances varies according to the organ involved and the nature of the malady. This accounts for the great difference in the clinical picture of the gums in different forms of pyorrhea alveolaris."* A minute study of the different pictures to be found in the mouth in different types of disease will not only be found an invaluable aid in differential diagnosis, but frequently can be utilized as the means of making a positive diagnosis of some grave disease long before any other symptom manifests itself. There is another type of pyorrhea much more frequently met which is due to trauma and localized irritation. The destruction of the first line of defense in such

*Read before the New York Academy of Medicine, February 5, 1914.

*Rhein, M. L.: *Dental Cosmos*, November, 1812.

cases is mostly produced by improper dental operations. Another cause is found in the impeded eruption of third molars. Purulent exudations in the mouth also come from impaired tonsils and from the pharynx. Exfoliating pieces of necrotic

FIG. 4 shows an abscess of an upper lateral and an upper central incisor caused by imperfect root fillings which permit of seepage through the end of the root. The pus has burrowed its way to the neck of the central where it empties into the mouth. A probe is seen passing through the sinus to the abscess.

FIG. 5 shows two abscessed upper incisors.

bone or roots are also frequent etiologic agents.

The effect upon the rest of the body of the constant swallowing of purulent matter has been the subject of much discussion. Science has today practically eliminated the idea that the gastric juice is a barrier to the passage of bacteria and pus from the stomach into the intestines. "Undoubtedly most of the swallowed bacteria are destroyed, not by any of the digestive secretions, but by competition with the normal intestinal bacterial flora which has preempted the ground when the nutriment is after all limited in quantity. When, however, instead of merely swallowing the ordinary bacteria mixed with the food, the individual is constantly swallowing certain amounts of pus, an entirely different problem presents. The nature, virility, and number of the microorganisms must have a strong influence as to their ability to overcome the surface immunity of the digestive tract. Many forms of diseases of the stomach and intestines are possible. By means of their development in the digestive tract such bacteria are very easily absorbed in the circulation

FIG. 6 is the second roentgenogram of these teeth after the pulp tissue has been removed. Gold wires have been placed in the root canals and they give evidence by penetrating through the end of the canals that they have been cleaned to their very ends.

FIG. 7 has been taken after the zinc electrolysis has been applied to the alveolar structure around the ends of the roots and the root canals hermetically sealed, showing encapsulation of the ends of the roots.

and pass into the lymph spaces. After this fortress of the body has succumbed, the bacteria with their poisonous products appear to be irresistibly drawn to the most vulnerable of the vital organs. Medical literature is replete with citations of numerous forms of disease due to pyogenic bacteria which are traced to this one source."*

The second class, pericemental abscesses, are those cases where pericemental tissue becomes infected from some form of pyogenic bacteria. In these, the vitality of the pulps of the teeth remains intact. While they are supposed to be rarely met, it is more probable that the attending dentist has failed to make a correct diagnosis of the diseased area. This infection is much more common than

FIGS. 8 and 9 show microphotographs of sections of pulp tissue in which calcareous deposits have strangulated the circulation in the pulp. Normal pulp tissue is almost obliterated by this hardened calcareous abnormal structure. Especially in multirooted teeth this is the greatest obstacle to cleaning out the canals to their very ends. The persistent application of sodium and potassium will accomplish the desired result.

is appreciated at the present time. The most rational theory of its etiology is that enamel germs of the teeth have left sufficient epithelial cells in this membrane to become an attractive nutriment for pyogenic bacteria. After some time, infiltration causes the establishment of a sinus reaching generally to the neck of the tooth, and in this state is only too frequently diagnosed as an ordinary pyorrheal pocket. The treatment of pericemental abscesses is very poorly understood at present.

*Rhein, M. L.: *Dental Cosmos*, November, 1912.

Its differential significance must, however, not be overlooked.

I have reserved for the third class the most important type of mouth infection, the granuloma or blind abscess attached to the end of a root and

Fig. 10 shows an upper molar where on account of such calcific matter the dentist failed to penetrate beyond the entrance to the three canals. Infected areas are noticeable at the ends of the roots.

Fig. 11 shows the same root after the old filling has been removed and by means of instrumentation and the use of sodium and potassium the lingual root has been entirely explored, the distobuccal almost entirely, but the mesiobuccal only a short distance. The picture demonstrates that, on account of the curvature of the mesial root, it is necessary for the operator to remove sufficient tooth structure to permit the wire shown here to enter the canal as near by as possible to the mesiobuccal angle and so, for operative purposes, obliterate the curvature of this root, converting it into a comparatively straight root canal.

which grows in size at the expense of the osseous structure of the alveolus. The important feature of these cases rests in the fact that there is no mouth outlet for the purulent matter, which is therefore confined to a small area in the alveolus. Nature attempts to limit the size of a granuloma by means of a thick fibrous envelope, which defends the adjacent tissue as much as possible from infiltration. Notwithstanding this defense, a gradual absorption of the bacteria or their toxins is going on continuously. "The pathogenic bacteria escape from the local foci of infection by penetrating into the surrounding pervious lymph spaces and capillary vessels, into which they push, through continuous growth, or are carried by their own motility or by motile phagocytes."* The cryptlike cells of the alveolus make the infiltration of these products very easy when once they have passed through the envelope of the granuloma.

The small amount of inflammation and the quiescence of these abscesses is most likely due to the low type of virility of the bacteria present. Patients may have a number of such abscesses without experiencing the slightest symptom of discom-

Fig. 12 shows the gold wires in all the canals after the next operation and after the entrance to the mesial canal has been brought much nearer the approximal side of the tooth.

Fig. 13 shows the tooth at the completion of the root fillings.

fort in the infected region. It is to be regretted that there is not sufficient time to detail clinical notes of these cases, but it is worthy of note that on bacteriological examination the majority of cases show the presence of *Streptococcus viridans*. That the attack of this low type of organism is especially directed against the heart is well understood. If these observations are correct, the insidious nature of these abscesses and the grave danger of

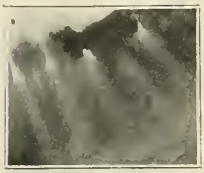

Fig. 14 shows good root fillings completed in a lower molar.

Fig. 15 shows good root fillings completed in an upper molar.

producing one of the types of endocarditis cannot be minimized. Blind abscesses have been known to remain quiescent for many years and then suddenly to develop so great an activity as to readily change into the ordinary type of alveolar abscess with a sinus opening into the mouth. Rosenow's recent demonstration of the possibility of changing under certain conditions, one type of streptococcus for that of another, would readily account for a blind abscess suddenly changing from a quiescent character into one of great activity. These abscesses must be differentiated from the dental cysts found in this region and which are found devoid of the presence of any pyogenic organism.

The Roentgenogram has disclosed the fact that these infections are exceedingly common. The infection of any portion of dead pulp tissue is the immediate exciting cause. It may occur in a tooth where caries is followed eventually by death of the pulp. Inflammatory action and subsequent death of the pulp under the most skillful of dental operations is always a possibility. A traumatic condition producing a rupture or strangulation of the pulp where it enters the root canal is not infrequent. The most prolific source of blind abscess comes from imperfect dental operations involving the pulp of the tooth. Under the guise of dental aid the patient is inoculated with the toxin that left untreated must result in the gradual destruction of the heart function.

That the physician is ignorant of the large number of severe diseases arising from bad dentistry is well illustrated by the fact that so many cases of this kind are found in the mouths of physicians

Fig. 16 shows a series of alveolar abscesses of lower front teeth with their sinuses opening at the necks of the teeth. This case was, for years, erroneously diagnosed and treated as pyorrhea alveolaris. Such erroneous diagnosis is being constantly made by self-styled pyorrhea specialists.

themselves. With our present knowledge there is no excuse for this condition, and when once understood by the mass of physicians, neglect that can be followed by such grave results, will no longer be tolerated. Scientific treatment of pulps and

*Rhein, M. L.: *Dental Cosmos*, November, 1912.

root canals should leave a result in which septic infection is impossible. In the small percentage of cases where this end cannot be attained, the tooth should be extracted. The technique of such work requires a very delicate procedure and necessarily great skill, and frequently the expenditure of hours of labor.

Fig. 17 shows a case of pericemental abscess surrounding the lower half of the mesial root. The vitality of the pulp had not been impaired.

The pulp, for operative purposes, can be compared with the marrow of the long bone and all stages of its treatment should be carried on under the most careful aseptic surroundings. Every particle of pulp tissue must be extirpated and the canals opened to the very ends of the roots. Only since the Roentgenogram has been at our disposal,

Fig. 18 shows blind abscesses imprisoned under roots used in bridge work. There is no external evidence of inflammation nor any discomfort noticed by the patient.

has it been possible for the dentist to know whether operative measures of this nature have been successfully completed. Consequently therapy in this field should invariably be accompanied by Roentgenogram proofs. The removal of pulp tissue on account of the curved nature of so many roots, together with calcareous degeneration in so many cases, makes the operation one that frequently requires numerous hours of the most careful manipulation. Only when a fine wire can be introduced to the very ends of each root canal can there be a certainty that the root is ready for the next step in the operation, which consists in sealing the lower portion of the canal with a filling which homogeneously seals every nook and crevice in the canal and if possible encapsulates the end of the root. This filling material should have no properties which can possibly irritate the tissues in the apical region. The ends should, however,

Fig. 19 shows one of the very common types of blind abscess when the pulp has died as the result of placing a gold shell crown over the root of the tooth. In such cases there generally is no discomfort.

Fig. 20 is a roentgenogram taken a few months ago, showing a similar gold shell crown over a lower bicuspid with a well marked granuloma at the end of the root. The tooth was subsequently extracted under the direction of Dr. Henry James. Cultures made by him from this granuloma produced the *Streptococcus viridans*.

not be sealed whilst any infected area of the alveolus is present. All such pathogenic tissue must be removed. This can be done either by a surgical curettage or by electrolytic therapy. As long as the root itself has not become necrotic, the application of zinc electrolysis will clean out the infected zone. The Roentgenogram has shown so many cases of restored alveolus after this treatment that its efficiency as a radical cure for such necrotic areas appears to be thoroughly proven. After the end of the root has been hermetically sealed and the canal filled, the pulpal end is covered with an antiseptic cement of which oxychloride of zinc cement is a good example.

The faulty root canal work, done by the most skillful operator, without the aid of the Roentgenogram has made this aid an absolute necessity from the commencement to the completion of these operations. By means of this view of the alveolus, roots whose curves make the reaching of their ends appear almost impossible, can be entered at such a point as to practically eradicate this curvature.

If the final picture should show an imperfect operation, it is imperative that the root filling be removed and replaced by one without defect.

The illustrations (shown at the meeting as lantern slides), together with all the evidence in the matter under discussion should cause the medical profession to halt and consider if they are doing their duty for the protection of the public health.

It is a professional neglect to further defer action. No so-called special field taught in the medical colleges by specialists can show so great an etiological bearing on infections involving the health of the community. Hence I believe that no one should be graduated from a medical college

Fig. 21 is a roentgenogram taken two years after amputation of the end of an upper central incisor. New alveolar structure is seen filling in the vacant space.

Fig. 22 is a roentgenogram taken eight years after treatment of very severe alveolar abscesses by means of zinc electrolysis. The new alveolar structure in the previously diseased area is unmistakable.

without having received a course of instruction and passed an examination in the principles of stomatology. Then only, will physicians as a whole be trained to take their proper places as judges to determine if the community is receiving the benefits of scientific dentistry, which will not only increase the comforts of the individual, but operate as a material factor in increasing the longevity of those fortunate enough to secure its services.

38 East Sixty First Street

## A CASE OF SPOROTRICHOSIS WITH MULTIPLE LOCALIZATIONS—IMPORTANCE OF THE *X*-RAY EXAMINATION TO DETERMINE THE FOCI.

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In the month of December of last year I was called upon by a colleague to examine with *x*-rays for diagnostic purposes one of his patients who had been sick six months.

He was a powerfully built white man, 54 years of age; had gone into the interior of the country six months previously with the object of purchasing tobacco, and had tasted various leaves in different plantations. While doing this work after about eight days he felt indisposed, with general malaise, slight chills at frequent intervals, and what constitutes a

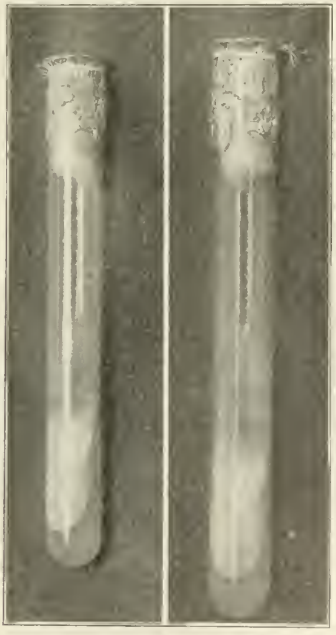

Fig. 1.

very important point as stated by the patient, very slight fever, temperature only reaching 38° C. during the 24 hours. In this condition he remained 50 days and as he did not improve he decided to come to Havana. On examination my colleague found a pneumonic focus circumscribed to the central portion of the left lung, easily demonstrated by auscultation and percussion, and a slight daily expectoration that greatly increased on the patient's lying down. This expectoration, typical of hepati-

Fig. 2.

zation of lung, at times streaked with blood, was coincident with the appearance of the disease. The temperature never went higher than 4 or 5 tenths above the normal, except on the day noted when it reached 38° C.

My colleague made the diagnosis of a pneumonic focus and in this sense had the sputum examined. He was greatly surprised at not finding either the Talamon Frankel, the Friedlander, or the Koch or Pfeiffer bacilli; nevertheless the patient continued to present the same symptoms, the same expectoration, and my colleague in view of lack of etiological data, began to entertain the possibility of malignant tumor of the lung. It was for this reason I was called in, thinking that perhaps the *x*-rays would throw some light on the subject.

On first view of the patient I must confess that my attention was drawn to the almost total absence of fever during the whole course of the disease, which otherwise presented all the symptoms of pneumonia, the sputum being pathognomonic notwithstanding, there were no bacilli of Koch, Friedlander, or Pfeiffer; and furthermore to the chronicity of the disease, as the patient had been sick for six months.

I stated to my colleague that we would of course make the radiograph, but that to my mind the clinical aspects of the case did not resemble those of malignant tumors of the lung hitherto seen by me. Aside from other clinical considerations, in these lesions there is little or no expectoration, while in the present case expectoration sometimes was so abundant as to appear almost like vomiting. On the following day I made a radiograph while the patient's physician had the sputum examined with a view to cancer cells, and I had a similar examination of the sputum made with a view of finding spores, inasmuch as in my opinion the case materially differed clinically from all classical cases of lobar pneumonia, and furthermore I had in mind a similar case that I had seen together with Dr. Raimundo Menocal a few days previously.

On the following day I made a radiagraph and I found the lesion at the spot clinically localized by my colleague. This lesion is clearly seen in radiograph No. 1.

The patient brought the sputum collected during the night. At first glance a large number of spores were observable in the original preparation. These were placed in peptonized and malted agar, giving rise to the rapid growth seen in Figs. 1, 2, and 3.

Dr. Menocal's report, as result of his examination, is that we have to deal with a case of *Endomyces albicans virillemen*, which appears in the form of branching cylindrical filaments about 5 mikrons in length, composed of superposed cells touching one another. Between these plants may be seen very refractive ovid cells 5 mikrons in length. The cultures give rise to filamentous and globular forms.

In view of the pulmonary lesion having once shown its sporular origin, the therapeutic indication was clear. Iodide of potassium was given in doses of 4 or 5 grams per day. The above is not the most interesting part of this clinical case, as we might assume knowing the disease and its treatment.

The data given by the patient as to his having been taken sick while testing tobacco leaves for a purchaser, remained fixed in my mind; these leaves had suffered no other preparation besides cutting, drying, and packing in bales for sale to the trade. I requested my patient to obtain for me some samples of the leaves from the places and the lots that he had tested and of these I planted several pieces in peptonized and malted agar, when I was gratified to see several colonies sprout up. Among them there was one which morphologically resembled and microscopically was proven to be *Endomyces albicans*, causative agents of the pulmonary lesion of our patient. The nature of this work does not permit me to speak at greater length on the existence and propagation of these spores by the leaves of tobacco. I shall make a report to the Academy of Medicine of Havana on the variety and number of spore colonies to be found in the leaves of green tobacco.

FIG. 3.

The patient followed the iodide treatment and rapidly improved. A month later I made the second radiograph in which the decrease of the lesion may be observed. This decrease in size has been followed by lessening of pain, disappearance of elevated temperature, sputum diminished, and finally, as soon as he began to take the iodides, the appetite reappeared and the patient began to gain weight.

Toward the end of January, when the patient was almost well, he went to see Dr. Soto to consult him on account of pain in the right ear which had been troubling him for five days. My colleague observed that the tympanum was dull, white in color, convex in the inferior segment. There was very little pain on pressure, and the patient was unable to hear the tick of the watch either by the air or bone transmission. After the use of warm carbolized glycerin instilled into the ear the pains disappeared within three days, but other pains radiating forward, paroxysmal in character, persisted in the right temporoparietal region. The patient also complained of vertigo. There was no tumefaction over the mastoid, nor sensibility over the apex or the antrum. The tympanum was not red or sensitive and there was no fever. On paracentesis of the tympanum a drop of white pus was discharged. The gauze withdrawn on the following day was pretty well stained with whitish pus. Pain and suppuration decreased, and four days after the paracentesis, the patient could hear a watch at a distance of 4 cm.

Eight days afterwards Dr. Soto was again obliged to open the tympanum and let out some more whitish pus. The drum again closed in about eight days, pains still persisting in the temporoparietal region. Under these circumstances, my colleagues, surprised by the existence of a suppurating otitis media with no reddening of the drum, no fever, no tympanic sensibility, no mastoid reaction, in spite of its duration, with persistence of atypical pains, endeavored to ascertain the nature of the trouble and discovered that the patient was still suffering from a pulmonary lesion diagnosed by us as of sporular origin (*Endomyces*). The sputum, though lessened in quantity, still persisted.

Fig. 4.

Taking the above into consideration and suspecting the possibility of an otitis media produced by the same spores, the lesion being caused by direct infection of the middle ear through the Eustachian tube, on March 6 a culture was made in Sabouraud's agar of the pus from the cavity, and the laboratory reported eight days afterwards that it was identical with the organism found in the lung of our patient.

Under the impression that the patient had completely recovered he was again brought to me by the colleague who originally brought him. He stated that there was no fever, but that the appetite had

decreased and the patient was tormented by headaches and insomnia. Patient's despair was graphically described by him when he said that "life was unbearable in this condition." In view of the gravity of the situation I made a radiograph of patient, laying him on his right side, employing an instantaneous Lumière plate on Sinegran chassis.

Radiograph No. 3 was the result of this examination. In it I can observe a complete darkening of the mastoid and, furthermore, a dark area two fingers' breadth behind and two above the external auditory meatus. This was the center of the new focus. There was absolutely no doubt the new lesion had appeared in the same manner as the others without giving rise to febrile disturbances, its symptoms being limited to headaches and insomnia.

Fig. 5.

In view of the dark shadow I did not hesitate to localize the lesion as extradural and I thought the focus to be of otic origin, although the extension had not occurred through the diploë. As there is no diploë in the squamous portion of the temporal, I believe an opening had occurred on the base of the petrous portion and that this extradural focus was its result.

Dr. Presno lost no time in operating. On the following day he placed a trephine over the center of the dark shadow as marked by the radiograph, and on penetrating through the bone there was an abundant flow of pus of about one ounce. The pus extended towards the base of the petrous portion. The cavity was first washed out with peroxide of hydrogen, followed by weak solutions of iodine, dressed, and patient put to bed. On the following day all the symptoms had improved and fifteen days later the patient was discharged cured.

Cultures of pus were made this time as on all previous occasions and the result was always the same, giving a pure culture of *Endomyces albicans*.

My purpose in relating this interesting observation is to demonstrate the importance of the new methods of investigation as aids to the clinician. Without the aid of the laboratory and the *x*-ray, this case would never have been cleared up, so far as its nature and localization are concerned.

The etiological diagnosis was made by laboratory methods, the *x*-ray aided us in the localization, especially so in the cranial localization which was all the more difficult to establish in view of the fact that we were dealing in this case with what practically constitutes a new clinical type, that is to say, a suppurating focus, not giving rise to febrile reaction and having a new pathology. The physician now on the alert by careful study of its modifications will be able to establish some new clinical entities.

# THE LIQUOR QUESTION IN MEDICINE.

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At a recent meeting of the World's W. C. T. U. doctors were severely criticised for using alcohol in any form in their practice, and it was seriously suggested that efforts be made to have a law passed forbidding them to do so. Of course, the implication in such a suggestion, aside from the obvious one that physicians are not the best judges of how medicine should be practised, is that medical men are opposed to the cause of temperance. From the printed records of their teachings, however, it should be apparent, even to very confirmed faddists, that physicians, individually and collectively, have always been ardent advocates of temperance. Every text book dealing with the causes of disease points out the evils of alcoholic excesses. Indeed, the medical textbooks now in existence probably constitute the greatest temperance library in the world. The methods of the creators of this great library may be questioned, but not their motives.

Moreover, physicians are ready to accept any method of combating disease if such method can be shown to be effective. So that if the various organizations that advocate prohibitive liquor legislation could show encouraging results there is no doubt that medical men would look less askance at their methods.

These advocates of prohibition, through such organizations as the W. C. T. U., the Scientific Temperance Federation, Anti-Saloon League, etc., have had a quarter of a century in which to demonstrate the worth of their theories in actual practice. Largely through their efforts all States have passed laws "requiring the study of scientific temperance," physiology and hygiene, and in some States at least the law requires oral teaching of these two last branches for "children as yet unable to read." Furthermore, prohibitive legislation against the liquor traffic has increased to such an extent that at present fully one-half the people of the country are said to be living in what is claimed to be "dry" territory. So that all school children are now taught the dangers of excessive alcoholic indulgence, and half the adult population of the country is forbidden to obtain liquor except by unusual and complicated methods of barter. Surely such sweeping legislation ought to get results.

But in the face of this legislation we find at the present time that more than twice the amount of whisky is consumed annually in the United States than was consumed seventeen years ago.[1] More liquor of all kinds is consumed per capita to-day than ever before in the history of our country. And the diseases that are known to be caused by alcoholic excesses appear to be increasing rather than diminishing. Moreover, the Government statistics[2] for the last census period show that certain diseases which are attributed to excessive alcoholic indulgence, directly or indirectly, have increased more in the group of States where prohibitive legislation existed at the close of the period, than in the United States as a whole.

Thus, according to this report, there was a gain of 4.4 insane persons per 100,000 population, committed to the institutions of the country during the census period. But during this same period the gain in the eight prohibition States was 7.3 per 100,000—almost twice the gain in the country as a whole. Moreover, the greatest gain in any State, with a single exception, was in prohibition Maine, where the number of insane increased 21.2 for each 100,000 inhabitants, while "wet" Nebraska holds the record at the opposite extreme with a decline of 27.6 per 100,000 during the same period. When we add to these facts that the record for homicides in 1912 went to Memphis, in prohibition Tennessee, with 64.3 homicides per 100,000 population, as against license Philadelphia's 1.4[3] (the lowest record of the year); that Bangor, Me., a prohibition city for thirty years, has a record of arrests for drunkenness in that year of one to every nine inhabitants,[4] and that Kansas, the veteran standard bearer for prohibition, has more insane than seventeen of the "wet" states scattered across the country, and more paupers and convicts than her unregenerate neighbor, Nebraska,[5] the results of prohibitive legislation are not encouraging, to put it mildly.

"Moderation is no definition of temperance," said an enthusiastic feminine speaker at the World's W. C. T. U. meeting a few weeks ago. She might have added, "Neither is prohibition."

This record of the increase of certain diseases and conditions influencing diseases flourishing most in territories directly under the rule of prohibition, without any evidence that there is a compensating decrease of any diseases in such regions, does not tend to increase the confidence of thoughtful physicians in the methods employed. Indeed, some of the unscientific, "scarehead" methods used by some of the societies interested in promoting prohibitive legislation depart so far from established methods of presenting scientific truths that they repel rather than attract most medical men.

The term "unscientific methods" includes such things as stating only one side of a case when the facts on the other side are available, presenting as facts things still open to question, and accepting statements without due scientific caution.

For example, in a recent pamphlet[6] prepared by the Scientific Temperance Federation of Boston the statement is made that "alcohol carries off 1,662 adults every nine days all the year round in the United States." As a matter of fact the document upon which this assertion is based [7] makes no such dogmatic statement, but offers the "estimated" death rate as a tentative approximation of the numbers, which is quite a different matter. Any estimate must necessarily be only tentative, since the facts at our command do not warrant dogmatic positive statements given in exact figures.

It has been repeatedly stated by such men as the late Dr. J. S. Billings, and Mr. John Koren, both of whom were actively engaged in the work of investigating the subject by the Committee of Fifty, that there are no reliable data on the mortality of alcohol in the United States. For the causes of many diseases are still unknown, and what appears to be an etiological truth to-day may be branded as false to-morrow by some fresh discovery.

The recent discovery of the cause of paresis by Drs. Moore and Noguchi[8] offers an example, and it so happens, applies directly to the case in hand. Paresis is included in the "tentative approximation" of deaths from alcohol, yet we know now that the disease is caused by the specific germ of syphilis. Paresis is uniformly fatal, represents some 12 per cent. of all forms of insanity, and figures conspicuously (about 7,000 deaths annually*) in the death

*These figures are based on the Twenty-fourth Annual Report of the New York State Hospital Commission, Albany, 1913.

rate among the quarter of a million insane persons in the United States. It is obvious, therefore, that the discovery of its cause alters very materially, even tentatively approximate death rate estimates. It also confirms the statement of Dr. Billings and Mr. Koren, and refutes any dogmatic statements made hitherto as to the number of deaths from alcohol which included paresis as an alcohol-produced disease.

Another statement in this same publication is an example of the lack of scientific caution exhibited by lay enthusiasts in accepting as facts what clinicians would regard only as probabilities or possibilities. Thus, an estimate is given that "30 per cent. of the deaths from Bright's disease" are caused by alcohol. We may overlook the indefiniteness of the term "Bright's disease" (although a physician would hesitate to use the term in print without explanation), but the statement suggesting the exact percentage of deaths caused by "Bright's disease" is much too dogmatic, for clinical observations and recent post-mortem findings do not warrant precise statements about etiology in this class of diseases.

Thus, "Fahr in a series of 309 autopsies on chronic alcoholics" found that "chronic nephritis caused the death of but eight cases, and was less commonly noted than in hospitals with patients of a better class." That "arteriosclerosis was apparently less common than in bodies of non-alcoholics of corresponding age." And "Baumgarten[9] found cirrhosis of the liver in only 6 per cent. of autopsies among hard drinkers," all of which seems to raise the question as to whether rich foods, sedentary habits, mental states, etc., do not play a part sometimes attributed to alcohol, and perhaps explains the opinion of Dr. Emery, of the Manhattan Life Insurance Company, that "a man who is an overeater is not likely to live as long as some excessive drinkers."

The examples of positive statements just given show the lack of scientific caution exhibited by some of these partisan organizations in their literature. Sooner or later their methods are sure to react upon them—as we may judge by general results and create skepticism as to the value of any of their statements or their methods.

Another method that is open to criticism—one that suggests the authorship of politicians rather than that of scientists—is that of taking only a few specific cases and presenting them so that they will impress the uninitiated as representing accepted general truths.

It is quite possible, indeed, that the originators of this plan, rendered myopic by enthusiasm and lacking scientific training and clinical experience, believe that their isolated examples do really represent general truths. But this sort of ignorance will not tend to increase the confidence of serious investigators.

Thus, on a chart[11] done in colors the results of an investigation made by Prof. Demme[10] in Berne the number of defective descendants of ten "very temperate" and ten "intemperate" families are indicated. The summary of the results shows that only 17.5 per cent. of the descendants of the intemperate families were normal, while there were 82 per cent. normal descendants of those classed as the very temperate families.

The facts given in this chart are interesting in themselves. But no scientist would use them, either in a general way or as pointing to any fixed relation between alcoholism and mental defects, without offering for comparison the findings of the Francis Galton Laboratory for National Eugenics, made on a much more comprehensive scale at a later date and under the direction of Prof. Karl Pierson, an investigator of first magnitude in this field of research.

For the number of families examined by the Galton Laboratory investigators were counted in hundreds, not merely tens, the investigators themselves were trained observers, and from their character no one can accuse them of prejudice in favor of alcoholism. The epitome of their findings, quoted from the Memoir,[11] is as follows:

"The mean weight and height of the children of alcoholic parents are slightly greater than those of sober parents. * * *"

"The general health of the children of alcoholic parents appears on the whole slightly better than that of sober parents. Parental alcoholism is not the source of mental defect in offspring. The relationship, if any, between parental alcoholism and filial intelligence is so slight that even its sign cannot be determined from the present material."

In short, these findings show utterly different results and convey an entirely different impression from the Demme chart. Many persons will, of course, question the import, if not the facts, of the Galton Laboratory observations. But no sincere seeker for truth can disregard them to the extent of exhibiting the Demme chart alone, or any similar chart, without laying his methods open to just criticism.

The findings of the Galton Laboratory in the same field of investigation, the mortality of children of drinking mothers, also illustrates the necessity of exercising extreme caution in jumping to general conclusions from the observation of a few special cases.

Two specially prepared and copyrighted charts, showing the number of children of alcoholic mothers that died before reaching two years of age, have been exhibited in various places recently by one of the "scientific" temperance societies.[12] On these charts, in which the dead babies are represented as dolls in black dresses, while the living are dressed in white, the death rate among the children of drinking mothers is given as 55 per cent.—fifty-two mournful little black dolls grouped in the center of the picture; while on a similar chart the mortality of children of sober mothers is shown to be 23 per cent.

In an investigation similar to the one forming the basis for the doll chart, but conducted on a much more comprehensive scale, the Galton Laboratory investigators found the death rate among the children (of all ages) of the Manchester mothers amounted to 26.5 per cent. of the children of sober mothers, while 33.8 per cent. of the children of drinking mothers died.

According to both these reports, then, it appears that the alcoholic mother will have more of her offspring die in childhood than will the sober mother. But there will be no such wide difference as given in the black doll chart. Moreover, the Galton investigators found that the drinking mothers evened up the net results by bearing more children than their sober neighbors—a statement that should be of particular interest to one of the eminent ex-officials of our country who is greatly interested in the race suicide problem.

When we consider certain demonstrated facts about liquor legislation, liquor consumption, and

baby mortality, it becomes apparent at once that a study of the subject of relationship between these conditions, if any, will lead to curious and bewildering complications. During the last quarter of a century 50 per cent. of the country has become prohibition. During this same period the amount of alcohol consumed has more than doubled; and meanwhile the death rate among babies has steadily declined. So that at present we have more prohibition, more liquor, and more living babies. It is obvious, therefore, that any statement that suggests any single cause as having produced this apparently anomalous condition is necessarily at once open to challenge.

The advocates of prohibition are responsible beyond a doubt for the increase in prohibitive legislation; the people as a whole are responsible for the increased consumption of liquor; and doctors must be credited for the reduction in infant mortality. So that we have at least three factors for consideration.

However, without attempting the difficult task of solving so complicated a riddle, we can put a finger upon one fact that undoubtedly has considerable bearing upon the increase of certain diseases attributed to alcohol. This is that the consumption of the injurious spirituous liquors has increased more than that of the milder beverages,[13] and owing to the relatively small bulk of such liquors, seem to be used in greater quantities proportionately in prohibition territories. In their vilest, most deadly fusel-oil form they constitute the principal ammunition of the ubiquitous "suitcase peddler" in the "dry" regions. And no one questions that these deadly concoctions influence very materially the mortality statistics.

I have before me a series of charts issued and widely exhibited by one of the societies referred to a moment ago. Some of them represent universally accepted truths. Others present facts that may be accepted as representing certain phases of the liquor question. While still others could not be accepted by physicians as giving a fair presentation of the subjects they represent. As a whole they show that the authors lack the knowledge of practical psychology, which is the keystone of every physician's success, and have not caught the spirit of modern educational methods. For they aim to teach by gross exaggeration—a method that most educators condemn as archaic.

In effect the promotors of radical liquor legislation, or at least the sincere ones not dependent upon political constituency, assume that most men would become alcoholics if given free access to drink. Yet most men do have such free access, and very few of them become alcoholics.

To clinicians and students of heredity, however, it is becoming more and more evident that the really important factor in producing insanity, alcoholism, drug psychoses, etc., is a deeply seated hereditary defect, not merely the result of environmental conditions. In short, that the alcoholic is a person quite different from the man who occasionally takes a glass of beer. Dr. Thomas W. Salmon has expressed this view in the single sentence: "In a world of drinkers the alcoholic is an abnormal type."[14] Dr. M. J. Rosenau expresses the same sentiment in another way: "It is necessary to recognize that what may be inherited is not the result of alcoholism, but rather the disposition that led the parent to become alcoholic."[15] And the Galton Laboratory offers the same conclusion in the sentence, "If, as we think, the danger of alcoholic parentage lies chiefly in the direst and cross-heredity factors of which it is the outward and somatic mark, the problem of those who are fighting alcoholism is one with the fundamental problem of eugenics." It also expresses the fear that "it will be long before the temperance reformer takes this to heart."

The recently organized societies for promoting practical eugenics are based on such conceptions of the relationship between heredity and disease. And these organizations are just as pronouncedly advocates of temperance as the older and more intolerant societies, even though they do not advocate radical legislation. Like the older organizations, they attempt to "strike at the root of the evil," but, unlike them, they distinguish between roots, and branches and twiglets.

The method of attempting to suppress any vice by trying to keep it under lock and key has never proved effective. For perverse human nature seems to crave the thing forbidden it, and will find ways of satisfying the craving. It is also a human failing to court mysterious dangers that are painted too black—a thing that poets and physicians discovered long ago. And laws that are formulated without due consideration of these fundamental elements of human nature are destined to failure in application. Here is a plausible explanation of why radical legislation has failed to check the steadily rising tide of alcoholism.

In outward form, at least, the methods of the older "uplift" societies of attempting to teach by exhibiting charts, resembles the methods adopted by the newer societies. In a general way many of their charts are similar to the excellent ones prepared by such organizations as the National Committee for Mental Hygiene, for example. Similar, but with one radical difference—they are open to challenge. And thoughtful physicians, at least, have learned to look askance at any method that will not stand the acid test of close scrutiny.

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# THE PRESENT STATUS OF THE NON-OPERATIVE TREATMENT OF BENIGN AND MALIGNANT GROWTHS, AS SEEN AT THE CLINICS ABROAD.

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WITHIN the last two or three years, so many glowing reports have appeared from the clinics abroad, in connection with the non-operative treatment of benign and malignant growths, that I decided to go over and see the work done for myself, and if convinced, to copy their technique. The object of this paper is to give a brief account of what I saw at the most important clinics I visited.

For convenience sake, I will speak of the benign growths first. The chief of these that have occupied our attention for some years are the uterine fibroids. As we know, the Roentgen-ray treatment of uterine fibroids has been going on for quite some years, but it is only within the last four

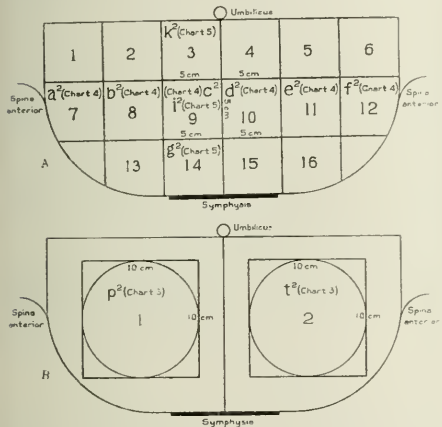



Chart 1. Fig. A shows how with the old two-field method the extent of area irradiated could not be more than about 200 sq. cm. Fig. B shows how by dividing this area into small fields the extent of irradiation is doubled, brought up to 400 sq. cm.

or five years that the subject has been given really serious attention.

One of the first men to take up the subject in a routine systematic way was Albers-Schönberg. His technique was to divide the uterine ovarian region into two or four fields, and to give each field in divided doses a quantity of ray amounting to about 10 X between each intermenstrual period.

His results were fairly satisfactory, but there were about 20 or 30 per cent. of cases, chiefly of the submucuous variety, in which nothing could be accomplished with this mode of treatment.

Two years ago at Dr. Brettauer's and Dr. Frank's suggestion, I took up the treatment of these cases, followed up Albers-Schönberg's technique, with some slight modification, as to filters, and found that in the 75 cases treated during the past two years the results were about the same as that published by Albers-Schönberg.

About three years ago, Krönig and Gauss of the Freiburg school, developed a new technique for the treatment of these cases, the chief features of which are: (1) Dividing up the abdominal, dorsal, and gluteal regions into a large number of small fields. (2) Crossfire administration of the rays through these fields, enabling us to administer very large doses of *x*-rays to the uterus and ovaries without any danger of dermatitis. (3) The use of rays of certain degree of penetration. (4) The filtration of all rays through 3 mm. aluminum. (5) Massive doses.

With the improved technique they have succeeded in curing 100 per cent. of their cases—treating all kinds, merely excluding the following: (1) Pedunculated fibroids partly showing through the cervix; (2) cases in which gangrenous degeneration of fibroid is suspected; (3) fibroids accompanied with carcinoma or those that have undergone sarcomatous degeneration; (4) fibroids which led to acute incarceration of the bladder.

I have found that the Freiburg technique *in toto*, or with some slight modification, has been almost universally adopted by all the gynecological clinics abroad.

Bumm in Berlin, in cases where the fibroma does not reach above the umbilicus, divides the abdomen into twelve fields and also takes six fields in the dorsal and gluteal region. Where the fibroid reaches above the umbilicus he takes six additional fields on the abdomen above the umbilicus. Each field receives about 16 X in each series. He uses only 1 mm. aluminum as a filter—20 cm. focus distance, 9 Bauer with 3½ ma.

He does not give the entire series in one sitting, but divides it into six or eight daily treatments. The series are repeated three weeks after the first treatment. He needs from three to five series to cure his cases, and his latest statistics show 96 per cent. of cures. Has never seen a case of dermatitis develop. In refractory cases he gives in addition 15 m. daily intravaginal raying with each treatment. Wertheim in Vienna divides the abdomen into thirty fields and the dorsum and gluteal regions into sixteen fields. He gives 1000 X for each series—patients are treated for eight hours in one day and whatever is missing from the 1000 X is given per vaginum the next day.

He uses 3 mm. aluminum filter with a focus distance of 17½ cm. for Müller rapid tubes and 13 cm. for Penetrans tubes. Series are repeated at 18-day intervals. This treatment is very much overdone. I found that his results are no better nor quicker than those achieved by other clinics working with one-third of this dosage.

The technique I found at Döderlein's clinic at Munich and at Menge's clinic at Heidelberg are exact copies of that used at Freiburg, so I will waste no time in describing them. Their reported results are also very much alike, that is practically 100 per cent. cures.

The latest technique that I saw carried out in Krönig's clinic at Freiburg is as follows: The apparatus used is a 40-cm. R. G. & S. standing-up coil equipped with a gas and mercury interruptor, the motor of which has a ventilating fan attached to its upper shaft. The coil is built so that there is considerable space between the secondary and the primary, which during usage is kept continually cool by the revolving of the fan attached to the interrupter. This enables the apparatus to be used for a very long time (8 to 10 hours a day) without the primary heating-up too much.

*Read at a meeting of the Mt. Sinai Hospital Clinical Conference, February 5, 1914.

There is a rhythmeur attached to the apparatus which periodically interrupts the current, so that the light instead of being continuous appears in the tube in flashes. This saves the tube from heating up rapidly, and they are only changed at intervals of

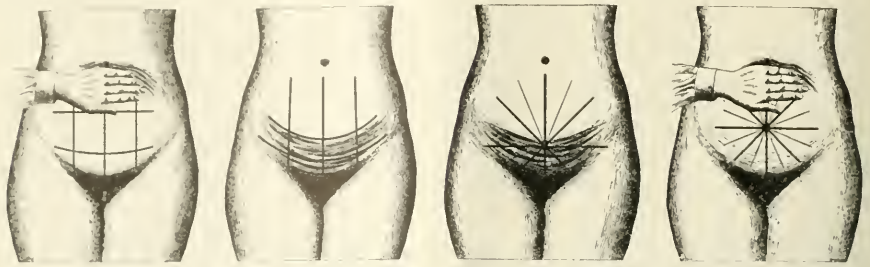


Chart 2 is copied from Gauss's book on Roentgentiefen- therapy, showing how we can get more skin surface for division into fields, by putting the skin on a stretch first up ward and then downward during the division.

about every half-hour. There is a clock arrangement in circuit with the primary, by means of which the time is set for the treatment of each field, so that at the end of the designated period a bell rings and the current is automatically shut off. The size of the condenser depends upon the length of daily use to which the machine is likely to be put.

In circuit with the secondary on the positive side is a 7-cm. spark gap and a Villard valve tube to keep out the inverse current, with an attached oscilloscope to detect it if present. To the negative side is attached a milliameter and a Bauer apparatus to measure the hardness of the tube. The tubes used are of the water-cooled Müller rapid variety, especially pumped for deep treatment, or the Müller penetrans tubes. All equipped with osmoregulators, arranged so that the vacuum can be regulated from the distance without interfering with the working of the tube. An apparatus is used to keep the water circulating continually through the tube during treatment. Focus distance with Müller rapid tubes, 18½ cm. and with penetrans tubes 12 cm. A current of about 4 amp. in the

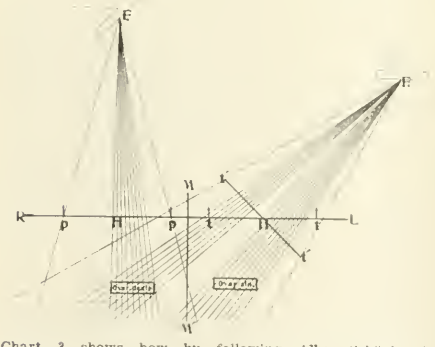


Chart 3 shows how by following Albers-Schönberg's method even by putting the tube and patient in the most favorable position each ovary can receive only two radiations.

primary, 5 ma. in the secondary, and tubes of 8½ Bauer or 13 Wehmelt penetration are used.

The number of ports of entry or fields used, has been changed from time to time. At present the abdomen is divided between the umbilicus and symphysis into twelve fields and the dorsal and gluteal regions into six fields. A 3-mm. aluminum filter is used in every case.

The method of application is as follows: The fields are carefully mapped out with double lines, with skin pencil, the skin surrounding the area treated is covered with two thick heavy lead angles, which are approximated so that only the field to be treated, beginning with the mapped out inner lines is exposed. Over this is placed the Kienböck strips (under a small block of 10 mm. aluminum) to measure the amount of ray given. This is covered with several layers of satrap paper (to filter out the secondary rays) and on top covered with a flat loofa sponge. This is the only part of the patient which is exposed, all the rest being carefully covered with thick lead rubber. The tube stand is now placed over the exposed area, with slight compression. Each field receives about 15 X measured under 13 mm. aluminum.

All fields are treated in rotation in one session, changing the position of the patient and the angle of the tube, to effect as much cross-fire as possible. The duration of an average series is about four hours. Series are repeated at intervals of three weeks. The number of series necessary to effect a cure is from three to six.

No patient is considered cured until she is completely amenorrhoic. Even after she has become so, she receives one or two additional series, so-called consolation series. Their last statistics are 350 cases treated with 100 per cent. cures.

At Döderlein's clinic in Munich I saw two cases of puerperal sepsis treated with *x*-rays. One had 39.8° C. temperature at the time of treatment. Twelve hours later the temperature was 38° C., and twenty-four hours later it was 37° C., where it stayed. The second case was very similar. They had treated fourteen cases up to the time I was there, with very much the same result in thirteen of them. One patient died, but she was practically moribund when she was brought in.

I think this field offers immense possibilities. The result accomplished in these cases is most probably not due to any bactericidal action that the ray may possess, but rather to a change in the blood itself, which makes it untenable to these bacteria. Or it bears out the vaccination theory of the *x*-ray (the rapid manufacturing of the antibodies).

The method of treatment is very similar to that of myoma, but in addition several fields in the thigh are also irradiated. The object is to administer at least 300 X of filtered rays. If the patients are too weak to stand this at one sitting, the dose may be divided into two or more sittings.

At this clinic I saw a set of very convincing charts made by Dr. von Seufert to illustrate the advantage of the many field raying over the Albers-Schönberg method. He kindly permitted me to have them copied and I am glad to be able to show them to you this evening. (See diagrams.)

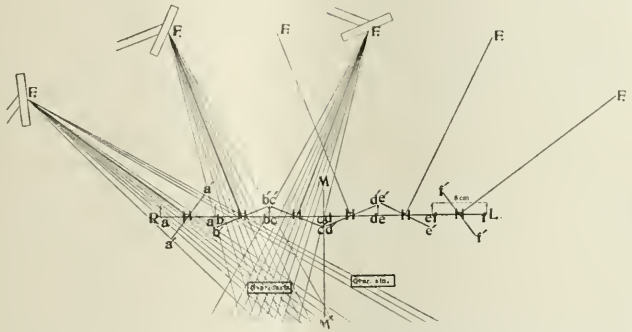


Chart 4 shows how with the many field method, the patient and tube being at the proper angle, at least one ovary can be irradiated through each field, and often both. Thereby multiplying many times the amount of ray we can administer

At de la Camp's clinic in Freiburg, I saw Dr. Küpferle treating pulmonary tuberculosis with *x*-rays. His method is to take a radiograph of every case and divide the affected area into small fields of 25 to 40 sq. cm. Each field receives from 20 to 30 X of filtered rays. Only one field is treated at one time. He has found that these patients do not stand very large doses well. They are very apt to have an attack of hemoptysis if too much ray is given at one time. The treatments are given three times a week and arranged so that each field is irradiated once in three weeks. This is kept up for about three months, when it is discontinued for some time. He had treated fifty patients up to the time of my visit. He thinks that in primary and secondary stages there is decided value to the treatment. In tertiary cases nothing can be accomplished. He also reports very good results in tubercular mediastinal glands and tubercular peritonitis.

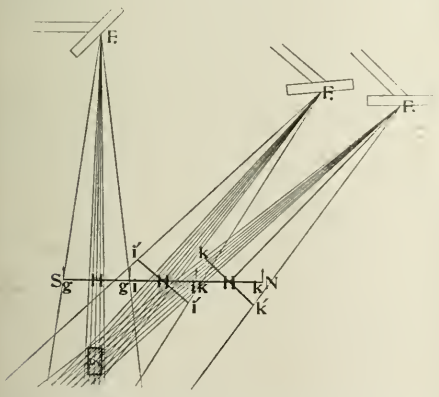


Chart 5 shows how even through the longitudinal area of the fields, by placing tube and patient in a favorable position, at least one ovary can be reached through each field, sometimes both.

At this clinic I also saw a number of Basedows treated with extremely satisfactory results. While I have been treating these cases for a great many years with fairly gratifying results, there is no question in my mind that with the new technique, larger dosage, harder rays, more ports of entry and the 3 mm. aluminum filter we will get better and quicker results than we have in the past. In fact, I think this holds good for all deep-seated conditions amenable to ray treatment.

*Malignant Growths.*—The nonoperative treatment of malignant growths is the absorbing topic of the day. Ever since the Congress at Halle, when men of world-wide reputation announced that in radioactive substances at last we had found an agent which was destined to relegate the surgeon to oblivion in the treatment of these cases, it has become the most widely discussed question in medical science. The tremendous enthusiasm which arose at the time was rather unfortunate, as the world accepted the announcement literally and expectations arose to such a high pitch that reaction was bound to follow.

When I reached Europe in September, I found that the reaction was already setting in, and the extreme wave of enthusiasm displayed at the time of the Congress had decidedly cooled off. They began to realize the limitations of the treatment, and also the fact that the subject was in the experimental stage, and that only years of experimenting could prove its real value. Fortunately this wave of reaction did not have the effect of discouraging further work in this field, but quite the reverse, it acted as a stimulant toward developing mature and serious investigation in every direction.

I found that practically all hospitals and clinics were either already equipped to do work with radioactive substances or were straining every effort toward doing so. In fact the universal cry one hears everywhere is for more mesothorium and more radium. With the inevitable result of the law of supply and demand, the prices are soaring and delivery can be had only after very long delays.

Almost every clinic has its own individual technique of administration. I found the greatest divergence of opinion as to the following: (1) Dosage—This varies between 3,000 and 20,000 mg. hours. (2) Filters—The filters generally in use are lead, silver, gold, platinum, and bronze. (3) Method of protecting the surrounding areas.

They all seem to agree on the following points: (1) Radioactive substances should be used as highly concentrated as possible. (2) They should not cover a large surface but should be kept in as small a

container as will hold them. (The higher the concentration the deeper the penetration.) (3) Less than a certain amount (50 to 100 mg.) should never be used in the treatment of internal carcinoma. (4) Practically no difference can be seen between the action of mesothorium and that of radium. Some think that mesothorium on account of its higher concentration (300 times that of radium) possesses a deeper penetration. Others have expressed the opinion that the action of mesothorium on account of its much more rapid disintegration, is accompanied with more powerful biological action. But this is all theory, and most of the men who work with both assured me that they observed practically no difference in the results accomplished.

My time does not permit me to go into detail as regards the technique of administration used in all the clinics I visited, so I will confine myself to a few of those which have the largest amount of radioactive substances and where most of the work is done.

Bumm in Berlin has 650 mg. of mesothorium divided into 50 mg. capsules. At first he used from 300 to 450 mg. doses, but found that the bladder and rectal tenesmus produced by the application was so serious that he had to diminish his dosage. At present he uses 100 to 150 mg. doses for 10 hours, repeated every second day until they had from 10,000 to 20,000 mg. hours.

The mesothorium is in 1 mm. silver capsules covered with rubber. This is inserted into the cervix, which is covered entirely with a 3-mm. cup-shaped lead stopper, also covered with thick rubber—the rest of the vagina is well packed with gauze to keep this in place. He gets his dermatitis after three or four applications but disregards this entirely and persists with the treatment. Even with the small doses he still gets considerable tenesmus but disregards this also, except when it is very severe.

In connection with this the patients get daily *x*-ray treatments with a high-vacuum tube to different fields and per vaginam through a lead-glass speculum. After a full dose is given treatments are discontinued for about two weeks and then repeated.

Bumm had treated about eighty cases up to the time of my visit. While his immediate results were fairly good, I found that he had lost a great deal of his enthusiasm. Recurrences were beginning to appear, especially in the younger patients. In two cases he had perforations into the intestines, and in two or three other cases bad rectal strictures occurred. The amount of tenesmus produced is still very severe.

I think many of these mishaps were due to the secondary rays from the heavy lead stopper he used. At any rate in the other clinics I visited where lead stoppers were not used, I found decidedly fewer complaints of tenesmus and other accompanying symptoms.

When I visited Latzko, he was just ordering some 3 mm. nickel-plated bronze filters. This is on the principle that secondary rays are produced in metals in direct ratio to their atomic weight, and when two metals are amalgamated the secondary rays produced by the heavier metal are absorbed by the lighter one. He never uses more than 3000 mg. hours followed by 2 or 3 week pause. He thinks that larger doses should be very rarely used.

Döderlein still retains some of his enthusiasm, although he is not quite as positive in his statements now as he was at the Congress. No cancer case has been operated upon at his clinic in the past 2 years. He says that the reason he stopped operating is because some one has to try out mesothorium in all kinds of cases for a long term of years to be able to render judgment in the future as to its real merits. He and Krönig have decided to do so. His latest statistics are as follows: 145 cases treated of which 122 were uterine carcinomas—13 of these died. In 15 cases there is absolutely no objective or subjective symptoms noticeable at this time—10 of these were operable and 5 non-operable cases or recurrences. He has never seen an operable case become worse after mesothorium was used. He has 350 mg. of mesothorium divided into 50 mg. capsules. He uses 100 mg. doses, but this is due to the small amount he has.

Dr. von Seuffert, his chief of clinic, thinks the best technique is to use 200 mg. for 48 hours, repeated in 5 or 6 days for 24 hours or less, then discontinued for 3 weeks. He uses no lead stopper, but merely packs with gauze. He gets some slight tenesmus but not very much. This must be so, because I noticed that while in Bumm's clinic the patients feared the treatment; here they rather like it.

Krönig has 1700 mg. of mesothorium and radium. The stand the Freiburg school takes on the operative interference in carcinoma, as told to me by Gauss is as follows: Where only a very slight operation is required they operate and then ray; where a severe operation would be required, they never operate but only ray. Natives who can be kept under a long supervision are never operated upon, only rayed. Foreigners who can remain only a short time are often operated upon and then rayed. They generally combine the mesothorium with *x*-ray treatments. In deep-seated carcinomas they often dissect back the skin over the area affected, stitch back the flaps, and pour *x*-rays into the tissues *ad libitum*.

The routine they carry out for prophylactic raying after operations is as follows: 1st series, 10 to 14 days after operation; next 3 series at intervals of 4 weeks; the balance of the first year every 6 weeks; the second year, every 8 weeks, and the third year every 3 months.

The area to be irradiated is divided into small fields, and each field is given 15 to 20 X of hard, filtered rays. In carcinoma mammæ we must be sure to take in the sternum. They think that systematic prophylactic treatments with hard filtered rays are of very decided value and should be carried out in every case.

Of 23 cases treated in this way, after the lapse of 1 year 19 are still free—a decidedly better showing than they had in the past.

Czerny and Werner at Heidelberg are doing very good work with their combination of enzytol, mesothorium, and roentgentherapy. They have treated about 6000 cases within the last 10 years. Werner's opinion at present is emphatically that all operable cases should be operated upon as soon as possible and then rayed. He says that the men who stopped operating are going through the same process of enthusiasm that he went through some time ago. He feels sure that time and experience will bring them back to the fold.

The "enzytol" they use is a borate of cholin in combination with colloidal selenium and vanadium. It is given in the form of daily intravenous injections and is always given in combination with Roentgen-ray treatments. It makes the tissues much more susceptible to radioactive treatment.

and in addition has the facility of absorbing the rays and carrying them through the circulation to the metastases.

The injections are given as follows: Begin with 2 c.c. of a 10 per cent. solution to 18 c.c. of a physiological saline solution. This is done for 2 or 3 days, when the dose is increased to 3 c.c. to 17 c.c. of saline solution. Three days later it is increased to 4 c.c. to 16 c.c. of saline solution.

This is continued daily for about 3 weeks or until the patients complain of a great deal of weakness. It is then discontinued for 3 weeks and repeated again. Injections must be given very slowly. During the injections the patients suddenly develop symptoms of congestion, salivation, lacrymation, and nausea, but this only lasts from one-half to one minute. In carcinoma of the bladder the enzytol is injected through a catheter, 10 c.c. of a 10 per cent. solution to 50 c.c. of saline.

If veins cannot be found for intravenous injections, the solution may be injected into the gluteal muscles. For this purpose they use 4 to 5 c.c. of the 10 per cent. solution undiluted. In prophylactic treatments after operations, they also combine enzytol injections with Roentgen ray.

Menge has also stopped operating, but as he explains purely in an experimental way. His technique is to insert 50 mg. in a 1 mm. gold filter, covered with about 2 mm. rubber and gauze into the cervix, and to place 50 mg. on each side of the abdomen. This is left in place for about 72 hours. Treatments are repeated at intervals of 3 weeks. He advises against the use of dermatol gauze as it produces secondary rays—plain sterilized gauze is the best.

I shall not attempt to go into the question of the technique used by other clinics I visited, because with slight modifications it would only be a repetition of what I have already described.

In conclusion I wish to say that if I were asked to summarize briefly the result of my observations during this short trip on the question of the present status of the non-operative treatments of malignant growths, I would do so as follows:—

1. The extreme enthusiasm displayed by the men at the Congress at Halle was entirely too previous, and while unquestionably very remarkable results are accomplished with radioactive substances in the treatment of cancer, the matter is purely in the experimental stage.

2. Even in the short time elapsed since the Congress, the extreme optimism has cooled off considerably and the men who made positive statements then are becoming much more guarded.

3. The question of proper dosage, filters, and other technique is a very complicated one which only years of work will solve.

4. The treatment with radioactive substances has shown sufficient results to justify the surgeon in discontinuing operations in cases of surface carcinoma and that of the mucous membranes easily reached, in patients who can be kept under long and continuous observation, but in no other class of cases. In other cases, operative interference, followed by prophylactic raying, carried out systematically for years is still the best method of treatment.

5. There is practically no difference noticeable between the action of mesothorium and that of radium—with the possible exception already mentioned.

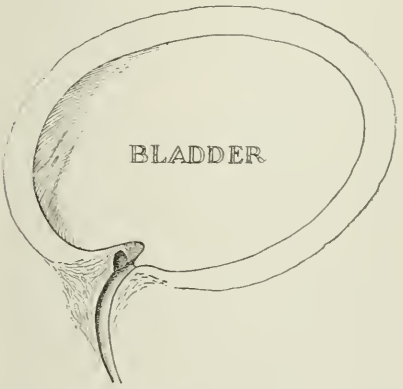
41 West Fifty-first Street.

## CICATRIX OF BLADDER RELIEVED BY FULGURATION.*

By L. Bolton Bangs, M.D.,
New York.

Three cases of an obstructive fold at the neck of the bladder, following prostatectomy, have come under my observation, two of these in my own practice. One was relieved by incision of the fold by means of perineal urethrotomy, one refused this treatment, preferring to go on, as he was in moderate comfort, and the third is the subject of this report.

The history, in brief, is that of a man, aged fifty-two, who was brought to me by a doctor from another State in December, 1913, and who about three years ago had begun to have frequency of urination, together with the symptoms of obstruction to the stream of urine. These evidences of prostatic enlargement persisting and becoming more notable, in May, 1913, his doctor performed a suprapubic prostatectomy. The doctor says that the prostate was only moderately enlarged, but that the capsule was very much thickened. The wound healed slowly and a urinary fistule persisted almost




to the present time; that is to say, for over five months urine escaped above the pubes. At no time since the operation has he been able to void his urine without a sense of obstruction, which has gradually increased in intensity. Although he is up at night to urinate but once, during the day he is obliged to urinate every two hours, always with great hesitancy, sometimes with urgency, and the stream is small, weak, and dribbling. In attempting to relieve this difficulty his surgeon has passed into the bladder a steel sound of size No. 30 F.; but no soft catheter or small instrument could be entered. For a time he was able to void his urine easier when lying down. There has been pain only when the bladder was distended and urination was attempted. At the time of my first examination he voided with a dribbling stream hazy, turbid urine. A natural-curve, gum-elastic catheter entered easily and 5 ozs. of purulent residual urine was obtained. On attempting to introduce the cystourethroscope its beak was obstructed, and it finally was entered by withdrawing it slightly and after marked depression of the ocular end. Both ureteral orifices are normal and the bladder is moderately trabecu-

*Read at the 260th meeting of the Practitioners' Society, February 6, 1914.

lated. Just within the internal orifice of the urethra, and apparently at the site of the prostatectomy is a dull white transverse cicatricial fold with bulging lateral processes. Anterior to and beneath this fold, in the median line, is a pocket into which the tip of straight instruments will easily enter and be arrested. The verumontanum is seen anteriorly, and is apparently normal. The question of how to relieve the patient's dysuria was discussed with his doctor, and I advised him to place the man in proper circumstances for a general anesthetic, open the perineum, and freely divide this cicatricial fold. To this the patient demurred, saying that as he had been so long confined to his house and away from his business, he deprecated such a procedure, and asked if there was no other method that would promise relief. I then suggested the possibilities of fulguration, stating that he would not be laid up nor detained from his business, and that the operation could be done with local anesthesia. For this purpose he was placed under my care, his doctor not having the facilities. The operation was performed four times, at intervals of a week. After the second time he experienced relief to his frequency and sense of obstruction, and subsequently he could hold his urine at will. To use his own language: "I do not have to run to the urinal every hour or so." There was gradual diminution in the residual urine, which at first having been 5 ozs. (150 c. c.) was only 6 drams at his last visit to me, on January 9. The accompanying illustration represents, diagrammatically, the conditions as revealed by cystoscopy and the results of the fulguration. A wide groove has been made in the median line of the fold, the anterior end of the groove being directed toward the sulcus, or cavity beneath the fold. An interesting observation in this case was the contrast in the reaction of the tissue of this dense, waxy-white cicatrix to that usually seen in tissues of the enlarged prostate. In the cases of enlarged prostate which I have seen the line of tissue acted upon by the spark is almost immediately covered by a delicate white pellicle, and on either side of this pellicle will be seen a narrow margin of bright red hyperemia, with some of the vessels distinctly outlined. But in the cicatricial tissues in the case reported, although the effect of the cauterization could be distinctly noted in a dense white eschar, the hyperemia on either side of this eschar was barely noticeable.

40 East Forty-first Street.

## AUTOSERUM INJECTIONS IN CERTAIN OBSTINATE DERMATOSES.*

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AND

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THIS is a preliminary report of the results attained from a method of treatment that has not as yet been employed here in some obstinate and common general dermatoses. It is no exaggeration to say that inveterate psoriasis, generalized eczema, and chronic urticaria are not infrequently the despair of the practitioner. In many cases treatment along accepted lines gives unsatisfactory results. Here is a typical case: General eczema of seborrheal type for four years, at times retrogressing so that only head, face, and genitals were affected, at other times spreading over the entire body surface; all manner of internal, dietetic, and external treatment at competent hands with only partial and temporary effect; seven months' treatment as an in-patient in a special hospital; condition entirely unimproved.

During the past year Linser, Ulmann, Heuck, Spiethoff, and others, have employed serum injections in the affections above mentioned, and also in purpura, prurigo, pemphigus, and dermatitis herpetiformis, and have reported remarkable results. We shall not attempt the rather hopeless task, in the present state of our knowledge and experience, of explaining the action of the procedure. Blood serum, whether autogenous or foreign, whether active or deactivated, undergoes very important changes after it has been withdrawn from the body; the material reintroduced into the veins is not the same that has been withdrawn from it. Administration of serum apparently diminishes the sensitiveness of the skin, so that there is less tendency to persistence and spread of the local symptoms, and ordinary medication is more effective and can be pushed without exciting reactive inflammatory phenomena. There is reason to think that the effects of the serum administration are further reaching than this; but this must be left for further investigation to determine.

In the wards of the City Hospital here we have unrivaled opportunities for careful experimentation with the class of cases in which the new treatment might be useful. The press of work on the house staff and the laboratory was such, however, that it was late in the fall before it was well under way. We therefore have at our disposal the records of twelve cases only, six of very extensive general psoriasis, three of generalized eczema, two of pemphigus, and one of leprosy. Several more cases are under the new treatment at the present time.

As we had no guide as to dosage, frequency of administration of the serum, etc., our methods were purely empirical, and were determined largely by the possibilities in the busy hospital wards. The psoriasis and eczema cases received autogenous serum; the pemphigus and leprosy cases that of relatives and that of a case of dermatolysis when it was available. The injections were given once a week, three to four intravenous administrations of from 20 to 30 c.c. being administered in the psoriases and eczemas before local treatment was begun, making about 100 c.c. in all; in the pemphigus and leprosy cases they were continued longer. The serum was not deactivated, being administered two or three hours after it was drawn. We are therefore unable to say that either the dosage or the intervals indicated are the best; possibly larger single doses at more frequent intervals will be found better. It was evidently unnecessary, save as a matter of convenience, to keep the psoriasis and eczema patients in the hospital while they were getting the injections; they were receiving practically no local treatment, or only such as had been ineffectively used for long periods before; and they might have been at home during this time. This would mean a reduction of the period of hospital detention by at least 75 per cent.

CASE I.—Julia F., twenty-one. General psoriasis for the last eight years, three to four attacks yearly at first, now continuously present. Has been here for it; eight weeks' time, with chrysarobin up to 40 per cent.,

*Read at a meeting of the New York Physicians' Association, February 26, 1914.

and arsenic required to clear her skin. Present attack began six months ago. Improvement of the lesions during the serum injection period, without any local treatment at all. January 24, chrysarobin-vaselin 3 per cent. to body, white precipitate ointment to scalp. January 26, lesions disappearing rapidly. January 27, chrysarobin 5 per cent. January 31, lesions all gone. Time of local treatment, 6 days.

Case II.—John H., forty-six. Has had psoriasis for the last twenty-five years; has been in the hospital twice during the last five years for it, staying six to eight weeks each time, and getting chrysarobin up to 40 per cent. and arsenic in full doses. Present attack began two months ago. Large, greatly thickened patches, considerable itching. Improvement in the lesions, lessened scaling and itching during the serum treatment. January 2, chrysarobin 3 per cent. January 3, improving rapidly, chrysarobin 5 per cent. January 5, lesions gone. Time of local treatment, 3 days.

Case II.—Archibald MacP., 39, has had psoriasis 5 years; was in the hospital for 6 weeks for it two years ago; present attack has lasted 18 months; self medication. Disappearance of the scaling during the serum injections. January 20, chrysarobin 5 per cent. January 24, marked improvement; lesions smooth and flat with the general skin surface. February 4, eruption all gone, save a few lesions on legs. Time of treatment 15 days; result imperfect possibly because the serum injections were administered at intervals of two or three days, instead of a week. A similar observation has been made by a German writer.

Case IV.—Hannah MacC., 40, psoriasis for 15 years, one attack at least each year. Was in the hospital 5 years ago, receiving chrysarobin up to 30 per cent. Has present eruption about 4 months; many greatly thickened plaques. Serum pushed in this case to over 100 c.c., because after a primary improvement new psoriatic lesions began to appear while it was being given. January 7, chrysarobin 3 per cent. to body, white precipitate ointment to scalp. January 9, great improvement; lesions fading rapidly; on the arms, purposely left without local treatment, the same occurred. January 10, lesions gone. Time of treatment, 3 days.

Case V.—James McG., 28, has had a number of attacks of generalized psoriasis since his 18th year. Acute outbreak. Marked improvement under the serum. January 15, chrysarobin 3 per cent. January 20, lesions gone. Time of treatment, 5 days.

Case VI.—Joseph D., 30, had been in the medical ward for an acute nephritis since July; on recovery sent to the dermatological ward for his psoriasis, which he has had for years. Two years ago was here 6 weeks for it. No change, other than decrease in the thickness of the plaques during the serum administration. January 15, chrysarobin 3 per cent. January 17, slight improvement, chrysarobin 5 per cent. January 22, lesions all gone. Time of local treatment, 8 days.

Case VII.—James R., 40, eczema rubrum, legs and arms, 6 months duration. Had been in Bellevue Hospital, no improvement. There was considerable betterment under the serum alone, especially in the acuity of the inflammation, and the itching; the local treatment being a plain oil dressing. January 20, 10 per cent. ichthyol and 10 per cent. zinc oxide ointment. January 30, arms and hands almost well; legs much better. Time of local treatment 10 days, in an eczema of 6 months' standing, with very great improvement.

Case VIII.—Ida G., 18, extensive general seborrheal eczema following an attack of erythma multiforme. Had been bedridden in a hospital for many months, under the most varied general and local treatment, without any result. Serum from sister, 120 c.c. up to the present. She improved markedly under the same treatment that she had been getting before (2 per cent. salicylic oil), especially as regards her legs. December 22, a new general eczematous outbreak, papular in character. January 6, attack recovered from; slow but distinct improvement under the same treatment.

Case IX.—Rose S., 18, had had a general eczema for 5 years past, improving at times, but never getting well; practically unchanged for 9 months past. Prolonged hospital and other treatment. Serum treatment began Jan. 18. Marked improvement under boric acid ointment with 2 per cent. sulphur. Case unconcluded.

Case X.—Sarah G., 40, pemphigus foliaceus. Though patient was in a very advanced stage of the affection, the entire inefficiency of all other treatment led us to put her on the serum. She received but two injections, which did not seem to have any influence on her condition; she died two weeks later.

Case XI.—Michael S., 42, pemphigus vegetans. This was also an advanced case which was getting from bad to worse in spite of all our efforts. He received 3 injections of serum from a case of dermatolysis in the wards; there was some improvement in the local symptoms, but a fatal termination was not prevented.

Case XII.—Lena T., aged 40; maculotubercular leprosy, ulcerations of the phalangeal joints, lepromata of the vocal cords, etc. This patient has been receiving weekly serum injections of serum from a brother and sister, and with marked and steady improvement. She has gained in weight and strength, her ulcerations are very much better, and her laryngeal symptoms are much less distressing. The general improvement is so apparent that there is no difficulty in getting a steady supply of serum from the relatives above mentioned.

The apparent results from the serum treatment were most noticeable in the psoriasis cases, in all six, on which it apparently had a marked influence on the reactivity and susceptibility of the skin. They were kept in the hospital during the time of the injections for convenience of observation only; no local treatment was used during that time. They might as well have been at home. The times of local treatment were six, three, fifteen, three, five, and eight days, respectively, about six days on the average. This is to be compared with the six weeks or more of local treatment that is usually required. It means about one week's hospital treatment of these obstinate and recurrent cases instead of six, a point of prime importance economically, as well as from the patient's viewpoint. In no case did we have to exceed 5 per cent. of chrysarobin strength to clear the skin rapidly, which must be compared with the 30 and 40 per cent. formerly required. Finally, no case received any internal treatment at all. Those patients who had been in the hospital in former attacks, and who were therefore in a position to compare results, were the most enthusiastic in their appreciation of the new method.

The eczemas were fewer in number, since naturally only the most extensive and obstinate cases are kept in the hospital. The results were less decisive than those in the psoriases, yet great improvement was noted in all, and we feel hopeful that further experimentation will substantiate the value of the serum treatment in these cases.

In the two cases of pemphigus there were practically no results at all, though most wonderful records have been published in Germany in precisely this disease. Both cases, however, were practically hopeless at the time that the treatment was instituted. Its use was the counsel of despair, and we felt sure that it could do no harm. It may be of value in earlier cases, and any course of treatment that gives the least hope in these cases deserves further trial.

Finally, in the case of leprosy the benefit from the treatment was unmistakable and quite rapid. There is no reason to hope that it will do more than ameliorate the symptoms and improve the patient's general condition; but, as is the case with pemphigus, even that is worth striving for in a malady that is so thoroughly beyond the reach of all our ordinary therapeutic methods.

We make this preliminary report with the conviction that as an aid in the treatment of some very obstinate and serious dermatoses, and possibly as more than that, the serum treatment is deserving of further careful trial and experimentation. We also desire to acknowledge our indebtedness to the Pathological Department of the hospital and to thank Dr. Larkin and the staff for their aid and interest in the work.

144 West Seventy-seventh Street

# MEDICAL RECORD.

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## PSYCHIATRY AND CERTAIN MILITARY PROBLEMS.

THE importance of psychiatry in medicine is beginning to be recognized and in consequence its study is being promoted in all medical schools. In most modern hospitals opportunities are provided for the clinical study of psychiatry, for it is felt that in these days when degeneracy appears to be rife it is essential that as much as is possible should be learned of the subject. In a lecture delivered at the summer conference, 1913, of the U. S. Naval War College, by Dr. W. A. White, it was pointed out that psychiatry and the military medical service were intimately related, that is, psychiatry was of great importance to the military service, in so far as by its means the enlistment of defectives might be prevented to a very large extent. White is of the opinion that it is a popular delusion that the ne'er-do-well, the black sheep of the family, will be picked up and made a man of by the discipline of military life. According to his views quite the contrary is the case. The ne'er-do-well is so because he lacks the ability of continuous application, and when he is subjected to the rigid discipline of the military organization, he of necessity endeavors to slip from under the weight of his responsibilities and duties and thus begins that series of minor infractions of military regulation which frequently ends so disastrously.

Mental breakdowns are very apt to occur in war time, and if the subject has certain latent tendencies they will be brought to light by the stress and exigencies of war conditions. For instance, it has been demonstrated that in such circumstances there is an increase in the number of alcoholic psychoses, an increase in the number of psychoses due to syphilis, and an increase in the psychosis of metasyphilitic paresis. Persons with these tendencies are more prone to break down in war time than in the time of peace, and therefore are not fitted to be soldiers. A knowledge of psychiatry would come in good stead to eliminate these unfit from the military standpoint. That an individual with an alcoholic psychosis is not fitted for a soldier's life, at any rate, in war time, is self evident, but White shows from the experience gained in the Russo-Japanese war that the syphilitic psychosis is likewise of the first importance. At the Russian Psychiatric Hospital at Harbin, during the war, the percentage of paresis among those brought back from the front was 5.6. Undoubtedly its development was hastened by war conditions and this clearly shows the influence of these conditions upon those who have syphilis.

After discussing temperamental fitness and character the author comes to eugenics and thinks that it would be interesting to construct family charts to see what are the hereditary probabilities in different individuals. Such charts might be considered at the time of admission to the Naval Academy, and if out of a number of applicants there were in a certain proportion marked hereditary tendencies which might very well come to expression in the particular individual under consideration, perhaps it would be better to put him aside for one with a clearer family record.

In concluding the paper some suggestions were made. In the first place data which are being collected might perhaps present some evidence to a person psychologically trained that they would not present to a person without that training. A psychological analysis of some of the great generals is possible from the literature that exists regarding them. Field work, too, in psychology is possible; and lastly White suggests the readjustment of the service so that men will come into positions of command well before the arteriosclerotic period and the elimination from promotion to higher grades of alcoholics and syphilitics.

## COMMON ERRORS IN THE DIAGNOSIS OF INFECTIOUS DISEASES.

THAT 8 per cent. of the total number of admissions to the contagious disease hospitals of London during the year 1912 should have been incorrectly diagnosed by the physicians who had sent these cases to the hospitals, indicates that many difficulties beset the diagnosis of this class of cases. This frequency of error is all the more distressing in view of the fact that a patient referred to an infectious disease hospital, if not suffering from an infectious disease is likely soon to develop one. In New York the possibility of such an occurrence is minimized by the fact that, as a rule, before a patient is admitted to a contagious disease hospital an expert diagnostician is sent to pass upon the diagnosis made by the original medical attendant.

The subject of errors in the diagnosis of this group of cases is discussed by E. W. Goodall in the *Clinical Journal*, December 24, 1913. He naturally points out that the proportion of errors is altogether too high. He shows that during 1912 in London there were one hundred different diseases which were mistaken for the five common acute infections, namely scarlet fever, diphtheria, measles, typhoid fever, and whooping cough. The causes of error are the difficulties due to the surroundings of the patient, the necessity of arriving at a diagnosis on probabilities in order that the patient may be removed as early as possible to the hospital, inexperience and ignorance, carelessness, faulty methods of examination, and inherent difficulties in diagnosis. Not a few errors are due to the survival of certain outworn beliefs. Thus many prac-

titioners even at the present day regard a scarlatiniform rash as an indication that scarlet fever is present, forgetting that such a rash may be a prodromal eruption in measles, chickenpox, or smallpox. It may be the rash that occurs in rubella and occasionally in measles; it may be the result of the administration of belladonna or quinine; or it may be the result of an enema. A recurrent scarlatiniform erythema occurs in certain skin diseases. The morbilliform rash characteristic of measles occurs as an initial or prodromal rash in smallpox, as a secondary rash in scarlet fever, diphtheria, measles, typhoid fever, and other infectious diseases including acute rheumatism. It may be a drug rash, *e.g.* the copaiba eruption, or an antitoxin rash. It may be the result of an enema or it may accompany any septic condition. The morbilliform rash also occurs in erythema multiforme.

The strawberry tongue is not pathognomonic of scarlet fever. It occurs in measles, diphtheria, and septic sore throat, and it may be an accompanying manifestation of any case of erythema. Furthermore, desquamation is not necessarily confined to scarlet fever and conversely there are certain cases of scarlet fever that are not followed by desquamation. Desquamation resembling that following scarlet fever may also occur after measles or rubella, or after a serum eruption or a septic rash. It may occur even when there has been no rash at all and also in typhoid fever and acute rheumatism. German measles is often mistaken for scarlet fever. In the majority of cases of this affection the eruption comes out on the face in the form of small pink discrete spots. If these spots on the face are seen scarlet fever is absolutely excluded. The spots soon come out on the trunk and then disappear from the face and the eruption on the trunk is replaced by a diffuse erythema. This, according to Goodall, is the difficult stage of diagnosis in rubella, for if the spots on the face have not previously been seen it is impossible to state whether the case is one of scarlet fever or one of rubella. It is impossible at times to avoid confusing rubella with very mild scarlet fever.

## ACCOUCHEMENT BY HYSTERECTOMY, WITHOUT PRELIMINARY OPENING OF THE UTERUS.

Under this title Casalis and Lecocq (*Ann. de gynéc. et d'obst.*, February, 1914) quote one case already published by Reymond and report two others in which this operation was performed, and comment upon the advisability of its employment in suitable cases. In Reymond's first case there was placenta prævia, all efforts to detach this and push it aside in order to reach and rupture the membranes had proved futile, the woman had lost a great deal of blood and was in desperate condition. She was hardly able to speak, the extremities were cold, the pulse was uncountable, and the patient continued to lose blood in great abundance. Hysterectomy without the preliminary extraction of the child was accordingly performed immediately, the work being so planned that the uterus was removed within one minute after the second uterine artery was clamped. The uterus was taken away from the operative field, immediately opened by an assistant, and while Reymond was placing the first ligature on a vascular pedicle he heard the cries of the infant. The second patient, operated upon by Reymond and Casalis in July, 1912, had epithelioma of the cervix. Here the uterus was removed 10 seconds after the second uterine artery was clamped, 20 seconds later the child was taken from the cavity of the uterus and immediately cried. The third patient was operated upon by Casalis and Lecocq in September, 1913. She had a contracted pelvis and her first four children, all breech presentations, had died before delivery could be completed, due to the difficulty in extraction of the head. The fifth was also a breech presentation, but in this case the child was delivered alive after a very difficult labor. In this, the sixth pregnancy, the woman was in labor on admission to the hospital and the conditions as stated by the authors was as follows: "Arrest of labor after complete dilatation; membranes ruptured; uterus commencing tetanic contractions; child living; pelvis contracted." Fearing rupture of the uterus if these contractions were allowed to go on, operation was undertaken. An incision was made, starting four finger breadths below the xiphoid appendage and descending almost to the pubes, and the uterus was brought out through the wound. The round and broad ligaments were ligated and divided. Section of the vagina was made below the fetal head, and then the uterus was rapidly removed and opened by an assistant. He removed a child weighing 3,870 grams (about 8½ pounds) who cried almost immediately. After restoration of the pelvic floor, as in a normal hysterectomy, an appendicectomy was performed. In all these cases the mothers and children did well and no post-operative complications are reported.

The authors state that the indications for this operation are those of the Porro operation. But hysterectomy without preliminary opening of the uterus not only has all the advantages of the Porro but it also offers greater security. No more infection is to be feared, since the uterus is opened far from the operative field. In cases of cancer of the cervix one has much less risk of recurrence since the mass is removed *en bloc*. There is no hemorrhage to fear since the pedicles are tied or clamped one by one before the removal of the uterus. The greater rapidity of the intervention and the uneventful post-operative course are some of the arguments which militate in favor of this technique. In closing the authors remark: "One sees that the intervention which we propose is simply hysterectomy without preliminary opening of the uterus. The uterus, having been removed as if the case were one of voluminous fibroid, is then opened by an assistant. * * * One sees that the mother would have every benefit to be derived from that (Porro) operation. As for the infant, if it is living at the beginning of the intervention it *ought* to be alive when taken from the uterus—our three observations establish faith in that. Besides, in the cases of cesarean section after death of the mother there are some where the infant has sur-

vived some time, and if he has succumbed, it is because the death of the mother is generally preceded by a period of asphyxia during which the fetus is equally asphyxiated. In the cases of prolapse of the cord, the placento-fetal circulation is often interrupted for a considerable period of time and the fetus does not succumb unless the compression is marked and prolonged."

The authors' conclusions certainly seem justified by the happy outcome of these three cases, and the reasoning is logical. Since the fetal circulation is not shut off until the second uterine artery is clamped, and this is left until but a few snips of the scissors remain necessary for the removal of the uterus, there is no apparent reason why a live child should not be found after the few seconds' delay in removing and opening the uterus at a safe distance from the operative field. The successful outcome of the operation naturally presupposes a competent operator who is capable of rapid work after the second uterine artery is clamped, and that, too, without inflicting injury to the bladder or rectum. In the comparatively rare cases where the Porro or some modification of that operation might be indicated, it would seem *a priori* that this should be the operation of choice. It will be interesting to note the attitude adopted by American gynecologists and obstetricians toward this procedure.

### The Metabolism in Epilepsy.

The discovery of oxyprotein acids in the normal urine by Bondzynsky and his collaborators and pupils, and the inference that these acids are found in an increased amount in the urine of persons who have marked disturbances of metabolism, stimulated inquiry along this line by S. Kozlowski, with special reference to epileptics. His results are reported in the *Zeitschrift für klinische Medizin*, Vol. 79, Nos. 3 and 4. He found thata oxyprotein acids are in some cases of epilepsy excreted in enormous amounts. At the same time, there is an accompanying increase in the formation of ammonia in the organism. Possibly these chemical changes are more or less directly related to the epileptic attacks. This supposition is strengthened by the fact that epileptic attacks are diminished if meat is withdrawn from the diet and replaced by milk, for this diet diminishes the formation of oxyprotein acids not only in epileptics but also in healthy people. In agreement with these facts one may cite the observation made by Krainski that lithium carbonate as well as borax diminishes the frequency of epileptic seizures. These salts lead to the formation of fixed bases, which combine with the oxyprotein acids. The question now arises whether the periodicity of epileptic attacks can be explained on the supposition of a chemical intoxication of the body. According to the author, it appears that the periodic onset in these attacks can be easily explained on this basis, for it must be considered that in the body of the epileptic the toxic substances in unfolding their activity find a suitable soil in the periodically increased irritability of the nerve centers.

### Metastatic Costochondral Necrosis.

Not many years ago all suppurative necrotic lesions at or near the junction of the ribs with the costal cartilages would have been regarded as tuberculous in character. Then came the "typhoid rib," the nature of which proved very obscure at first, but was finally regarded as an osteoperiostitis implicating the integrity of the cartilage. The same lesions were next seen after influenza, and it has now become certain that nearly every infectious disease may be followed by prompt metastases in this locality. At a recent meeting of the Berlin Surgical Society (*Berliner klinische Wochenschrift*, February 16) Harzbecker reported 10 miscellaneous cases from Körte's clinic. The lesions followed immediately upon articular rheumatism, bronchitis, typhoid fever, and appendix-peritonitis. Pain and circumscribed swelling were followed by abscess formation and dead cartilage could be felt after suppuration had occurred. In the appendix-peritonitis case the *B. coli* could be recovered from the pus of the abscess. The perichondrium had become detached from the cartilage. There is but one method of treatment, viz., extirpation of the cartilage which is necrotic throughout. Axhausen smoothes the free ends left behind and interposes some form of the soft tissues. Repeated operation may be required for postoperative fistulæ, chiefly in old subjects.

## News of the Week.

**Public Health Service Examination.**—On Monday, April 27, 1914, examinations of candidates for admission to the grade of assistant surgeon in the United States Public Health Service will be held Candidates must be between twenty-three and thirty-two years of age, graduates of a reputable medical college, of good moral character, and with one year's hospital or two year's professional experience. Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order. They will receive early appointments. Assistant surgeons receive $2,000 a year, and after four years' service are entitled to examination for promotion to the grade of passed assistant surgeon. For invitation to appear before the board of examiners, application should be made to the Surgeon-General, Public Health Service, Washington. D. C.

**Hospital Investigation Report.**—The Board of Estimate of New York recently received a report from the Hospital Investigating Committee appointed some time ago to look into the conditions of the city hospitals. This report, which is based on a three months' study, severely criticises conditions at Bellevue and the Kings County Hospital, Brooklyn, in particular. It also criticises other hospitals in the city for the transfer of patients in a dying condition to Bellevue, and intimates that this is done in order to keep down the death rate of the private hospitals. It finds that at Bellevue patients with uninteresting ailments are sometimes prematurely discharged in order to make room for other cases of more interest to students; that the large percentage of incorrect diagnoses at Bellevue is partly due to lack of medical knowledge (in general, not of the medical staff in particular) and partly to hasty and insufficient examinations and too much reliance on inexperienced house physicians and internes; and that the autopsy service at Bellevue is poor because the law is so interpreted that nearly all unclaimed bodies must be sent to the medical colleges. It criticises the waste of hospital space, in

that there is apparently no attempt to transfer patients from overcrowded surgical wards to vacant beds in the medical wards, and points out that the new and splendidly equipped morgue in the Bellevue Pathological Building lies idle because the hospital authorities and the Charities Department are unable to agree on its operation. There is an intimation in the report that Bellevue is operated with emphasis on the needs of the medical schools rather than on hospital efficiency —which the committee, in its inexperience, apparently considers to be incompatible.

**Plague in Havana.**—One death from bubonic plague was reported from Havana on March 26. This is the first death that has occurred, and no new cases have been reported. The Public Health Service is preparing to enforce rigorous quarantine regulations for passengers and freight from Havana for the United States.

**Meningitis on Steamship.**—The North German Lloyd steamer *Berlin* which arrived at Naples on March 25 from New York, was held at quarantine because of the presence of meningitis among the steerage passengers. The *Berlin*, which left here on March 14, carried several steerage passengers who were ordered deported from this port, and it is probable that the disease originated among them.

**Aviation Deaths.**—In a speech before the Aviation Club of London on March 20, Lord Lonsdale said that 407 aviators had been killed in various countries since 1910, and he ascribed this enormous mortality in large measure to the excessive use of alcohol.

**River Bathing to Stop.**—Health Commissioner Goldwater of New York has announced that the Health Department will not permit bathing in the Hudson, East, or Harlem Rivers about New York during the coming summer. No permits will be issued to keepers of bath houses along the water front. This action is made necessary by the foul condition of the water because of the enormous amount of sewage discharged into the rivers.

**Measles at Cornell.**—An epidemic of German measles among the students at Cornell University, Ithaca, has filled the University Infirmary. Twenty-five cases of the disease are being treated there, and a number of other cases are scattered about the town.

**General Gorgas Honored.**—Oxford University, at a special convocation on March 24, conferred the degree of Doctor of Science honoris causa on Surgeon-General Gorgas of the United States Army, who recently returned from South Africa.

**Death Rate Higher.**—The mortality rate in New York City for the week ending March 21, was 16.42 per 1,000 of population, an increase of 0.49 over the previous week and of 0.06 over the corresponding period of 1913. The actual number of deaths was 1,757. The death rate for the first twelve weeks of 1914 was 14.85 per 1,000 of population, or 0.29 less than for the same period of 1913.

**New Sanitary Superintendent.**—Dr. Haven Emerson of New York has been selected by Commissioner Goldwater for the office of sanitary superintendent in the Department of Health, a position which has been vacant since the retirement of Dr. Walter Bensel last October. Dr. Emerson is at present an associate in physiology and medicine in Columbia University, from which institution he was graduated in 1899.

**Dr. Henry Maule Crookshank**, ex-British Controller of the Public Debt of Egypt, who was a Fellow of the Royal College of Surgeons of Edinburgh and a member of the Royal College of Surgeons of England, died at Monte Carlo on March 25, aged 65 years.

**State Legislation.**—In the closing days of the just completed session of the New York State Legislature action was taken on several bills of interest to the medical profession. The McClellandThorn bill, backed by the Christian Scientists and previously passed by the Assembly, was, after a sharp fight, also passed by the Senate by a vote of 79 to 50. Its passage ends the fight for recognition waged by the Christian Scientists for many years, provided, of course, that the bill is approved by the Governor. One of its supporters is quoted as saying that the passage of the bill "has enabled New York to take her rightful place among other progressive States in protecting by statute the medical rights as well as the religious rights of their citizens." The bill licensing the socalled naturopaths, which was passed by the Senate, was killed in the Assembly. The Blauvelt bill, regulating the sale of bichloride of mercury, was beaten in the Senate by a vote of 18 to 16. This bill provided that bichloride of mercury should be sold only on a physician's prescription, and that the tablets should be coffin shaped, colored green, and put up in triangular shaped bottles also colored green. The bill to recognize and legalize the practise of chiropractic was also defeated in the Assembly. The Adler cold storage bill, prohibiting the storage of foods apparently impure and making it a misdemeanor for a person or company to offer impure food for storage, was passed by both the Senate and the Assembly. Other bills which passed both houses and are now before the Governor are: the Boylan bill, prohibiting the sale of habit-forming drugs without a physician's prescription. The Herrick-Conkling bill, legalizing the practice of surgery by osteopaths. The Godfrey bill, prohibiting the sale of misbranded or adulterated foods. The Frawley bill, making it a felony instead of a misdemeanor to sell or possess cocaine in violation of the law.

**State Vital Statistics.**—The Bulletin of the New York State Department of Health gives the total number of deaths throughout the Sate during the month of January as 13,353 or 1,953 above the average for the past fifteen years. The deaths of persons over sixty years of age formed 36 per cent. of the total and numbered 400 more than the average; while those of infants under one year of age formed only 14 per cent. and were 300 less than the average. The births during the month totaled 19,367 or 6,014 in excess of the deaths. With the exception of Albany and Troy, all of the first-class cities in the State shared in this excess of births over deaths. In Albany, however, the deaths exceeded the births by 44, and in Troy by 69.

**Gifts to Charities.**—The Massachusetts General Hospital, Boston, receives $50,000 from the estate of the late Mr. Nathaniel Thayer, one of the trustees of the hospital, and the Boston Lying-In Hospital receives $10,000, and the Clinton Hospital, Lancaster, $5,000 from the same estate.

**A Farewell Reception to Dr. Elise S. L'Esperance**, this year's winner of the Mary Putnam Jacobi Fellowship, will be given on the afternoon of April 4, 1914, at the residence of Dr. Emily Dun-

ning Barringer, 828 West End avenue, New York City. The women physicians are invited to meet Dr. L'Esperance and also Dr. Alice Rohdé, the first winner of the fellowship. The Mary Putnam Jacobi Fellowship is open to women graduates in medicine, the fund having been raised through the efforts of the members of the Women's Medical Association of New York City, many of whom were pupils of Dr. Jacobi at the Women's Medical College of the New York Infirmary for Women and Children.

**VII^e Congres international d'Electrologie et de Radiologie medicales.**—This congress, the first session of which was held in Paris in 1900, will meet this year at Lyon, France, on July 27 to 31, under the presidency of M. Renault, professor of the Faculty of Medicine of Lyon, and associate member of the Academy of Medicine. Dr. William J. Morton of 19 East 28th street, New York, is the American member of the general committee in charge of the congress, and from him further details may be obtained.

**Conferences theoriques et pratiques d'Electrologie, de Radiologie, et de Radiumologie.**—The Society of Medical Chiefs of the laboratories of radiology and electroradiotherapy of the Paris hospitals have organized a series of conferences to be held twice a year, in November and May. The second conference will be inaugurated at a meeting in the amphitheater of l'Hôpital de la Pitié, 83, Boulevard de l'Hôpital, Paris, on Monday, May 4, and will be followed by a series of lectures and clinics held in the same place daily for the ensuing month. Further particulars may be obtained by addressing Dr. Delherm, Hôpital de la Pitié, or Dr. Aubourg, Hôpital Boucicaut, Rue de la Convention, 62, Paris.

**Solly Tuberculosis Society.**—This society was organized on January 24, 1914, by the physicians of Colorado Springs, particularly those interested in the study and treatment of tuberculosis, with the following officers: *President*, Dr. Charles Fox Gardiner; *Vice-President*, Dr. Boswell P. Anderson; *Secretary-Treasurer*, Dr. Joseph J. Mahoney.

**Medical Association of the Greater City of New York.**—A special meeting of the association, under the direction of the chairman for the Borough of Queens, will be held at the Forest Hills Inn, Forest Hills, Long Island, on Monday, April 6, 1914, at 8.45 P.M.

**The Society of Sanitary and Moral Prophylaxis** will hold its annual meeting at the Academy of Medicine on April 9. Mr. Samuel Hopkins Adams will read a paper on "What the Quacks Are Doing," and Mr. Almuth C. Vandiver, counsel of the New York County Medical Society, will speak on "What Can Be Accomplished Under the Present Laws." State and local organizations will be represented in the discussion.

**St. Vincent's Hospital Alumni.**—At the next regular meeting, to be held on Wednesday evening, April 8, 1914, at the Yale Club, Dr. Charles Edward Nammock will read a paper on the "Management of Cardiorenal Disease."

**Medical Society Elections.**—TENTH COUNCILOR DISTRICT OF THE ARKANSAS MEDICAL SOCIETY: Annual meeting at Fort Smith on March 16 and 17. Officers elected: *President*, Dr. James A. Fergus, Rogers; *Vice-President*, Dr. Clark Wood, Fort Smith; *Secretary*, Dr. Arthur F. Hoge, Fort Smith; *Treasurer*, Dr. R. G. Carlin, Fort Smith.

RHEA COUNTY (TENN.) MEDICAL SOCIETY: The following officers have been elected for the ensuing year: *President*, Dr. James L. McKenzie, Graysville; *Secretary-Treasurer*, Dr. Arthur W. Gross.

**Obituary Notes.**—Dr. THOMAS A. ALLEN of Hendersonville, N. C., a graduate of the Medical College of the State of South Carolina, Charleston, in 1853, and a member of the Medical Society of the State of North Carolina, and the Henderson-Polk County Medical Society, died in Nashville, Tenn., after a short illness, on March 11, aged 89 years.

Dr. MARCUS M. JOHNSON of Hartford, Conn., a graduate of the New York University Medical College, New York, in 1877, and a member of the American Medical Association and the Connecticut State and Hartford County Medical Societies, died at St. Francis Hospital, Hartford, after a short illness, on March 15, aged 70 years.

Dr. WILLIAM WHATLEY BATTEY of Augusta, Ga., a graduate of the Medical College of Georgia, Augusta, in 1874, and a member of the American Medical Association, the Medical Association of Georgia, and the Richmond County Medical Society, died at his home, after a long illness, on March 12, aged 65 years.

Dr. JOHN T. JONES of New Orleans, La., a graduate of the Medical Department of the Tulane University, New Orleans, in 1880, died at his home on March 11, aged 53 years.

Dr. WALTER E. S. PRESTON of Newfield, Me., a graduate of the Dartmouth Medical School, Hanover, N. H., in 1888, died at his home, on March 15, aged 55 years.

Dr. HERMAN FRED LANGE ZIEGEL of New York, a graduate of the College of Physicians and Surgeons, New York, in 1901, a member of the American Medical Association, the New York State and County Medical Societies, the Academy of Medicine, and the Associated Alumni of Mt. Sinai Hospital, and adjunct attending physician to Beth Israel Hospital, died at his home, on March 27, aged 38 years.

Dr. EUGENE G. WEST of Orange, N. J., a graduate of the Hahnemann Medical College and Hospital, Philadelphia, in 1884, and a member of the New Jersey State Homeopathic Medical Society, died at his home, from scarlet fever contracted from a patient, on March 28, aged 49 years.

Dr. EDWARD W. BLAKE of Tahlequah, Okla., a graduate of the Missouri Medical College, St. Louis, and a member of the Oklahoma State and Cherokee County Medical Associations, died suddenly at his home from heart disease, on March 13, aged 44 years.

Dr. E. B. UTLEY of Marion, S. C., a graduate of the College of Physicians and Surgeons, Baltimore, in 1883, and a member of the South Carolina and Marion County Medical Societies, died at his home, after a short illness, from pneumonia, aged 53 years.

Dr. THEODORE R. WAUGH of St. Albans, Vt., a graduate of the Hahnemann Medical College and Hospital, Philadelphia, in 1872, died at the Rood Sanitarium, Burlington, from nephritis, after a of the incorporators of the St. Albans Hospital. Waugh was at one time president of the Vermont State Homeopathic Medical Society, and was one of the incorporators of the St. Albans Hospital.

Dr. PATRICK SHEEDY BYRNE of Spokane, Wash., a graduate of the Bellevue Hospital Medical College, New York, in 1884, formerly a practitioner of Yonkers, N. Y., a member of the Washington State and Spokane County Medical Societies, and at one

time Mayor of Spokane, died at his home suddenly, on March 22, aged 58 years.

Dr. VINCENT G. HAMILL of New York, a graduate of the University of Buffalo, Medical Department, in 1884, died at his home on March 25, aged 51 years.

Dr. HARVEY JAMES SULLIVAN of Chatham, Ont., a graduate of the University of Toronto, Faculty of Medicine, in 1902, died at his home from pneumonia on March 18, aged 39 years.

Dr. CHARLES L. RANDELL of Waldoboro, Me., a graduate of the College of Physicians and Surgeons, Baltimore, Md., in 1889, died suddenly at Tampa, Fla., on March 22, aged 55 years.

## Obituary.

### EGBERT LE FEVRE, M.D., D.Sc., LL.D.

NEW YORK.

DR. EGBERT LE FEVRE, Dean of the University and Bellevue Hospital Medical College, New York, died at his home, after a short illness, from scarlet fever, on March 30, aged 56 years.

Dr. Le Fevre was born in Raritan, N. J., in 1858; he was graduated from Rutgers College in 1880, and from the New York University Medical College in 1883. He then served as an interne at Bellevue Hospital for two years, and in 1888 joined the Faculty of New York University as a lecturer on the practice of medicine. In 1890 he became professor of medicine, and in 1898, on the union of the New York University Medical College and the Bellevue Hospital Medical College, became dean of the college and professor of therapeutics and medicine. Throughout these years he had done much to raise the standard of medical education in New York.

At the time of his death, Dr. Le Fevre was visiting physician to Bellevue and the City Hospital, and consulting physician to the Red Cross, Beth Israel, Nassau, Nyack, Mt. Vernon, and North Hudson Hospitals. He was a member of the American Medical Association, the New York State and County Medical Societies, the New York Pathological Society, the Academy of Medicine, the Society of the Alumni of Bellevue Hospital, the American Clinical Society, the National Association for the Study and Prevention of Tuberculosis, and the American Climatological Society.

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At a meeting of the Faculty, held March 30, the following minute was adopted:

"We, the Faculty of the University and Bellevue Hospital Medical College have learned, with the most profound sorrow, of the death of our Dean, Egbert Le Fevre, M.D.

"Dr. Le Fevre, by his learning and acute perception, gained the respect of all who knew him, and by his kindly thoughtfulness and justice secured the love of his students and colleagues.

"His enormous capacity for hard work was ever the marvel of his associates, and a constant stimulus to them, and in his death this institution has sustained a most grievous loss.

"In appreciation of his lovable character, inflexible integrity, and scientific attainments, the Faculty has spread this minute on its records, and directed that it be published in the lay and medical press, and a copy sent to the family."

S. A. BROWN, M.D., Secretary.

## Correspondence.

### OUR LONDON LETTER.

(From Our Regular Correspondent.)

RADIUM THERAPY—PAROXYSMAL TACHYCARDIA—SECONDARY LEUKEMIA—HEALING WELLS AND WATERS—PAINLESSNESS OF THE DEATH STRUGGLE—MEDICAL SOCIETY'S DINNER—OBITUARY.

LONDON, March 13, 1914

RADIUM therapy has been for some time a common topic of conversation even among those who do not expect to employ it themselves, although deeply interested as to the results obtained. Perhaps these may have more influence in shaping the general opinion than enthusiasts and those who leave it entirely to specialists to determine results. The discussion at the Medical Society of London, which had been looked forward to with much interest, came off on Monday night, in the most inhospitable weather—enough to keep at home anyone not obliged to turn out. But those prominently and earnestly engaged in radium therapy put in an appearance. The discussion certainly confirmed the opinion at present prevailing as to the use of the rays. It is almost universally held that for operable cases of malignant disease the proper treatment continues to be by operation. Only an insignificant minority think there can be any question whether radium can become an alternative to operation, while scarcely a larger number would suggest it as an adjunct. Yet though the effects of radium do not justify the use of the word cure, they are unquestionably of great therapeutic power. They relieve pain in a remarkable way; they often seem to arrest the progress of the disease, and in this way may be credited with prolonging life. The treatment is therefore being carried on in all directions, the chief hindrance being the excessive cost, but this, we are assured, is likely to fall. The idea of a ring to keep up the price is generally repudiated. Portsmouth has issued an appeal for £1,000 to buy radium for its hospitals, and the response was at once liberal.

Among disturbances of the circulation paroxysmal tachycardia offers puzzle enough to excite attention, the more so as cases are rare. One in a boy of two and three-quarter years was communicated to the medical section (R. S. M.) on the 24th ult. Dr. Robert Hutchison said on admission to hospital the heart was rapid, neck pulsating, and the liver was felt to pulsate also. The symptoms were said to have lasted ten days. They disappeared in two days, but three days later came on again as suddenly on sitting up in bed, the pulse rising to 245. This lasted twenty hours, and ceased as abruptly as before, the boy remaining quite well for ten days. Discharged from hospital June 26, 1913, kept well to September 22, on which day a third attack came on, lasting twelve hours, with a pulse of 215. On October 3 a fourth attack came on, with pulse 213. This lasted forty-eight hours, and there has been no relapse since. Dr. Parkinson showed the cardiograms which had been taken, and said the Wassermann reaction was negative.

Dr. Sutherland said the interest of such a case related to what might occur in future, but it is necessary to distinguish cases of tachycardia which are only paroxysmal from such as occur when the heart is diseased. Before these cases had been studied by late methods they had been attributed to tobacco, alcohol, tea, etc. He showed three cardio-

grams, one from a child of nine. He thought the auricle contracted before the ventricle had ended its contraction, which would account for the large venous wave seen in the tracings, as well as for the large pulsating liver. In one case he gave a child 45 minims of digitalis a day for nineteen days, with a view of producing a degree of heart-block and poisoning of the ventricle, so that it could not react to the too frequent stimuli of the auricle. Dr. Alexander Morison thought they could hardly say the rapidity began in the auricle, as if so digitalis would influence it as it did in fibrillation. He thought it began in the ventricle. Dr. Percy Kidd (presiding) related a case of a boy of four and one-half years who had attacks of blueness after measles at two. They came on about once a month and were followed by vomiting. In a late one the pulse was 240 and the liver enlarged, but the child was quite comfortable and happy. Digitalis did not affect the pulse, but caused vomiting. At one time the pulse continued rapid for six months without other symptoms, then suddenly edema, dyspnea, and cyanosis supervened, and he died. At post-mortem the heart was found dilated, and there was some hypertrophy of right ventricle and left auricle. No valvular disease.

Secondary or symptomatic leukemia was brought before the same meeting by Dr. Gordon Ward, particularly in reference to cancer with bone metastases. He holds that leukemias may be divided into primary and secondary like other anemias. In the former the blood-forming organs react to an unknown stimulus, which may very likely be excessive white blood destruction. In the latter the stimulus, whatever it may be, is so much the weaker, according to the degree of the disturbance of function. This secondary leukemia he divided further into two classes: (1) Lymphocythemic, which he said is mostly associated with septic diseases, and (2) myelocythemic, which is particularly associated with cancer.

The distinction could scarcely be as definite as he suggested, for he mentioned cases of this second subdivision in which sepsis was present. In neither of the secondary forms did a complete blood picture, as in the previous forms, appear. The conclusion he had reached was that there exists a condition of secondary leukemia, distinct from the primary form, and that it is analagous to secondary hemolytic anemia. Dr. Parkes Weber repudiated the proposed classification, and regarded the secondary cases described as merely varieties of leucocytosis. Dr. R. Hutchison considered there was no necessity for classifying leukemia as primary and secondary. Further, he thought that our present nomenclature of blood diseases would soon have to give way to a better one.

Healing wells and waters formed the subject of an address at the British Medical Society last week by Dr. D. McKenzie, who admitted that, like other primitive methods, they owed their reputation to qualities largely outside medical—so much so that he grouped them under the heads of magical, religious, and physical. Magical laving was used in skin and eye diseases from prehistoric times downwards. Religious water cures antedated the rise of worldwide religions, and continued in them. Lem-zem, at Mecca, the Ashlepian holy wells in Greece and Rome, were instanced, as well as the Pool of Bethesda. In his physical group a few more or less rational methods might be curative. In these the shock treatment by water of insanity and rabies was, he thought, interesting, and the baths—cold and vapor—practiced by Russians, American Indians, and the natives of Australia.

Many people are comforting themselves with the idea that death is usually painless, and not a few are asking their doctors if they can corroborate Professor J. C. Wilson, who lately took part in a correspondence in the *Times* on this question. He described the struggle for breath of his father, who was thought to be dying, as most harrowing to witness, though his doctor assured him that the patient was not suffering. His father survived until the morning, when he said he had had a very comfortable night, showing the correctness of the medical man. Other correspondents, among them Sir Henry Morris, have written to confirm the opinion that delirium and struggling are not manifestations of pain and that what people call the death agony is in most cases to the patient like dropping into a long sleep.

Sir David Ferrier, F.R.S., took the chair at the Medical Society's dinner on the 4th inst., and when proposing the toast of the society, spoke of the founder, Dr. Lettsom, whose merits as a rule form the foundation of most of these annual speeches. It is now one hundred and forty-one years since he established the society. The original members were ninety in number, equally divided between physicians, surgeons, and general practitioners, or as then called, apothecaries. There are now nearly seven hundred, who call themselves fellows. In the early days the rule was for each to read a paper in rotation or pay a fine of 5 shillings, or give a book of that value to the library, which now contains some 20,000 volumes. The seconder of the toast, which was of course duly honored, spoke of the society as the best meeting place for practitioners of every branch of the profession, where papers on every subject of medical interest could be discussed from every point of view.

The death of Sir Francis Xavier MacCabe, formerly medical commissioner of L. G. B. for Ireland, took place on Monday, at the age of eighty. He was the son of William MacCabe, the historical writer. From 1858-65 he was in private practice, then became medical superintendent of Waterford Asylum and later of Dundrum. In 1876 he was appointed inspector under the Irish L. G. B.; in 1885, member of the Prisons Board and inspector of reformatory and industrial schools In Ireland, retiring in 1885. He was on the Royal Commission of inquiry into the sanitary condition of Dublin in 1879.

## OUR LETTER FROM THE PHILIPPINES.

(From Our Regular Correspondent.)

### A NEW PLAGUE OUTBREAK—UNITY OF YAWS AND SYPHILIS—GANGOSA.

MANILA, P. I., February 12, 1914.

DURING the last week of January a sharp outbreak of plague occurred in Manila. On January 24 there was a case reported at 105 Calle Alejandro, which is in the Echague district which has heretofore been infected. On January 26 a Chinaman living at No. 143 Calle Rosario was found with the disease. On January 27 another person was stricken at the same address. On January 31 a man and his wife were found dead at No. 675 Calle Echague. It is of interest to note that in the two latter cases a rat hole was found near the bed in which these persons slept and on prying up the floor under

their bed, several mummified rats were found which had all the appearance of having died of plague, although this could not be actually demonstrated by laboratory investigation. It is assumed that the fleas after leaving the rats found their way through the cracks in the floor and thus reached their victims. Later, three more cases of plague were discovered in different parts of the city and for several days it appeared that a general outbreak was imminent. After a thorough investigation, however, it was found that all of the latter cases were actual residents of the block on Calle Rosario in which the first cases had occurred and by transferring to other addresses they hoped to escape the sanitary measures which are carried out by the Bureau of Health. A sanitary cordon was immediately placed around the infected district and 100 rat catchers and laborers were put to work. The anti-rat measures began at the periphery of this zone and were conducted toward the center. In removing some double walls and ceiling in the house at No. 143 Calle Rosario, a number of mummified rats were found. In connection with this address there was also a large warehouse in which many tons of merchandise were stored. This warehouse also served as a living place for a large number of people, the larger boxes being used as beds. Cooking on a large scale was carried on in a small court yard. The conditions were indescribably insanitary.

No further cases occurred between February 3 and February 11. On this latter date a human case of plague was found at No. 206 Calle Juan Luna, which is within the sanitary cordon and located in the same block and the back abuts on the back of the premises of the cases reported at No. 143 Calle Rosario. The anti-rat measures in this house resulted in finding 65 dead rats in the ceilings, hollow partitions and under the floors. These rats are now being bacteriologically examined at the Bureau of Science. The foregoing experience again demonstrates the intimate relationship which exists between rat and human plague. It is of interest in this connection to mention that much of the merchandise found in the warehouses of the infected premises consisted of lamp chimnies and other glassware packed in straw which came from Japan. Plague has been almost continuously present in many Japanese ports during the past year and it is not improbable that plague infected rats or fleas may have been introduced with this merchandise.

The Manila Medical Society met at 8.30 P.M. February 2 in the amphitheater of the College of Medicine and Surgery. Surgeon C. S. Butler, of the United States Navy, read a paper entitled "Some Facts and Some Fancies Regarding the Unity of Yaws and Syphilis." Doctor Butler has made an extensive study of yaws in the Philippines and comes to his conclusions after a thorough study of the literature on the subject and from actual experience. Among other things he stated that after diligent search he was unable to find syphilis in a person who had been afflicted with yaws. He stated he was unable to throw any light on the observation which had frequently been made in the Philippines that yaws were more often found among residents of the interior than those who did not apparently come actively in contact with the outside world. The author was of the opinion that yaws is but one of the very many manifestations of syphilis.

The next paper was entitled "Gangosa and Other Mutilating Ulcerations, Their Relations to Yaws and Syphilis," by Capt. Ferdinand Schmitter, United States Medical Corps, and member of the Army Board for the Study of Tropical Diseases as they exist in the Philippine Islands. Dr. Schmitter also adduced much evidence which confirmed the conclusions of Dr. Butler. He was also of the opinion that gangosa is in all probability a manifestation of syphilis.

The next paper presented was entitled "Evidences of Syphilis Encountered in the Philippine General Hospital During One Year," by Dr. J. E. Reed, who stated that syphilis had been encountered in over ⅔ per cent. of the total number of cases discharged during the year. There had been more Filipino women admitted with the disease than Filipino males, but this he attributed to the fact that the inspection of dance hall women probably was responsible for a larger number of women applying for treatment. Otherwise, the percentages of the different form of the disease were much the same as found in general hospitals of the United States.

The last paper was one read by Dr. R. W. Hammack, of the College of Medicine and Surgery, entitled "Evidence of Syphilis Encountered in the Manila City Morgue During One Year." Dr. Hammack stated that among 712 autopsies, slightly over 3 per cent. of the bodies were found to be afflicted with syphilis. He prefaced his remarks, however, by the statement that the manifestations of syphilis were found in connection with routine autopsies which were carried out and that no special effort was made to look for syphilis. In the discussion which followed, the prevailing opinion seemed to be that syphilis, gangosa, and yaws were all one and the same disease, and one speaker stated that careful studies made by Dr. Noguchi failed to show any demonstrable difference between the organisms encountered in these diseases.

## CROTALIN IN EPILEPSY.

To the Editor of the Medical Record:

Sir:—Recently two notices have appeared of sudden deaths following the use of crotalin, a preparation of the venom of the rattlesnake, by hypodermic injection, and at the present time I am seeing patients who come to report the absolute uselessness of the drug in checking epileptic attacks. Thus in a boy of fifteen, seen recently, suffering from a typical idiopathic epilepsy, without any ascertainable organic origin, but with a history of epilepsy in both his mother's family and his father's, the use of crotalin injections every two weeks during the past six months has been attended by a steady increase in the number and severity of his fits, which now occur once a week, when six months ago they were occurring but once a month. This is not due to any suppression of bromides, as he had never been under bromide treatment. I have not seen any records of a trial of crotalin in any of the epileptic colonies where new suggestions for the treatment of this disease can be thoroughly tried, and it seems to me, from the lack of any reliable reports with regard to benefit obtained by the use of the drug, that there is every probability that this remedy is useless and even not free from danger.

M. Allen Starr, M.D.

5 West Fifty-fourth Street.

# Progress of Medical Science.

## Boston Medical and Surgical Journal.

*March* 19, 1914.

1. Notes on the New Coolidge *X*-Ray Tube. H. W. Van Allen.
2. Some Tragic Aspects of Whooping-Cough. P. H. Sylvester.
3. Neurological Social Service, Massachusetts General Hospital. M. Ryther.
4. Is Sanatorium Treatment Worth While? G. L. Farmer.
5. Ileal Stasis. Report of Thirty-Three Cases. G. Blake.

**2. Strange Aspects of Whooping-Cough.**—P. H. Sylvester states that the death of a child from any cause is a tragedy; but one is liable to lose sight of this fact in the sudden, unexpected, or dramatic death of an unusual case. Whooping-cough, with a mortality of approximately 7 per cent., and a toll of ten thousand in the United States annually, presents an appalling contrast to the layman's, and the average physician's, conception of its harmlessness. The causes of death in whooping-cough are, briefly, exhaustion, pneumonia, bronchopneumonia, heart failure, and terminal tuberculosis. The cases which the author describes are of interest owing to their unusual type and provide an argument for an efficient treatment of, as well as prophylaxis against, the disease. Six of the eight cases reported were much alike. The author concludes from his experience that certain cases of whooping-cough have symptoms of intracranial pressure, best explained on the ground of a cerebral hemorrhage. The hemorrhage appears to be dependent upon the stress of a severe paroxysm. The symptoms of hemorrhage in these cases pointed to lesions other than middle meningeal and were surprisingly uniform in the initial convulsion, immediate rise in temperature to a high degree, cyanosis, and spasticity rather than paralysis. This type of cases emphasizes the importance of prophylaxis. Treatment should be directed toward at least reducing the severity of the paroxysms.

**5. Ileal Stasis.**—G. Blake from a study of ileal stasis concludes that ileal stasis is found: (1) as a pathological entity; (2) as a symptom of other pathological conditions; (3) as a coincident condition in other diseases to which it is not apparently related. Constipation and epigastric pain soon after meals are the commoner symptoms. The stomach-contents analysis is of little or no value in making a diagnosis. Two cases only were of the typical primary ileal stasis type—those diagnosed constipation—although the cases of neurosis and debility (five in number) might be considered as possibly belonging to this type. No case of Lane's kink was found. The treatment is by choice the relief of constipation by Russian oil or agar or both, together with hygienic and tonic treatment, the mechanical support of ptosed structures and correction of faulty posture, and surgical operation. The diagnosis of the condition is made by bismuth *x*-ray examination.

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## New York Medical Journal.

*March* 21, 1914.

1. Fairy Tales as a Determinant of Dreams and Neurotic Symptoms. A. A. Brill.
2. The Abderhalden Reaction in Psychiatry. B. Homles.
3. Scarlatiniform Eruptions in Septic States. R. N. Willson.
4. Relaxed Ear Drums. H. Hayes.
5. The Etiology and Treatment of Infantile Wasting. H. Lowenburg.
6. The Gynecological Examination. C. M. Stimson.
7. Acute Lymphocythemia. E. F. Cornwall.
8. Trachoma and Allied Conjunctival Affections. H. W. Wooton.
9. The Graduate Nurse. R. Hertzberg.

**2. The Abderhalden Reaction in Psychiatry.**—B. Holmes states that the Abderhalden reaction now furnishes a means of the serological diagnosis of dementia præcox, a condition which makes up about one-fifth of the admissions to hospitals for the insane. The test enables one to differentiate dementia præcox from manic depressive insanity, and from hysteria, which furnish more than another fifth. The reaction is also of very great assistance in separating the non-syphilitic from the syphilitic insanities, and suggests a rational interpretation of many of the symptoms in all forms of psychosis.

**4. Relaxed Ear Drums.**—H. Hayes points out that the majority of otologists are wont to consider that almost all cases of deafness are due to a catarrhal condition, causing retraction of the drum or a stiffening of the ossicular joints. By the careful use of an electric otoscope, to which a massage apparatus can be attached, one will observe that in many cases of deafness the ear drum, although retracted and thickened, is often at the same time relaxed. At least fifty per cent. of the patients who come to the otologist suffer more from a relaxed drum than from a retracted one. The important indication is to bring back the drum to its proper tension and to tighten the ligaments between the ossicles by creating an inflammatory reaction, which, when it subsides, will not have done any particular harm, but at the same time will have created a certain amount of connective tissue infiltration. The success of the treatment is due to the daily application of irritating fluids to the ear drum, so that it remains inflamed over an extended period of time. As the drum becomes more and more irritated and inflamed, a thickening occurs, which thickening draws on both the circular and straight muscular fibers of the drum, and instead of retraction, the membrane is drawn out until it assumes a more normal position. This tightening is always more noticeable around the circumference of the drum and its attachment to the annular ligament. The joints between the small bones of the middle ear having been more or less ankylosed, as the drum is drawn out, there is a tendency for these joints to loosen up. This lengthens the ossicular chain, with the result that more tension is put upon the ligament of the oval window. This tightening up of the drum, however, the author says, cannot be obtained in a short time.

**5. Etiology and Treatment of Infantile Wasting.**—H. Lowenburg reports three cases of this condition. He states that it seems to be brought about as the result of some error in body chemistry depending initially upon the abnormal activation of the salivary glands by a food abnormal for the individual. Wasting in infants may depend upon syphilis. Commonly called baby's consumption, wasting in infancy may actually depend upon tuberculosis. A comparatively common cause of wasting in infants, frequently unrecognized and regarded as simple marasmus, is obstructive disease at the pylorus. The main features of this condition, beside the progressive loss in weight, are vomiting, propulsive in character, beginning immediately or shortly after birth; partial or complete constipation; visible gastric peristalsis and palpable pylorus; delayed progress of the passage of charcoal through the alimentary tract or its total absence in the anal discharges and its appearance in the stomach washings twenty-four hours after administration; and characteristic *x*-ray pictures, showing the partial or complete retention of the bismuth meal in the stomach. These symptoms make up a typical picture of a distinct clinical entity, yet they are often passed by. Many of these cases would end favorably by operation, but are allowed to terminate fatally upon some pet milk formula or an array of proprietary or other foods sufficient to sustain an army. Here a discriminating diagnosis would be life saving.

Journal of the American Medical Association.

*March* 21, 1914.

1. Danger in the Subcutaneous Injection of Solutions of Crotalin, with Report of a Fatal Case. J. F. Anderson.
2. The Influence of Diet on Hepatic Necrosis and Toxicity of Chloroform. E. L. Opie and L. B. Alford.
3. What Is a Complex? H. W. Frink.
4. Artificial Pneumothorax. A Summary of Forty-five Cases at Bedford. M. Schaie.
5. The Intraspinal Injection of Salvarsanized Serum in Paresis. J. A. Cutting and C. W. Mack.
6. Subacromial Bursitis. L. W. Littig.
7. Gastroenterostomy by a Plastic Flap. C. Beck.
8. Technique of Vaginal Hysterotomy. A. E. Hertzler.
9. Simplification of the Duodenal-Tube Examination. C. W. Lippman.
10. Bromide Eruption Simulating Blastomycosis or Eczema. H. K. Gaskill.
11. A Suggestion in the Treatment of Syphilis. H. S. Bernstein.
12. An Anomalous Temperature-Curve in the Moderately Advanced Tuberculous. J. Ritter.
13. Elephantiasis, with the Report of a Case. J. Patterson.
14. The Sugar-Content of the Blood and Its Clinical Significance. F. C. McLean.
15. Benzol Treatment in Two Cases of Leucemia. F. H. Smith.
16. Cases of Insanity Arising from Inherent Moral Defectiveness. C. C. Wholey.
17. Lodgment of a Cockle-Burr in the Vestibule of the Larynx. G. C. Otrich.
18. Apparatus for Producing Artificial Pneumothorax. C. H. Vrooman and F. W. Wittich.
19. Wall of the Stomach Perforated by a Pencil. Y. A. Little.
20. A Case of Micrococcus Tetragenus Septicemia. A. E. Steele.

**1. Subcutaneous Injection of Crotalin.**—J. F. Anderson states that rattlesnake venom was recommended by Spangler in 1910 for epilepsy. Since Spangler's paper there have appeared reports of its use for other conditions, including tuberculosis. The author reports a fatality following the use of crotalin. He points out that a sterile solution cannot well be assured. Weir Mitchell many years ago alluded to the great possibility of a secondary infection in a survivor in acute rattlesnake poisoning and also called attention to the rapid decomposition following death by snake poison. Welch and Ewing in 1896 showed that rattlesnake venom almost completely destroys the bactericidal properties of the blood and this has been confirmed later by Flexner and Noguchi. The laboratory findings in the case reported left no reasonable doubt that the death was due to the presence in the crotalin solution of pathogenic bacteria which were also shown to be present in the other ampoules in the same lot as those used. There were tested for sterility ninety-five ampoules of crotalin solution, prepared by four different firms, thirty-five of which (38.8 per cent.) were found not to be sterile. In the great majority of instances the contamination of the crotalin was found to be with anaerobic organisms and to all appearances usually with a certain anaerobic bacillus. Every tablet (twelve) examined was found not sterile and while more than one organism was present an anaerobic bacillus was found in every one.

**2. The Influence of Diet on Hepatic Necrosis and Toxicity of Chloroform.**—E. L. Opie and L. B. Alford conclude that fat administered to animals and presumably stored in part in the liver increases the susceptibility of the organ to the injurious action of chloroform. In view of the well-known solubility and diffusibility of chloroform in fats, the authors suggest that the fat of the liver cell determines the fixation of chloroform and the occurrence of necrosis. The experiments with carbohydrates, on the contrary, furnish confirmation of the views of those who maintain that carbohydrates protect the body proteins from disintegration. Since necrosis of the liver with a variety of conditions in man, namely, toxemia of pregnancy, acute yellow atrophy of the liver, yellow liver, and poisoning with a variety of substances, exhibits close similarity to the necrosis of chloroform, the authors' experiments suggest that a carbohydrate diet may be found to influence favorably the course of these diseases, whereas fat may have grave danger.

**4. Artificial Pneumothorax.**—M. Schaie reports his experience with forty-five cases in which artificial pneumothorax was employed. In eight cases brilliant results were obtained in the marked reduction in temperature, the pulse-rate, the sputum output, the gain in weight, etc. In three other cases active and advancing processes were arrested and the patients continued to do well. In six cases the author failed to introduce gas into the pleural cavity in spite of repeated attempts. In one of these cases the Brauer method was used, an incision having been made down to the parietal pleura in one interspace, and a mass of adhesions with small pockets was revealed. One point especially impressed the author, namely, the persistent loss of weight in many cases in spite of improvement of symptoms. This occurred in eighteen of the cases, and in four of these the patients began to put on weight as soon as the treatment was discontinued. As regards dosage, every case is a law unto itself. The first guide is the comfort of the patient. The pleural injection is stopped as soon as any pain or dyspnea is felt. Secondly, it is guided by the manometer. The author never lets gas flow into the chest till good oscillations have been obtained. At first he inflates every two to five days till a fairly good pneumothorax is obtained. With a complete pneumothorax he waits from ten days to a month before performing reinflation. The author says, "We are influenced in determining the intervals by the following additional factors: the position of the heart, the patient's comfort, the presence of subcutaneous emphysema and the temperature range. In regard to the last-mentioned we inflate as soon as we see the curve rising again; with regard to comfort, as soon as cough and expectoration increase. Expectoration is frequently increased after the initial inflations with a diminution in cough. This applies particularly to cases in which there are large vomicæ. In these cases the patients expectorate larger amounts at one time and with greater ease. In the others cough and expectoration seem not to be influenced so much. In quite a few cases expectoration has fallen as low as from 15 to 25 grams in twenty-four hours and still the cough has continued to be severe for a long time. In the presence of subcutaneous emphysema we never reinflate, waiting for its complete subsidence." The fluoroscope has been of value in the detection of small effusions. Special details in regard to a number of the cases are given. Nine deaths occurred and in one of these the necropsy findings are reported. The deaths were of advanced cases or of those patients who had complications of the pulmonary disorder.

**6. Subacromial Bursitis.**—By L. W. Littig. (See MEDICAL RECORD, March 7, 1914, page 452.)

**14. The Sugar-Content of the Blood.**—F. C. McLean describes the method of finding the sugar-content of the blood and points out the clinical value of its determination. The method of Bertram is most accurate for the determination of glocuse in small amounts. The amount of sugar in the blood does not exactly correspond with that in the urine which has been customarily tested by clinicians, and the blood test is of value aside from its physiological interest, especially in the diagnosis, prognosis, and control of treatment in cases of diabetes mellitus. The finding of hyperglycemia alone does not prove the existence of the disease, as its transient occurrence may be due to other causes. If, however, it remains persistent after the withdrawal of carbohydrates from the diet for twenty-four hours or more, the case should be regarded as diabetes, even if the glycosuria disappears. Excessive sugar in the blood is the primary condition, and the tolerance to carbohydrate should be determined by its behavior. A pa-

tient may have a constant blood sugar-content of 0.18 per cent., or even more, without sugar in the urine. The diet should be regulated accordingly and not depend on the urinary finding. The blood examination may also help the prognosis in these cases, for, as recently shown by Frank, in most cases of glycosuria in pregnancy, the blood sugar remains normal or is even diminished following the purely renal character of the disease. In cases of transient hypoglycemia and hypoglycosuria blood examinations may be valuable in the diagnosis as well as in cases of cerebroglycosuria which may have to be distinguished from diabetes.

**15. Benzol Treatment of Leucemia.**—F. H. Smith reports two cases of leucemia in which benzol was used. He gives a review of the literature of the method and calls attention to its possible dangers, which have also been noticed by various other authors. He calls attention to the fact that benzol is benzene, not benzine. Its formula is $C_6H_6$. Its toxicology has not been completely worked out, and there is no definite dosage of the drug. Koranyi begins with a dose of 0.5 gram., increasing this until some effect on the blood picture is shown, and it seems that for safety a constant recourse to blood examination should be taken. In most of the reported cases the Roentgen ray seems to have been used some time before the benzol, the assumption being that the Roentgen treatment prepares the way. In the cases reported by the author there was no Roentgen treatment. Summarizing his impressions, he states that there can be no doubt that benzol is a remedy of remarkable potency in myeloid leucemia. Benzol accomplishes feats hitherto undreamed of in the rapid subsidence of signs and symptoms in a fatal disease. But it is a two-edged sword and he who uses it without bearing in mind its grave possibilities is running the serious risk of substituting for one disease a still more fatal one. One has as yet no proof that benzol is a specific, and it is significant that not one clinician has yet expressed himself with reference to the future of these patients. The author hazards the guess that within the next six months the journals will contain numerous reports of recrudescences of the disease after benzol suspension.

## The Lancet.

*March* 14, 1914.

1. Changes in the Blood in the Causation of Surgical Shock. A. Rendle Short.
2. The Agglutination of *M. Melitensis* by Normal Cows' Milk. P. W. Bassett-Smith.
3. A Case of Transgastric Excision of a Gastrojejunal Ulcer. Sir Berkeley, G. A. Moynihan and E. Tissington Tatlow.
4. The Technique of the Wassermann Reaction, with Special Reference to the Use of Antigens Containing Cholesterin. C. H. Browning.
5. Popliteal Aneurysm. H. B. Robinson.
6. The "Ambulant" Treatment of Fractures with Plaster-of-Paris and Fracture Clamps. Professor Hackenbruch.
7. Recurrent Intussusception: with Suggestions as to the Etiology. H. T. Gray.

**1. Changes in the Blood in the Causation of Surgical Shock.**—A. Rendle Short made a series of analyses of carbon dioxide in venous blood in human cases of shock, as the result of which he concludes that acapnia is not the cause of ordinary surgical shock. One is still left face to face with the problem of a falling blood pressure with a normal heart and with contracted arteries. Analyses showed that adrenalin exhaustion is not the significant factor in the causation of shock. The suprarenals are by no means exhausted. In two cases the adrenalin was as high as, or higher than, in the controls. According to Cevidalli and Leoncini, the adrenalin content measured by a colorimetric test, is low after a chronic illness. Anesthetics are said not to affect it. The author suggests that the nociceptive impulses which bring about surgical shock do so by inhibiting or paralyzing the important nuclei in the region of the fourth ventricle and perhaps in the cerebellum, which, as Sherrington and others have shown, are continually sending impulses down the spinal cord, maintaining its functional activity and increasing muscular tone. When such inhibition or paralyses take place the functions of the cord are greatly reduced, tone is abolished, and therefore, as a secondary result, the blood pressure may fall. The respiratory center, and perhaps even the vasomotor center, share in this inhibition or paralyses; this is a very different conception from that which regards exhaustion of the vasomotor center as the prime cause of all the symptoms. Death is due to the accumulation of blood in the great veins, so that the *vis a tergo* is no longer able to provide a proper filling for the heart, especially as the feeble respiratory movements fail to exert their important pumping action. A very striking example of this sequence is met with in what is called the "knock-out blow" in pugilism, or rather in one of such blows. A vigorous drive on the point of the lower jaw in a line from the chin to the condyles is transmitted directly to the labyrinth of the internal ear, and by way of the vestibular nerve impulses reach the nuclei referred to by the author. As a result a powerful athlete is immediately reduced to a mass of quivering unstrung flesh, and may die outright. In a word, he is in a state of shock.

**2. The Agglutination of M. Melitensis by Normal Cow's Milk.**—P. W. Bassett-Smith states that the milk from cows in London is in some cases able to cause agglutination of the *M. melitensis* as lately pointed out by Kennedy. The latter found a positive reaction with the milk of three out of twenty-two cows, and five times from mixed milks. The reaction was also obtained when using whey, but was diminished or altogether lost by filtering the milk through a Berkfeld or Doulton filter. The author, using a forty-eight hours' culture for the emulsion and a dilution of one in twenty in this series, found that none of the milk from twenty-one cows gave a positive reaction when examined quite fresh, but with mixed samples of milk a high proportion reacted positively at this dilution. In any case it is necessary to centrifuge the milk very thoroughly and to examine it at once, using an emulsion made from the *M. melitensis* not more than forty-eight hours old, and even then a few errors will occur by false clumps in the sedimentation tubes carrying down micrococci with them. There is no doubt that cows' milk in some cases has a natural tendency to agglutinate the *M. melitensis*, but if care is taken most of these non-specific reactions may be avoided. The reaction should always be controlled by other methods of diagnosis before an animal can be considered to be infected.

## British Medical Journal.

*March* 14, 1914.

1. The Diagnosis of Tabes Dorsalis. G. Holmes.
2. The Treatment of Syphilis of the Nervous System by Intrathecal Injections. H. Campbell.
3. Some Problems in the Treatment of Venereal Diseases. A. L. McIlroy.
4. Arsenotherapy in Syphilis, with more particular reference to "Galyl." J. J. Abraham.
5. The Diagnosis and Treatment of Chronic Gonorrbea and Its Local Complications. H. W. Bayley.
6. A Case of Otitic Meningitis and Cerebellar Abscess, with Recovery. A. E. Barnes and W. S. Kerr.
7. The Hygienic Aspect of the Coal-Mining Industry in the United Kingdom. F. Shufflebotham.

**1. The Diagnosis of Tabes Dorsalis.**—G. Holmes concludes that the characteristic subjective demonstrable disturbances of sensation are usually the earliest, the most important, and the most unequivocal clinical signs of tabes dorsalis; that they are frequently associated with loss of the deep reflexes, especially of the ankle-

jerks and knee-jerks, and with pupillary, ocular, and other less frequent symptoms and physical signs; and that modern serological, cytological, and chemical methods can supplement and confirm the clinical diagnosis based on these clinical signs, and thus make the positive or negative diagnosis of tabes dorsalis as absolutely certain as anything can be certain in clinical medicine.

2. **The Treatment of Syphilis of the Nervous System by Intrathecal Injections.**—H. Campbell believes that in parenchymatous syphilis the intrathecal treatment is the only one yet devised which is capable of arresting the morbid process. It acts by destroying the spirochetes within the central nervous system and the cerebrospinal fluid. The treatment should be begun as early as possible. Neurons, once destroyed, are incapable of regeneration. Unfortunately, cases of general paralysis and tabes rarely come before one until wide tracts of nervous tissue have been irretrievably damaged. The intrathecal treatment is also indicated in cases of interstitial syphilis, especially of the spinal cord, which cases do not readily respond to salvarsan, mercury, or idodide of potassium. The last drug should be given in not less than dram doses three or even four daily.

## Deutsche medizinische Wochenschrift.

*March* 5, 1914.

**Internal Disinfection.**—According to Roosen this possibility has become identified with the diseases caused by protozoa. In this realm internal disinfection has been accomplished by quinine in malaria, arsenic in trypanosome diseases, and mercury in syphilis, as predecessors of Ehrlich's great invention of the synthetic salvarsan as a second specific for syphilis. Attempts to reach bacteria in this matter have not been a success. Methylene blue received a thorough test in this connection, both alone and in combination with mercury and silver. The small disinfecting power of certain substances is attributed not to the substances acting through powers residing in the molecules, but to the activity of their ions. The author from this viewpoint, has gone back to methylene blue as such a substance and has sought to combine it synthetically with calomel. An albuminate of mercury forms in the blood, and taking up the chlorine ions of the mercury changes calomel to sublimate. Methylene blue has a notable affinity with the nervous system, uniting with it chemically. Thus substances which cause staining *in vivo*, like methylene blue and eosin, seem to be those upon which reliance must be placed to act upon the cancer cell. Methylene blue has long been tested on tumors, but doubtless needs the aid of a tumor cell poison not severe enough to attack ordinary tissues. The problem has not yet been worked out in the case of human cancer patients but Roosen says that Professor Czerny intends to supply this demand in the near future.

**Hyperkeratosis Gonorrhoica.**—Lange reports a rare case of this general cutaneous outbreak of the gonorrheal virus. The first case was published in 1893 and quite a series of observations are now upon record. As a rule we note a balanitis circinato as the essential manifestation; but the palms and soles are sometimes involved and occasionally other portions of the surface. The affection is usually attendant on a multiple gonorrheal arthritis. In regard to the varieties in localization Baermann would make two forms, one a generalized exanthem, and the other conglomerate lesions on palms and soles, and especially between the digits, and under the nails. A case by the author brings out many of the points made in Baermann's description and adds new ones. Thus a young man, already a victim of familial muscular atrophy was infected for the first time with gonorrhea. Joint manifestations appeared early, chiefly in the ankles, feet, and toes. The coincidence may be cited that his feet were in the talipes equinus position as a result of the muscular atrophy. The balanitis circinata developed, and later upon the soles of the feet and toes appeared numerous efflorescences varying much in size which soon became horny. The author does not believe the feet would have shared in the outbreak had not the deformity paved the way. No gonococci could be found in the lesions.

## Münchener medizinische Wochenschrift.

*March* 3, 1914.

**Abderhalden's Dialysis Procedure.**—The above number of this journal contains a symposium on this subject. Mandelbaum deals directly with the peptolytic enzymes of the blood and cells and learns that every organ and every tissue, and every cell contains a ferment which splits glysyltryptophan. During life this ferment is held by the cells with the greatest tenacity. Whenever cells perish rapidly the ferment appears in the blood, but in slow death of the cell the active properties are lost. These enzymes should stand in some close relationship with Abderhalden's proteolytic protective ferments. Lampé continues his work on the specificity of the defensive ferments of Abderhalden. He alludes to 10 cases of anemia and chlorosis in which he sought for the latter and found no evidence of activity of any organ of internal secretion, although ferments which break up ovarian substance have been alleged to be present in chlorosis. As a general conclusion, however, in individual disease pictures enzymes can be demonstrated in the blood and serum which have to do with definite organs. In Graves' disease the thyroid, thymus and ovary; in myxedema, the thyroids; in endemic goiter, the same; in acromegaly, genitals and hypophysis; in eunuchoidism, testicles; in Addison's disease, the adrenals. Ferments in all these cases are formed which are able to break up the corresponding organ. As regards Abderhalden's diagnostic procedure it has thus far been of clinical service in differential diagnosis—between epileptic and hysterical convulsions, between hysteria and tuberculosis, etc. —but its greatest repute is in its ability to diagnosticate outright both pregnancy and cancer. Flatoa says in regard to pregnancy diagnosis that pregnancy serum is not the only substance which can break down placental tissue. The proteolytic ferments of normal blood serum cleave the organ albumin of the placenta in a fully nonspecific manner and without quantitative rules. Kämmerer, Clausa, and Dieterich discuss the dialysis procedure *per se*, and state as their belief that its chief weakness lies in the want of uniformity of the shells.

**Intravenous Injections of Gonorrheal Vaccine.**—Habermann concludes an article on this subject as follows, referring to the long-known serum of Bruck: There appears to be neither diagnostic or therapeutic superiority of the intravenous method over the intramuscular. The sharp, brief febrile reaction soon after the injection is sometimes seen in the normal subject, and hence is by no means specific. An evening rise of temperature and persistence of the fever on the following day points to gonorrhea. The strong collateral effects —fecal or general reaction, relapses, etc.—make it necessary, Habermann says, to lower the initial therapeutic dose and increase the same very slowly and cautiously.

# Insurance Medicine.

## SUGGESTIONS TO MEDICAL EXAMINERS.

BY THE INSURANCE EDITOR.

### THE DETERMINATION OF THE BLOOD PRESSURE.

A REQUIREMENT for the taking of the blood pressure is comprised in an increasing number of the blanks for application for life insurance, and it is, therefore, important that the procedure be standardized as far as possible. Reports may vary according to the personal equation of the examiner, the apparatus used, and the method employed.

(1) The personal equation exercises an important part in the reading of the blood pressure. The tactile sense is more or less keen in different individuals and it is common to find the estimates of two observers from 5 to 10 mm. apart.

(2) The apparatus employed is responsible for many of the errors in reporting blood pressure. Instruments of all grades are being exploited by the manufacturers, but the first thought in the mind of a purchaser should be to secure a sphygmomanometer that is undoubtedly accurate, reliable and easy to care for. It is a simple matter to make the large bore standard mercurial instruments suitable only for office use, but much difficulty has been experienced in the construction of a compact and durable apparatus that is portable. The most satisfactory form of portable mercury instrument on the market at present is that having a short closed tube with mercury working against the enclosed air. The best of these instruments have the bulbous air space protected by a vacuum chamber against temperature variations, and the tube being closed at both ends prevents the entrance of dust and reduces the oxidation of the mercury to a minimum extent. One trouble with the portable mercury apparatus arises from the narrow caliber which is necessary in small instruments; errors due to the defective tubes, found frequently in cheap commercial sphygmomanometers, are accentuated if the caliber is small. The result of the oxidation of the mercury, also, is manifested sooner in the small caliber tubes. Still another objection is the shortened millimeter scale by which an otherwise small error in reading the blood pressure may be magnified. Glass tubing of uniform caliber cannot be blown, and defects in cheap instruments made from inferior glass tubing, cause a deviation of from 5 to 20 mm. from the correct reading. With so many elements of what constitutes a good sphygmomanometer to consider, it is wise to confine the choice to one made by a maker well known for reliability, regardless of the price.

The cuff must be at least 12 cm. in width, of leather or some stout material, with a bag made of material which will not harden.

Our experience with sphygmomanometers dates back to the time when these instruments came into use for life insurance work, and we have found the metal aneroid or diaphragm instrument, though not perfect, to be the most compact, portable, and reliable apparatus obtainable and still hold to that view. The great objection to it is that comparison with a large stationary mercurial manometer is absolutely necessary at least once a month. If no standard instrument is conveniently at hand to check up the aneroid frequently, a mercurial instrument should be used in preference. The aneroid instruments have been improved materially in the way of appliances for adjusting, and compensation can readily be allowed for changes in elasticity of the drum and spring.

(3) The method of taking the blood pressure should be standardized so that any number of readings taken on one or several persons by one or different operators, will bear a proper relation to each other.

The unreliable practice of determining the blood pressure by noting the return of the pulsation through the tactile sense of the finger tips will give way to the more delicate and exact auscultation method. The ordinary stethoscope may be employed, but this will not be necessary if the flimsy tubes and earpieces usually attached to the auscultation apparatus to insure portability are constructed on the more approved plan of the regular stethoscope.

The pressure should be determined as soon as possible after the vessels have been constricted by the arm band. If the constriction is prolonged, there will be a fall of several millimeters, according to the length of time, the fall beginning in about one minute. It has been stated that the pressure rises under such circumstances, but according to the long experience of the writer, this occurs only when the applicant is becoming excited. If further readings are desired, the arm band should be taken off and re-applied in about 10 minutes.

All blood pressures in life insurance examinations should be uniformly taken with the applicant in the sitting posture, this position being the most natural and convenient one to assume at such a time. The applicant should sit with the arm resting on a table with the muscles relaxed.

When a pressure higher than normal is obtained, several successive readings should be taken on different days to eliminate nervousness, excitement, recent energetic exercise, or a heavy meal as the causation of the high pressure.

Inquiry is frequently made as to why so many of the companies omit to ask for the diastolic pressure. There is no question but what the diastolic and pulse pressures are important data to the clinician. It is, however, felt in many quarters that there is not sufficient significance attached to the diastolic pressure for life insurance purposes, and that we do not know enough about it to justify the addition of this requirement to the medical examination. Furthermore, the determination of the diastolic pressure by palpation is unreliable and inaccurate, and it will not be practical in any event to exact it until the auscultation method is commonly understood and practised.

The auscultation method is generally recognized as the more correct and reliable procedure for determining the systolic as well as the diastolic blood pressure, and it is probable that the palpation method will soon be regarded as obsolete. In comparing the results with those obtained by the palpation method, an allowance of about 10 mm. should be made on account of the greater delicacy secured through auscultation. The arm band should be carefully adjusted in the proper place on the bare arm; if not, the sounds may become weak enough to escape the hearing of the observer.

In closing, it may be added that an error of 5 or 10 mm. may be unimportant for life insurance purposes when the pressure is very high or at a medium normal figure, but when it is near the border line it is imperative to have a correct report.

# Book Reviews.

State Laws Limiting Marriage Selection, Examined in the Light of Eugenics. Eugenics Record Office Bulletin No. 9. By Charles B. Davenport, Carnegie Institute of Washington, Department of Experimental Evolution. With Two Figures and Four Tables. Price 40 cents. Cold Spring Harbor, June, 1913.

At a time when so much is being said and written about eugenics, the appearance of a bulletin such as this, in which the various State laws relating to marriage selection are analyzed from the viewpoint of eugenics, is to be welcomed as an important guide to this subject. In other words, a study of the biologicaal basis of marriage laws is provided particularly for the benefit of legislators who would frame additional laws to improve marriage selection. The author wisely points out that the reproduction of the feeble-minded will not be diminished to any great degree by laws that forbid the issuing to them of marriage licenses. From the viewpoint of eugenics the marriage of a mentally vigorous man with a socially attractive and beautiful, though defective, woman is permissible. Legislation against marriages of the insane is regarded as ineffective because in most cases the onset of the trouble comes after marriage. The laws restricting marriage take little account of the degrees of insanity. In the traumatic forms of the latter the eugenic significance is slight. The procreation of the insane, of course, cannot be prevented by legislation. They should be under custodial restraint during the entire reproductive period, which restraint would be more effective than legislation in limiting procreation. The kinds and degrees of insanity should be taken into account in all legislation of this nature. As regards the laws limiting consanguinity in marriage, the author points out that a large number of these prohibitions have no biological justification, for in many instances there is no blood relationship between the individuals whose marriage is prohibited. The marriage of first cousins is prohibited in twenty-two States and in Porto Rico. But the marriage of first cousins is not injurious to the offspring unless the stock is weak. Hereditary forms of feeble-mindedness are particularly apt to be perpetuated by such cousin marriages in tainted families, even though the parents themselves may be normal. One of the most important parts of this book is that which deals with the program of State eugenic control. It is suggested that three sets of officials are necessary for this control: a State eugenics board; State official physicians, who shall also issue marriage licenses; and field workers. The last would perform a function similar to that of the inspectors of life insurance companies. They would inquire into the mental and physical conditions of the families of the applicants for marriage licenses. The following drastic legislation is advocated: "For those persons who, despite a denial of marriage by the State, cohabit and have a child, the penalty should be sterilization of the male." Why should the male be singled out as the one to be sterilized when the female may be the one equally or even solely at fault? Similarly the following sweeping regulation is proposed: "With the eugenics board should be left the execution of all laws limiting procreation, both inside the marital relation and outside." It would be interesting to learn how such a board can regulate extramarital procreation.

Die Anwendungsweise der Lokalanästhesie in der Chirurgie. Auf grund Anatomischer Studien und Praktischer Erfahzungen. (The use of local anesthesia in surgery, based on anatomical studies and practical experiences.) By Prof. Dr. Fritz Hohmeier, Marburg. Introduction by Prof. Fritz König. With 54 Illustrations. Price 4 M. Berlin: August Hirschwald, 1913.

Notwithstanding numerous improvements which have attended the employment of general anesthesia there are still many dangers in its administration. To overcome certain of these, spinal anesthesia was introduced and practised with success by many operators, but notwithstanding its advantages this method is likewise accompanied by dangerous complications which have prompted a number of well-known operators to give up its use entirely. This state of affairs has led to the further development of local anesthesia and an increasing number of operations successfully done under its influence have served to show the value of the same. The writer of this manual has been largely identified with the development of local anesthetic methods in König's Clinic at Marburg, where over 50 per cent. of all surgical cases are operated on by this means. Hohmeier has added a great many new features in the application of local anesthetic measures, particularly on the extremities. The book is divided into two portions, in the first of which are considered the directions for the employment of the method. In general, this consists of blocking the nerve trunks in the immediate vicinity of the field of operation by perineural injections supplemented by the infiltration of the immediate subcutaneous tissues above the operative field and around the line of incision. In operations on the extremities the author has developed a special method of infiltration which is carried around the limb. Local anesthesia should be restricted to patients who are not fat or extremely nervous. The administration of a sedative on the night before operation, and a small dose of morphine subcutaneously a half hour before the same, are always indicated. Scopolamine and opium derivatives are not recommended. The author advises the exclusive employment of a .5 per cent. solution of novocaine combined with suprarenal extract, solutions of which should always be freshly prepared. In the second portion of the book are discussed the various operations possible with local anesthesia, including those on the head, neck, chest, abdomen, upper and lower extremities. The various gynecological, ophthalmological, otological, and dental operations are not included for present lack of experience. A large number of excellent anatomical plates from well-known sources are inserted and also diagrammatic explanations of the sites of injection for the various procedures. The work constitutes an excellent compact manual in practical surgical technique which must be seen to be appreciated.

Outlines for Case Taking and Routine Ward and Laboratory Work as used in the medical Clinic of Washington University. By George Dock, A.M., M.D., Professor of Medicine, Washington University. Price 25 cents. Ann Arbor, Mich.: George Wahr, 1913.

These are outlines for (1) miscellaneous cases and acute infections, (2) diseases of the respiratory organs, (3) of the circulatory apparatus, (4) of the organs of digestion, (5) chronic constitutional diseases, and those of metabolism, (6) diseases of the urinary and sex organs, (7) of the nervous system. Further there is a scheme for the examination of sensibility after Head and Holmes, and for the routine ward and laboratory work in medical wards.

Das Chronische Partielle Herzaneurysma, Anatomie, Klinik, Diagnose. Von Prof. Dr. Maximillian Sternberg, K.K. Primärartz am Krankenhause Wieden in Wien. Mit 10 Abbildungen. Price 3 Mks. Leipzig und Wien: Franz Deuticke, 1914.

This brochure contains the history, pathology, synthesis, variations from the typical syndrome, diagnosis, therapy, and prophylaxis of this condition. There is an extensive bibliography at the end.

Practische Winke für die chlorarme Ernährung. Von Prof. Dr. H. Strauss, Director der inneren Abteilung des Jüdischen Krankenhauses im Berlin. Zweite, vermehrte und verbesserte Auflage. Price, Mk. 1.50. Berlin: Verlag von S. Karger, 1914.

This practical guide tells of the indications for prescribing a diet poor in chlorides. Estimation of the chloride tolerance is given; also general and special principles governing the successful application of the diet; tables showing the salt content of the various articles of food.

Practical Prescribing, with Clinical Notes. By Arthur H. Prichard, M.R.C.S., L.R.C.P., R.N. (Retired), late House Physician, the Brompton Hospital, and Resident Surgeon, R. N. Hospital, Gosport. Price $2.00. London: Henry Frowde and Hodder & Stoughton, 1913.

In this volume the author attempts to bring diagnosis and treatment into somewhat closer relationship than often obtains. He selects a number of typical cases of the more common diseases, and gives suitable prescriptions, with explanations and comments. He further gives reasons for employing the various constituents in these prescriptions, pointing out their particular action in the given cases, and drawing attention to special points. The work is well done, and is calculated to make the reader think. As an introduction to practical therapeutics the book should prove of much value; it is both interesting and stimulating.

# Society Reports.

## MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

*Annual Meeting, Held January 19, 1914.*

THE PRESIDENT, DR. REYNOLD WEBB WILCOX, IN THE CHAIR.

**Election of Officers.**—The following officers were elected: *President*, T. S. Southworth; *Treasurer*, Isaac Hartshorne; *Chairman for the Borough of Manhattan*, Thomas Darlington; *Chairman for the Borough of Queens*, L. H. Moss; *Member of the Council*, F. H. Daniels.

**A Case of Osteitis Deformans.**—Dr. J. HERMAN BRANTH presented a male patient, 50 years old, who exhibited all the typical signs of this disease, as first described by Paget in 1877—enlargement and softening of the bones, especially of the long bones, which showed curvature, and of the bones of the cranium, kyphosis, and stiffening of the tendons of the femoral muscles and the joint ligaments. The patient also had nystagmus, though this had now almost entirely disappeared under the experiment treatment employed. This, Dr. Branth said, consisted of the application of *x*-rays to the head and lumbar region and the use of the high-frequency, high-tension current. At first he had intended to give pituitary extract also, but as the patient's condition seemed to have taken a favorable turn under the electrical treatment alone, this would be continued for the present. Nothing was known of the etiology of osteitis deformans, and the disease did not prove fatal; the patients dying from old age or some intercurrent affection.

**An Inflating Gastroscope and Duodenoscope for Inspection of the Organs through the Gastric (Gastro-enterostomy) Incision.**—Dr. ROBERT COLEMAN KEMP read this paper, which was written by himself and Dr. Albert Vander Veer, Jr. The gastroscope was based, he said, on the principle of Tuttle's inflating proctoscope, but the light was situated inside the tube, so as not to interfere with the spherical clamp, and there were on the instrument six projecting rims, one inch apart. By means of these rims at intervals one could insert the tube to different distances, and thus explore the entire stomach. It was found by experiment that a light at the tip of the instrument was preferable to one reflected from near the eye-piece. The inflating bulb was that employed for the Tycos sphygmomanometer. The length tof the gastroscope was 6 inches, while that of the duodenoscope was 12 inches. The inflating tube in the latter was directly attached to the main tube by a branch, thus allowing more space for the eye-piece. In these instruments the principle of the operating cystoscope was simplified. The tungsten light was used, and the apparatus afforded a practical method of internal inspection of the stomach at the time of abdominal section. The surgeon was frequently dependent upon his sense of touch for the determination of the location of existing lesions. It was sometimes impossible to detect an indurated ulcer on the posterior surface, by the method of palpation, while a non-indurated one would usually not be discovered at all. Gastroscopy previous to operation was very unsatisfactory unless performed under general anesthesia, and an additional complete anesthesia before a capital operation was objectionable in many cases; as was also prolonged anesthesia, with gastroscopy, preliminary to laparotomy. Again, there was always danger of damage to the esophagus and stomach (particularly the latter in ulcer or cancer), and, furthermore, it was possible by this means to explore only a relatively small portion of the stomach. The writers of the paper invariably resorted to *x*-ray examination by a competent röntgenologist before operation; but while, unquestionably, much information could he thus secured, the radiograph would not always show the lesion, and the interpretations of even the most skilled specialists in this department were not invariably correct. In the course of their experimental investigations the authors had found that a gastric ulcer, of even considerable size, might be so covered hy the folds of the mucosa that it was impossible to see it through the gastroscope unless the stomach was inflated. Diculafoy had demonstrated that even on autopsy it had proved difficult to detect superficial ulcer when it lay concealed in some of these folds. This would suggest, further, the value of the inflating gastroscope for locating a hemorrhagic lesion requiring suture. Closure of the transverse duodenum, which had been observed to occur during the experiments, Dr. Kemp believed to be due to pressure of the distended stomach, torsion by the muscle of Treitz, and the downward pull of the mesenteric vessels, combined. Complete distention of the stomach and duodenum therefore took place before the cardiac orifice of the stomach opened. These facts explained the possibility of artificial gastric distention. The direct pneumatic gastroscope might be of service in the following ways: (1) In determining the character and position of an ulcer; (2) in determining the number of ulcers or erosions, and hence the amount of resection of the stomach required; (3) in determining the position of a foreign body and facilitating its removal; (4) in the study of the pylorus; (5) in revealing the point of an intragastric hemorrhage, and thus rendering rapid ligation possible; (6) in facilitating the removal of a polypus. Moreover, by its aid a scraping from an ulcerated surface might be secured, and a study made of the bacterial types found in gastric or duodenal ulcers with a view to determining the etiology. A small section of tissue could also be obtained for examination. The paper contained detailed reports of the authors' experimental investigations, which involved much careful research. Some of these (in which they received valuable assistance from Dr. E. E. Smith) were for the purpose of finding the best means for sterilizing the instrument. A considerable number of experiments were performed on dogs and on the cadaver. Incidentally, Dr. Kemp stated that he always had the patient prepared for operation upon the stomach as follows: 1. Hexamethylenamine, 5 grains three times a day, to disinfect the genito-urinary tract. 2. Sodium bicarbonate, 20 grains three times a day, to prevent acidosis. 3. No solid food, no milk, for twenty-four hours previous to operation. All food liquid, strained and sterile; mouth washed with acetozone 1/1,000, or other efficient mouth wash; also gargle. 4. Half an hour before operation (before starting the anesthetic) thorough lavage of the stomach with acetozone, 1/1000, or with sterile normal saline solution. All fluid completely aspirated from the stomach, so that the surgeon may have a clean and dry field. By this method, he said, the stomach was certainly freed from some of its bacteria, and nourishment could be given nearly up to the hour of operation; often a matter of importance. As most of these patients were sufferers from motor insufficiency, lavage as a preliminary to operation was imperative. At the conclusion of the paper Dr. Kemp demonstrated the use of the gastroscope on the body of a dog recently killed.

Dr. E. E. SMITH said that he had been impressed by two phases of this invention: first, its adaptability to the purposes for which it was intended, and, second, the great practical value of which it seemed likely to prove. In regard to the experiments which had been made for the sterilization of the instrument, it was a fact that 80 per cent. alcohol was a more efficient antiseptic than the stronger 95 per cent. alcohol. The diluted alcohol was of more value in this respect just as heat in the presence of moisture was more efficient than dry heat. It was as yet too early to say to just what extent the instrument would prove of service. Thus, it was perhaps a question what the importance was of an ulcer of such a character that it escaped detection by other means. In one way, however, the inflating gastroscope might possibly prove of great value. From recent investigations it seemed probable that before very long we would be able to make an early diagnosis of carcinoma from the blood, and then if by this means the location of the lesion could be determined in the beginning, it would certainly be a great point gained.

Dr. WILLIAM P. HEALY said that he had had that day a case in which he hoped to have made trial of the new instrument, but had found that it was not one calling for its use. To just what extent it would prove a useful addition to our present clinical resources it was impossible to say at present. Of course, if, after opening the abdomen, we found extra-gastric signs, there would be no need of further information. He was sure, however, that every surgeon of experience had had cases in which the symptoms pointed to some lesion of the stomach, yet the gross inspection revealed none. Now, if we were to make an exploratory incision in the stomach, and examine its interior by means of this instrument, we would be in a position

to know positively whether or not a gastric lesion was present. He thought that in most instances it would be necessary to make an anterior incision, as it seemed to him that it would be very difficult to make use of a posterior gastroenterostomy incision for the exploration. It would appear, therefore, that the field of usefulness of the inflating gastroscope was a somewhat limited one, though in a certain kind of cases it was likely to prove of great service. He would like to inquire why the instrument could not be made smaller; thereby increasing its availability. Again, there were some kinds of things which could not be sterilized. Thus, the wires would have to be covered with towels, and it seemed to him that it would be necessary to have some one to look exclusively after such matters.

Dr. SINCLAIR TOUSEY said that his own experience, like that of Dr. Kemp, went to show that *x*-ray findings should not alone be relied upon for a diagnosis in many cases of gastrointestinal disease. In numerous instances he had found the history and symptomatology of the greatest assistance. After all, the *x*-ray did not show us the stomach or intestine, but simply the size, shape and position of a bismuth meal or enema at a certain time after its administration. Some few departures from the normal appearances were, indeed, pathognomonic, and from the radiograph in such a case the history and symptoms might be deduced with accuracy; but there were many instances in which two or more conditions would produce a similar *x*-ray appearance, and the symptoms and history—and sometimes an exploratory operation—were necessary to a diagnosis.

Dr. ROBERT T. MORRIS said that this instrument of precision was a distinct addition to our means of diagnosis. Among the conditions in which he believed it would be of great service were, bloody-sponge ulcer, which was not benefited by gastroenterostomy, multiple ulcers, and indurated ulcer. In the last of these we could not always tell just where the active crater was situated, and the gastroscope would at once determine this. When an active ulcer was found we should not wait to ascertain whether we had to deal with cancer or not, but should take it out promptly. Again, linear ulcers near the pylorus had always been difficult to diagnosticate, and here also the instrument would prove of value. An important field of its usefulness would be the exact locating of foreign bodies; thus rendering their extraction a simple matter. As to the anterior incision, some German surgeons now thought it best to make this first.

Dr. ANTHONY BASSLER said he had a dim recollection that a year or two ago he had seen the account of some one examining the interior of the stomach by means of an endoscope. While he had no desire whatever to detract from the value of Dr. Kemp's work, the question had occurred to him whether, in cases where gastroenterostomy was done, it would be wise to risk the possible loosening of the clamp which might attend the introduction of the gastroscope. He would like to know whether, even with perfect technique, there would not be great danger of giving rise to sepsis. After the suturing, also, it seemed to him that there would remain the danger of some leakage. Still further, might not the inflation itself of the stomach be attended with more or less danger?

Dr. EDWARD WALLACE LEE said it seemed to him that Dr. Bassler was something of a pessimist, and that he had exaggerated the danger of producing a septic condition. As a matter of fact, the peritoneum was really very tolerant. He had known of perforation of the stomach to occur, with emptying out of the entire gastric contents, and yet it had been possible to clean up the peritoneal cavity without any untoward results whatever.

Dr. KEMP, in closing, said that it was a perfectly easy matter to have the instrument of smaller diameter. The reason why he had had it made of the present size was because with a smaller diameter so good a light could not be obtained. The larger instrument was therefore preferable. He wished to have it understood, however, that the gastroscope was as yet in the experimental stage. As to sterilization, he believed that with the precautions which he had inculcated there was little or no risk of sepsis, and he saw no objection to Dr. Healy's suggestion that there should be a special person to look after the technique. In gastric operations at which he had been present, at which proper preliminary precautions had been taken, he had never seen a single drop of material escape from the stomach. This was a matter which depended entirely upon the preparation of the patient beforehand, especially the use of thorough lavage with aspiration just before operation. In reply to Dr. Bassler he would say that the position of the patient was of great importance. The proper position was the reverse of the Trendelenburg. He did not think there was any danger of post-operative dilatation. The inflation of the stomach was done rather rapidly, the entire period of examination consuming very little time, and cathartics were given on the table or immediately after the patient had been put to bed. As to Dr. Bassler's having seen some notice of a previous attempt to inspect the interior of the stomach through a gastric incision, this was no doubt the one to which reference had been made in the paper. Rovsing and Gallant had used a cystoscope for this purpose, and their procedures were the only things of the kind he had been able to find in all medical literature. He believed that with the instrument demonstrated this evening and with the proper technique, such as had been described, the surgeon would secure valuable information in some cases. For removal of a foreign body the method was ideal.

**Tuberculosis Following Typhoid Fever.**—Dr. CHARLES E. WOODRUFF, Lieutenant-Colonel (retired), Medical Corps, U. S. Army, in this paper, said that Ralph and Matson, of Portland, Oregon, were probably the first to notice that typhoid fever appeared with great frequency in the previous histories of consumptives, and in their history blanks it now headed the list of predisposing causes. The long interval which might elapse between the beginning of tuberculosis activity and the onset of symptoms generally prevented the discovery of the activating cause. It was not strange, therefore, that the literature should be so devoid of studies of the relation between typhoid and tuberculosis. Nevertheless, there was a decided impression prevalent that any serious infection may lead to consumption. The matter had assumed great importance since the recent discovery that every child is born free of tuberculosis, but soon acquires it, and that in every one of us the lesions become active sooner or later. By personal inquiries, both here and in Europe, he had found that these facts were now accepted as established. It was probable, then, that all civilized people were tuberculous and undergoing constant auto-vaccination, causing an effective immunity. Phthisiographers the world over seemed to be coming to the opinion that no one is ever infected in adult life, and that if incipient tuberculosis does develop in an individual, it is because something has interfered with the manufacture of his antibodies. Hence, the new viewpoint was that such infections as measles, whooping cough, and typhoid fever do not render us susceptible to tuberculous invasion, but reduce our resistance to the bacilli, which are already intrenched in the system. The earlier in life we received any infection, the more likely it was to cause the tuberculosis to spread; tubercles being found in the majority of children dying of any disease. All this had long ago been pointed out by Laennec, and there were now not a few who stated that not only tuberculous glands, but tubercles elsewhere, could be found post-mortem in every child over six, if we looked for them. As we grew older, and acquired full immunity, the fewer of us became actively tuberculous after the other infections, and probably the only persons who became actively tuberculous after typhoid were those who had partially lost their immunity through some other causes. It seemed that typhoid would cause general tuberculosis in all those whose lesions were active, and that it would activate a certain proportion of quiescent cases, in which symptoms developed after a period varying with their original resistance. At present, active tuberculosis was far less common than formerly, and there must be fewer cases of tuberculosis following typhoid, either directly or remotely. It might be mentioned here that the three diseases which seemed to be most frequently followed by tuberculosis of the lungs—measles, whooping cough, and typhoid—were all complicated with bronchitis. When one was losing his immunity to tuberculosis through overwork, lack of nutrition or fresh air, or from any other cause, there came a time when his latent lesions were just able to spread; the system being so delicately balanced that a straw would affect it one way or the other. Le Tulle, of Paris, had found that all serums and vaccines would cause incipient cases to grow rapidly worse, and had particularly noticed this in the case of diphtheria and tetanus antitoxins. Certain observers here and abroad had found that antityphoid vaccine brings

out any latent or chronic disease, particularly tuberculosis, and Combe, of Paris, stated that the vaccine acts like tuberculin. There was ample justification for suspecting that a fever which attacked a person in apparent health, which cleared up in a few weeks, and which later was followed by tuberculosis, was some non-tuberculous infection such as typhoid or malaria; while a fever which attacked a person in poor health, and the course of which was typhoidal, though atypical, was probably a mere run of fever incidental to incipient tuberculosis. Consumptives seemed to have had more typhoid fever than the rest of the population, though there was no way of determining this point accurately. The speaker gave a number of statistics indicating that such was probably the case, and went on to say that it was safe to estimate that in Great Britain 1 per cent. of the population was in a condition to get rapid consumption should they become infected with typhoid fever, and in this country, 2 per cent., or even more. There were other facts which, taken together, showed a relation between typhoid and tuberculosis, though each by itself was of little value. For instance, the mortality curve of tuberculosis, which rose rapidly from childhood, reached its maximum before thirty and declined after thirty-four, while the maximum in the curve of typhoid was reached at fifteen and declined after twenty-five. The curve of tuberculosis seemed to follow that of typhoid after an interval of about nine years, and the average length of life after tuberculosis became active was said to be seven years. This might mean, therefore, that the typhoid, mostly contracted before twenty-five or thirty, had been partly responsible for raising the maximum mortality from tuberculosis nine years later. Again, it was significant of the relation of typhoid to tuberculosis that males predominate in the deaths from both causes. Furthermore, where typhoid fever was prevalent there should be more tuberculosis than in places free from typhoid, and variations in the typhoid deathrate should be followed by similar variations in the tuberculosis deaths there.

It was also evident that in a place where tuberculosis was quite common typhoid should have more effect in increasing the deathrate from tuberculosis than in places having little tuberculosis. These propositions seemed to be proved by a series of charts which he had found in the Office International d'Hygiéne Publique in Paris, in which it was noticeable that the two curves showed more or less parallelism throughout the civilized world. On the charts were also given the curves for other infections—smallpox, diphtheria, scarlet fever, and plague; but these came in epidemics, and presented irregularities having no apparent relation to the two endemic diseases typhoid and tuberculosis. Unfortunately, neither measles nor whooping cough had been considered of sufficient importance to record, and we had no means of determining how far they were responsible for irregularities in the curves. As these diseases appeared to be as common as they ever were, they had not influenced the tuberculosis curve, except, perhaps, to keep it up. It was exceedingly difficult to calculate how much reduction of tuberculosis there should be for a reduction of every 100 cases of typhoid, but as far as could be estimated from the information available it seemed fair to judge that for every five lives saved from typhoid death, there would be a reduction of two or three in the tuberculosis deaths. Now, the curves showed that for every reduction of five deaths by typhoid there were more than three lives saved from death by tuberculosis in the time covered by the charts. In England there had been a reduction of 22 or 23, and in Germany about 35, or more, though in France, where infections were still high, there was little reduction in tuberculosis, and in Italy only about 4. In the United States it was about 35. These differences could be accounted for by the coincident reduction by modern sanitation and therapy of the numerous factors causing active tuberculosis. Karl Pearson, the eminent statistician, warned against drawing conclusions from parallel curves, as it not infrequently happened that there were two independent causes at work, one for each set of facts, and wholly unrelated; but in view of the evidence that typhoid is frequently followed by tuberculosis, there could not be any reasonable doubt that the reduction of typhoid was responsible for a good share of the modern reduction of tuberculosis. Where the other infections were high, as in France, tuberculosis was still common, but where public health measures were effective the drop in tuberculosis was amazing. As a rule, the higher the typhoid rate, the nearer did the two classes of deaths approximate. As time progressed typhoid ceased to be a cause of tuberculosis activity. One of the most remarkable instances of the reduction of tuberculosis by reducing typhoid was in the British army. All other armies showed a similar reduction, but not nearly to such an extent, because none of them had been burdened so long with such a typhoid mortality as had afflicted the 70,000 troops in India until modern sanitation was applied. Antityphoid vaccines had had little or nothing to do with the first two-thirds of this improvement, and in 1910 only about 60 per cent. were protected; yet for 1911 the typhoid was reduced to 1.7 per 1,000. The tuberculosis admissions showed equally astonishing reductions. After 1903 tuberculosis declined at nearly the same rate as the typhoid, until a minimum was reached in 1907-8. Then came a 70 per cent. rise, coincident with the large number of inoculations, and later a slight decline, in 1910 and 1911, corresponding with such reduction of typhoid as would have been occasioned by continued improvement in sanitation. In the United States Army also the same dependence of tuberculosis upon typhoid was seen after 1890, when, as in civil life, bacterial diagnosis became more common; but after typhoid vaccines were widely used tuberculosis ceased to decline with the typhoid. The health authorities of both New York and Pennsylvania had reported that in recent years in their respective states both typhoid and tuberculosis had markedly declined, and at about the same rate. The Spanish-American War had added to the deaths in many cities in 1898-9, and the disasters of this war and those of the campaign against the Boers had stirred up the world to inaugurate an antityphoid crusade which showed immediate results.

Having shown tables for various cities of this country and Europe, taken in groups of five years, Colonel Woodruff said there was no exception to the rule that a decrease of typhoid is accompanied by a decrease of tuberculosis. Incidentally, he referred to the fact that Prendergast, of Brooklyn, had used typhoid vaccine in four cases of diabetes, because he had seen it stated that in diabetics sugar disappeared from the urine during typhoid fever. Two of his patients promptly became consumptive, and one of these died (probably from gangrene) nine days after a dose of 50,000,000 which was given eight days after tubercle bacilli were found in the sputum (MEDICAL RECORD, January 3, 1914.) In concluding, the speaker said that in practical therapy it would be wise to treat typhoid patients as though they were tuberculous; indeed, at all events, they did better if liberally fed and kept in cool or cold air.

Dr. ROBERT COLEMAN KEMP said Col. Woodruff certainly deserved great credit for the vast amount of research of which his paper gave evidence. The subject was a difficult one to discuss, however, as so little had been previously known regarding it. His contention that a very large proportion of the human race had at some time been infected with tuberculosis, as shown by autopsy, he believed to be correct. Curiously enough, it had been reported abroad that of all cases coming to autopsy, from 5 per cent. to 10 per cent. gave evidence of an old gastric ulcer, although no symptoms indicating this might have been noted during life. While tuberculosis was many times more frequent than gastric ulcer, it was well known that prolonged chronic ulcer might have tuberculosis as a sequel; lowered resistance being no doubt a factor in this result. It seemed entirely reasonable that tuberculosis should follow typhoid fever. We knew that post-typhoid colitis, often ulcerative, might continue for months, and it seemed to him that there was no reason why the tubercle bacillus might not enter by this route as well as by the lungs. The similarity between the curves of typhoid and tuberculosis which had been shown was interesting and somewhat significant, and he had been particularly struck by the fact that while the percentage of cases of typhoid rapidly diminished after antityphoid vaccination, there was rather an increase in those of tuberculosis. It was a recognized fact that serums and vaccines would at times activate some pre-existing pathological process. In certain asthmatic conditions, for example, the use of diphtheria antitoxin might set up even dangerous symptoms. Some years ago he had treated a young man affected with lymphatic enlargements, believed to be of pseudoleukemic nature. These ultimately disappeared, but within the past few weeks the patient had contracted diphtheria, and while the diphtheria rapidly cleared up as the re-

sult of the administration of 15,000 units of antitoxin, the injection was immediately followed by a recurrence of the glandular enlargements. The speaker said he believed that antityphoid vaccines were useful, but that those to be vaccinated should first be carefully examined. Typhoid and antityphoid vaccines, in his opinion, might in some instances activate a latent tuberculosis. Although antityphoid vaccination was an excellent thing, and ought, no doubt, to be more frequently employed, it seemed to him absurd that enthusiastic advocates of such vaccination should claim that deleterious effects were impossible. The more we studied the effects of serums and vaccines, the more would we be convinced of the error of such a view. Regarding high caloric feeding in typhoid and tuberculosis, Dr. Kemp said he thought this was now overdone. A typhoid patient should be given from 2,000 to 3,000 calories, or a little more if no tympanites resulted and the food were digested; but no person, whether tuberculous or suffering from typhoid fever, with diseased kidneys, with derangement of all the digestive organs, and with a temperature of 103° or more, could digest twice the amount of food which he would in health.

Dr. Francis A. Prendergast said he thought the author of the paper laid too much stress on typhoid as a cause of tuberculosis, to the neglect of other causes and factors, and that in many places his figures failed to support his theory. There was a very large class of patients who had partially recovered from tuberculosis and were in a condition for something or other to reduce their vitality and give their latent disease an opportunity to flare up. In the army and navy the men, while sons of Mars, were much given also to the worship of Bacchus and Venus, and alcoholism and venereal disease were very prone to thus reduce vitality and afford a latent tuberculosis its chance to light up. It was a fact, and one much emphasized by Osler, that miliary tuberculosis was often diagnosticated as typhoid fever, and many cases were put down as tuberculosis following typhoid, when, in reality, the tuberculosis was present from the start, and no typhoid had ever existed. In 1911 the speaker had brought to the attention of the profession a new skin reaction test for typhoid fever (Medical Record, December 31, 1911); and this test might help in a differential diagnosis, as it was not operative in any of the diseases giving a positive Widal reaction—severe anemias, cancer cachexia, and miliary tuberculosis. In the two cases of diabetes cited by Dr. Woodruff in which he (Dr. Prendergast) had employed typhoid vaccine in small doses in an attempt to control the output of sugar (Medical Record, January 3, 1914) he felt sure that the tuberculosis did not develop from the use of the vaccine. In almost any textbook would be found the statement that tuberculosis was very common in diabetics, and these, he believed, were only additional instances of lowered resistance lighting up a latent tuberculosis. Typhoid vaccine was contraindicated in all acute diseases, alcoholism, and most chronic diseases. He had never had any bad results from the employment of the vaccine in normal subjects. He could heartily endorse Dr. Woodruff's treatment of typhoid fever by means of fresh air and feeding. The diet he was accustomed to employ yielded about 2,900 calories. In the light of our present knowledge, the use of an exclusive milk diet in this disease he thought should be condemned.

Major F. F. Russell, Medical Corps, U. S. Army, said that it was always dangerous to draw conclusions from parallel curves, and such curves, unless accompanied by certain data, were very difficult to interpret correctly. As to antityphoid vaccine in the army, this was now the beginning of the sixth year in which it had been employed. During the past three years, in which the number of troops varied between 75,000 and 90,000, it had been compulsory, and if the contention were true that such vaccination activated tuberculosis, there should have been some increase in the amount of tuberculosis. As a matter of fact, however, for the past five years there had been a steady decrease in the disease, and not an increase. It did not follow, therefore, that antityphoid vaccination would light up tuberculosis, and he was convinced that in healthy young men there was no danger whatever of its activating the disease. The rule was strictly observed in the army to vaccinate only the healthy. The records published in the annual reports of the Surgeon General of the Army afforded a complete refutation of the theory set forth in the paper, so far as it concerned antityphoid vaccination.

## PRACTITIONER'S SOCIETY OF NEW YORK.

*Two Hundred and Sixtieth Regular Meeting, Held February 6, 1914.*

Dr. John W. Brannan in the Chair.

**A Method of Plicating Voluminous Ceca.**—Dr. Joseph A. Blake read this paper. (See page 599.)

Dr. C. L. Gibson said that he was very much impressed by Dr. Blake's ideas on the subject ever since their presentation at a surgical gathering some time ago. Unfortunately, however, he had not had any cases since that time in which the operation suggested by Dr. Blake was suitable. He thought that the procedure suggested was eminently logical and would not hesitate to use it at the first opportunity.

Dr. F. S. Meara said that in the medical mind grave doubts had been raised by the advocacy of total resection of the colon by some surgeons, especially by those who were followers of Mr. Lane. He said that *x*-ray studies showed that the products of digestion traverse the distance between the stomach and the distal end of the small intestine in about two and one-half hours; on the other hand they remained in the large intestine any time between twenty-four and forty-eight hours. It would seem to him that the elimination of the large intestine or of a greater portion of it would prove very serious so far as the absorption of food was concerned. On the other hand voluminus ceca were a real and troublesome condition, and the procedure suggested by Dr. Blake appeared to him as much more in accordance with physiology than the more radical operations. The operation suggested retained the absorbing surface of the intestine, yet did away with the mechanical difficulties and stasis occasioned by the dilated portion.

Dr. Blake said that Dr. Meara's words opened a very large question in physiology and surgery. The best method of dealing with a very large or dilated colon had not yet been discovered. He personally thought that the symptoms ascribed to such conditions were very real. They were occasioned by stasis, decomposition, with the formation of toxic substances and sometimes inflammation. His experience with the resection of large portions of the colon for carcinoma, had led him to believe that in the presence of dilatation the removal of a portion of the large intestine might be very beneficial. In carcinoma, of course, the operation was a matter of necessity, but he had little doubt of its efficacy for the condition under consideration. His paper to-night, however, was confined to a much smaller subject, namely, to the proper treatment of voluminous ceca alone; this condition presented itself quite frequently, and the results obtained by the method outlined seemed encouraging enough to justify its presentation. Dr. Blake was anxious to call attention to the frequency with which weakened abdominal muscles accompanied or perhaps were even responsible for the dilatation of the intestines. Such muscles did not produce sufficient intraabdominal pressure, thus causing stagnation in the portal circulation and atony of the intestinal muscularis. Anything tending to increase the laxity of the abdominal walls, such as frequent pregnancies or abdominal operations were common etiological factors. This fact in itself was a strong contraindication to operative treatment of such cases. The neurasthenic state accompanying these conditions was both cause and effect; the intestinal intoxication producing both physical and psychical effects and the psychical condition leading to an improper mode of life. As to the treatment, while abdominal supports helped they did not produce the same effects upon the intraabdominal vessels as was produced by actively contracting abdominal muscles. The best results should, therefore, be obtained by proper exercises; and in practice, this method had produced the most beneficial results. Only in the most exaggerated instances of enlarged and flaccid colons should operative treatment be advised.

**Lumière Plates of Pathological Conditions.**—Dr. C. L. Gibson showed these plates. He said that he had recently, with the help of Dr. Beekman, endeavored to preserve a record of the more interesting cases of his surgical material by taking Lumière photographs of some cases as well as of pathological preparations. These photographs, as is well known, rendered not only the form but the color of the material as well. He had had variable success and this evening showed a number of plates, some fair and some very good.

The subjects illustrated were as follows: A patient suffering from melanosarcoma; his skin showing a very curious bluish brown discoloration; a tubercular rash; specimens of enchondroma as well as the tumor as it appeared in the living subject; acute hemorrhagic pancreatitis; subcoracoid dislocation of the humerus; several cases and specimens of carcinoma of the breast; fibroma of the leg; Charcot joint; a case of inguinal hernia; a case of psoas abscess; tuberculosis of the foot; a case of yaws; calculous pyonephrosis; contracture of the arm following a burn; hypertrophy of the breast in a male child; Buerger's disease or thrombophlebitis obliterans; ruptured spleen removed by operation in the course of typhoid fever, from a case, the details of which were communicated to the society by Drs. Conner and Downes at a previous meeting; subdeltoid bursitis; supernumerary nipple in the male; a large spleen from a case of splenomegaly; a fibroid uterus; specimens of fatty degeneration and of tuberculosis of the kidney; fibroma of the breast; epulis; specimens of double cystic ovary and double pyosalpinx; a gall-bladder filled with gallstones; prolapse of the uterus; and a specimen of hypertrophied prostate.

Dr. Blake said that the pictures gave a very good general idea of the lesions, but lacked detail. He was much interested in the case of thrombophlebitis shown. This affection was seen quite frequently in the material of the Vanderbilt Clinic. He said that treatment by baking as suggested by Dr. Gibson had to be employed with caution as there was no circulation to take away and distribute the heat applied and damage could be easily done. Most of the cases he had seen were in Hebrews who were smokers of cigarettes. He had seen one American of Anglo-Saxon parentage who had the disease. In answer to a question of Dr. Brannan's Dr. Blake said that he could see no rationale in the operation of anastomozing the vein and artery in these cases.

Dr. Gibson said that he agreed with Dr. Blake in his estimate of the operation discussed. The danger of baking did not occur to him, but, as a matter of fact, the patient under discussion was not harmed by the treatment.

Dr. Meara said that he was interested in the statement that the disease was confined to Hebrews alone. He had seen a case of thrombophlebitis in which amputation was necessary, in a person of a different race. Whether the lesion was of the same nature he was not prepared to state.

Dr. Beekman said that the pictures shown were in the nature of first attempts with Lumière plates and he hoped to be able to produce better results in the future. The difficulty lay in the time necessary for exposure; while this was counted in seconds in ordinary photography, it took minutes with Lumière plates and of course it was very difficult to insure perfect quiet in the subjects and thus obviate distortion. That was the reason why they had better success with pathological specimens than with the living subject. This difficulty, however, could be obviated by the use of flashlight, the quantity of powder used being quite accurately determined for each case. He thought that as soon as he was enabled to use flashlight in the wards of the hospital or have special facilities the pictures would gain clearness and definition.

### Pathological Society of Philadelphia.

At a stated meeting held March 12 at the Henry Phipps Institute of the University of Pennsylvania Dr. Robert N. Willson, Jr., presented specimens from "A Case of Ulcerative Endocarditis." The patient was an alcoholic who developed pneumonia in conjunction with preexisting symptoms of valvular disease of the heart and atherosclerosis. At autopsy the mitral valve ring was found the seat of marked calcareous deposit, and in one situation there was an extensive and deep-seated ulcerative process. The aortic leaflets were uninvolved. One of the kidneys was enlarged and inflamed, while the other was of the infantile type. The liver was cirrhotic. Dr. Willson presented also a heart exhibiting "Vegetative Endocarditis Involving the Aortic Leaflets."

Dr. G. L. Kite presented a communication entitled "Effect of the Ligation of the Pulmonary Vein of the Rabbit." In addition to hyperemia of the affected portion of lung there occurred an exudate into the alveoli marked by the presence of large numbers of mononuclear leucocytes.

Drs. Karl F. Meyer and Paul A. Lewis presented a communication entitled "Some Observations on the Latency of *Bacillus tuberculosis*." In connection with the treatment of tuberculosis in cattle with attenuated cultures of tubercle bacilli from another source it was found experimentally that such bacilli might reside within the bodies, in the lymph-nodes, of the host for many months and even more than a year without giving rise to active manifestations.

Drs. C. M. Montgomery and Paul A. Lewis presented a paper entitled "Some Observations of Artificial Pneumothorax." They pointed out the purposes to be gained from the procedure mentioned and the dangers attending its establishment, together with the anatomical conditions present in several cases in which a fatal result ensued.

Dr. Paul A. Lewis presented a communication entitled "Some Modifications of the Tubercle Bacillus." He pointed out that this microorganism is capable of undergoing marked changes in virulence, so that one must be extremely careful in the employment of living cultures of any form of tubercle bacilli in the treatment of tuberculosis.

Dr. Paul A. Lewis also presented a communication entitled "The Basis for Chemotherapeutic Experimentation in Tuberculosis." He reported observations showing favorable effects from the use of trypan-red in combination with iodine in the treatment of tuberculosis of the rabbit's cornea.

Dr. G. L. Kite discussed "Methods of Microdissection." He showed how, with the aid of the compound microscope and the employment of a special stage, a special condensing mechanism, and a specially devised glass needle, it was possible to study with the utmost detail the fine structure of cells. It was found among other things that the living cell was not constituted of a reticulum containing fluid within its interstices, but that it was made up of gelatinous substance that could be displaced and divided for purposes of dissection and minute study.

## State Medical Licensing Boards.

### STATE BOARD EXAMINATION QUESTIONS.

#### Kentucky State Board of Medical Examiners.

*December* 11-13, 1913.

ANATOMY.

1. Give changes of, and bones involved, in flat-foot.
2. Give anatomical reasons for Pott's fracture.
3. Give the origin and distribution of the ovarian arteries.
4. (*a*) Describe the femoral artery; (*b*) name its branches and their distribution.
5. Describe Hunter's canal.
6. Name and classify the spinal nerves.
7. Describe the lumbar plexus.
8. Locate and give detailed description of the gall-bladder.
9. Name and describe the ligaments of the bladder.
10. Give structure and blood supply of the uterus.

PHYSIOLOGY.

1. Give function of portal circulation.
2. Describe the interchange of gases in the lungs.
3. Describe and give functions of gastric juice.
4. Describe the process of skin desquamation.
5. Discuss (*a*) an afferent nerve, (*b*) an efferent nerve.
6. Discuss the fluids of reproduction from a physiological standpoint.
7. What is the function of the medulla oblongata?
8. Give (*a*) relative number and (*b*) function of red and white blood corpuscles.
9. Why is the lymphatic system so essential to the human body?
10. Discuss an uriniferous tubule from a physiological standpoint.

CHEMISTRY.

1. What is the function of oxygen in the body?
2. (*a*) Give formula of common baking soda and common salt. (*b*) What effect, if any, has each upon digestion?
3. Define and give example of (*a*) an acid, (*b*) base, and (*c*) salt.
4. What is meant by specific gravity, and of what

value is it in uranalysis? Give normal specific gravity of urine.

5. Define (*a*) ozone, (*b*) chemical affinity, (*c*) reagent, (*d*) volatile, and (*e*) ferment.

6. Give in full a reliable test for (*a*) albumin in urine; (*b*) pus.

7. Give symptoms of arsenic, strychnine, and morphine poisoning. Give antidote for each.

8. What are the most common constituents of urinary calculus?

9. What significance has the presence of sugar in urine? Indican?

10. (*a*) Approximately how many elements are there? (*b*) Name five of the most common found in the human body.

ETIOLOGY AND PHYSICAL DIAGNOSIS.

1. Give etiology and physical signs of three forms of organic heart disease.

2. Differentiate lobar and bronchial pneumonia.

3. How would you differentiate (*a*) renal calculus, (*b*) appendicitis, and (*c*) gallstones.

4. Give etiology and differential diagnosis of (*a*) carcinoma, (*b*) sarcoma, and (*c*) lupus.

5. Give differential diagnosis of (*a*) acute alcoholism, (*b*) cerebral hemorrhage, and (*c*) opium poisoning.

6. Give (*a*) etiology and (*b*) diagnosis of hip-joint disease.

7. Give etiology and differential diagnosis of typhoid fever and acute gastritis.

8. Differentiate extrauterine pregnancy from chronic salpingitis.

9. Give etiology and differential diagnosis of chronic parenchymatous and interstitial nephritis.

10. Give etiology and differential diagnosis of gastric ulcer, gastric carcinoma, and gastralgia.

## ANSWERS.

ANATOMY.

1. *Flat-foot:* Ordinarily the sole of the foot does not rest on the ground; the points of contact are the os calcis, the head of the first metatarsal bone, and the head of the fifth metatarsal bone. But in *flat-foot* the arch breaks down, the entire plantar surface rests on the ground, the ligaments are overstretched, the concavity on the inner side of the foot disappears, and the foot appears longer and broader; the patient walks on the inner side of the foot, and the foot is everted and abducted.

2. *Potts' fracture* is caused by a twisting or forcible eversion of the foot; the internal lateral ligament is severely stretched and is either ruptured or else it tears off the internal malleolus; the external malleolus is forced outward, and the fibula breaks at its weakest point, namely, just above the malleolus.

3. The *ovarian arteries* arise from the abdominal aorta, and are distributed to the ovaries; branches also go to the ureters, Fallopian tubes, broad ligament, and to the uterus (through anastomosis with the uterine artery).

4. The *femoral artery* is the direct continuation of the external iliac; it begins behind Poupart's ligament, passes down the front and inner part of the thigh through Scarpa's triangle, and teminates at the opening in the adductor magnus, where it becomes the popliteal artery. Its *branches* are: Superficial epigastric, superficial circumflex iliac, superficial external pudic, deep external pudic, profunda femoris, muscular, and anastomotica magna. By means of these various branches it *is distributed to:* Superficial inguinal glands, skin, and superficial fascia of the inguinal region, penis and scrotum (or labia majora), perineum, flexor muscles on the back of the thigh, the adductor muscles of the femur.

5. *Hunter's canal* is situated in the middle third of the thigh, extending from the apex of Scarpa's triangle to the opening in the adductor magnus muscle. It is covered over by an aponeurosis which extends from the vastus internus to the adductor longus and magnus, and contains the femoral artery, femoral vein, and internal saphenous nerve. Externally, the canal is bounded by the vastus internus; and internally by the adductor longus and magnus.

6. There are thirty-one pairs of spinal nerves, which are classified as follows: Cervical, 8 pairs; thoracic, 12 pairs; lumbar, 5 pairs; sacral, 5 pairs, and coccygeal, 1 pair.

7. The *lumbar plexus* is situated in the psoas muscle, and consists of branches of communication between the anterior division of the four upper lumbar nerves. The arrangement of the plexus is quite variable. The branches are: Iliohypogastric, ilioinguinal, anterior-crural, genitocrural, cutaneous, obturator, and accessory obturator.

8. THE GALL-BLADDER AND BILE-DUCTS.—The *gall-bladder* is a conical bag placed in a fossa on the under surface of the right lobe of the liver. Its upper surface is attached to the liver, and its fundus and posterior surfaces are invested by peritoneum reflected from the adjacent surface of the liver. The body is in relation in front with the liver, and behind with the first part of the duodenum, the pylorus, and the hepatic flexure of colon. The fundus is in contact with the parietes opposite the ninth right costal cartilage. It is about four inches long, and holds about one ounce. Its duct passes from the neck of the gall-bladder downward, backward, and to the left to join the hepatic duct.

9. *Ligaments of the bladder.*—There are five true ligaments, and five false ligaments. The *true ligaments* are: Two anterior ligaments, which extend from the back of the pubic bone to the front of the neck of the bladder; two lateral ligaments, derived from the pelvic fascia; and the branches, extending from the summit of the bladder to the umbilicus. The *false ligaments* are: Two posterior ligaments extending from the posterior and lateral portion of the bladder to the rectum or uterus; two lateral ligaments, and the suspensory ligament. The false ligaments are all formed by folds of the peritoneum.

10. The *uterus* is composed of an external or serous coat, a middle or muscular coat, and an internal or mucous coat. The serous coat is derived from the peritoneum and covers the fundus and posterior surface; the anterior surface is covered as far as the junction of the cervix with the body. The muscular coat forms the bulk of the uterus, and is arranged in three layers, an outer, middle, and inner. The mucous membrane is adherent to the muscular coat, it lines the uterus throughout, and is continuous with the lining of the vagina and also with the Fallopian tubes and peritoneum. The *arteries* supplying the uterus are the uterine and ovarian.

PHYSIOLOGY.

1. The function of the portal circulation is to carry the venous blood from the stomach, intestines, pancreas and spleen to the liver. The blood thus carried is loaded with the products of absorption. In the liver this blood enters into close relation with the hepatic cells, and is finally carried to the inferior vena cava.

2. RESPIRATORY CHANGES IN THE LUNGS. *"Oxygen:* During a normal inspiration atmospheric air is drawn into the larger bronchi; here the tension of the oxygen is greater than the tension of that oxygen which is in the infundibula, where the oxygen tension in man has been calculated to be 13 per cent. of an atmosphere of oxygen. The gases in the infundibula, and consequently in the alveoli, are separated from the blood plasma in the lung capillaries by the flattened cubical epithelium of the alveoli and the endothelium lining the capillaries; it is believed that oxygen diffuses from the alveoli through the two kinds of epithelium into the plasma of the venous blood which has just arrived in the lung, and which is collected in the distended capillaries. Now, oxygen accumulates in the blood, which is consequently becoming rapidly arterial, until its tension rises to 38.5. It is obvious, therefore, that there must be another factor at work besides diffusion to account for this difference of oxygen tension. The epithelium which lines the alveoli is cuboidal in shape, and was originally derived from the epithelium lining the alimentary canal, and in function it is probably secretory. The inference to be drawn, therefore, is that some oxygen diffuses from the alveoli into the plasma of the lung capillaries so long as the oxygen in the alveoli is at a higher tension than that in the plasma; when, however, a state of equilibrium is reached, the cubical cells, possibly controlled by the vagi, begin to secrete oxygen from the alveoli into the blood plasma.

*"Carbon-dioxide* leaves the venous blood in the pulmonary capillaries and gets into the alveolar air, where its tension is usually 5 per cent. in males and 4.7 per cent. in women and children. The tension of carbon-dioxide in venous blood is higher than 5 per cent.; so that it is by diffusion that the $CO_2$ leaves the venous blood and enters the air in the alveoli, and it is by a

continuation of the process of diffusion that the $CO_2$ leaves the air in the alveoli and enters the bronchioles." (Lyle's *Physiology.*)

3. *Gastric juice* is a thin fluid, almost colorless, of acid reaction and taste, specific gravity varying from 1001 to 1006, and containing about 0.5 to 1.0 per cent. of solids. It contains pepsin, rennin, hydrochloric acid, mucin, salts, and water. Its main function is to dissolve proteids and change them into proteoses and peptones; it coagulates milk; it splits up fats; and it has some germicidal action.

4. *Skin desquamation:* "The deeper layer of the epidermis consists of cells which are polygonal in shape and moist in character, and is called the mucous layer or rete mucosum. The superficial cells are dry and flattened, and constitute the horny layer of the epidermis. There is a constant production of new cells in the epidermis taking the place of other cells, which are pushed toward the surface and finally shed by the skin. This process of shedding the superficial dry scales is constantly taking place, and is aided by the rubbing of the clothing against the skin and by the friction employed in bathing. The desquamation takes place in the form of minute scales. Only upon the scalp do they tend to become visible to the eye and appear as flakes, forming a condition commonly known as dandruff."—(*Personal Hygiene.*)

5. *Afferent nerves* carry impulses to the nerve centers. They are classified as: Sensory (general sensation), special sense nerves, thermic nerves, inhibitory, and excitoreflex nerves.

*Efferent nerves* carry impulses away from the nerve centers. They are classified as: Motor, vasomotor, trophic, secretory, accelerator, and inhibitory.

6. "The seminal fluid consists of secretions from the testes, vasa deferentia, vesiculæ seminales, prostate, Cowper's glands, and the muciparous glands of the urethra. It is whitish in color, viscid in consistency, alkaline in reaction, and possesses a characteristic odor. The amount ejaculated varies from 0.5 c.c. to 6 c.c. It contains from 82 to 90 per cent. of water, nuclein, protamine, proteids, xanthin, lecithin, cholesterin, fat, sodium and potassium chlorides, sulphates, and phosphates. From it may be obtained Charcot's crystals, which are a phosphate of the nitrogenous base, spermin, and which have their origin in the portion of the semen which is contributed by the prostate; to the decomposition of the substance which produces these crystals the odor of the semen is attributable. While the spermatozoa are the essential fertilizing agents the presence of the fluid portion of the semen is important as giving to them their mobility, without which they could not travel in the generative passages." (Raymond's *Physiology.*)

7. The *functions of the medulla oblongata* are: (1) It is a conductor of nervous impulses or impressions from the cord to the cerebrum, from the brain to the spinal cord, also of coordinating impulses from the cerebellum to the cord; (2) it contains collections of gray matter which serve as special nerve centers for the following functions or actions; respiration, salivary secretion, mastication, sucking, deglutition, vomiting, voice, facial expression; it also contains the cardiac and vasomotor centers.

8. There are generally about 5,000,000 red corpuscles and about 7,000 to 10,000 white corpuscles to each cubic millimeter of blood. The ratio is therefore about one white to 500 or 600 red.

*Functions:* The *red blood cells* carry oxygen from the lungs to the tissues. The *white blood cells:* (1) Serve as a protection to the body from the incursions of pathogenic microorganisms; (2) take some part in the process of the coagulation of the blood; (3) aid in the absorption of fats and peptones from the intestine, and (4) help to maintain the proper proteid content of the blood plasma. The function of the *platelets* is not determined; it is possible that they take some part in the coagulation of the blood. The *plasma* conveys nutriment to the tissues; it holds in solution the carbon dioxide and water which it receives from the tissues, and takes them to be eliminated by the lungs, kidneys, and skin; it also holds in solution urea and other nitrogenous substances that are taken to and excreted by the liver or kidneys.

9. *Function of lymph:* (1) It conveys nutriment to all cells not directly reached by the blood; (2) in the intestines, it absorbs nutrient material (chiefly fat) and pours it into the blood stream for distribution; (3) it takes certain waste matters to the blood to be later eliminated by the lungs, kidneys, and skin.

Without the lymphatic system the above functions would be in abeyance.

10. "The Malpighian bodies and that portion of the urinary tubules known as the convoluted tubes are both engaged in the separation of the urine from the blood. The Malpighian bodies are probably engaged in secreting the greater part of the water of the urine, the process depending to some extent upon the pressure in the capillary tuft. The convoluted tubes are lined by glandular epithelium and are surrounded by a plexus of capillaries. The epithelium lining then appears to exercise a certain selective influence in secreting the urea, uric acid and pigment. These substances, having been separated from the blood and having entered the tubules, are washed down by the water coming from the glomeruli. While the secretion of the watery part of the urine takes place at the glomerulus the urea, uric acid, and other constituents are separated from the blood by the agency of the epithelium lining the convoluted tubes. Blood contains .02 per cent. of urea normally, while urine contains 2 per cent.; it is evident, then, that the epithelium of the kidneys is actively employed in selecting the urea in the blood and passing it into the urine."—(Ashby's *Treatise on Physiology.*)

CHEMISTRY.

1. The function of oxygen in the body is to support respiration and combustion.

2. *Baking soda* is monosodic carbonate, $NaHCO_3$. It is said to check the secretion of the gastric and pancreatic juices.

*Common salt* is sodium chloride, NaCl. It probably increases the flow of gastric juice, and generally it aids digestion.

3. An *acid* is a compound containing hydrogen and an electronegative element or radical, part or all of which hydrogen can be exchanged for a metal (or its equivalent) without the formation of a base. *Example,* sulphuric acid, $H_2SO_4$. A *base* is a ternary compound capable of entering into double decomposition with an acid to produce a salt and water. *Example,* sodium hydroxide, NaOH. A *salt* is a substance formed by the substitution of a metal (or its equivalent) for part or all of the replaceable hydrogen of an acid. *Example,* monosodic sulphate, $NaHSO_4$; and disodic sulphate, $Na_2SO_4$.

4. *Specific gravity* is the weight of a given volume of a substance as compared with the weight of an equal volume of some substance taken as a standard, under like conditions of temperature and pressure.

In *urinalysis* it gives a rough indication of the quantity of total solids. The normal specific gravity is about 1015 to 1025.

5. *Ozone* is an allotropic modification of oxygen; the oxygen is condensed and the ozone molecule contains three atoms of oxygen.

*Chemical affinity* is the force that binds atoms together to form molecules.

*Reagent* is something used to bring about a chemical reaction.

*Volatile* denotes a substance which evaporates at ordinary temperature.

*Ferment* is a substance which by its mere presence is capable of causing decomposition of organic substances under certain conditions.

6. *Test for albumin in the urine.* "The urine must be perfectly clear. If not so, it is to be filtered, and if this does not render it transparent, it is to be treated with a few drops of magnesia mixture and again filtered."

1. *The heat test:* "The reaction is first observed. If it be acid, the urine is simply heated to near the boiling point. If the urine be neutral or alkaline, it is rendered *faintly* acid by the addition of dilute acetic acid, and heated. If albumin be present, a coagulum is formed, varying in quantity from a faint cloudiness to entire solidification, according to the quantity of albumin present. The coagulum is not redissolved upon the addition of $HNO_3$." (Witthaus' *Essentials of Chemistry.*)

*Test for pus.* The addition of caustic potash causes the production of a ropy gelatinous mass.

7. *Symptoms of acute arsenical poisoning.* "They usually begin in from twenty to forty-five minutes. Nausea and faintness. Violent, burning pain in the stomach, which becomes more and more intense, and increases on pressure. Persisting and distressing vomiting of matters, sometimes brown or gray, or streaked with blood, or green (Paris green). Purging. More or less severe cramps in the lower extremities." (Witt-

*haus' Essentials of Chemistry.*) The antidote in acute arsenical poisoning is a freshly prepared solution of ferric hydroxide.

The *symptoms of poisoning by strychnine* are "a sense of suffocation, thirst, tetanic spasms, usually opisthotonos, sometimes emprosthotonos, occasionally vomiting, contraction of the pupils during the spasms, and death, either by asphyxia during a paroxysm, or by exhaustion during a remission. The symptoms appear in from a few minutes to an hour after taking the poison, usually in less than twenty minutes; and death in from five minutes to six hours, usually within two hours."

*Treatment:* "The convulsions are to be arrested or mitigated by bringing the patient under the influence of chloral or chloroform as rapidly as possible; the stomach is to be washed out, and the patient is to be kept as quiet as possible." (Witthaus' *Essentials of Chemistry.*)

The *symptoms of poisoning by morphine* are as follows: "At first there is usually a period of excitation, marked by restlessness, great physical activity, loquacity, and hallucinations. The patient then becomes weary, dull, and drowsy; he yields to the desire for sleep, from which at first he may be roused. The lips are livid, the face pale, the pupils contracted, and the surface bathed in perspiration. The condition of somnolence rapidly passes into narcosis. The patient cannot be roused, and lies motionless and senseless, with completely relaxed muscles. The pulse, at first full and strong, becomes feeble, slow, irregular, and easily compressible; the respiration slow, shallow, stertorous, and accompanied by mucous râles. The patient rapidly becomes comatose, and, in fatal cases, dies in from forty-five minutes to fifty-six hours, usually in from twelve to eighteen hours. In cases of recovery after the stage of narcosis the pulse and respiration gradually return to the normal, and the condition of coma passes into one of deep sleep, lasting twenty-four to thirty-six hours."

*Treatment:* "Wash out the stomach with a dilute solution of potassium permanganate, leaving about 500 c.c. in the stomach; and maintain the respiration. In the first or second stage the 'ambulatory treatment' should be adopted to prevent, if possible, the establishment of the third stage. If this stage develop the main reliance is to be placed in maintaining the respiration by artificial methods, until the poison has been eliminated. Strong coffee, or caffeine by the mouth or rectum, are of benefit. The same cannot be said of atropine. The urine should be drawn by the catheter."—(Witthaus' *Essentials of Chemistry.*)

8. *The most common constituents of urinary calculus* are: Uric acid, sodium urate, ammonium urate, calcium oxalate, calcium phosphate, and triple phosphate.

9. *Sugar in the urine may indicate:* Diabetes mellitus, lesion of the floor of the fourth ventricle, certain disorders of the liver, certain diseases of the brain or nervous system, or the presence of some poison in the body.

*Indican in excess* denotes: Putrefactive changes in the intestine or elsewhere, diminished peristalsis, deficiency of acidity of gastric juice, a gastric ulcer.

10. There are about eighty chemical elements.

*Five of the elements most commonly found in the human body* are: Carbon, hydrogen, oxygen, nitrogen, and chlorine.

ETIOLOGY AND PHYSICAL DIAGNOSIS.

1. Most cases of chronic endocarditis are the result of an acute endocarditis following chorea, rheumatism, or some infectious disease. It may also be caused by chronic nephritis, alcohol, syphilis, gout, excessive muscular exertion, or atheromatous or fibroid changes. *Mitral regurgitation* shows apex beat displaced downward and to the left, increased area of cardiac dullness, and a systolic murmur heard loudest at the apex, and transmitted toward the left axilla and the angle of the left scapula; the second cardiac sound is accentuated.

*Mitral stenosis* shows a presystolic thrill near the apex, area of cardiac dullness increased on the right side, and a presystolic murmur over the mitral area not transmitted; the second sound is accentuated.

*Aortic regurgitation* shows cardiac impulse forcible and displaced to left and downward, diastolic thrill may be felt over the heart, Corrigan's pulse can be recognized, the area of cardiac dullness is increased, a diastolic murmur may be heard over the aortic area and is transmitted downward; a presystolic (Flint's) murmur may also be heard at the apex.

2.

| LOBAR PNEUMONIA. | BRONCHIAL PNEUMONIA. |
|---|---|
| Generally a primary disease. | Generally, secondary (to bronchitis or an infectious disease). |
| Age has little influence. | Generally found in very young or very old. |
| Sudden onset. | Gradual onset. |
| Fever is high and regular. | Fever is not so high, and is irregular. |
| Ends by crisis between sixth and tenth day. | Ends by lysis, at no particular date. |
| Generally only one lung affected. | Generally both lungs affected. |
| The physical signs are distinct, and there is a large area of consolidation. | Physical signs indistinct, and the evidences of consolidation are indefinite. |
| Sputum is rusty. | Sputum is rather streaked with blood. |

3. *Appendicitis:* Acute pain in right iliac fossa, fever, localized tenderness, sometimes a tumor can be felt, rigidity of right rectus, nausea, and vomiting.

*Renal calculus:* Sudden agonizing pain, following course of the ureter and referred to testicle and penis, chill, cold sweat, collapse, rapid and feeble pulse, no fever, sometimes strangury.

*Gall-stones:* Sudden acute pain in right hypochondrium. Sometimes referred to right shoulder, chill, fever, rapid pulse, profuse perspiration, tenderness over liver, sometimes jaundice.

4. *Etiology of sarcoma and carcinoma* is unknown. Several theories have been brought forward, such as: Injuries, heredity, bacteria, protozoa, and "Cohnheim's theory of embryonic remains."

*Lupus* is a tuberculous affection of the skin.

*Lupus* is characterized by tuberculous nodules, slow superficial ulceration, and congested scar tissue.

*Carcinoma and sarcoma* are not thus characterized; and a microscopical examination is necessary to distinguish between the two latter. *Carcinoma* is derived from epiblastic or hypoblastic structures, possesses a fibrous stroma in which are blood vessels and lymphatics. *Sarcoma* is derived from mesoblastic structures, has no stroma and no lymphatics, and the blood vessels are in contact with the cells.

5.—

| CEREBRAL HEMORRHAGE. | ALCOHOLIC COMA. | OPIUM POISONING. |
|---|---|---|
| Deep coma; sudden onset. | Can be aroused by supraorbital pressure unless very profound. | Can be aroused unless very deep. |
| Pupils unequal or dilated. Contracted in hemorrhage into the pons. | Pupils normal or somewhat dilated. | Pupils contracted to pinpoint size. |
| Pulse full and slow, often arterioscle r o t i c h i g h - tension pulse. | Pulse more rapid than n o r m a l and full. | Pulse rapid, may be irregular. |
| Respiration slow and irregular. | Regular respiration. | Respiration very slow—may be 6 to 8 per minute. |
| Temp e r a t u r e higher on paralyzed side, but lower in rectum. | May be low or normal. | |
| Urine contains trace of albumin. | Normal. | Normal. |
| Hemiplegia with convulsions on one side. | | |

—(Eisendrath's *Surgical Diagnosis.*)

6. HIP-JOINT DISEASE. *Causes:* Tuberculosis. *Symptoms of first stage:* Night cries; lameness in the morning; a slight limp; tendency to become tired on slight exertion; wasting; spasm; pain, swelling and deformity (either real or apparent).

*Symptoms of second stage:* Abduction, limping, pain, which is worse at night, apparent lengthening of the

limb, abscess, atrophy of thigh muscles, flexion of thigh, effusion into hip joint, and there may be crepitation in the joint.

*Symptoms of third stage:* Flexion, adduction, and shortening of the limb; the joint may be dislocated or ankylosed, or suppuration may occur.

7. *Typhoid fever* is caused by the bacillus typhosus.

*Acute gastritis* may be caused by irritation, improper food, poison, alcohol, too much food, infections.

*Typhoid fever* is of gradual onset, has splenic enlargement, characteristic rose spots, characteristic temperature chart, may give a positive Widal reaction and diazoreaction.

In *acute gastritis* all the above are absent; after taking food there is headache; dull pain in epigastric region, eructations, nausea, vomiting, furred tongue, and scanty high colored urine may be present.

8. In *extrauterine pregnancy*, there will be signs of early pregnancy, hypogastric or inguinal pains, probable history of a previous sterility, probable expulsion of decidual membrane or shreds, softening of the cervix, enlargement of the uterus, presence of a distended tube, contractions of the wall of the gestation sac; if rupture occurs, there will be sudden, excruciating pains over the lower abdomen and on the affected side, shock, collapse, and symptoms of internal hemorrhage. In *salpingitis*, the tubes are inflamed usually secondary to inflammation of uterus or to infection (either gonorrheal or puerperal), headache, pain in lower abdomen, history of menstrual irregularity, leucorrhea, tube is enlarged and tender.

9. *Chronic parenchymatous nephritis* generally follows an attack of acute nephritis, or else is due to prolonged exposure to cold and damp, phthisis, or malaria. The quantity of urine is rather less than usual, it is turbid, contains blood. albumin, and casts; urea is diminished; dropsy is present.

*Chronic interstitial nephritis* is generally due to alcohol, gout, lead poisoning. The urine is increased in quantity, is not turbid, may have a small amount of albumin, but this is inconstant; a few casts may be present; urea is diminished; usually no dropsy until cardiac failure occurs.

10. *Gastric ulcer* is due to hyperacidity of the gastric juice and lowered vitality or defective nutrition of the gastric mucous membrane; this latter may be due to injury or bacteria. It is most apt to occur between the ages of twenty and forty-five; after eating there is pain localized in the stomach, vomiting occurs soon after eating, hematemesis is common, there is localized tenderness over the stomach, and examination of the gastric contents shows an excess of free HCl.

*Gastric cancer* may be due to injury, or bacteria, but its etiology is not settled. It does not usually occur before forty years of age, is more common in males, the pain is localized and constant, vomiting is copious and occurs sometimes after eating; the vomitus contains "coffee ground" material; hemorrhages are common; a tumor may be palpated, and examination of the gastric contents shows absence of free HCl and presence of lactic acid; there is progressive emaciation; severe anemia and cachexia are also present.

*Gastralgia* is a neurosis, and may be associated with some nervous disease, or hyperacidity or hypersecretion of gastric juice. The pain is severe, is independent of eating, sometimes vomiting occurs, and frequently eating gives relief; restlessness and the nervous manifestations may be present.

(To be continued)

## Miscellany.

**London as a Health Resort.**—S. D. Clippingdale states that London life is to some people their *pabulum vitæ*—the material upon which they live. This has been markedly shown in the cases of certain men of great mental activity. "The air seems dead in this quiet country," says Meredith. "I must rush up to London to live." "Sir," said Dr. Johnson, when asked to accompany a friend for a walk in the fields, "when you have seen one green field, you have seen all green fields; I prefer looking on men and things—come, let's take a walk down Fleet Street." Johnson was born in Lichfield, and he was fond of visiting his native place; but he always said he felt more at home in London. To him the motley throng of the great metropolis was more congenial than the restricted circle of the small cathedral town. It may, perhaps, be fairly assumed that the output of his great brain would have been restricted had he lived anywhere but in London. Another lover of London and of Fleet Street was Charles Lamb, who writes: "I am naturally inclined to hypochondria, but in London it vanishes, as do other ills. The man must have a rare receipt for melancholy who can feel dull in Fleet Street." Fleet Street does not appear to be at the present day a very attractive street, but among literary men it has been known as the "blue matter of the world's cerebrum." No wonder, then, that men like Johnson and Lamb like it. The fondness for London is not the special attribute of great men, and Londonophilia has shown itself in an extraordinary way in silly people. A wit of the Georgian period had the roadway in front of his country house paved with cobble-stones, in order that he might hear the rattling of carts over them and so be reminded of London. Ford Maddox Hueffer has recorded the case of a Londoner dying at a distance who expressed his regret that he was not passing away in the Underground Railway; and Pett Ridge has told of the servant girl who, leaving London with her family, leaped from the carriage to kiss the last stone of the city.

But if London has its many ardent lovers, it also has its haters, and among the Londonophobists are those whose opinion is worthy of every respect. The depth of their antipathy to the place may, perhaps, be measured by the number of the epithets they use. Heine contents himself with two, calling London the city of "fog" and "porter"; Grant Allen uses five: "seething," "grimy," "opulent," "squalid" and "hungry"; and Ruskin employs six epithets: "foul," "rattling," "growling," "smoking," "ghastly."

But whatever may be its esthetic attributes, there can be little doubt as to its suitability for persons suffering from certain nervous dyscrasiæ; cases, not of true pathology, but of simple digression from normal physiology; cases of hypochondria, melancholia, insomnia, and neuralgia of nonorganic origin, the drug and alcoholic habits, and morbid introspection; cases, in fact, requiring the very opposite of a "rest cure." Sir David Ferrier has recently pleaded for what he styles "rational psychotherapy" in such cases; and by "rational psychotherapy" the author understood such means as are provided by the diversions of this great city. Its historic, artistic, and literary associations; its many picture galleries and museums; its numerous places of amusement; the business activity of the city; the Attic regions of Belgravia; and the Alsatian retreats of the East End all combine to produce a state of exhilaration not met with elsewhere. —*Proceedings of the Royal Society of Medicine.*

**Medical Bookkeeping.**—Sir John Collie states that the physician's accounts for the half-year or the year should be summarized in the shape of a profit and loss account and a balance sheet. In this concise form important points are grasped with a clearness impossible in any other way. Many men are apt to think of bookkeeping as an unimportant matter, but upon it may depend one's financial stability, peace of mind, capacity for continuing work, future independence, and provision for dependants in the event of death.—*British Medical Journal.*

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## Original Articles.

### THE PHENOMENON OF PATHOLOGICAL ANTAGONISM; ITS RELATION TO DIABETES MELLITUS.

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NEW YORK.

The idea intended to be conveyed by the term "pathological antagonism" is the tendency of a morbid process to come to a standstill or to disappear on the supervention of another. This theory, it should be noted, does not comprehend the intrinsic tendency of individual pathological processes to become self-limiting in duration and extent, or to exhibit a tendency to spontaneous recovery, both as to structure and function. This latter phenomenon is one of the elementary episodes in human pathology, but is irrelevant to the matter under consideration. In the same way the converse of our proposition, namely the tendency of one disease to activate another of a different type, is also irrelevant.

The conception of a spontaneous antagonism between concurrent morbid processes to such a degree, that one may arrest or eradicate the other, although one of the present-day mysteries of disease, may be accepted as reasonably certain and not of rare occurrence. Whilst clinically this phenomenon, namely the spontaneous involution of a pathological process, is no stranger to most of us, a consideration of its origin would open up an interesting field of speculation. Admitting its existence, should we ascribe the phenomenon to some physical law, or to biological influences, or to chemical processes, or must we accentuate our ignorance in the assumption that the phenomenon depends upon an unrecognized pathological factor? But, whatever the explanation, we cannot get away from the fact that as an experience in practice it may become a potent factor in deciding the issues of a disease. In order to make clear what I mean by "pathological antagonism" let me recite some clinical examples, all of which are authoritatively established.

It is a well-known fact that an attack of erysipelas has been followed by the disappearance of neoplasms, even of a malignant type, also of tuberculous ulcers of the skin, of chronic eczemas, or lupus nodules, of syphilitic lesions, of keloids due to burns, of sarcomatous glands, of carcinoma of the mamma, and of the salivary glands. In some instances, the disappearance of the primary lesion was permanent, while in others it was temporary; in still others where a neoplasm was involved, the improvement was in the nature of a reduction in its size either permanently or otherwise. This exceptional behavior of erysipelatous attacks has been known many years. About twenty-eight years ago Busch[1] and Fehleisen of Germany availed themselves of this anomalous curative influence of erysipelas by making it the basis of a treatment for the cure of inoperable growths and of other lesions which resisted all methods of treatment. These observers were enabled to report a number of cures due to an attack of therapeutic or artificial erysipelas.

In our own country Coley[2] was the first to avail himself of this principle of treating inoperable neoplasms, by the employment of the Fehleisen organism, then later by employing the toxin only, and still later a mixture of the toxin and the *Bacillus prodigiosus*. As a result of a varied experience in this method, Coley concluded that the mixed toxins exercised "an antagonistic and specific influence upon malignant tumors." Here we have an illustration of pathological antagonism and a practical use of the phenomenon for therapeutic purposes.

Still other authenticated instances of the antagonism between pathological processes are the following: the cessation of pertussis upon the advent of measles, also the apparent cures of chronic suppurative processes, as of the ear, when complicated by one of the exanthemata. Gerhardt[3] cites some singular cases to illustrate the favorable influence of infectious disease upon concurrent chronic affections. In one case the intense pain of a trigeminal neuralgia stopped during the course of an acute pneumonia, in another case, a pneumonia seemed to abolish the pain of a bilateral sciatica from a sacral tumor. In still a third case, one of tuberculous ascites accompanied by a pneumonia, diuresis became so marked that for a time the ascites disappeared. Citations of this kind justify the belief that we are dealing here with something more than coincidence.

Typhoid fever is also a disease which appears to exercise decided antagonistic influences upon other diseases. It has been credited with causing the disappearance of a concurrent carcinoma of the breast, of a chronic glycosuria, of pulmonary tuberculosis, and of chorea. It has long been known to clinicians that after convalescence from typhoid fever, oftimes the former patient has become physically stronger than before the attack and also that he has remained long free from all disease. Is it not reasonable to suppose that this circumstance was the result of an action between antagonistic pathological processes whereby the system, so to speak, shed itself of pathogenic matter *in extenso*, leaving the host almost impregnable to immediate bacterial invasion.

In seeking an explanation of the nature and origin of pathological antagonism, it becomes apparent that our efforts are limited mainly to conjecture. Nevertheless, there are some fundamental biological principles which might be considered to exercise causative influence. The following are the more conspicuous: (1) Cellular activity. (2) The phagocytic power of leucocytes. (3) The hemolytic or bactericidal power of blood and the produc-

microorganisms, one species of bacteria will eventually prevail at the expense of the others. Clinically this is exactly what does take place when two inflammatory diseases attack an individual simultaneously, one or other of the two will usually gain ascendancy, the tendency to neutralization of one or other bacterial poisons soon becoming apparent. How important a rôle is played in the production of pathological antagonism by the bactericidal power of blood, is much a matter of future research. But I think we are justified in believing that human blood serum is endowed with this function to no small degree by reason of the bactericidal substances contained therein. These bactericidal or protective substances have been studied with reference to special diseases. Very recently Dochez,* experimenting with the blood of pneumonic patients, concludes that "these protective substances may play a part in the mechanism of recovery." Reasoning analogously it may be assumed that if human serum has pneumococcidal virtues it possesses corresponding power against other bacteria, and it may be further assumed that this bactericidal power is a relative one for different bacteria found in the same host.

The influence of different species of bacteria upon each other is of material interest. Clinical evidence is not wanting to show that two species may antagonize each other completely, or conversely, they may mutually develop each other. The incidence of a bacterial antagonism must be acknowledged. Thus we find that while the gonococcus is antagonized by the bacillus pyocaneus it is developed by the pus-generating cocci.

Antibody production as one of the body's defences against infection, no doubt, has some connection with antagonism of diseases. However, in the absence of definite knowledge whether immune reactions are all due to the same antibody or to a variety of them, we can make no definite statement concerning the association of antibodies to pathological antagonism.

Turning our attention to the ductless glands as a factor in disease neutralization we are confronted with some interesting revelations. To-day we acclaim the theory of the internal secretions and admit that the theory of autointoxication which held sway so long has not survived in favor. The theory of the internal secretions dominates the medical mind so universally that it has given birth to a new era in medicine. That it has unfolded a profusion of mysteries of the pathogenesis of disease, metabolic disorders especially, there can be no doubt.

Starling's discovery of a substance named by him "hormone," which stimulated intestinal secretion by chemical action, blazed a trail which developed a mass of biological data. Taking precedence over all is the reciprocal relation between the ductless glands.

This correlation may assume a twofold character, one in which two or more ductless glands antagonize each other through their internal secretions, the other in which the glands mutually reinforce each other in their effects, in the former instance functions are inhibited or disturbed, in the latter functions are stimulated to activity. Thus we find the interval secretion of the pancreas is antagonistic to that of the adrenals, shown by the fact that the pancreas inhibits while the adrenals excites the conversion of glycogen into sugar. The parathyroids antagonize the thyroid, shown by the appearance of glucose in the urine, after removal of the

parathyroids, whereas a glycosuria does not follow a thyroidectomy. The thyroid antagonizes the pancreas, shown after removal of the thyroid by the increased functioning of the pancreas, after removal of pancreas, fatal glycosuria, while after removal of both thyroid and pancreas, no glycosuria ensues. The hypophysis also is antagonistic to the pancreas, shown by the fact that in acromegaly glycosuria is very common. The internal secretion of the pancreas antagonizes the hormone, epinephrin, the latter has in consequence been employed therapeutically in severe diabetes. The internal secretion of the adrenals and hypophysis inhibit the secretion of the pancreas. As a consequence of the antagonistic influences resulting from a disturbance of the secretory balance we note a number of specific manifestations both of an anatomical and a physiological nature. Judging from the diversified phenomena following disturbances of these glands we are justified in concluding that they are capable of initiating favorable changes in one or other of concurrent diseases.

My particular interest in this subject arose from an observation of a number of unique and anomalous cases of diabetes mellitus in association with other disorders in which the glycosuria disappeared by reason of the complicating affection. I frankly confess the clinical and pathological evidence to establish such an antagonistic relationship is fragmentary at best; nevertheless, recent studies on the metabolism of diabetes has brought to light enough data to justify the general conclusion that such a phenomenon exists, potentially. If this phase of the disease has remained a mystery it is because diabetes itself, whether viewed as a disease or a symptom complex, has up to date baffled pathologist, bacteriologist and clinician. The cases to be considered can be arranged in three groups, as follows: (*a*) Those in which the glycosuria alternated with some other clinical symptom; (*b*) those in which the diabetes disappeared upon the establishment of some other disease; (*c*) cases in which a chronic glycosuria disappears permanently after a surgical operation. These three groups present such unusual features that it becomes impossible to apply the same theory of origin to all.

Group (*a*).—An example of this group is the following: A chronic glycosuria alternating twice in the same patient with urticaria, without any change of diet or medication.[5] Another example is a case of my own, in which a glycosuria alternated with the Wassermann reaction. I know of no other such case on record. It inaugurates a new field for research—the correlation of syphilis and diabetes. The patient in question, a male, came to me about sixteen years ago with a chancre which, together with the secondary and tertiary symptoms, ran the usual course. Treatment consisted in intramuscular injections of bichloride at first, then mercury by mouth and Zittman's decoction. About two years ago he developed diabetes, for which he was treated dietetically and with heroin. He never was given antisyphilitic treatment for the diabetic manifestations. Last Wassermann is negative: last glucose test postive. In this case the diabetes declared itself about thirteen years after the syphilis, and we could consistently argue that it was a syphilitic diabetes.

Another case of my own conjoining diabetes and syphilis is instructive. A confirmed diabetic female, under my observation about fifteen years for diabetes at a public clinic, contracted a chancre in the usual way, twelve years ago. The secondary and tertiary symptoms confirmed the diagnosis of the initial lesion. About a year after contracting the syphilis her urine became sugar free, while the usual manifestations of diabetes came to a standstill. In this condition she remained for several years, with never a sign of diabetes. Gradually diabetic signs again appeared and continued unabated to date. Last Wassermann, a few weeks ago, negative; last glucose test positive. Here we have a case, quite exceptional, in which the syphilis has no etiological relationship to the diabetes, and yet the latter seemed to stand in a constant pathological relationship to the syphilis. Salvarsan was not employed in either of these cases.

Group (*b*).—Namely, the disappearance of diabetes upon the establishment of another disease. As examples are to be cited the following, the cessation of diabetes after an acute pneumonia, typhoid fever, dysentery, scarlatina, and erysipelas.[6] It will be noted that this group comprises cases complicated by infectious diseases, which fact would lead us to suppose that the pancreas, in common with other organs, became secondarily involved from the primary infectious process. This group does not come properly within the scope of this paper.

Group (*c*) concerns chronic glycosurias which disappear after a surgical operation. Examples are the following: The apparent cure of diabetes after an appendectomy, or after drainage of the bile ducts. Such cases are classic. Also after extirpation of uterine and ovarian tumors even of a malignant type. The explanation of the mechanism involved in the cessation of the glycosuria in the third group is quite complex, but it appears to have an anatomical basis.

Carcinoma and diabetes seem to exercise reciprocal influences. I have found that if diabetes develop in a carcinomatous subject the intensity of the malignancy is in direct ratio to the severity of the diabetes; that is, a severe diabetes means a rapid progress of the carcinoma; a mild diabetes means a slow malignancy. If, however, a carcinoma develop in a diabetic the sequence is not the same, for at times the influence is favorable upon the diabetic symptoms, while at other times the latter are markedly aggravated.

The relation between diabetes and tuberculosis is worthy of comment. I have always believed that diabetics are no more susceptible to tuberculosis than they are to other diseases, and I think to-day authorities are a unit in declaring that the proportion of diabetics who run into tuberculosis is smaller than was given out a decade ago. Their susceptibility, as all know, depends upon a diminished resistance to bacterial invasion due to a hyperglycemia, or to a toxic substance in the circulation. It is, however, a strange fact that diabetes and tuberculosis are in a sense antagonistic, for experience has shown that whereas diabetics are prone to tuberculosis, the converse is likewise true, namely, that tuberculous patients rarely ever acquire diabetes. That this should be a mere coincidence is questionable. There must be a pathological foundation for a clinical event so exceptional.

While I am aware that I shall draw out much criticism in departing from old traditions concerning the pathogenesis of diseases, I, nevertheless, feel our views on the subject must be modernized to suit current concepts. I admit it is no easy matter to construct a theory of origin that can be

clothed with the distinction of accounting for the reciprocal influence of associated diseases, but if I have succeeded in arousing a sentiment in favor of the view that pathology is not yet a closed book I shall feel that my pen has been used for a good purpose.

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## A CONTRIBUTION ON THE THYMUS.

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The thymus is originally an epithelial structure which according to some observers is directly converted into lymphoid tissue, whereas others believe that mesodermal elements invade the epithelial organ. Still others believe that the medulla is derived from the endoderm and the cortex from the mesoderm. Some believe that the thymus is a blood-making organ basing their views by the mass of lymphocytes that pass from it; other observers hold that the organ attracts lymphocytes as nuclein carriers.

The thymus is in the first embryonal state a purely epithelial structure, vessels and interstitial tissue grow into it, and gradually a differentiation of medulla and cortex takes place. The organ continues to grow up to the second year, and during this period it is solid and full of secretion. Involution commences at the end of the second year and progresses up to the time of puberty. A small rest of parenchyma persists imbedded in Waldeyer's retrosternal thymic fat body, which preserves the form of the organ throughout life, and which, seen with the naked eye, can be recognized as something definite, something more than a mere fat cushion to support the large vessels.

Waldeyer published the results of his investigations in 1890. Hammar insists that it is incorrect to speak of a persistent thymus. Parenchymatous tissue remains until old age and the persistent thymus is normal, in comparison with other organs that atrophy with age. Notwithstanding the views of these prominent anatomists, it is still generally believed that the gland ceases to exist at the fifteenth or sixteenth year of life, and that fat and interstitial tissue with a few particles of parenchyma are all that remain at that time, gradually to disappear altogether. It is well settled that a close relation exists between the thymus, the thyroid, and the sexual organs. Castration causes continued growth and hypertrophy, and great sexual activity hastens the involution of the gland in animals. Involution of the thymus has an inhibiting effect upon these organs. The relation that exists between thyroid and thymus is shown in the case of the hyperplastic thymus when for various reasons the thyroid has atrophied or has become functionally insufficient.

Thymic hyperplasia is frequently found associated with goiter. Matt analyzed ten cases of exophthalmic goiter, in which the patient died shortly after operation on the thyroid, and found thymic hyperplasia in every one of these cases. He compiled 133 similar cases from the literature and found that in 76.5 per cent. of those that had died after operation the thymus was enlarged. Tetany following thymectomy is not as severe as that following ablation of the thyroid and parathyroids, and according to the observations of Bash not more than one-tenth of the dogs operated upon die in tetany. Thymectomy slows body growth and interferes with bony growth; the bones remain soft and fracture easy. According to Friedleben the thymus possesses a great vitality and can regenerate itself from a small residue.

Svehlo observed in 1896 that the intravenous injection of thymus extract in man and animals lowers blood pressure and increases pulse frequency. He showed further that the active principle formed after birth increases in strength with advancing years and remains active up to the fortieth year of life. His observations were confirmed by a number of investigators who found, however, that substances lowering blood pressure could be extracted from other organs and tissues and that therefore this action of thymus extract is not a specific one. It was further observed that the extract increases the coagulability of the blood and may cause thrombosis.

Paltauf described in 1889 a condition characterized by hypertrophy of the whole lymphatic apparatus, the glands of the neck, the axilla, the mesentery of the intestines, the tonsils, the spleen, and the thymus. Bartels added to this syndrome the presence of a small heart, narrowness of the aorta and peripheral vessels, a large brain, degeneration of the thyroid, a small vagina, and infantile uterus, with hyperplasia of the testicles and ovaries. This condition lowers the resisting power of the organism, and the patients die usually early, in consequence of the various acute infectious diseases—tuberculosis, nephritis, or diabetes—and suicides are frequent. The question whether the hypertrophied thymus is the cause or merely a symptom of this constitutional anomaly has not been solved.

Klose and Vogt sum up the state of knowledge about the thymus up to the year 1905. Extirpation of the gland does not influence the health of animals, nor retard their growth, nor cause trophic disturbances or rachitic processes, nor retard the healing of the fractures. The relatively large edematous brain was early noticed and the theory of thymic asthma due to pressure upon the trachea and large vessels had been advanced in 1830 by Kopp. This theory was later opposed and entirely denied upon the authority of Friedleben, till in 1888 Grawitz reestablished the former view. Rehn operated for a hyperplastic thymus in 1896, curing a case of laryngismus stridulus characterized by dyspnea and choking spells, and since that time a number of thymectomies have been performed with curative results, corroborating the old theory of pressure. Bash was the first to observe after thymectomy in animals a retarded growth, rachitic changes in the long bones, and changes in the psyche. Klose and Vogt who operated on fifty-four dogs with a perfected technique during the time of greatest development of the gland, namely

on the tenth day, divided the time after its extirpation into three stages: (1) the latent, lasting from two to four weeks; (2) the state of adipositas, lasting from two to three months; (3) the chachexia thymopriva and idiothia-thymopriva, lasting from

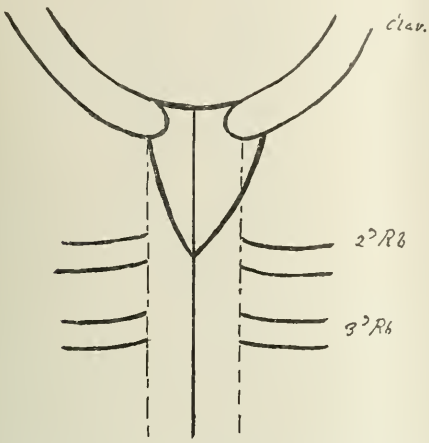


Fig. 1.—Thymic dullness. (After Friedjung-Kloze and Vogt.)

the third to the fourteenth month. Death occurs during thymic coma. They insist that the most favorable time of operation is between the tenth and twentieth day. After the third month only a small amount of glandular tissue can be found which persists to the second and third year. The following are conclusions drawn from their exhaustive investigations: Thymic death is a general chronic tissue death with a prominence of adynamia, especially of the bones and brain. Severe chronic disturbances may be expected after thymectomy in children at the end of the second year, which will probably end with death at the time of puberty. Thymectomy ought not to be performed during the time of greatest development of the gland. Metabolism is not influenced by this operation, nor can blood changes be found. The skeleton remains dwarfed and the bones become elastic and fracture easy. Rachitis, osteomalacia, and osteoporosis may be found in the same individual due to a decreased precipitation of lime salts, which is prevented by an increase of nucleinic acid in the system. The temperature is not influenced. Nervous disturbances are observed soon after operation. Motion remains awkward and slow, the animals tire easy and become paretic, coordination is disturbed, and the electric excitability of the nerves is decidedly changed, resembling the changes caused by tetany in children. Sensation remains long intact, but is gradually lost, and the senses, especially the sense of smell in dogs, become blunted. The skin reflexes are first increased, and later decreased, and the tendon reflexes already heightened in the latent state show a further increase later. In some cases a decrease may finally be observed. Psychic changes commence shortly after operation and progress till the animals pass into the idiotic state. Even in the latent state, the dogs lose their playfulness, and mental development is retarded. The perception of time and of space and the sensations of hunger and thirst are gradually lost, the dogs do not know their master, do not find the kennel dirty, eat wood and stone, and finally injure themselves. The brain is edematous and swollen, and microscopic examinations show degenerative and inflammatory changes in the nerves, cord, and brain.

The state of adipositas corresponding to the lymphatic diathesis in children is marked by a great accumulation of fat and by a hyperplasia of spleen, pancreas, thyroid, testicles, and ovaries. Children with a hyperplastic thymus have not alone to suffer from the pressure of the organ upon the trachea and vessels but also from the intoxication which gives rise to the lymphatic-chlorotic constitution (thymolymphatic state), a hyperplastic poorly functioning organ causes symptoms that resemble those due to its deficiency or absence. The loss of resisting power to infection and to psychic insults is the consequence. These children die often rapidly with the symptoms of shock.

The deficiency of lime salts in the bones after thymectomy, only half the normal, is due to an excess of acid. Their precipitation is caused by alkalies, their solution by acids. This suggests the hypothesis that the thymus through nucleinsynthesis, neutralizes phosphoric acid and its complicated compounds are set free in the growing portions of the organism, and explain the edematous condition of the central nervous system. Colloids swell in the presence of acid and water; they are found in every cell of the body and the cells of the brain are especially rich in these substances. An excess of acid causes edema. The edematous brain is a direct consequence of acid intoxication and acid neutralization through the function of the thymus is a life important process.

Thymus extract increases the symptoms of intoxication and alkalies given in sufficient quantity neutralizes the excess of acid and may stimulate alkali production. The feeding of the gland to normal animals increases their nervous excitability. The extract has been successfully used in the treatment of simple goiter; its administration does not cause hyperthyroidosis. Miculicz, who was the first to use it in this disease, also reported cases of exophthalmic goiter treated with favorable results. His experiments have been only partly confirmed.

Probably good results are obtained when hyperplasia is associated with degeneration and a poor functional activity. A number of other affections have been treated with thymus extract. In infantile marasmus, when atrophy of the thymus is present, which is usually the case, the medication gives good results. In rachitis, it is said by some and denied by others, that the insufficient ossification of bone is benefited. The function of the thymus is of importance to stimulate the growth in childhood.

Fig. 2.—Wilhelmina K.; tissue of mediastinum anticum resected and prepared.

In the present state of our knowledge of the thymus, it is important to diagnose its disease.

Surgery may be lifesaving when the organ is hyperplastic—in the thymolymphatic state. The stridor and the asthma are of great importance in the diagnosis of thymic hyperplasia and wasting in thymic atrophy. The examination with the Roentgen

Fig. 3.—Infant of 2 months; intestinal catarrh and inanition.

rays aids in some cases though it is unsatisfactory in most. According to Bash and Rohm it is impossible to make out with the *x*-rays the thymus in children, but hyperplasia of the organ can be diagnosed with this means according to Crotti, myself, and others.

Percussion gives good results and thymic dullness can be made out with accuracy in children. Park states in his article on this subject, published in 1912, that the area of dullness mapped out by Sahli and modified by Blumenreich holds to-day. I have confirmed this with Oestreich in a number of experiments on the cadaver, and have added that not alone the absolute dullness, but also the relative dullness, that is, the whole form of the gland, can be mapped out in children and in *adults* up to old age, when my method of percussion (drop method) is used.*

The gland is located in the anterior mediastinum, between the mediastinal leaves from which the internal artery and vein pass into it. It consists of a medullary and cortical portion and is surrounded by a fibrous capsule. A fine network of interstitial tissue, springing from the main capsule, divides the organ into a number of lobes and these into smaller lobes, and these again into follicles composed of adenoid and lymphoid tissue. Scattered in this are the concentric corpuscles of Hassal, which consist of a nucleated center, surrounded by flattened epithelial cells. The capsule is loosely fixed to the sternum and well grown to the fascia of the large vessels. The phrenic nerves and the pericardial phrenic artery border the thymus on both sides, which rests with its lower pole upon the pericardium, reaching usually to the fifth costal cartilage. The posterior surface lies upon the right auricle, accompanies the pericardium, ascending aorta, and aortic arch, and passes over to the pulmonary veins and reaches occasionally to the bifurcation of the trachea following the descending left innominate vein. It is in contact on the right with

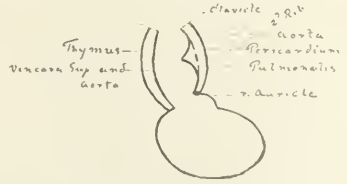


Fig. 4.—Male child of 8 months; severe bronchitis and intestinal catarrh.

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the vena cava superior and right innominate vein, and rests above the left innominate vein directly upon the trachea, surrounded by the innominate artery, the left carotid artery, and the jugular vein. The pneumogastric and recurrent laryngeal border

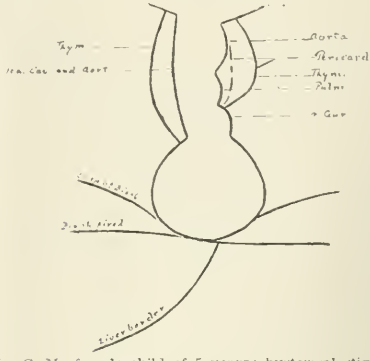


Fig. 5.—C. M., female child of 5 years; hysterical stigmata, movable heart, and enteroptosis.

it on the left. Branches of the internal mammary, inferior thyroid, the pericardial phrenic artery, the innominate and the superior thyroid supply the gland with blood, while only a single network of veins empties into the internal mammary vein. This decided disproportion between the afferent and the efferent vessels is of special interest, considering that the organ is in direct connection with the aorta and that it shares in every disturbance of the general circulation. Attention has been called to this feature by Klose and Vogt and previously by myself. The lymphatics are large, arise in the substance of the gland, and are believed to terminate in the jugular vein.

The theory of thymic asthma was founded upon the changing turgesence of the gland, its capacity to become hyperemic, to press upon the trachea and hinder the return flow of blood to the heart by its pressure upon the large veins. Hyperemia has been mistaken for hyperplasia. The most severe congestion disappears after death and leaves no trace at autopsy. Stridor and death have been

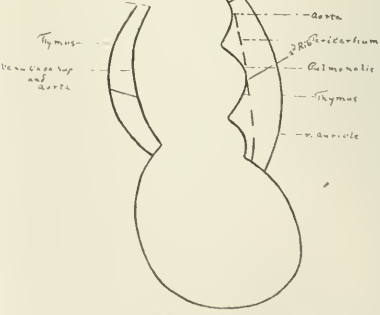


Fig. 6.—Mr. G., 48 years old; general tuberculosis.

caused by an acute increase in size, due to hyperemia, the gland pressing upon the trachea, the vessels, and the nerves. The sternovertebral diameter is not more than one-half centimeter in children, and though getting larger after the second year

the space allotted to the thymus remains small and the walls are unyielding.

Blumenreich mentions in his extensive work "Über Thymusdaempfing" (thymic dullness) that very little is found in the literature on the percus-

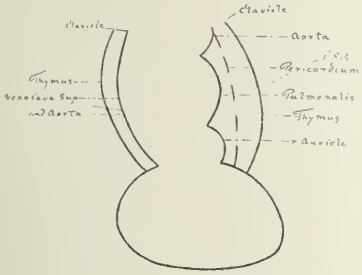


Fig. 7.—Woman with interstitial nephritis.

sion of the thymus. It was difficult to differentiate between a tumor in the anterior mediastinum an aneurysm of the aorta, enlarged bronchial glands, and a hyperplastic thymus, when a dullness over the manubrium sterni passing its borders reaching downward to the second and third rib, was found in children. He made his investigations on 100 living and dead children and outlines an area of thymus dullness, corresponding to the absolute dullness of the gland. He did not determine the real form and size of the thymus, which, largely covered by lung tissue, can give only a relative dullness. He percussed the borders of the lungs. The real form of the thymus made out by its relative dullness differs from the absolute, somewhat like the relative from the absolute heart dullness. However, he has proven that like the absolute heart dullness absolute thymus dullness possesses a distinct and characteristic form, which gives the exact position of the gland, and that changes of this are due to certain diseases. Situated behind the sternum upon the pericardium it covers the large vessels, reaches above nearly to the thyroid, and fills the space of the anterior mediastinum not covered by lung tissue, pushing the borders of the lungs apart. Considering only that portion of the thymus which is in direct contact with the anterior chest wall he finds its greatest width in line with the

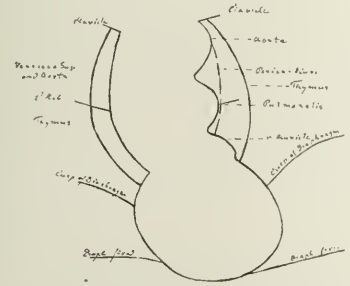


Fig. 8.—Small woman, 26 years old; general tuberculosis.

sternoclavicular joints and thence downward parallel to the anterior borders of the lungs converging in an oblique angle with a slightly rounded point. The dullness is small, between the second and third rib, and ceases between the third and fourth rib. The left half is usually larger than the right. He finds but little dullness and sometimes none at all in children that suffer from cholera or emphysema, and proves that absolute thymus dullness is represented by a triangle, the base of which

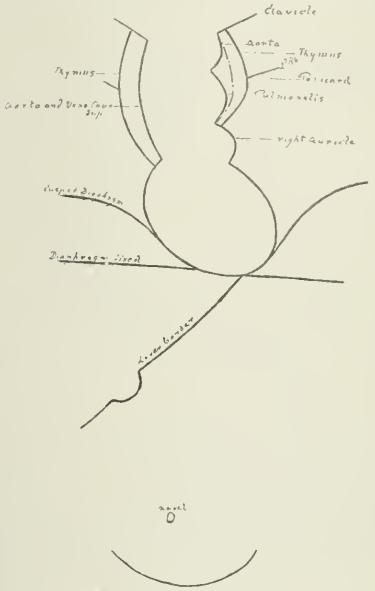


Fig. 9.—M. Cr., 39 years old; gastric ulcer

is situated in line with the sternoclavicular joints with its point usually below the second rib. Sahli who made his observations only on living children finds the lateral borders of thymus dullness almost vertical, a short distance outward from the borders of the sternum, passing downward into the heart dullness. Blumenreich concludes from his numerous observations that only a very slight difference

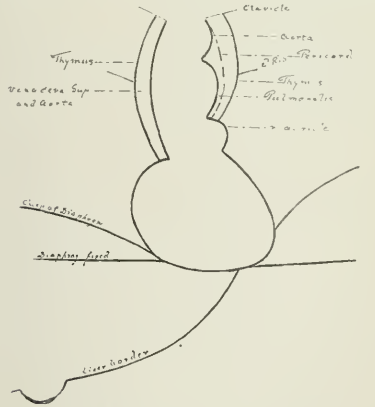


Fig. 10.—Mr. V., 38 years old; bronchitis

ante- and post-mortem exists and that this is caused by the borders of the lungs, which separate widely in expiration. The results of percussion in the living correspond closely to those obtained on the cadaver. He was able to percuss the thymus dull-

ness with certainty in children up to the fifth year, with the exception of patients suffering from cholera and emphysema. This is of special interest; in cholera patients it is probably due to the insufficient quantity of blood and lymph in the gland, in

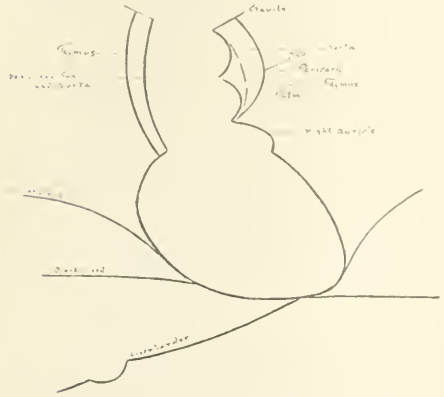

FIG. 11.—Mr. C., 58 years old; interstitial nephritis.

emphysema, to the distention of the lungs. After this time thymus dullness decreases in frequency, according to this observer.

For many years I have often found a dullness over the upper portion of the sternum and to its sides, which it was difficult to explain, and like others, I have taken it for aneurysm of the aorta, enlarged bronchial glands, or tumor.* Five years ago I was able for the first time to percuss the exact borders of this dullness in a neurasthenic, a brother of a patient suffering from exophthalmic goiter, and diagnosed it as intracostal thyroid, on account of its resemblance to a substernal struma. However, finding this dullness constantly in hysterics and neurasthenics, the only patients which at that time I examined for this purpose, and soon being able to determine with accuracy the large vessels, I had to come to the conclusion that it corresponded to and represented the old thymic tissue, excessively filled with blood. I was forced to this conclusion by the form of the dullness, which exactly corresponds to the form of the thymus and further, because it clears up considerably in the horizontal position of the patient, whether or not he lies on his stomach or on his back, and increases in the upright position. In many patients it is visible, full, protruding, and frequently red. Occasionally distended veins may be seen in it, which empty when the patient resumes the horizontal posture, the ribs are flattened and the intracostal spaces sink. Almost in every case it is marked like an organ on the chest wall, and can often be mapped out with the dermograph before percussion is made. I found enlarged thymus dullness so frequently associated with hysteria and neurasthenia and enteroptosis that I described this symptom complex as a distinct disease (MEDICAL RECORD, March, 1909). My assistant, Dr. Fossier, read a paper on the subject to the society.†

Grawitz, who was interested and who reviewed my paper in the *Berliner klin. Wochenschrift*, thought the condition would explain cases of exophthalmic goiter *sine* goiter. Kreuzfus, of the University of Vienna, thought I had mistaken intrathoracic goiter for the thymus. He sent me some of his skiagrams that resemble my charts.

The position and form of the dullness are always the same, in the male and in the female, in the infant and the aged. The upper border corresponds to that determined by Blumenreich, a line drawn through the sternoclavicular joints, and the lower border passes into the heart dullness. I can confirm Sahli's observations on living children, in so far as the outer borders of thymic dullness are found beyond the borders of the sternum, they are not, however, represented by vertical lines, but by circular segments, which lie beyond the sternal borders. Usually the left is situated further outward than the right, though the reverse may be seen as well. The figure is oval in shape and cut off above and below. Jointly with Prof. Oestreich of the University of Berlin we have shown on the cadaver (Fig. 6 and the case belonging to it) that the filling of the degenerated thymus tissue causes the dullness.

The old thymus filled with blood and lymph as well as the fully functioning organ in young children, is certainly of great importance during life, with respect to the cerebral circulation, considering the disproportion between the large blood supply to the gland and the paucity of veins emptying into the internal mammary, a comparatively small vessel. It was formerly thought that the thyroid serves as a reservoir to regulate the blood supply to the brain; it is the thymus probably that pos-

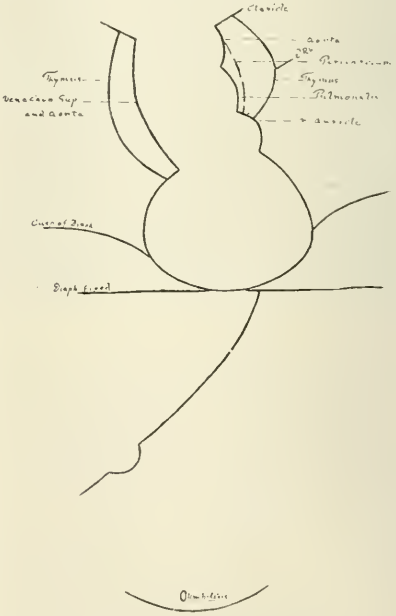

FIG. 12.—R., 25 years old; bronchial asthma.

sesses this function. Grawitz, with whom I discussed this question, agreed with me that the blood cannot escape freely. The dullness disappears after death in the adult and in a few hours nothing but pericardium and large vessels can be per-

*Thymus enlargement associated with nervous symptoms, MEDICAL RECORD, March, 1909.

†*New Orleans Med. & Surg. Jour.*, IX, 300, 302, 1909.

cussed, as only this, the lungs, the large vessels, the fat, and the interstitial tissue, the relic of the thymus, are located in the anterior mediastinum. It is evident that the old thymus causes the dullness, corresponding in form, size, and position

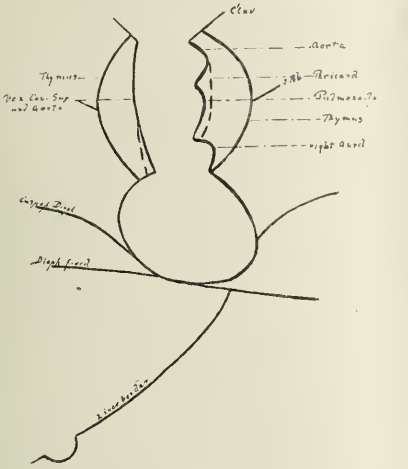


Fig. 13.—Miss A. M.; enteroptosis and migraine.

to this gland. The large filling of the organ with blood and lymph, changing readily with the change of position and attached to the large vessels, sharing in every disturbance of the general circulation, has, as far as I know, been considered by nobody before me.

The following cases may serve to illustrate the above conditions:

Fig. 1.—Thymic dullness after Blumenreich.

Fig. 2 represents the tissue of the anterior mediastinum (the thymic fat body) of a cadaver of a woman, 48 years of age, resected and prepared. It has the form of the dullness, smaller in the transverse diameter, and consists of fat, some interstitial tissue, and a few veins. Glandular tissue could not be detected microscopically.

Fig. 3.—Infant, 2 months old, who died of inanition and intestinal catarrh. Shows form, position, and size of thymus.

Fig. 4.—Thymus, vessels, and heart of an infant 8 months old, who died of a severe bronchitis and intestinal catarrh.

Fig. 5.—The same in a living neurotic child, 5 years old. Large thymus. The child is an enteroptotic.

Fig. 6.—Autopsy of a man, G. General tuberculosis, fatty degeneration of the heart. Pleura and lungs affected with advanced tuberculosis. Spleen, liver, kidneys, and peritoneum, tuberculous. Heart vessels and pericardium were mapped out by percussion, and, as usual, no dullness found beyond their borders in adults, after death. An injection of three liters of a formalin solution was then made into the femoral artery, and again percussed. A dullness of the exact form and position of the thymus, corresponding to the dullness made out in every living adult could now be determined.

This experiment proves that the dullness found in the living depends on the filling of the thymic fat body with blood and lymph.

Fig. 7.—Interstitial chronic nephritis. Pericardium contains large quantity of a serous liquid. Heart strongly hypertrophied. The right ventricle dilated; the left not. Congestion of lungs, liver, and spleen. Typical granular kidneys congested.

This case is of interest because the borders of the pericardium are pressed outward and secondly because the hypertrophy does apparently not correspond to the dullness. The heart was measured and it was found that the long and short diameters of the organ exactly correspond with the dullness mapped out. The walls of the organ were thick and no dilatation of the left ventricle could be detected. Left auricle and ventricle differ from the usual appearance in such cases. Oestreich and de la Camp have called attention to these conditions in their book ("Anatomy and the Physical Methods of Examination"). One must consider the direction in which the hypertrophy of the left ventricle can be noticed, whether in the sternovertebral or in the long diameter. In the first cases diagnosis is not assisted by percussion, nor does the skiagram aid. After percussion of the vessels and pericardium, and after it was shown that the dullness did not extend beyond the borders, an injection was made and the region was again percussed. The dullness characteristic of the thymus could now be readily determined.

Fig. 8.—Mrs. H., 26 years of age, small and emaciated. General tuberculosis; all organs tuberculous; pericardium and vessels percussed. A formalin injection of 3 liters was made, as in the other cases, into the femoral artery. During the injection a considerable swelling of the thyroid was observed and percussion determined a large dullness in the region of the thymus. This case shows goiter with large thymus in a small woman. The cusps of the diaphragm indicate the conditions of the lungs. To the left of the sternum almost absolute dullness, and to the right dullness over the apex and over several places. The autopsy revealed contraction of the left lung and within a large cavity filled with pus, corresponding to the percussion. The right lung emphysematous, with tuberculous foci, as mapped out.

Fig. 9.—Mrs. C., 39 years of age; enteroptotic; suffers from ulcer of the stomach. In this case, the thymus has the usual form and does not appear to be enlarged. This case illustrates that enteroptosis is not always associated with a hyperemic and distended thymus.

Fig. 10.—Mr. V., 40 years of age, 5 feet, 6 inches, 250 pounds. Thymic dullness; vessels and heart are small; bronchitis. Obese patients have usually a small thymus, thin people a large gland. This goes to show that the thymus is active in regulating fat metabolism throughout life.

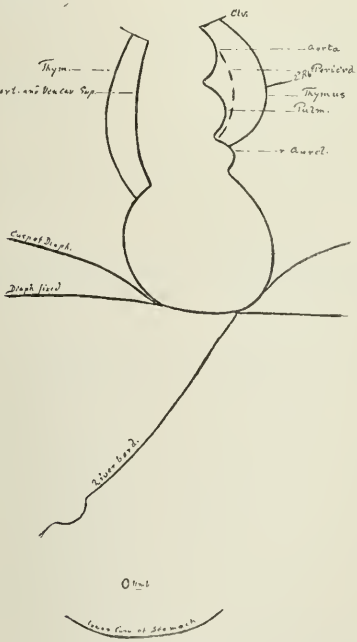


Fig. 14.—L., 19 years old; asthma and enteroptosis.

Fig. 11.—Mr. C., 58 years of age, 5 feet, 7 inches; interstitial nephritis; thymic dullness of the usual size; hypertrophy and dilatation of the left ventricle.

Fig. 12.—Mr. A. R., 25 years of age; tinsmith; enteroptotic; had not been able to work for more than two days in the week on account of severe and continued at-

tacks of asthma; had his first attack when 16 years of age, following hay fever, of which he was entirely cured, but has had asthma ever since. Thymic dullness, large and pronounced. Improved rapidly under treatment and can follow his trade without interruption.

Fig. 13.—Miss A. M.; enteroptotic; migraine and asthma on both sides of the family. Patient suffers from severe attacks of migraine, from three to four a month, each lasting several days; also suffers from choking spells. Improved under treatment and is now entirely cured; has been free from all attacks for over two years.

Fig. 14.—Mr. L., 19 years of age; has complained of asthma since childhood; attacks, two or three a week; enteroptotic and large thymic dullness. Improved under treatment, and can follow his occupation as clerk in a railroad office, without interruption.

Fig. 15.—Miss P., 37 years of age. Patient is 5 feet, 2 inches, weighs 350 pounds. Both sides of her family suffer from obesity. She claims never to have been sick in her life, but complains now of aching of the feet at night. When 12 years of age she weighed 160 pounds, at 25 200 pounds, and at present 350 pounds. Appetite, digestion, and sleep are good; bowels and menstruation regular; the blood is normal; blood pressure 175.

The urine is free of albumin, sugar, and casts, and

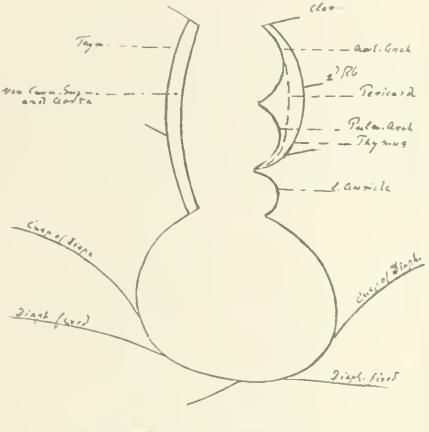


Fig. 15.—Miss P., 37 years old.

her organs normal. This patient, who has just come under observation, is of great interest, as she has a very small thymus dullness with an excessive adipositus.

Our investigations on the cadaver confirm the views of Waldeyer and Hamar, that the thymus persists during life, prove further that in a large number of cases it can be marked out upon the chest wall without percussion and in all with it; that it is well filled during life with blood and lymph, and that its turgescence changes on change of position, less in the horizontal and more in the upright posture of the person, and that it empties itself almost completely after death. Our investigations show further that the form and position of the organ remain the same throughout life. Comparing the form of the thymus when injected with formalin solution and its form during life, a difference can be detected. The side is more bulging on the left, reaches further down in the former than in the latter, though in every one of the asthmatic patients a resemblance is noticed proving that in these cases a great hyperemia exists and that the organ is stretched.

In analyzing these and similar cases characterized by the symptoms of the functional neuroses, hysteria, and neurasthenia; and the visceral neuroses marked by choking sensations, asthmatic attacks, fullness in the head and difficulty in swallowing, the hypothesis suggests itself that enteroptosis constantly associated with these conditions gives rise to this complex of symptoms. I have never examined a hysterical or neurasthenic patient in whom I did not find an enteroptosis, and Schofield reports 90 per cent. of his neurasthenic and hysterical patients to be enteroptotics. It is a condition especially suited to favor circulatory disturbances, frequently aggravated by a movable heart. The thymus shares in all of them, giving rise to pressure symptoms and to intoxication. Necessarily the cerebral circulation has to suffer and irritation of the centers, coupled with the congestion that exists in the abdominal organs and the anemia of the chest may well explain the various symptoms met with. The treatment bears out this view; that is, measures that influence the general circulation and restore its equilibrium benefit these patients most. The abdomen, usually pendulous, and the abdominal muscles relaxed, have to be restored to normal tone by suitable exercises, to insure an increase of intraabdominal pressure. Contracted abdominal muscles secure, with the up and down movements of the diaphragm, especially during deep respiration, a thorough massage of the abdominal contents, and restore tone to vessels and aid the heart. Deep breathing is therefore indicated with exercises to strengthen these muscles. Muscular tissue cannot be made at short order, and these patients need, therefore, a substitute to give relief. A well fitting bandage is the best for this purpose. The bandages usually displayed in the shops are useless; they are curved, do not exert pressure, cannot be fitted on the thin patients, and merely support the obese, that is, they fit them like a glove. I have designed a bandage that serves the purpose and have described it in the Medical Record, 1905, in an article entitled "Displacement of the Abdominal Organs." The bandage consists of a piece of elastic fitted in front above the pubes, held by leg straps, is buckled to a second shield across the spine. Three whalebones set straight give stability to the front shield. By means of the straps and the straight whalebones pressure can be exerted and regulated resembling that of the muscle, strongest above the pubes, less toward the navel, restoring the normal form of the abdomen.

Rest in the recumbent posture is another important measure in the treatment of these cases. Only in the most severe cases is continued rest of use. Intermittent rest, one to two hours after the noonday meal, and an early bedtime, are usually sufficient to help restore these patients to health. The blood has to be kept in the upper portion of the body by heart force and muscular tone. This is more difficult in these patients, and in our climate which, during the hot summer months, has a tendency to greatly relax the muscles. I have frequently seen the pulse reduced by 20 beats as soon as the patient lies down. Respiration slows in proportion; the blood flowing in a horizontal plane allows the veins to empty and the thymic dullness clears up, the arteries fill and the equilibrium is restored. (The importance of rest in the prevention and treatment of disease, *Therap. Gazette*, February, 1913.) The diet has to be regulated according to the climate and season, to the work the patient can still perform, whether he is fat or lean, young or old, affected with gastrointes-

tinal troubles or free from them. Fresh air is needed in these as in all other cases of sickness.

Organic diseases caused by the chronicity of the trouble or due to other causes has to be treated as in other cases. Thymus extract increases nervous symptoms. In 1909 I called attention to the usefulness of the treatment of an enlarged thymus with Roentgen rays and high frequency currents. It caused considerable contraction of the gland. Weil (*Bull. de la Soc., de Péd.*, 1912) uses *x*-rays to reduce the large thymus in children and Regaud and Cremien, who experimented on 40 young cats could cause complete involution of the thymus by this means. (*Lyon Méd.* C XVIII N 1) alkalies may be given to neutralize acidity and to stimulate alkali production. Surgery is indicated if medical treatment fails and may then be life-saving. I have mentioned previously the diseases in which the administration of thymic extract is of use.

1628 Upperline Street.

## THE CURE OF HABITUAL CONSTIPATION BY THE INTRAABDOMINAL USE OF OIL.*

By WATERS F. BURROWS, M.D.,

NEW YORK.

In a paper presented before the Surgical Section of the Seventeenth International Congress of Medicine entitled, "Postoperative Intestinal Stasis and the Intraabdominal Use of Oil,"† and elsewhere, the writer has advocated in abdominal surgery the use of comparatively large amounts of neutral mineral oil. Previously vaseline, vaseline oil, olive oil, animal oily extracts, and various fats had been used by others but in small amounts and with timidity, for which there is good reason on account of their impurities, and with results which have commended their use to few conservative surgeons. The principal object has been to control or prevent adhesions after such operations as are prone to cause them, whereas, when camphorated oil and other irritating substances have been resorted to, the purpose has been to set up a rapid chemical peritoneal reaction and congestion to combat peritonitis. The value, however, of neutral mineral oil, freed of impurities, has been overlooked.

To refer briefly to my original communication upon this subject, it will be noted that the use of neutral mineral oil is advocated in approximately 10 per cent. of cases of abdominal surgery, being poured into the belly at the conclusion of the operation in amounts of a few ounces to 10 or more, and to be used upon abdominal pads with greater frequency. Its advantages are: (1) It has no appreciable chemical action, no deleterious effect, and is slowly absorbed, at least in part. (2) It prevents, to a great extent, the formation or recurrence of adhesions. (3) It remains free in the abdominal cavity and does not form peritoneal accumulations. (4) It is most advantageously used upon pads or gauze, introduced within the abdominal cavity during operation, and, in the exceptional case, poured into the belly. It protects the abdominal contents from injury and eliminates or minimizes vomiting abdominal pain, and intestinal stasis after operation, and effects a safer, quicker recovery.

The predisposing causes of constipation are as numerous as the medicinal measures advocated for its cure. It is unnecessary to state that many such etiological factors are possible of elimination through nonsurgical means and various physical and medicinal forms of treatment render results. Nevertheless the number of cases of habitual constipation uncured and finally barely relieved by the usual treatment, the success of surgery directed toward the removal of mechanical abdominal abnormalities, and the general recognition of anatomical and physiological causes, has resulted, during the past few years, in a more general resort to surgical intervention. Perplexity has arisen, however, from the excessive number of procedures advocated by various surgeons, while the radical and complicated technique of many, and the considerable danger associated with some of the methods used has often deterred the physician from advising the necessary surgical relief.

Obstruction and interference with peristalsis in any part of the gastrointestinal tract and inflammation giving rise to harmful reflexes may result in constipation, and account for the costiveness which exists in cases of pyloric obstruction, functional or organic, gastric atony, gall-bladder and duct involvement, appendicitis, and similar conditions. Gastroenterostomy, cholecystectomy, and appendectomy performed for definite disease in these organs, result in cures, and the elimination of constipation, if present previously, in many instances. However, where the symptoms of disease are not typical and where evident associated colonic or rectal abnormalities exist such brilliant results are frequently not attained.

Constipation or more pronounced intestional stasis with putrefaction gives rise to irritating colonic reflexes and causes pylorospasm and abdominal pain, interference with gastric and intestinal peristalsis, and motility, and probably with gall-bladder evacuation. When the latter are secondary processes, the primary colonic condition, if left unrelieved, continues to cause symptoms after operation, more or less severe, and similar to those previously present. To determine the portion of the large bowel affected many hypotheses have been suggested by various observers, which, in brief, include ileocecal kink, appendical disease, cecal prolapse, mobility or atony, pericecal adhesions (Jackson's Veil), insufficiency of lieocecal valve, hepatic or splenic flexure obstruction, atonic colon, sigmoidal invagination or prolapse, general or local abdominal ptosis, intestinal adhesions, kinks or angulations, obstruction at the rectosigmoidal juncture, rectal and anal disease. Such may be the possibilities but the infrequency of some and the repeated occurrence of others is overlooked.

The operations resorted to, in the absence of uniform opinion upon the etiology, have been necessarily varied. The simplest have been for the correction of anorectal conditions, and the writer performs these under local anesthesia, almost exclusively, in his office, with results which prove that, in a certain percentage of instances, constipation originates here, and that, when the process is comparatively recent and not associated with secondary colonic or other abdominal complication, anorectal operations cure constipation. The operative relief of the intraabdominal condition may be free of danger or accompanied with considerable risk. With the various plastics upon the colon, division of adhesions, cecopexies, sigmoidopexies, operations for prolapse and similar relatively safe procedures the patient is seldom worse off after operation, and in

*Read before the Hudson County (New Jersey) Medical Society, January 6, 1914.

†"Postoperative Intestinal Stasis and the Intrabdominal Use of Oil," Medical Record, November 1, 1913.

suitable cases, a cure results, but the failure in many instances is attested by the increased frequency with which radical dangerous resections of a portion or entire colon, and intestinal anastomoses, especially ileosigmoidostomy, is resorted to. An authority states that a more or less simple operation like ileosigmoidostomy has been attended in his hands with a greater mortality than colonic resection, which indicates that the risks are not minor. While the mental attitude of some surgeons which leads them to carry out dangerous operations upon patients because the latter state they would rather die than continue thus to suffer, is generally unjustifiable. Constipation is not a fatal malady nor does it warrant the severe procedures that a cancer might require; it is relievable without surgical interference, and requires, when the latter is indicated, not a destructive but a conservative form of treatment. Considering the magnitude of an operation which removes the entire large intestine and the physiological and anatomical changes which necessarily follow, the wonder is that some remarkable results are attained but even with these in view it should be a method seldom chosen.

Habitual constipation, not due to abdominal inflammation nor to an anorectal affection, is usually associated with definite mechanical intraabdominal causes and a colonic radiographic plate will often show a cecal or sigmoidal abnormality, or general abdominal ptosis, although with these there may exist an inflammatory focus or colitis giving rise to a reflex spastic obstipation and causing irregular peristalsis and emptying of both intestine and stomach. Adhesions, angulations, and kinking may follow continued bowel stasis, or be formed following intraabdominal inflammation and act as exciting causes of constipation. Later the mesenteric attachments of the viscera become elongated, the upper abdomen is comparatively emptied while the lower is filled with prolapsed viscera, the belly wall is stretched, relaxed, and prominent, the intestinal musculature weakened and lacking tone, and at susceptible parts of the alimentary canal abnormal distention of the lumen of the bowel occurs.

To eliminate these causes of constipation adhesions need to be broken down or cut through, denuded peritoneal areas covered, angulations and kinks straightened, severe degrees of prolapse eradicated by gastro, ceco-, colo-, or sigmoidopexy, and a sufficient intraabdominal pressure created. After correction of apparent abnormalities, which in several instances has consisted solely in breaking down adhesions and eliminating kinks, the writer, in selected cases, pours 6 to 10 ounces of purified liquid petrolatum, preferably of high specific gravity, into the abdominal cavity. This oil prevents the recurrence of adhesions, lubricates the intestinal coils, straightens out angulations and kinks, floats the gas-filled loops of gut out of the pelvic cavity, exerts an intraabdominal pressure upon the viscera and is followed by a return of normal peristalsis and bowel evacuation. In the number of cases where his method has now been used the results have been uniformly satisfactory, in some a complete elimination of constipation is apparent and in the worst cases this simple safe procedure has given relief unattained by other means, and abdominal distress, gas accumulations, signs of toxic absorption, headaches, dizziness, insomnia, and the various symptoms of autointoxication, now generally recognized, overcome. Particularly following plastic nonseptic operations the later formation of bands and adhesions are prevented and thereby potent causes of postoperative intestinal obstruction and kinking, abdominal pain and chronic constipation, obviated.

The method commends itself as a prophylactic measure the oil to be used, in amounts of from 6 to 12 ounces, just before concluding many abdominal operations, especially in those cases where visceral trauma and irritation have been greater than usual and in which the liability to adhesion formation and kinking exists. Not infrequently constipation, absent prior, is present after abdominal procedures and may be attributed to these factors which, with the use of oil, are made noneffective.

That oil thus used is harmless has been shown by the writer through numerous animal investigations, and its effectiveness in the treatment of chronic constipation is proved. The object in the development of this new method has been to obviate the dangerous major operations which are constantly more often thought necessary and which the writer believes are followed by many failures, aggravation of the original trouble in certain instances, and a considerable mortality. Simple, safe, conservative, constructive measures are preferable, when feasible, and with the use of oil intraabdominally such a result, it seems, has been attained, constipation is cured, and radical extreme operative procedures are consequently rarely indicated.

40 East Sixty-second Street.

## PRACTICAL POINTS IN SURGERY.

By F. E. WALKER, M.D.,

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Surgeon to Lourdes Hospital.

With a steady increase in cures, the result of surgery, there yet remains room for further advancement and improvement, not so much in operative technique, in sterilization of dressings, gowns, and instruments, cleanliness of the surgeon, his assistants, the operative field, etc., but more so in the preoperative and postoperative attention, preparation, and treatment of the surgical patient.

Many good surgeons of to-day regard the cleansing of the operative field while the patient is being anesthetized as amply sufficient. The emergency patients, of course, must receive treatment at once without regard for certain formalities, but the great majority of surgical patients are those who can wait a day or several days without trouble of any kind, and with these we should use every means at hand to guard against the probability or possibility of infection, as well as to endeavor by so doing to limit their stay at the hospital to the shortest time compatible with safety.

To do our surgical work correctly and with better results it is necessary that we go more into detail, take greater pains, and use more gentleness in handling patients than in the past. We must aim to eliminate every source of possible infection and minimize influences of a deleterious character, intrinsic and extrinsic, mentally, morally, and physically. There must be more care taken in preparation, in treatment, in technique, in giving of medicines and in diet. More abundance of fresh air in the hospital, more sunshine and more exercise are necessary.

It is a well-known fact that the intestinal canal is capable of giving up its numerous bacilli and produce mild, severe, or deadly infection, either from the normal bacilli which constantly inhabit

the colon from after three hours following birth up to the time of death of the individual, or from numerous transient bacilli constantly existing within the entire digestive apparatus and having a willingness to invade other structures upon the slightest provocation.

According to the researches of Gilbert and Dominic, we learn that the stomach normally holds 50,000 bacilli to the cubic millimeter. At the origin of the duodenum there are 30,000, with a gradual increase to the end of the intestine until 100,000 bacilli to the cubic millimeter are reached. The colon contains from 25,000 to 30,000 per cubic millimeter, and the entire canal contains a grand total of 411,000,000,000 germs. Of this number some 12,000,000,000 to 40,000,000,000 pass daily by way of the feces. These bacilli apparently do no harm in the healthy individual, but in the patient suffering from a disease which requires surgical intervention his vitality in many respects is lowered by reason of his disease, and the hardships incident to the operation and including the surgical trauma add to this lessened vitality to a greater or lesser degree.

Hospital locations are also a very important item. Our large city hospitals have been built where the surroundings could not be much more uncongenial. The undue heat in summer, the dust, dirt, smoke, and gas of the street which freely enters, the noise of rail and street cars and nearby elevated stations, the heavy wagons and other street traffic is constant, the roar and turmoil, haste and bustle and many other disturbing influences, and, above all this, the feeling, and justly too, of unfriendliness, are not conducive to the best interest of the patient. Neither do all these distracting elements superinduce a fellow feeling of confidence, either in hospital, surgeon or nurse. By the city bred who require hospital care perhaps no notice will be taken of these things, but the great majority of hospital patients come from the small towns, the villages, the farm, from homes of restfulness and repose, purer air, less noise, no confusion, and a knowledge of tried and true friendship. The large hospital is not the best place of refuge by any means, whether it be located in the city or smaller town. There are too much noise, too many hurrying feet, too much talk in the halls, too many bells in constant service, too little personal attention both by surgeon and by nurse, and too much dependence placed upon the unqualified and sometimes wholly incompetent interne.

Another feature of hospitals, both large and small, all over the country, is that of the hospital authorities allowing Dr. Tom, Dick, and Harry to enter the hospital and perform any or all surgical operations, regardless of his competency, his ability, or his record. His failures will necessarily be many, his cures few. His patients will need longer treatment, and his death rate will be correspondingly high. This lessens the good and brilliant results of the good men, cuts down the percentage of cures, and keeps the hospital standing at a commonplace level. He it is who puts the ban upon surgery, and his methods operate as a rank injustice to the surgeon, who is constantly endeavoring to do the highest class of surgery with the smallest percentage of deaths, and yet who may perceive in the hospital reports at the end of the year the mortality increased beyond what it should be. This percentage of increased mortality is due, not to the fellows in his class, but to those who are incompetent, who lack judgment and whose only real asset is their conceit.

I know of one large hospital which has not made a report of its surgical work for several years, because the men will not compromise their excellent work and splendid results with the class of men who do two, five, or ten operations a year with a high rate of mortality, or whose patients leave the hospital unimproved, when improvement should have occurred or who have simply improved when an absolute cure should have been the outcome.

There is ofttimes a reckless disregard in the handling of patients before, during, and immediately after operation, exposure to different temperatures without sufficient covering, all of which gives the already overtaxed system a new burden in the way of calling forth more energy to overcome a cooling of the body or in a subsequent battle with a cold of more or less severity.

Lastly, the matter of diet is no small item, for many patients are delayed in their convalescence by an injudicious diet, by improperly cooked and improperly served food, and frequently in quantities not at all commensurate with the patient's condition. The bowels, too, are often neglected, and may give rise to any one or more symptoms of serious disturbances because of the absorption of poisonous intestinal products, which leads to a lowering of the natural forces of resistance with a consequent failure of the wound to heal by first intention or with a disturbance of a more serious nature.

The organs of assimilation after operation, when food has been withheld for some days, are very active, and a certain portion of the residual intestinal contents is, therefore, much more easily absorbed. With early and free preoperative and postoperative elimination of an entire canal, no increased temperature or pulse rate should follow a clean case, as no blood is allowed to remain within the bowels, hence there is no occasion for the so-called absorption of fibrin ferment and a rise of temperature, and in the event some blood was left in the abdomen, in a properly prepared case absorption is so rapid and elimination so free that no irritation of the heat center occurs.

Pre-operative Measures.—In all of the "clean cases" the following rule should be observed: (1) After diagnosis has been made and the patient has entered the hospital a warm bath, followed by a blanket sweat (if patient is not too weak) should be given. The patient should be enjoined to take all the rest possible. The bowels should be moved the first day by calomel and salines. The rest of the time castor oil should be given night and morning. Large quantities of sterile water should be taken. The diet should consist of sterilized milk kumyss or milk punch the first day. This should be the diet up until noon the day before the operation, when nothing but sterile water should be allowed. Beginning with the first bath, the patient should receive a sterile toothbrush, and the teeth should be brushed three times daily and the mouth washed several times daily with some mild antiseptic solution. The nasal cavities should be sprayed with some mild antiseptic solution night and morning. The evening before the operation the operative field should be prepared and a large dose of castor oil given. The next morning the patient should receive an alcohol bath and a vigorous massage and the bowels should be flushed with a sterilized normal salt solution introduced through the colon tube. The field of operation is again gone over carefully with iodine.

During the time the patient has spent in the hos-

pital she has become acquainted with her surroundings, with her nurse and the surgeon, and has received an education which establishes her confidence to the fullest extent. Any impression made upon the average patient from system, care, and a constant endeavor to have every detail of preparation carried out, with a view of restoring her to health will certainly be of benefit.

Seventy-five minutes before the hour of operation a hypodermic of morphine ($\frac{1}{4}$ grain), hyoscin (1 100 grain), and cactin (1 64 grain) should be given. The curtains are drawn and a nurse is left in charge to soothe and quiet the patient, as well as to assist in the administration of the anesthetic. The enforced rest, diet, and free elimination, with all the emunctories working easily and harmoniously, renders the entire intestinal canal as nearly sterile as possible. The conclusions reached through the systematic studies of Marfan, Bernard, Cushing, and others are nicely summarized by Moynihan in his work, "Abdominal Operations": (1) The stomach contains, immediately after a meal, a number of microorganisms of different varieties, according to the nature of the food administered. (2) If the food is given in a liquid form it is rapidly passed onward into the intestines, and the bacterial forms are but slightly, if at all, affected. (3) If food is given in a solid form it remains longer in the stomach, and the number of bacteria contained therein undergo a steady diminution until digestion is complete. The empty stomach is then amicrobic. (4) The duodenum is often sterile; the number and virulence of the bacteria of the intestine increase in proportion to the distance from the duodenum, and attain their maximum at the ileocecal valve. (5) The *Bacillus coli communis* is the characteristic organism of the human intestine; it is never absent after the first few days of life. (6) The stomach and the upper part of the jejunum can be rendered sterile by administering only sterilized foods and by attention to the toilet of the mouth. In dogs, starvation for a few days leaves the upper part of the intestine empty and sterile. (7) The stomach and intestine, when their contents have been discharged and they are empty, are sterile. If the emptying is prevented by obstruction at the pylorus, or in the intestine, the contents dammed up behind the block contain organisms whose number and whose virulence are greatly increased.

Thus, if the canal can be rendered sterile by the administration of sterile ingesta, it goes without saying that an effort should be made to incorporate a rigid system of intestinal preparation in every available laparotomy.

Hospitals.—Hospitals should be small, and, if the number of rooms are eventually found to be inadequate, new buildings entirely separated should be erected and patients classified. Hospitals in our large cities should be far removed from the business center, and the influence mentioned elsewhere. A large lawn, nice trees, good scenery, flowers, homelike surroundings, and internal finishings provided, which will be as near like the average comfortable home as is possible and consistent with perfect cleanliness. It is a source of wonder to the country surgeon to learn of the number of recoveries obtained in the usual city hospital, where so many distressing conditions exist which are inimical to the best scientific interests of the patient. That a large majority of deaths result from these conditions must be admitted, and such deaths should not be attributed to the operation, but to the uncongenial surroundings and the lack of such things as contribute to the serenity of the mind. In the small hospitals, in the small towns, where the air is free from dirt, dust, smoke, and gases, where the peaceful quiet of old nature reigns, where tried and true friends are near, where life is quiet, peaceful, and full of hope, and where the simplicity of the average home is truly exemplified, where sham and glitter and display are unknown, where the surgeon looks after his cases, and is a constant and always a most welcome visitor, where nurses are known to be diligent and faithful and where sympathetic interest of all is apparent, there is a much lessened mortality than the great hospitals in the great cities can obtain, and it is gratifying to note the gradual though slow change that is taking place among the sick who need hospital treatment in favor of the small hospitals in the small places. Hundreds of such small hospitals are springing up all over the land and hundreds of the brainiest and most skillful men in the profession are filling the positions as surgeons in these hospitals and are daily performing the most difficult and delicate operations known to surgery, and with as good, if not better, results than hundreds of the so-called lights of the surgical profession, because the former have all nature to assist them and every influence to aid. These hospitals and these men have everything necessary to aid them in their work. The laboratories are well supplied with every needed scientific instrument of precision, both in the physiological, the pathological, diagnostic, and operative domains. The surgeon has access to the same teachings and he has more time for deliberate examination, the outlining of the treatment and the carrying out of technique than his city brother, who must needs pay for all the "superior advantages" in the big city, and therefore must hustle night and day that he may be able to keep up with the glittering lights of the fellows who lead the procession.

Handling of Patients.—In handling patients both before and after the operation great care should be used to keep them as warm and free from draughts of cold air as possible, and there is no excuse whatever for rough treatment, either in or out of the operating room. Solutions to be used in washing the field or inside of the abdomen should never be poured from a distance above 3 inches, and a thermometer should always be used to determine the degree of heat. The surgeon's or the nurse's feeling of the solution or having a little poured over the back of the hand to see if it is of the right temperature is so crude and unscientific as to warrant condemnation.

All internal organs should be handled with the utmost skill and delicacy, and retractors should not be used in the wound if at all possible to do without them. Hemostats should not be allowed to remain on the tissues for any length of time. All aseptic wounds should be sealed airtight with collodion by the double sealing method and no knots tied from the peritoneum up. The patient's room after the operation should be well darkened, the window raised to admit fresh air, and a nurse left in special charge for at least twenty-four hours, and pulse temperature and respiration recorded every two hours during this time. Hot water in minute sips does not satisfy the patient nor allay vomiting. It is far better to give as much cold sterile water as the patient wishes. Fewer patients will vomit; if they do vomit it is easier for them to do so, and the large quantity of water taken will

clean the stomach nicely in case of emesis, as well as make it easier for the patient, and in over 50 per cent. the large quantity of cold water will settle the stomach.

Diet.—The patient should be allowed only sterile water the first two or three days. The evening of the first day a large rectal enema of sterile soap and water should be given. The evening of the second day two grains of calomel divided into twenty doses, each dose ten minutes apart, is given, followed the next morning by two teaspoonsful of magnesium sulphate. As soon as the bowels have moved the patient is allowed sterile milk, kumyss, or broths every two hours for two days. Brandy, eggnog, and custards may be given. After this the light diet of soft boiled eggs, dried bread well toasted, and well cooked steak, thoroughly masticated and only the juice swallowed, should be given for two days, when the patient returns to a general diet. In this way it is possible for us to obtain better results than in any other method followed.

## LIVER ABSCESS.

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In taking up the subject of liver abscess, I have a series of six cases to present, illustrative of the different etiological factors, and demonstrating the errors of diagnosis which are occasionally made.

Case I.—J. K., age 65. Family history negative. The patient is moderately alcoholic. He was admitted to the Beth Israel Hospital January 31, 1909. Thirteen days before admission he slipped on the ice and fell on the right side (lower costal region) against a smooth iron railing. He got up and walked off suffering only slight pain on the right side. There was no external evidence of trauma. Next day he vomited after taking food. This was repeated on several occasions. Three days later he began to cough accompanied by a sticking pain at the site of the injury. A few days later the cough became aggravated, and the pain shifted to the lower sternal and epigastric region, where it remained. He has had chills and fever several times. Bowels constipated. Urination slightly painful during the act. Has anorexia and is moderately prostrated.

Physical examination shows some cyanosis and dyspnea. The chest is barrel-shaped and has a limited expansion. The lungs show signs of chronic bronchitis and emphysema. The heart is normal. The abdomen is tympanitic; there is no dullness or flatness in the flanks. There is moderate rigidity and tenderness in the epigastrium and right hypochondrium. The liver is slightly enlarged and tender. Spleen is not palpable. Extremities are normal. A blood count on admission to the hospital was 17,000 leucocytes. The temperature was 102.2° F., pulse 104, respiration 32.

On February 1, temperature was 98°, pulse 100, respiration 36. The patient, feeling somewhat better, refused to stay longer in the hospital, and was sent out with the diagnosis of liver abscess. The diagnosis in this case was based upon: (1) The history of injury, falling on the right side. (2) Chills and fever. (3) Absence of signs in the lungs. (4) Absence of signs of fluid in the abdomen. (5) Rigidity and tenderness in right hypochondrium. (6) Enlarged and tender liver. (7) Leucocytosis of 17,000.

The case was not under observation long enough, and his subsequent course is unknown, so that it is impossible to arrive at a positive diagnosis. The nearest we can get is an opinion as to the probable diagnosis.

This case is illustrative of the occurrence of abscess of the liver by indirect violence, producing a slight abrasion of liver substance, forming a point of lowered resistance, which becoming infected forms a liver abscess.

Case II.—S. S., age 31. Painter. Family history, negative. Moderately alcoholic. This patient was admitted to the Beth Israel Hospital September 11, 1909. Six days before admission he suddenly had chills and fever. Next day he developed sticking pain in the right chest, aggravated by cough and respiration. He complained of general malaise, anorexia, and cough, which was moderately productive up to the time of admission. His chief symptoms then were the sudden onset with chills and fever, sticking pain in the right chest, aggravated by cough and respiration, and marked prostration. On physical examination he then showed a moderate amount of dyspnea and marked prostration. The tongue was dry and coated with a thick white fur. The glands were generally enlarged. In the right chest, anteriorly, beginning at the fourth interspace and going around laterally and posteriorly to the spine, three inches below the angle of the scapula, there was dullness, merging into flatness, extending down to the base of the lung. Breathing was diminished at this line, soon becoming absent near the base. There was an occasional râle heard over this area, The left lung was normal.

The abdomen was soft; there was slight tenderness and rigidity in the right hypochondrium; no masses were felt. The spleen was normal. The patient was otherwise normal. The urine examination made on seven separate occasions was always negative.

The blood count on admission was 22,800 leucocytes with a differential count of 86 per cent. polynuclear leucocytes and 14 per cent. mononuclear leoucocytes. On September 14 the count was 33,800 white cells, differential, 88 per cent. polynuclears, and 12 per cent. mononuclears.

An *x*-ray taken September 14 showed the diaphragm on the right side at the eighth rib; on the left side at the eleventh rib. There was no sign of consolidation. At this time the diagnosis was that of pleurisy complicated by pneumonia, and he was treated accordingly. On admission the temperature of the patient was 104° F., pulse 88, respiration 48. For the next five days the temperature was practically continuous between 103° and 104° F. On September 16 the patient had a hemorrhage from the bowels. Typhoid fever was suspected and the patient was put under typhoid treatment. Two Widal tests made on September 17 and 18 were both negative. A blood count on September 18 showed 44,200 white cells with a differential of 91 per cent. polynuclears and 9 per cent. mononuclears. The urine continued normal. For the next six days the temperature ran between 102° and 104° F., pulse between 90 and 106, respiration 28.

On September 22 the chest was aspirated and a brownish purulent fluid obtained which on examination was found to contain fibrin, degenerated cells, and a few polynuclear leucocytes. A blood culture taken on the same day was found to be negative. On September 23 another *x*-ray was taken which showed the arch of the diaphragm on the right side at the level of the fifth rib, throwing a sharp shadow, which indicates immobility of the diaphragm. On the next day the patient was operated upon. The operation consisted in a rib resection and drainage. About two and one-half inches of the eighth and ninth ribs were removed; the pleura was opened; no pus or fluid escaped. The pleura was then sewn to the upper surface of the diaphragm over the liver. The liver was then aspirated, and a serosanguinous fluid was obtained. The liver was incised at the point of aspiration, and a large amount of pus escaped. Two large abscesses were found at the upper surface of the liver. Rubber tube drains were introduced and gauze packing was inserted. The general condition of the patient after operation was very poor. The temperature for the next three weeks following operation was of the septic type, ranging from 98° to 103°, with daily rises. The pulse varied between 96 and 116, respiration 28 to 30. The temperature gradually came down, the range becoming less, and finally reaching normal and remaining so for the next seven weeks, with only an occasional rise to 101° or 102°.

The pulse varied between 80 and 100, respirations 20 to 24. A blood count taken October 9 was 12,200 white cells with a differential count of 82 per cent. polynuclears and 18 per cent. mononuclears. The wound gradually healed and the patient was discharged December 20 absolutely cured.

*Read before the Beth Israel Hospital Clinical Association.

This case is interesting because in the first place no positive etiological factor can be ascribed as the causative factor; and again it illustrates how readily the disease is mistaken for effusion in the right chest and pneumonia, especially if the onset is acute; and furthermore the value of exploratory puncture and *x*-ray in doubtful cases.

Case III.—N. M., age 47. Iceman. Family history, negative. Moderately alcoholic. At 17 the patient had an attack of pleurisy. Has had hemorrhoids since early adult life, which occasionally become inflamed. Never had any rectal inflammation. Five years ago he had an attack of abdominal cramps which were not localized.

Present History—The patient was admitted to the Beth Israel Hospital October 28, 1909. Two weeks before admission he developed diarrhea, having as many as five to eight movements a day. There was no blood in the stools. He had some tenesmus. He had no fever, headache, or bone pains. The patient became increasingly weak, and soon took to bed. He then developed some feverishness, headache, and general abdominal cramps. The fever kept ascending from day to day. He had several chills followed by fever, fall in temperature, and sweating usually accompanying the fall. The pain soon became localized to the right hypochondrium; was severe, continuous, aggravated by cough, inspiration, and pressure. The diarrhea ceased and was replaced by constipation. The chief points in the history were the onset with diarrhea, chills, fever, and sweats, and pain in the right hypochondrium. On physical examination the patient showed some dyspnea and slight prostration. The skin was hot and dry and showed a few suspicious roseolæ. The tongue was moist and covered with a thick white fur. The heart and lungs are normal. The abdomen showed marked tenderness and rigidity in the right hypocondrium. No masses were palpable. The liver was slightly enlarged. The temperature on admission was 102.6° F., pulse 92, respiration 24. For the next two days the temperature varied between 101° and 102°, pulse between 80 and 116. For the first few days the patient was treated as a suspected typhoid. The urine examinations on two occasions was negative. Three consecutive examinations of the blood gave the following results: 19,000 white cells, differential, 84 per cent. polynuclears, 16 per cent. mononuclears; 17,400 white cells-differential, 90 per cent. polynuclears, 10 per cent. mononuclears; 19,200 white cells-differential, 89 per cent. polynuclears, 11 per cent. mononuclears. These counts taken in conjunction with the tenderness and rigidity in the right hypochondrium, the enlarged painful liver, and the chills and fever, led to the diagnosis of suspected liver abscess. To verify the diagnosis the liver was aspirated. A mixture of blood and pus was obtained, which on examination was found to contain degenerated cellular elements, and which was negative as far as bacteria were concerned. The patient was operated on November 1, 1909.

The operation consisted of a rib resection and drainage. An incision was made over the tenth rib, and a portion of the rib was removed. The liver was aspirated; a slight amount of turbid fluid was obtained. The fluid appeared bloody and contained flocculi. An incision at the point of aspiration was made into liver tissue and a large amount of pus escaped. The liver cavity and the subphrenic space were packed with gauze. The condition of the patient after operation was fair. For the next four days after operation the temperature ran between 101° and 102.8° F., with a pulse rate of 80 to 110. In the four days following the temperature came down gradually, reaching normal and remaining so for the next sixteen days. The discharge gradually became less and disappeared. The wound closed and the patient was discharged cured with a temperature of 98°, pulse 80, and respiration 22.

Case IV.—H. G., 52 years old. Family history, negative. Two weeks ago the patient had an attack of gallstone colic, and was jaundiced for three weeks thereafter. She was admitted to the Beth Israel Hospital April 1, 1909. Two weeks before admission she began to complain of a sudden attack of pain in the right hypochondrium. The pain radiated downward toward the pubis. She had a marked chill that day followed by high fever. She has had chills and fever up to the day of admission. She has vomited frequently a greenish fluid. Her bowels have moved daily; the color of the stools were not noticed. The urine was high colored. During the past week the patient has become much weaker. Examination on admission revealed no jaundice; she was slightly cachectic. The heart and lungs were normal. The abdomen was soft and tympanitic except over the right hypochondrium, upper right lumbar and epigastric regions, where there is dullness, marked tenderness, and a large mass palpable. The free border of the liver was two inches below the costal margin; otherwise negative. The urine on four examinations was found negative. The blood count on admission was 10,400 white cells, with a differential count of 81 per cent. polynuclears and 19 per cent. mononuclears. The temperature on admission was 102.8° F., pulse 100, respiration 28. For the first four days the temperature varied between 100° and 102° F., pulse 96 to 118, respiration 28.

At this time the patient was thought to have gallstones with complicating suppurative cholecystitis. The temperature gradually assumed the septic type, and operation was decided upon. The operation performed April 4, consisted of a celiotomy and drainage for gangrenous gall bladder. The abdomen was opened through a high right rectus incision. The liver was found to be markedly congested and enlarged, reaching down to the umbilicus. On lifting up the edge of the liver a large amount of dark brownish purulent material was found exuding from its surface. The purulent material was traced to a cavity opening on the under surface of the liver and extending some distance into the liver substance. The cavity was situated near the transverse fissure. The gall bladder was found to be gangrenous and sloughing throughout its entire extent. Small pieces of gall bladder were removed with forceps. A large amount of the same purulent material came from the gall bladder. A stone, the size of a pigeon's egg, was removed from the cystic duct, through the gall bladder. About one and one-half inches to the left of the first abscess cavity another opening was found in the liver substance, from which a large amount of the same purulent material escaped. The under surface of the liver was well separated and walled off from the general abdominal cavity by strong fibrous adhesions reaching to the stomach and duodenum. The cavities in the liver were drained; the abdomen was closed. The general condition of the patient after operation was poor. For the next week following the operation, the temperature varied between 99° and 104° F., pulse between 96 and 120, respiration between 24 and 40. The temperature ran a typically septic course with frequent chills. During the third week the temperature varied between 98° and 102.8° F., pulse between 80 and 118. The patient gradually became weaker. At the time of death, April 23, the temperature was 102.2° F., pulse 116, respiration 24.

This case is interesting as an example of the origin of abscess of the liver by the extension of an infection of contiguous organs, which is quite a rare occurrence. No autopsy was permitted on the case, so that a more complete knowledge of the pathological conditions present was not possible to determine.

Case V.—Age 18. Operator. Family history, negative. Has had attack of nosebleed for the past three years. The patient was admitted to the Beth Israel Hospital January 27, 1910. Five days before admission he was seized with malaise, headache, chills, fever and cough. The chills were repeated daily, and almost always in the evening. The temperature was higher in the evening, and would remit or intermit in the day time. The fall in temperature was accompanied by profuse sweating. The cough was dry and unproductive, accompanied by sticking pain in the right chest. He had no hemoptysis. The dyspnea and prostration kept increasing. The bowels were markedly constipated. He vomited three to four times during the past five days. The chief symptoms were—the dyspnea, cough, sticking pain in the right chest, chills, fever and sweats, and prostration. On admission the patient showed moderate prostration and dyspnea. Normal resonance over the apex of the right lung anteriorly up to the fourth rib. Below this level there is dullness, diminishing breathing and crepitant râles. In the right axilla below the fifth rib, there is flatness, diminished tactile fremitus, diminished breathing, and crepitant râles. Posteriorly—From the

spine of the scapula downward, there is dullness merging into flatness, diminished tactile fremitus, and diminished breathing. The left upper lobe shows normal resonance. Anteriorly—Below the sixth rib in the axillary region, there is flatness, diminished breathing, and crepitant râles. Posteriorly, from the angle of the scapula downward there is dullness, and subcrepitant râles. Heart is normal.

The abdomen was distended and tympanitic; there was slight tenderness and rigidity in the right hypochondrium. No masses were palpable. The liver—The dulness merged with the pulmonic flatness, as above described. The dulness extends to three fingers below the costal margin. The free border was not made out owing to the rigidity. The temperature on admission was 103° F., pulse 120, respiration 32. The blood examination January 28, showed 12,000 white cells with a differential count of 88 per cent. polynuclears, and 12 per cent. mononuclears. On February 3 12,000 whites with a differential count of 85 per cent. polynuclears, and 15 per cent. monouclears. The urine on eight consecutive examinations was negative. On February 1 the patient's right chest was aspirated. Serous fluid was obtained: a smear showed 90 per cent. polynuclears. Since January 29 the breathing has become bronchial below the spine of the scapula on the right side, with a few subcrepitant râles at the end of inspiration. In the axilla, and below the fourth rib anteriorly on the right side, the breathing was very much diminished; occasional subcrepitant râles heard at the end of inspiration. The signs on the left side remained practically the same as on admission. In the axilla the rales disappeared, and there was flatness and diminished breathing over the stomach area.

February 3—The noteworthy points in this case to date have been: (1) Irregular remittent temperature. (2) Respirations averaging 28 per minute. (3) History of chills, fever and sweats. (4) Scanty expectoration, not rusty. (5) A leucocytosis of 12,000 with 85 per cent. polynuclears. (6) Increasing signs of effusion anteriorly in the right axilla, the flatness reaching to the third intercostal space anteriorly, and the fourth in the axilla, with markedly diminished or absent breathing and disappearance of rales over these areas, while posteriorly the rales have become more numerous, and the breathing bronchial, except over the extreme base where it is diminished. (7) Distinct bulging of the right chest, and obliteration of intercostal spaces. (8) Marked tenderness over the lower part of the chest anteriorly and in the axilla, and in the right hypochondrium. In view of these facts, liver abscess was considered. The patient was aspirated in the fifth interspace anterior axillary line; the needle was plunged in for about one and one-half inches. A thin red purulent fluid was obtained; which on microscopical examination showed broken up pus cells, and cells of polygonal shape with large nuclei and pigment granules. These were assumed to be liver cells. Streptococci and staphylococci were also found.

Another aspiration was made on the left side in the eighth interspace scapular line. No fluid was obtained.

February 4—At 3 A.M. the patient had a chill, and the temperature rose to 104° F., pulse 136. Signs of fluid were more marked this morning, posteriorly as well as anteriorly and in the axillary region. Bronchial breathing was no longer obtainable over the right lower lobe. It was then decided to operate. The operation consisted of a rib resection and drainage for liver abscess, subphrenic abscess, and empyema of the right side. Pus was located in the tenth interspace with an aspirating needle. An incision was made over the ninth rib in the midscapular line. About two and one-half inches of rib was removed. The pleura was exposed; the parietal pleura was opened, followed by the escape of a large amount of chocolate colored pus. The pleural cavity was explored, and a pus cavity was found leading downward through an opening in the diaphragm (the diaphragm being necrotic at this point). The liver tissue was palpated through this opening. A profuse discharge of pus came from the subphrenic space. Owing to the precarious state of the patient, further exploration of the liver was omitted. Two rubber drains and gauze packing were put into the wound. The general condition of the patient after operation was very poor.

For the six days previous to the operation, the temperature ranged between 100° and 103.6° F., with daily rises. The pulse varied between 90 and 120. The respiration 22 to 32. For the following four days after operation the temperature ranged between 98.6° and 101.4° F., with the pulse between 96 and 108. For the next nine days the temperature ran between 98.6° and 102°, pulse 92 to 120. In the following five days the temperature came down, reaching normal, and remaining there for the next six weeks; when discharge from the wound having ceased, and the wound being closed, the patient was discharged, March 30, 1910, with a temperature of 98° F., pulse 84, respiration 24.

This case is of interest because of its onset with symptoms pointing to a lung condition, and masking the underlying condition in the production of the symptoms. There is no evident etiological factor involved, and it would be hard to say just what was the cause of the production of the disease. As to whether the fluid in the chest was caused primarily by a perforation through the diaphragm, or whether the fluid was the result of aspiration, is questionable.

In all probability there was a real perforation of the diaphragm, as the signs of fluid were noticed to be more marked before the aspiration; and at the time of operation a portion of the diaphragm was found to be necrotic.

Case VI.—I. F. Age 46. Presser. Family history, negative. For the past twenty years the patient has been having attacks of pain in the abdomen. These pains were indefinite, lasting a few days and passing away without causing any very severe disturbance. During one attack, the patient vomited several times, a greenish material. There was no blood in the vomitus, or in the stools. He never had any jaundice.

He was admitted to the Beth Israel Hospital October 5, 1910. Six days before admission the patient had a severe attack of pain, mainly in the epigastric and right hypochondriac regions. With the pain he had attacks of fever, chills and sweating. He complained of severe headache. There was no vomiting or jaundice present. The bowels were constipated. The physical examination on admission showed some dyspnea. No cyanosis or jaundice. The heart and lungs were negative. The abdomen was distended. There was marked pain tenderness and rigidity in the epigastric and right hypochondriac regions. The liver was enlarged and tender. The examination revealed nothing else abnormal. The temperature on admission was 103.2° F., pulse 108, respiration 36. The urine examination was negative. The patient was operated on the same day.

The operation consisted of an exploratory laparotomy for a local peritonitis. A median incision was made about three and one-half inches long. The peritoneum was exposed and opened. The left lobe of the liver was found to be enlarged, firm and tense. A probe passed into the liver revealed no pus. The liver was then aspirated, and pus was obtained. An incision was made into the liver over the point of aspiration, and two large abscess cavities were found. These cavities were opened and explored. The cavities were found to contain pus and necrotic liver tissue. Two B.M. drains were introduced, and the abdomen closed. The general condition of the patient after operation was fair. An examination of the pus from the liver abscess failed to reveal any organisms. The urine on the day following the operation showed a trace of albumin and a few granular casts, probably as the result of the anesthetic. For the first three days after the operation, the temperature was 100° F. and the pulse between 80 and 92. In the next four days the temperature ran between 100° and 102°, the pulse 80 to 106. For the next sixteen days the temperature was of the septic type, ranging between 98.6° to 103° F., usually reaching its highest point about 6 P.M.; the pulse was from 90 to 124.

Since the operation the patient has continually complained of cramps and abdominal pain. From October 14 he has been having frequent bowel movements. On October 23 he had five bowel movements. On October 25 blood was noticed in the stools for the first time. Repeated examinations of the stools failed to show any amebæ. An examination of the pus likewise failed to show any amebæ. The patient was getting weaker every day. About nine hours before his death

the temperature became subnormal, 95.2 F., pulse 108. Just before death, the temperature was 96.8° F. An autopsy was permitted in this case. It showed the liver very much enlarged. Large abscesses were found in the right and left lobes communicating with each other. The colon, sigmoid, and rectum showed, on opening, numerous dysenteric ulcers.

This case is of interest as a case of undoubted dysenteric origin, as revealed by the autopsy findings, in which no amoeba were found at any stage of the disease.

*Summary.*—To sum up our series of cases, it will be found that, as regards etiology:

1. One case (case I) was due to mechanical injury, indirectly causing a contusion of the liver, and thus furnishing a point of lessened resistance to the action of bacteria.

2. One case (case IV) was due to the direct extension of the infection from a suppurating and gangrenous gall bladder; the abscess being formed on the under surface of the liver.

3. Two cases (cases III and VI) were due to dysentery. In one case (case VI) autopsy confirmed the presence of the etiological factor.

4. In two cases (cases II and V) no definite etiological factor could be assigned.

*Diagnosis*—In all our cases a constant finding was pain and tenderness in the right hypochondrium, and an enlarged liver. To this was added daily attacks of chills, fever and sweats. A leucocytosis was present in the majority of cases. In two-thirds of the cases there was a history of a definite etiological factor. The two cases in which no definite etiological factor could be assigned began with signs of pleurisy and pneumonia. One of these cases was subsequently thought to be typhoid fever (case II). Another of our series entered the hospital with a diagnosis of suspected typhoid fever. Another case in the series (case VI) entered with a diagnosis of perigastric ulcer. Among the conditions which liver abscesses are mistaken for are, malaria, right sided empyema, subphrenic abscess, echinoccocus cyst, and Charcot's hepatic fever. In doubtful cases the diagnosis may be made by exploratory puncture as was done in three of our cases (cases II, III and V). The *x*-ray is also helpful.

*Prognosis*—In our series of cases we had two deaths; a mortality of 33 per cent. The mortality of liver abscess is usually placed at from 20 to 30 per cent. One of our cases which recovered (case V) was complicated by perforation through the diaphragm, into the right pleural cavity, making 17 per cent. of ruptures, with 100 per cent of recovery. Rupture is usually placed at 28 per cent. of cases with 75 per cent recovery, if into the pleura or bronchus.

*Treatment*—As to treatment there is not much to be said. The treatment is operative, with free drainage above or below the diaphragm, depending upon the location of the abscess. In the amoebic forms it is not sufficient merely to operate for the abscess, the bowel must be treated at the same time in order to get results.

In *conclusion* let me say that very little is to be found in modern works upon the subject as compared to what is written on other diseases. For that reason, I hope that the presentation of this series of cases will serve to call your attention to this condition, and awaken in your minds the possibility of its existence, whenever confronted with signs pointing to the right hypochondriac region.

1141 Fox Street.

## THE INTERNIST AND SEMINAL VESICULITIS.*

By THOMAS A. KENEFICK, M.D.,

NEW YORK.

The knowledge of a reflex action is elemental. The dynamic energy, or so-called "tonus" vibrating from center to periphery, and the chemico-electric force of protoplasmic origin, reinforced by hormones, is now admitted. "Whatever energy is exerted when producing these phenomena is derived from the common stock of the universe." (Huxley.)

We have here a constant, dynamic force, controlling tubular and solid organs, governing speed, regulating blood supply, stimulating metabolic interchange and sustaining the chemical balance in all glandular secretions. This energy depends on its inherited or acquired quality, and absence of toxic or inflammatory irritants in the cell protoplasm, for these may pervert any particular function in the deep centers of the cord or cells of the cortex. No irritation at the periphery is so slight as not to create response at the center; no exhibition of motor activity but has its origin and strength in the cell protoplasm while all reflex change in vessel caliber depends on vasomotor influence.

"The vasomotor and trophic centers which control metabolism are peculiarly impressionable to peripheric irritation and hence through the intermediation of this nervous apparatus important changes may be wrought by even slight irritation." Toxins and inflammatory products change the anatomy of the peripheral nerve endings as in neuritis, and pervert the functions of deeper centers, exhibiting symptoms such as queer impulses, horrible dreams, depression, melancholia, and disturbed vasomotor stability.

We are awakening to the fact that man as well as woman may be a victim of the nervous symptoms from irritation or from pathological or toxic sources in his organs of generation. In the female this region has received very careful research, while its importance in man is just beginning to be recognized and studied scientifically. The seminal vesicles and their diseases grow in importance because of their intimate association with the mind. Symptoms pointing to mental or nervous disturbance, are often found to be due to local irritation, a pathological vesical change, or some simple unhygienic state of the sexual region.

"The seminal vesicles are fibrous tubes six inches long when extended, having a muscular and fibrous coat, an internal epithelial layer with its own secretion." (Gray.) The generative organs are governed by the sympathetic system, are autonomic, that is, capable of acting spontaneously and independently and of being excited mentally without voluntary irritation. "The glans penis is supplied by protopathic sensibility, with its delicate expansion for the three sets of extremely sensitive nerve filaments, quickly responding to the sense of pressure, heat, and moisture." (Howell.) In phimosis we have the three necessary conditions for local and general reflex irritation, heat, moisture and pressure, and absence of the squamous epithelium which should protect the nerve plate endings.

The vesicles being anatomically placed in the path of these sexual nerve stimuli, peripheral and central, can through emotional activity become congested, inflamed, distended by catarrhal secretion with pro-

*Read before the Medical Society of Newport, R. I., September 22, 1912.

duction of new connectitve tissue, final sclerosis and arrest of all stimuli ending in impotence. During this process of active irritation there is referred to the mind, abnormal, compelling excessive sexual impulses accompanied with melancholia and a deep suicidal desire. The moral control being lost, the victim becomes a blind prey to a force which has recently been called autonomic, whose victims I venture to say can be found in many prisons and sanatoriums, and may be the cause of many unexplainable suicides.

Etiology: Seminal vesiculitis is usually due to gonorrheal infection, phimosis, partial or complete, prolonged continence, influenza, typhoid fever, tuberculosis, colon bacilli, etc. The usual nervous symptoms are depression, lack of interest in occupation, horrible dreams, melancholia, with suicidal impulses, queer phobias, as a desire to jump off boats or bridges, or suddenly to leave theaters or churches in a state of panic. Whether these phenomena are mechanical from local vesicular irritation or distention, or, whether the chemically changed vesicle content contains toxins which by dialysis escape into the blood stream and pervert the function of cortex cells, I am not prepared to prove. Experience leads one to suspect some such process.

Diagnosis: Encouraged by the original surgical work and brilliant results of Dr. Eugene Fuller, the courtesy of whose clinic was kindly extended to me, clinical and private cases of a functional nervous type were studied and treated from the viewpoint of an internist. In a large number examined, chronic catarrhal seminal vesiculitis was present, often accompanied by partial or complete irritating phimosis. As regards the toxic nature of the vesical secretion, the absence of laboratory proof, is regretted as very little work has yet been done on this subject. Dr. Fuller's recent paper says: "Dr. Larkin, pathologist to the City Hospital, in making cultures from smears from this region, found uniformly the streptococcus in some cases of a peculiar reddish or pink hue." Dr. Crowe, working independently on arthritis deformans reports: "Out of twenty-two cases of rheumatoid arthritis nineteen were almost certainly infected by the *Staphylococcus aureus*. This coccus appears in Fleming's medium as a rose-red colony which gradually increases in size and deeply indents the medium,—on subculture it maintains these characteristics and does not alter in color."

When the finger is passed over the prostate gland and still further pushed on to the seminal vesicles above, pressure gives no pain under normal conditions, but when inflamed, the distress is peculiarly excruciating. Some patients suddenly collapse under the mildest manipulation. This condition and a history of the complex nervous symptoms associated should make a diagnosis comparatively simple.

Treatment: According to Dr. Fuller, the treatment of the sclerotic stage of vesiculitis, with arthritic complications, requires incision and drainage as originally devised by him. The treatment of catarrhal vesiculitis consists in (1) circumcision to relieve pressure, give vascular freedom and growth, and to promote normal squamous protection; (2) a careful series of strippings to free congestion and unload secretion every fifth day for several months. Under this treatment I have observed complex mental symptoms as well as manipulative local distress disappear simultaneously.

Case I.—History of an illustrative case. This patient was a physician, 48, bachelor, with a perfectly negative history, living a continent life. He had an unusually healthy inheritance. When a medical student it occurred to him that he had an ill-fitting prepuce and so consulted his surgeon-teacher who gave the usual advice: "You need nothing done; you can get that back for cleanliness." He dismissed the idea, and carried out the instructions. Perfectly healthy and progressive, still he was often reminded by friends of his high tension and marked self-consciousness. Several years ago an attack of acute cystitis followed sleeping in damp surroundings, which, in the absence of all other causes, undoubtedly originated in an exacerbation of an unrecognized chronic seminal vesiculitis. After six weeks, however, he was well again, with the exception of mild nervous "panics" that annoyed him. Sometimes in a train, or in a boat, if the motor stopped, an impulse to jump off would require great effort to control and conceal. In church a similar impulse was very marked. This condition lasted about one year, when during a slight anxiety in his affairs he became very nervous and sleepless. There were phobias, depressions, and horrible dreams which compelled resort to the restricted life of a sanatorium. His general health remained good, his face continued flushed, and he became very fat and flabby. There was no prostration or temperature. Some toxins do not cause temperature. If the bowels were constipated there was intense pain as the feces passed over the vesical region. He also had attacks of reflex pain simulating those of acute appendicitis. Hallucinations occurred, as in any case of profound infection. The possibility of a physical cause for all this was evidently not considered. He received the regular bed and board institutional care of obscure cases. Being a physician, he insisted that his trouble was reflex from a phimosis or possible vesiculitis demanding surgical interference. This was denied by the physicians of the institution. Their fears of further aggravating the nervous symptoms unfortunately served only to prolong his period of confinement. The patient remained in this condition for two years, eventually regaining enough stability to reach New York. He was by no means well, the journey having been a constant struggle between impulse to jump and an effort to control. Within an hour after his arrival, on his own initiative, a consultation with a genitourinary surgeon was held. A prepuce sufficiently tight to destroy epithelial growth, deform the glans, and arrest development was discovered, accompanied by chronic seminal vesiculitis. Circumcision to be followed by vesicle massage was immediately advised.

Instant relief of nervous tension followed the first operation, while massage with the escape of half an ounce of secretion made a most striking change in his mental symptoms. He was at once a different man. A curiously ravenous desire for meat followed for one week. Stripping of the vesicles was repeated every fifth day for five months and proved an interesting and convincing performance. He gradually lost the fullness of the head, capillary flush, and mask-like feeling in the face. The fear of elevators, bridges, crowds, and theaters, and the terrible dreams all slowly disappeared, and with them twenty pounds of accumulated adipose. In six months he expressed himself normal physically, sexually, and mentally, with a mental cheer and poise that was as new as it was delightful. It is interesting to note that when the sexual function was not exercised, the terrible dreams returned, but eventually disappeared. An early diagnosis that would have saved this physician his health, his practice, and a great monetary loss should have read: (1) Partial phimosis with reflex irritation. (2) Chronic catarrhal vesiculitis. (3) Toxic infection perverting the cells of cortex and general metabolic interchange. Prompt and complete physical diagnosis, including this region and treatment as above described, would have cured this case at its inception.

Case II.—The following is an account taken from the letter of a patient referred to me during the preparation of this paper. In reply to my request for a history he sent the following, which gives so well the career of these patients that I give it verbatim. "In compliance with your request, I am sending you my history, dating back to 1904. At that time I became very nervous and irritable. I complained to my doctors of the general bad feeling, weak and nervous, and could not keep still, could not sleep. They gave me the usual tonics and sleeping mixtures with no result. I was a driver on a fire engine, but gave up my position, consulted three specialists. It was decided I should

take a long rest. I went to the woods for several months; came back worse. I was advised again to go to a camp; remained for six months; not much gain; returned and saw a noted specialist. His decision was—no brain trouble at all; simply nerves. Advised sanatorium life; remained there from October until spring; still no improvement. I committed myself to a State Hospital for the Insane; they decided I was not insane, but self-centered. Remained here a short while, and I left for the woods again for the summer, but did not improve. Returned to the sanatorium; remained three months; then advised to go to camp again. Here I remained for the past four years. Then entered a psychopathic hospital for seven weeks; had two blood tests and a lumbar puncture, both negative. Opinions of neurologists varied from locomotor ataxia, change of life, over ambition, self-centered, too much head work, poor nutrition, too much fire department strain with reckless driving, etc.; too much women and booze; but last, and best of all—I don't know—it's a funny case; I wish I did. I paid out in all over $5,000 during these years in camps and doctor bills and can't see where I have gotten any benefit other than to be alive."

A complete physical examination located the cause of this purely reflex and functional irritation in the seminal vesicles. Appropriate treatment was instituted and after five treatments he writes he finds himself more capable of concentration, very much less nervous, and on the road to recovery.

Case III.—A Wall Street business man, age 40, married, gonorrhea at 18, came for diagnosis November 18, 1913. Five years ago had severe attack of neuritis, occasional attacks since. Complains of indigestion and bloating of intestines. Chronic constipation, depression, dizziness, and loss of control, sometimes on the street and at his desk. Six months ago the depression became more marked; he became alarmed, giving up his business temporarily; went camping for four months. His general health improved some, but he was still melancholy. Physical examination negative except distention of abdomen and severe pain on deep pressure over appendix region. Seminal vesicles enlarged, congested, and extremely sensitive. Blood and urine normal. Reflexes normal. Diagnosis: Chronic catarrhal seminal vesiculitis involving the appendix region. After the second treatment of the vesicles depression disappeared, the bowels became normal in action and appearance; constipation was relieved. After seven treatments, he is now perfectly well, all these symptoms are gone, including the neuritis and tenderness at the appendix area. He has gained five pounds in weight; his expression and mental view changing from a gloomy outlook to one of normal hope and cheer.

Conclusions: (1) The advantage of circumcision should be given every male infant. (2) Stretching of the orifice as some advise is vicious. (3) Adults presenting the complex nervous symptoms above described, even in a mild way, should have the sexual region carefully examined for painful seminal vesicles. (4) Notwithstanding the advice of an eminent American authority who says, "Rectal examination is not and should not be a part of a physical examination," internists should be able by digital examination, to distinguish between normal and painful vesicles, for at this point a man's honor, marital happiness, character, good citizenship, and even his freedom may depend.

Without experience it is difficult for us to refer functional nervous and mental symptoms to such an obscure source. Many times, however, relief comes only by surgical drainage or proper manipulative treatment of these hidden secretory organs.

78 East Fifty-fourth Street.

**Scarlet Fever as a Reaction of Sensitization.**—F. v. Szontagh advances the theory that the clinical manifestations of scarlet fever are the result of an increased susceptibility of the body resulting from disturbances in the alimentary tract. In other words, scarlet fever represents one of the forms of alimentary anaphylaxis.—*Jahrbuch für Kinderheilkunde.*

## Medicolegal Notes.

**Practising Without License—"Chiropractics."**—A complaint charged the defendant, who held himself out as a "chiropractor," with practising medicine without a license in violation of Rhode Island Gen. Laws, 1909, c. 193, § 8, making the offence a misdemeanor. It appeared from the testimony that the defendant had received an elementary education, had been employed as bricklayer and mason, had, eight years before, attended for three or four months a school of chiropractics in Minnesota, and thereafter set up a business as a chiropractor, issuing pamphlets in which he professed to "adjust the causes of disease without drugs, based upon a thorough knowledge of the nervous system." He was careful to avoid the use of the word "cure," and in his defense he undertook to exclude himself from the practice of medicine by showing that he did not take the pulse or ascertain the temperature of the patient, did not administer drugs, and did not otherwise employ the means usually resorted to by physicians in aid of their diagnosis. He claimed that the chiropractic idea was not to cure the disease, but to remove the cause, and thus allow or bring about a recovery therefrom. The court, however, did not admit the distinction, and found the defendant guilty, holding that the practice of medicine or surgery in itself does not require the administration of drugs.—Swarts v. Sweny, Rhode Island Supreme Court, 85 Atl. 33.

**Degree of Skill Required.**—In an action for neglecting to properly diagnose a fracture of the neck of the left femur, and for unskillful and negligent treatment, the court stated the settled law as being that a patient who employs a physician is entitled to a thorough and careful examination, such as the condition of the patient and circumstances will permit, with such diligence and methods of diagnosis for discovering the nature of the ailment as are usually approved and practised by medical men of ordinary learning, judgment and skill, in similar localities. If by the exercise of such care and skill the fracture would have been discovered, a failure to properly diagnose is negligence, and it is the duty of a physician, in taking charge of a case where there is a broken limb, to inform and instruct the patient as to his conduct and what caution should be observed in moving or using the limb while it is being treated. In such an action expert testimony is admissible on the question whether the treatment and acts of the defendant were proper. What would constitute an injury to the plaintiff in such an action has been thus judicially defined: "Any want of the proper skill or care which diminishes the chances of the patient's recovery, prolongs his illness, increases his suffering, or, in short, makes his condition worse than it would have been if due skill and care had been used, would, in a legal sense, constitute injury."—Craig vs. Chambers, 17 Ohio St. 253.; Rogers vs. Kee, Michigan Supreme Court, 137 N. W. 260.

**Practising Without License—Individual Offenses.**—The Kansas statute provides that any person who shall practise medicine in that State without having received and recorded a certificate from the State board of registration and examination shall be deemed guilty of a misdemeanor, and upon conviction thereof shall pay a fine of not less than $50 nor more than $200 (Gen. Stats. 1909, § 8091). It is held that this section does not create a continuing offense involving a general course of customary conduct, but penalizes each specific act of practice defined in section 8090. "To prescribe, for a fee," said the court, "any drug for the relief of any disease of another person is to practise medicine. It is not necessary that this be done frequently, customarily, or habitually. One isolated instance is sufficient, and the penalty is affixed to each offense. The same is true of surgical operations and other specific acts denounced by the statute. Besides this, any fair consideration of the mischief which the Legislature sought to remedy leads to the conclusion that the State board of medical registration and examination was not created for the simple purpose of attaching its badge to professional careers. The life, health and financial resources of individual men, women, and children were to be protected from ignorance and imposture. Each act of unlicensed practice may be fraught with danger. Every repetition is a new peril, and, instead of applying to a continuous course of conduct, the statute specifies and condemns each impulse, to the very end that it may not unite with others in swelling a common stream of action."—State v. Cotner, Kansas Supreme Court, 127 Pac. 1.

MEDICAL RECORD.

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## ABORTIVE SCARLATINA IN THE NEWBORN.

NEITHER the mode nor the source of infection in scarlet fever is as yet known, though there is a valid basis for the belief that in the majority of cases the throat is the portal of entry for the virus. Other mucous membranes besides that of the throat and also wounds occasionally furnish the avenue of infection. Leube provided a classical experiment in his own person while performing an autopsy on a patient who had died of scarlet fever. He cut his finger and eleven days later he showed the manifestations of scarlet fever, the rash beginning at the site of injury. The subject of relative immunity in scarlet fever is still veiled in obscurity. For instance, Martin reported the observation of three cases of scarlet fever among 16,000 puerperæ. One is not justified in concluding from this that the puerperium or pregnancy offers any protection against scarlet fever, for only 30 per cent. of all individuals are susceptible to scarlet fever, and of these the majority acquire the disease between the ages of seven and twelve years. It would therefore be rather exceptional for scarlet fever to develop during the puerperium.

An interesting study of this phase of the subject was made by Carl Levi of the Division of Infectious Diseases of the Rudolf-Virchow Hospital of Berlin. He reports his results in the "Beiträge zur Klinik der Infektionskrankheiten und zur Immunitätsforschung," Vol. 2, No. 2. He observed during the past few years the occurrence of scarlet fever in one gravid patient and in eleven puerperæ. The point of special importance in his investigation was the question of the relative immunity of the offspring of these patients; the newborn infants were intimately exposed to infection. Of extraordinary rarity is the occurrence of scarlet fever during the first three months of life. So far as the literature is concerned, it may be noted that among 1,041 cases of scarlatina Johannsen observed none during the first month of life, and 3 per cent. during the second and third months. Finkelstein states that scarlet fever is observed in infants at all ages, even immediately after birth, and that the disease in the very young runs a typical course. Of 3,603 cases of scarlet fever analyzed by Pospischill and Weiss there were only twenty-eight cases during the first year, and these had their incidence during the later months of the year. Levi had the opportunity of observing nine cases of scarlet fever in infants less than three months of age and one case in an infant nine months old. With the exception of the last, all were the infants of mothers suffering from scarlet fever.

The author distinguishes between two groups according to the course of the disease. The first group comprised three children of which two were bottle fed and one was breast fed. These three cases ran a typical course although they were mild and presented certain gaps in the symptom complex. The second group of cases comprised seven breast-fed infants in whom the disease was much less pronounced. The symptoms were so atypical that the diagnosis was made only by taking into account the immediately prior occurrence of scarlet fever in the mother. The clinical phenomena in all of these cases were somewhat as follows: from three to seven days following the onset of the disease in the mother the infant took sick with a moderate fever lasting from two to four days. There was the characteristic tongue with the reddening of the tonsils and of the soft palate. In no instance was there any membrane on or necrosis of the tonsils. There was at first some difficulty in nursing and a disinclination to take the breast. In two of the cases a fugitive scarlatiniform eruption was observed. In the remainder of the cases the occurrence of desquamation proved that the infant had had scarlet fever. Likewise the occasional occurrence of adenitis or otitis, and in one instance a transient albuminuria clinched the diagnosis. The mild course of the disease and the mildness of the separate symptoms apparently justified the author in regarding these cases as instances of abortive scarlet fever. The mildness and rapid course of the disease may account for the fact that similar cases may have been largely overlooked in the past. It is pointed out that in the cases of the breast-fed children the disease ran a much lighter course than in those that were bottle fed. This may be a fact of some significance. The question now arises: Why does scarlet fever run such an extraordinarily mild course during the first few months of life? It may be supposed that in the newborn of mothers who have recently had scarlet fever, there are transmitted to the infant from the mother antibodies that impart a more or less complete immunity against scarlatinal infection. This hypothesis is strengthened by the observation that patients who develop scarlet fever during the puerperium transmit only an abortive type of the disease to their offspring. It is quite conceivable that in these instances the antibodies reach the child through the milk, analogous to the cases in which salvarsan is administered to the child by way of the mother.

As the result of his studies Levi reaches the following conclusions: Infants during the first few months of life have no special immunity with respect to scarlet fever. Nevertheless, in the case of the newborn of mothers who have recently had an attack of scarlet fever the disease runs a mild and abortive course. Puerperæ who have been exposed to scarlatina acquire the disease as readily as do others belonging to the same period of life.

## EARLY OPERATION IN CASES OF UTERINE FIBROIDS.

THE passive or expectant attitude was formerly quite generally observed with regard to the treatment of uterine fibroids, though of late not a few voices have been raised in favor of early operation. In the *Medical Press and Circular*, Feb. 18, 1914, Arthur E. Giles makes a fresh plea for early operation in such cases. He states that the possible reasons for the expectant method are: (1) That at the menopause the symptoms disappear and the fibroids tend to shrink. (2) That fibroids are not dangerous tumors. (3) That operation is attended by a high mortality insomuch that the risk of operation is greater than the risk of leaving things alone; and that years of invalidism and disability are preferable to running the great risk.

Giles thinks that the first of these reasons is based on a succession of fallacies. One of these is the assumption that the only bad symptom of fibroids is hemorrhage. Hemorrhage is only one symptom, and moreover it is a symptom in only some kinds of fibroids. The other symptoms, pain, pressure effects, disability, and general weakness, are not improved by the menopause and may be aggravated. The assumption that hemorrhage caused by fibroids is only menstruation, is one that could be excused only if made by a layman. The argument that fibroids shrink after the menopause will not bear looking into. Giles points out that in many cases they actually increase in size and in the few cases where a shrinkage occurs the effect may be worse than it was before, as a fibroid that lodged previously above the pelvic brim may become impacted in the true pelvis.

As for fibroids not being dangerous tumors the same may be said of ovarian tumors, the dangers of which lie in their possible complications. In the same way, the danger of fibroids, apart from the draining effects of hemorrhage, lies chiefly in their possible complications. Moreover if it could be truly said that ovarian tumors are dangerous but fibroid tumors are not, there still remains the question: Can we be sure, in any given case, that the tumor is a fibroid? Finally the argument based on the high mortality of operation would have had great weight 25 or even 20 years ago; this mortality has dwindled with the progress of abdominal surgery, and hysterectomy may now claim a recognized place, not only as an operation for saving life, but as a means for relieving suffering.

The author's reasons for early operation are as follows: (1) The age incidence of fibroids is so varied that no importance can be attached to age as an indication for operation. (2) Early operation would often allow of a conservative myomectomy, whereas delayed operation necessitates hysterectomy. (3) In a large proportion of cases fibroid tumors are associated with pathological complications, many of which are of a dangerous nature. (4) Diagnosis is still so uncertain that grave conditions urgently requiring operation may be mistaken for simple fibroids. (5) The mortality attendant on the procedures of myomectomy and hysterectomy in the practice of experienced surgeons has become so reduced that operation may legitimately be advised for the relief of suffering, even when life is not directly threatened.

## REFRIGERATION IN THE PRESERVATION OF FOOD.

IN these days when cold storage, the employment of preservatives in foods, and the adulteration of food products are being subjected to the most severe criticism, a discussion held by the Society of British Medical Officers of Health on the refrigeration of food, and reported in the *Lancet* Feb. 28, should prove of interest. Dr. Hanna, who opened the discussion, referred to the fact that the United States was not only no longer sending cattle to Great Britain but was taking for its own supply cattle from countries which had hitherto exported almost exclusively to Great Britain. He went on to point out that the methods of refrigeration of foodstuffs depended chiefly on the scientific fact that expanding air or vaporizing substances, such as sulphurous acid, carbonic acid, or ammonia, in assuming the gaseous form abstracted heat from the atmosphere or other bodies in the neighborhood. Fresh meat was carried from distant countries either as hard frozen meat or chilled meat. Chilled meat arrived in a condition ready for consumption and retained the characteristics of fresh meat more closely than frozen meat, but the chilling process required great care, and the transport needed constant supervision. The frozen method was the better as regarded preservation, although it sometimes damaged the cellular and fibrous structure of the meat unless special care was taken in defrosting. Hanna gave it as his opinion that frozen meat when thawed would keep with proper care as well as freshly killed meat after being taken from the refrigerator, even in high temperature, a view not in accordance with popular opinion.

Hanna considered that refrigeration afforded a ready means of obtaining a plentiful and cheap supply of food, and he thought that every means was now being taken to obtain and keep the supply wholesome by the constant attention of the producer abroad to the methods of inspection and handling and by its thorough examination on landing in England. Sir Shirley Murphy, who joined in the discussion, spoke of the effect of cold storage on the flavor of meat, and thought that the process might even improve the flavor. Of course refrigeration or chilling of foodstuffs is necessary when these have to be conveyed for long distances, as for example from North or South America to Europe, but great care must be exercised both in the process itself and the defrosting. That, however, animal food thus treated does not undergo a certain amount of deterioration is a view opposed, at least, to popular ideas, and certainly Murphy's suggestion that refrigeration may improve the flavor of meat is one not borne out by experience. It might be in the interests of the consumer if scientific investigations were carried out to show exactly what effect refrigeration has upon animal food and for how long a period meat can endure the process without undergoing harmful changes.

### The Rôle of Climate in the Therapy of Tuberculosis.

A great deal of uncertainty still exists as to the exact rôle which climate plays in the treatment of tuberculosis. It is unfortunate that most practitioners cannot dispel this uncertainty and that tuberculous patients are frequently sent to climates that are not particularly well suited to their individual cases. The patient, particularly if he has financial means, desires to be sent to a climate that offers him the greatest advantages, but as is pointed out by G. Schröder and A. V. Müller in the *Zeitschrift für Tuberkulose*, February, 1914, this quest of the ideal climate is like the pursuit of a phantom. Every climate possesses certain advantages and at the same time certain disadvantages. The physician in considering the adaptability of any place should take into account not only the sum total of its meteorological factors, but also its other characteristics which may have some important effect upon the progress of the patient's treatment. Schröder has for a long time maintained that there is no climate that acts as a specific in tuberculosis. Climate can act only as an adjunct in the management of any case. Inland or mountain, seashore or farm, may be adapted for a particular type of case. In order to form a correct idea of the suitability of any health resort it is necessary not only to know its geography and meteorology, but also to understand its entire milieu. The advantages of a sanatorium with its discipline and regularity far outweigh those of a most salubrious climate without these factors. The authors made a comparative investigation of seven well-known climatic resorts with respect to their adaptability in tuberculosis. They selected as their type-climates for comparative studies the following places: Wyk on the island of Föhr, a cool and damp sea climate; Schömberg and Neuenbürg in the Black Forest, at a moderate mountain elevation; Frankfort-on-the-Main, noted for its sunshine and low elevation; Nice and the Riviera, a dry warm sea climate, and Davos, high up in the mountains. They found that each of these places has its advantages at certain times in the year. They found above all that central Europe provides no optimum climate for tuberculosis, but that its different resorts have certain advantages the wise selection of which may be utilized in the treatment of tuberculosis.

### Origin of Syphilis.

In speculating upon the first appearance of a disease, it is clearly important to begin with the alleged date and circumstances accompanying the origin of the affection and then go back a few years at a time, as well as go forward similarly, in order to see if the legend concerning the new malady will hold water. Diepgen, a leading antiquary of Germany, recently read a paper before the Freiburg Medical Society (*Berliner klinische Wochenschrift*, Feb. 2) which was largely a review of some recent work on the origin of syphilis by Sudhoff and others. The legendary view of this subject is that the disease broke out in Italy in 1495 in connection with the Charles VIII invasion. Diepgen adduces the following established data to the contrary: First, as far as the term "French disease" is concerned (the first name of syphilis), this is known to have existed before that date (he might have said for many years); Second, no actually contemporary documents mention a Spanish-American origin of syphilis; Third, the histories of alleged endemics of syphilis in Naples in 1495 are purely late interpolations; Fourth, the legend of a sudden general widespread outbreak of syphilis over Europe is not supported by facts. Hence there was no original virgin soil to favor the rapid, intensive development of a new disease; Fifth, French barbers, surgeons, and prostitutes knew of the disease and its transmissibility by sexual intercourse before 1490.

## News of the Week.

**City Death Rate.**—For the week ending March 28, the death rate in New York was 16.52 per 1,000 of population, or 0.4 higher than during the corresponding week of last year; the total number of deaths for the week was 1,768. The death rate for the first thirteen weeks of 1914 was 15.60 per 1,000, against 15.86 for the same period of 1913.

**Tons of Food Destroyed.**—During the year 1913 the New York City Department of Health destroyed more than 13,000,000 pounds of bad food. Constant supervision was maintained over more than 2,700 establishments where food of various sorts is prepared or vended, arrests to the number of 3,200 were made, and fines amounting to $3,200 imposed.

**Changes in the Health Department.**—Dr. William T. Jenkins, physician to the Willard Parker Hospital, Dr. Joseph Creamer, physician to the Riverside Hospital, and Dr. Cyrus J. Strong have resigned their positions, and their resignations were accepted by the Board of Health at a meeting on March 31. At the same time Dr. Haven Emerson, whose selection was announced last week, was appointed Sanitary Superintendent in the Department. The Board also created an Advisory Council to the Department of Health, which is to be subdivided into committees corresponding to the several departmental bureaus, and the following chairmen of these committees were announced: Dr. Lee K. Frankel, public health education; Dr. John H. Huddleston, infectious diseases; Prof. C.-E. A. Winslow, sanitation; Dr. Louis I. Dublin, records; Dr. Simon Flexner, laboratories; Homer Folks, child hygiene; Bailey B. Burritt, food inspection.

**Georgia Medical Society.**—The new home of the Georgia Medical Society at 612 Drayton Street, Savannah, the culmination of the united efforts of the medical profession of Savannah, was formally dedicated and delivered to the Society on the evening of March 31. The key to the building was presented by Dr. T. J. Charlton, chairman of the home committee, to Dr. J. L. Jackson, president of the society, who in accepting said that the opening of the home marked an epoch in the history of medicine in Savannah and Georgia. The address of the evening was delivered by Dr. J. Ewing Mears, honorary member of the society, who has established the Mears Foundation Library of the society. Dr. Mears referred to the long list of men who as members of the Georgia Medical Society had brought honor to it during its life of more than a century and whose names were bound up with its history and the history of the medical profession in Georgia. The Georgia Medical Society, he pointed out, having been incorporated in December, 1804, is the oldest medical association in the South and one of the oldest in the country. Its organization, as stated in the act of incorporation, was for "the

purpose of lessening the fatality induced by climatic and incidental causes and improving the science of medicine, and in order to insure and establish the said institution in a permanent and effectual manner so that the benevolent and desirable objects thereof may be executed with success and advantage." The illustrious founders of the society had thus transmitted a sacred trust, which Dr. Mears called upon the present members to pass on to their successors with its honor untarnished.

The new home of the society is in colonial style, with the assembly hall and the library on the main floor. The two floors above this will eventually be used for an extension of the library and for a research laboratory, but for the present have been fitted up as living apartments.

**Syracuse University Dispensary.**—The new dispensary building of the Medical College of Syracuse University, Syracuse, N. Y., was formally opened on March 30, 1914. The building has been carefully designed and is believed to meet every requirement of a dispensary. On the first floor there are the offices, pharmacy, and clinic rooms; on the second floor, clinic rooms; on the third, laboratories, and in the basement an *x*-ray room, milk distributing station, orthopedic shop, and manufacturing pharmacy. At a public meeting on the evening of the same day the building was turned over to the Syracuse Free Dispensary Association, which will continue its operation, while vesting in the Faculty of Medicine of the University the organization and administration of the medical and surgical service. The address of the meeting was made by Dr. Richard C. Cabot of the Harvard Medical School, Boston.

**Surgeon-General Gorgas.**—After three months spent in South Africa in the investigation of the epidemics of pneumonia among the native miners in the Rand district, Surgeon-General Gorgas returned to New York on April 1.

**Study of Animal Diseases.**—The Rockefeller Institute for Medical Research, New York, announces that it has received from Mr. John D. Rockefeller an additional endowment of $1,000,000 for the purpose of organizing a department for the study of animal diseases. A pledge of $50,000 has also been received from Mr. James J. Hill, the money to be used in the study of hog cholera. The announcement says: "It is the expectation of the trustees of the institute that the new department by making possible a very thorough and exhaustive study of animal diseases by trained experts will prove a great boon to raisers of cattle, hogs, sheep, and other animals, as the opinion has been expressed that many of the diseases could be held in check and perhaps practically stamped out if the breeders had practical knowledge on which to act. With the present facilities at hand, the income from the $1,000,000 endowment will make it possible to carry on the work on a broad scope at once."

**American Posture League.**—Under this title an organization aiming to prevent round shoulders and aching spines was incorporated at Albany, N. Y., on March 31. The directors are: Jessie H. Bancroft, New York, *President;* Dr. Frederick R. Green, Chicago, *First Vice-President;* Dr. Joel E. Goldthwait, Boston, *Second Vice-President;* Cornelius S. Loder, New York, *Acting Treasurer;* Dr. Henry Ling Taylor, New York, *Secretary;* Dr. E. G. Brackett, Boston; Dr. S. Josephine Baker, New York; Dr. William H. Burnham, Clarke University; Dr. Eleanora S. Everhard, Dayton, O.; Dr. R. Tait McKenzie, Philadelphia; Dr. Eliza M. Mosher, Brooklyn, and Dr. Thomas A. Storey, New York.

**Street Accidents.**—Twenty-seven persons were killed by vehicular traffic in the streets of New York during the month of March. Of these, 12 were killed by automobiles, 7 by street cars, and 8 by wagons. Fourteen of the killed were children. Forty-three persons were injured by automobiles, 29 by street cars, and 12 by wagons. The records of the first quarter of the year, as compared with the same period last year, show a falling off of 22 per cent in street car accidents, 10 per cent. in automobile accidents, and 25 per cent. in wagon accidents.

**Surgical Clinics.**—During the week of the meeting of the International Surgical Congress in New York the following special lectures and clinics will be given for the general medical public at the New York Polyclinic Medical School and Hospital, 341 West 50th street:

April 14, 11 A.M. to 1 P.M. Internal Photography as an Aid to Diagnosis. Alfred C. Jordan, M.D. Cantab., M.R.C.P., Medical Radiographer, Guy's Hospital, London.

April 15, 11 A.M. to 1 P.M. Hypothyroidism. Lecture and demonstration with stereopticon pictures. Dr. E. Hertoghe, Member of the Royal Academy of Medicine, Belgium.

April 16, 11 A.M. to 1 P.M. Surgery of the Heart and Lungs. Lecture and demonstration. Benjamin Merrill Ricketts, M.D., LL.D., Cincinnati, O.

April 17, 11 A.M. to 1 P.M. Treatment of Fractures. Clinic and demonstration. Dr. Albin Lambotte, Surgeon-in-chief, Stuivenberg Hospital, Antwerp.

**Lecturer on Tropical Medicine.**—Captain Arthur N. Trask, Medical Corps, U.S.A., has been appointed lecturer on tropical medicine in the Long Island College Hospital, Brooklyn. This is a new department recently established at the medical school.

**Scarlet Fever in New Jersey.**—Scarlet fever is reported to be prevalent in many of the towns in New Jersey in the vicinity of Trenton and Bordentown. A large number of cases have been reported and several deaths have occurred. An outbreak of diphtheria at Pemberton, in addition, has caused alarm, and the schools there have been closed, and church services discontinued. In Bordentown it has been found advisable to close the moving picture theaters as well as the schools for two weeks.

**Bronx Hospitals.**—As the results of recent investigations the Grand Jury of Bronx County, New York, on March 31, handed to Supreme Court Justice Brady a presentment calling attention to the inadequacy of hospital accommodations in the borough. It is recommended that a pest house be built immediately, that Fordham Hospital be enlarged, that all ambulance services be autovehicular, and that the control of the administration of the hospitals be centered in one department or board instead of at present being under the control of different departments. As a result of this presentment steps are being taken to hasten the construction of a new Bronx Hospital, which has been under consideration for some time.

**Gifts to Charities.**—By the will of the late Margaret A. May of Philadelphia the sum of $5,000 is bequeathed to the Episcopal Hospital of that city for the endowment of a free bed. The hospital will

also receive a considerable portion of the residuary estate, the value of which has not been determined.

The Danbury Hospital, Danbury, Conn., receives a bequest of $1,500 by the will of the late Mrs. Julia E. Ferry of Bethel, Conn.

The Royal Victoria Hospital, Quebec, has received from Mr. James L. Ross an offer of a sum sufficient to erect a private pavilion of 150 beds, to be known as the Ross Memorial Pavilion in remembrance of the donor's father, Mr. James Ross. It is estimated that the cost will be between $250,000 and $300,000.

The endowment of three free beds in St. Luke's Hospital, New York, is provided for in the will of the late Mrs. Mary D. Lane, who set aside $15,000 for the purpose.

By the appraisal of the estate of Ferris S. Thompson, who died in Paris last year, the value of the bequests to various charitable institutions have been determined. Mercy Hospital, Chicago, receives $229,155; the New York Skin and Cancer Hospital, $101,753; the Woman's Hospital, New York, $83,581; St. Luke's Hospital, New York, $39,620, and the American Hospital, Paris, $25,000.

By the will of the late L. A. Van Praag of New York $5,000 is left to Columbia University to be used for research work into the causes and cure of cancer. Other bequests are $1,000 each to St. Rose's Free Home for Incurable Cancer and the Montefiore Home.

**Island Hospital.**—Commissioner Davis of the Department of Correction of New York City is having plans prepared for the erection of a new hospital building on Blackwell's Island for the penitentiary inmates. The new building will be placed to the south of the penitentiary, where it will be open to the sunlight and fresh breezes from the river. The present hospital will probably be continued in use as a dispensary for the treatment of minor prison cases.

**Tuberculosis Hospitals Needed.**—In commenting on the work which has been accomplished during the last three years, a recent report of the Committee on the Prevention of Tuberculosis of the Charity Organization Society, calls attention to the need of greater hospital facilities for tuberculosis patients in New York. It states that the records of the Health Department show 40,000 such patients in the city, the majority living in tenement houses, with only 3,051 hospital beds provided, and declares that the overcrowded condition of the hospitals is a disgrace to the city. That the tuberculosis campaign is beginning to prove effective, however, is shown by figures quoted from a recent bulletin of the Health Department. The death rate from pulmonary tuberculosis in New York City was 2.25 in 1898, and 1.66 in 1912; the total number of deaths being 7,724 in 1898 and 8,591 in 1912.

**Memorial Service.**—Students and members of the Faculty of the University and Bellevue Hospital Medical College held a service on April 4 in memory of Dr. Egbert Le Fevre, dean of the college, who died on March 30. The chancellor of the university, Dr. A. A. Smith, Dr. George D. Stewart, and others spoke of the esteem in which Dr. Le Fevre was held and the valuable work he had done during his long connection with the college.

**Lives To Be 120.**—Bias Casanova, said to have been the oldest man in Cuba, died on April 4 at the reputed age of 120 years.

**Clinic for Peddlers.**—The Department of Health has announced that hereafter all applicants for licenses to peddle from pushcarts will be examined at the tuberculosis clinics and that preference in granting the licenses will be given to those who will apparently be benefited by the outdoor work.

**Yellow Fever in Ecuador.**—Sixteen cases of yellow fever have been reported in Esmeraldas and the disease is said to be spreading through the country.

**Medals Bestowed.**—Dr. Charles C. Bass, Dr. Charles W. Duval, and Dr. A. L. Metz, all members of the faculty of the Medical Department of the Tulane University of Louisiana, received medals from the American Institute of Social Science at a meeting held in the City Hall of New Orleans on March 14.

**In Memory of Dr. Mitchell.**—A memorial meeting in honor of the late Dr. S. Weir Mitchell was held on the evening of March 31 in Mitchell Hall of the College of Physicians of Philadelphia, under the auspices of the College, the University of Pennsylvania, Jefferson Medical College, the Library Company of Philadelphia, and the Academy of Natural Sciences. Following some introductory remarks by Dr. J. C. Wilson, addresses were made by Dr. Talcott Williams, director of the School of Journalism, Columbia University, who spoke of Dr. Mitchell as a man; by Dr. William H. Welch, Johns Hopkins University, who was present as the representative of the National Academy of Science and of the Carnegie Institution of Washington, and who spoke of Dr. Mitchell as a physician and man of science; and by Owen Wister, the novelist, who spoke especially of the literary career of Dr. Mitchell and pointed out the debt owed to him by American literature.

**Obituary Notes.**—Dr. Everett Herrick of New York, a graduate of the Jefferson Medical College, Philadelphia, in 1864, and a member of the American Medical Association and of the New York State and County Medical Societies, died at his home after a long illness, on April 1, aged 85 years.

Dr. Payson Jonathan Flagg of Mittineague, Mass., a graduate of the Jefferson Medical College, Philadelphia, in 1885, and a member of the Massachusetts and Hampden District Medical Societies, died at his home, after a short illness, on March 22, aged 55 years.

Dr. John Alexander Fitz-Hugh of Amesbury, Mass., a graduate of the Cleveland, O., Medical College, in 1880, and of the Hahnemann Medical College and Hospital, Philadelphia, in 1881, a member of the Massachusetts and Essex District Medical Societies, and vice-president of the latter, died at his home on March 21, aged 60 years.

Dr. George Parker Williard of Tiffin, O., a graduate of the Jefferson Medical College, Philadelphia, in 1867, a veteran of the Civil War, and a member of the Ohio State and Seneca County Medical Associations, died at his home, from pneumonia, on March 20, aged 68 years.

Dr. Albert Waldo Forbush of Somerville, Mass., a graduate of Eclectic Medical College of the City of New York, in 1881, died at his home on March 20, aged 62 years.

Dr. Edgar de Mott Stryker of Holkol, Corea, a graduate of the College of Physicians and Surgeons, New York, in 1901, formerly a resident of Pine Bush, N. Y., but for the past five years head of the hospital of a large mining company at Holkol, was shot and instantly killed by a Japanese supposed to be crazy, on March 29, aged 40 years.

## Obituary.

### JOSEPH DECATUR BRYANT, MD., LL.D.

NEW YORK.

Dr. Joseph D. Bryant, whose death occurred on Tuesday of this week, was a man of wide learning and broad human sympathies and had led a life of great professional activity and of usefulness in many and varied directions. He had been Surgeon General of New York State, Health Commissioner of New York City and Commissioner of the State Board of Health; president in succession of the New York Academy of Medicine, the New York State Medical Association, the New York State Medical Society, and the American Medical Association. He was a member of the International Society of Surgeons and of the American Surgical Association. He was also a veteran of the Seventy-first Regiment of the National Guard, and was for several years the Surgeon Major of that command. He was at one time President Cleveland's physician and for many years enjoyed his friendship and confidence.

Dr. Bryant was born in East Troy, Wis., on March 12, 1845. He was educated at Norwich, N. Y., and obtained his medical degree from the Bellevue Hospital Medical College in 1868. He spent two years as interne in Bellevue Hospital, and ever since that time had been connected in one capacity or another with the faculty of the Bellevue Hospital Medical College and of its successor, the University and Bellevue Hospital Medical College, holding the chair of the principles and practice of surgery and of clinical and operative surgery in the latter institution at the time of his death. He was a visiting surgeon at Bellevue Hospital since 1882 and at St. Vincent's Hospital since 1887. He was also consulting surgeon to the New York City Insane Asylum, the Northwestern Dispensary, Hospital for the Ruptured and Crippled, Woman's Hospital, and St. Joseph's Hospital, Yonkers. He contributed frequently in his earlier days to the medical periodicals, was the author of a treatise on Operative Surgery in two volumes, and was co-editor with Dr. Buck of the American Practice of Surgery in eight volumes.

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At a special meeting of the Medical Board of St. Vincent's Hospital, held on April 8, 1914, the following minute was adopted:

"Whereas: It has pleased God, in the infinitude of His Mercy, to remove from his sphere of usefulness in this community, Joseph Decatur Bryant, M.D., LL.D., for twenty-seven years Visiting Surgeon to this Institution; therefore, be it

"Resolved: That in the death of Dr. Bryant, St. Vincent's Hospital has lost an officer whose great surgical skill and vast experience has always been at the service of its sick and suffering poor; the Sisters in charge have lost a loyal friend and wise counsellor; and his colleagues have lost an inspiring example of duty and a genial companionship difficult to replace.

"Resolved: That a copy of these resolutions be spread upon our minutes, and that copies be sent to the public and medical journals, and a copy be sent to the family of deceased."

José M. Ferrer, President.

Charles Edward Nammack, Secretary.

## Correspondence.

### OUR LONDON LETTER.

(From Our Regular Correspondent.)

CAMBRIDGE MEDICAL SCHOOL—MEDICINE OF 14TH CENTURY—SOLDIERS' DAUGHTERS' HOME INVADED BY DIPHTHERIA—HOSPITAL SOLD—KING EDWARD'S HOSPITAL FUND—FOTHERGILL MEDAL—PROPOSED MEDICAL SCHOOL FOR WALES—FOUNTAIN A DISEASE CARRIER—OBITUARY.

London, March 20, 1914.

The appeal for State aid for all sorts of objects is so common and so urgent that it seems to give one a novel sensation to hear of the offer of such assistance exciting fierce objection. Yet a heated discussion has for some time been carried on in Cambridge University as to whether the Medical School should be allowed to accept the offer of money granted by parliament, and on Saturday a poll was taken with the excitement of a political election. Permission was given by 268 to 235, a majority of 33 for the medical school. To summarize the dispute, I should tell you that the Board of Education has at its disposal funds from which it makes grants in aid of work in the universities and colleges in connection with medicine. The other universities and nine out of eleven medical schools in London enjoy such grants. The Cambridge Medical School, which claims to be the largest in England, is straitened for income and needs help to keep abreast with the times, maintain the efficiency of the school and promote research. Accordingly, request was made to the University to apply to the Board of Education for a grant for its medical departments. Opposition was at once raised on the ground that acceptance of State aid would lead to government interference, which would be against the best interests of the University, and that one faculty ought not to be allowed to commit the whole to a departure, save to lead to a rapid and wide extension of the principle. The Board of Education had declared they would not assume or claim power to discuss the character of the scientific teaching or interfere in any way with the internal affairs of the University. But the opponents replied that the present Board could not bind their successors. The supporters of the proposal assert that the fear of governmental interference is but a vague presumption; that the University was not asked to apply for an ordinary grant, but only for its share in a sum set aside specifically by parliament for the teaching of medicine and of engineering. It was accepted by Oxford for engineering—why not by Cambridge for medicine? The question aroused intense interest among Cambridge men and the dispute was fought to a close finish. So keen was the contest that at once there arose the question of whether the poll was final—which it seems to be—though some said the vote only sanctions the application, and it would be possible to oppose the conditions of acceptance. The victors retorted the conditions have been published and are most reasonable, the principle has been accepted by the University, and we shall obtain the grant as from October next. No doubt application will forthwith be made for the share in the grant, which is calculated at £4,600 a year; the school may, therefore, be congratulated.

The Harveian oration was delivered on Friday last by Mr. D'Arcy Power at the Harveian Society,

the President, M. Jackson Clarke, in the chair. "English Medicine and Surgery in the Reign of Edward III." was the subject chosen by Mr. Power, who said that the 14th century gave occupation to every branch of the healing art. Surgical work was called for on account of the hundred years' war. The Black Death gave work to practitioners of all sorts. At the end of the century, however, the War of the Roses completely changed the conditions. Prior to them there was a good prospect of those engaged in the work becoming a profession. John of Gaddesden was, perhaps, the best known medical man of the time and might be termed physician. John of Andern was the leading surgeon. In the Royal Library at Stockholm was a book by Andern dated 1412, a copy of which Mr. Welcome holds. Andern employed spells and charms so commonly used at that period. But the lecturer pointed out that he was much in advance of his time in surgery and invented new and original operations. Although Andern described his patients by their armorial bearings alone, Mr. Power had been able to identify one as the Mayor of Northampton in 1327. In those days a physician was always a churchman and usually held some preferment in the church. John of Gaunt had two friars as his physicians. Of operating surgeons there were two classes, one belonging to the Guild of Master Surgeons, a small body which required those who were in it to be of good repute. Those outside were under no obligations and naturally were less esteemed. At that time barbers were only barbers, but they acted as keepers of the city gates and a sort of officers of health, because they had facilities of discovering infectious diseases and preventing those suffering from coming in. There were also women practitioners at that time, as well as a number of groups engaged in distinct departments only—more or less subordinate. Dentists were well established. Apothecaries made and sold medicaments. Cuppers were a group to themselves. Couchers of cataract formed a specialty.

The lecturer gave a description of St. Bartholomew's Hospital in those early days and showed a number of lantern illustrations.

The Royal Soldiers' Daughters' Home has been invaded by diphtheria, and as there are about 160 girls, besides some 25 staff in the institution, no little uneasiness has been felt. There does not appear to have been any neglect and the committee have strictly followed the advice of the sanitary authorities of the district. The first case was on November 30, the second on December 4 last. Of course they were reported and inspection followed, the result being an intimation on the 12th that a number of improvements were desirable and a suggestion that their architect might advantageously confer with the Medical Health Officer, a course no doubt excellent, as a rule, but usually leading to costly alterations or rebuilding. The patients were conveyed to Asylums' Boards' Hospital as the law requires. Other cases appeared at intervals in January and February and at the instigation of the Medical Health Officer the throats of a number of the girls were freely swabbed to ascertain if possible who were the carriers. This was done early in February and a case occurred on each of the six following days after which there was freedom for more than a fortnight. Another case occurring, the Medical Health Officer's advice to have every person in the Home swabbed was carried out. The pathologist of University College Hospital was engaged to do this and report on the bacteriological results and agreed to do it personally, not by deputy. This was done, everybody in the building being included. No one after swabbing was allowed to mix with the unswabbed until all had been swabbed—about four hours' time. The bacteriological report revealed that above twenty persons were harboring the Klebs-Loeffler bacillus and forty were considered suspicious. These latter were isolated and treated with antitoxin—the others conveyed to the Asylums' Board's Hospital. Since then one case has occurred (on March 10). The committee propose, if practicable, to empty the building for a time long enough to carry out whatever renovations may be found necessary. The architect estimates that to do all the Medical Health Officer recommends will cost some £4,000. The expense of providing for the children during the period of renovations must be considerable and one feels inclined to inquire whether it might not be more economical to sell the building and remove permanently into the country.

Last night the matter was brought before the Hampstead Borough Council when a Councillor stated that arrangements were made for emptying the Home. The Medical Health Officer for Wandsworth, into whose district the girls are to be taken, has been informed and will cooperate in measures to prevent infection being carried.

The governors of the Mount Vernon Hospital for Consumption on Wednesday approved of the sale of the premises to the Medical Research Committee for the sum of £35,000, payable as to £11,000 in cash and the remainder in four annual instalments. The governors own another hospital at Norwood on which the committee will concentrate their future efforts—the architects having already prepared plans for its extension.

King Edward's Hospital Fund has received £269,644 as its share of the first distribution of the estate bequeathed by the late Sir Julius Werner.

The Fothergillian Gold Medal of the Medical Societies of London for 1914 has been awarded to Dr. Geo. Adami of Montreal University.

Sir W. J. Thomas's provision of £60,000 towards establishing a medical school in Wales is supplemented by an anonymous donor of £30,000 on condition that the treasury add to its present grant an amount which Sir W. Osler shall consider enough for an up-to-date school.

The Medical Health Officer for Hendon considers he has traced to a fountain pen three cases of scarlet fever in a family. The pen was destroyed and compensation paid. What of other pens?

Dr. George Ernest Herman, obstetric physician to the London Hospital (1876-1903), died on the 11th inst. at the age of 65. He qualified in 1870 and continuing work at the London Hospital took the M.B., London, in 1879. In due course he became a Fellow of both Royal colleges and held a number of appointments connected with obstetrics, of which he was recognized everywhere as a leading authority. Thus he was examiner on the subject at both the colleges as well as at the universities of London, Cambridge, Oxford, Durham, and Manchester (Victoria). The presidency of societies fell to his lot and the honorary Fellowships of foreign associations. His "First Lines of Midwifery" and "Students' Handbook of Gynecology" were textbooks in many schools, and as well known was his "Diseases of Women," while his "Difficult Labor" was regarded as a safe guide in any emergency.

Surgeon-General Sir A. M. Branfoot, C.I.E., who was president of the Medical Board of the India Office from 1904 to 1913, died on the 17th inst. He was a Guy's student, took the diplomas of the two Royal colleges, 1870-1, and graduated M.B. at the London University 1902, entering at once the Indian medical service, from which he retired in 1903, passing the following year, as stated above, to the presidency of the London Board. He had been made Companion of the Order of the Indian Empire in 1898, and was knighted in 1911. He served on the Council of the Lister Institute.

The deaths of two other retired medical officers of distinction have occurred: Surg.-Major Mark Robinson on the 13th, suddenly at Mentone; on the 17th inst. Fleet-Surgeon (R. N.) George Robertson, M.D., in his 74th year.

Dr. Francis Vacher, J.P., M.O.H., F.C.S., died on February 25 on a voyage undertaken for health, age 71. He was Medical Officer of Health at Birkenhead for nearly twenty years and held some other offices of the kind, had served as president of the Society of the Incorporated Officers, and of the Birkenhead Medical Society, and of its Literary and Scientific Society. He was a member of Société Francaise d'Hygiène, the Royal Institute of Public Health, and other associations connected with sanitation. He also occupied himself with various philanthropic efforts, both general and local, and is deeply lamented in Birkenhead.

## THE THEORY AND PRACTICE OF "CERTIFIED MILK."

To the Editor of the Medical Record:

Sir:—A prescription, unsuspectedly dangerous, becomes harmful in the ratio to the reliance placed upon it and its freedom of use. I quote from *Hoard's Dairyman* the following: "As evidence that the producer is willing to produce milk of quality as generally defined in terms of equipment and labor of production, Professor Harding stated that dairymen in New York City were prepared at the present time to produce two quarts of certified milk to every quart now used. One difficulty pointed out by Professor Harding was the fact that quality is not properly expressed in terms of practice at the present time. This is evident, for out of 28 or 30 bottles of certified milk in a show recently judged by Professor Harding, all but one bottle showed dirt at the bottom that was visible to the naked eye." In practice 90 per cent. of the dirt present in milk is found to be cow manure, and even healthy cows have a way of voiding tubercle bacilli with their feces. The certified milk requirements read " . . . strained through strainers made of a double layer of finely meshed cheese cloth or absorbent cotton thoroughly sterilized." From Professor Harding's statement either absorbent cotton or gauze, as a strainer, is not efficient in practice (and as the milk samples were entered in competition it was safe to assume that the milk was so strained), or the operators are negligent, for unless Professor Harding's vision was at fault the dirt was there present. And with mechanical milk cleansing means at hand, and largely and successfully used by other milk purveyors, why do the certified milk requirements still hold to the antediluvian straining methods, that seemingly, for some reason or other, don't strain. Certified milk carries with it an idea of "up-to-the-minute" sanitation which Professor Harding's findings seriously question.

Again, I quote from the U. S. Department of Agriculture Experimental Stations Report, which quotes from Dr. Rosenau as follows: "Milk drawn in a sterile way from normal cows may contain virulent streptococci and penumococci; hence, 'certified milk,' while surely less contaminated than ordinary milk, may contain pathogenic bacteria, and the advisability of pasteurization even in this case should be considered, especially during seasons when sore throat is common. Butter and milk may contain virulent streptococci."

Again, I quote from the certified milk requirements: "Certified milk and cream shall not be subjected to heat unless especially directed by the commission to meet emergencies." Remembering that there is such a thing in the dairy as the undetected tuberculous cow (the tuberculin test, though reliable, eminently so in practice, is not infallible), that a healthy cow will and frequently does void the tubercle bacilli in her feces, that foreign stable matter does get into the milk-pail despite all sanitary measures of prevention, that 90 per cent. of all foreign matter present in milk is cow manure, and that undetected and undetectable udder disorders may mean streptococci-laden milk, the infectious sore throat kind; then why in the face of all the above, if certified milk is to be banked upon as an absolutely reliable milk when all other milks fail, should not certified milk requirements demand that, to make this milk really, absolutely reliable, mechanical cleansing, clarification, be resorted to and the influence of the sediment that was removed from the milk mechanically, but yet present in a pathogenic germ sense, be nullified by pasteurization?

The antiquated fetish-like arguments against pasteurization, like floating corks, keep bobbing above the surface, but pasteurization has come to stay and its success in every-day practice, year after year, and in the cases of thousands upon thousands, hundreds of thousands, of infants whose lives have been saved by it, should quiet all hostile argument. The outcome of the Straus milk stations alone should be in itself convincing argument enough along practically utilitarian and eminently successful lines. To conclude, I exclaim, let the Milk Commission make the word "certified" mean really something along safety lines when applied to milk.

Charles Cristadoro.

Loma, Cal.

## Progress of Medical Science.

**Boston Medical and Surgical Journal.**

*March* 26, 1914.

1. The Treatment of Syphilitic Diseases of the Central Nervous System by Intravenous Injections of Salvarsan. L. H. Spooner.
2. Salvarsanized Serum ("Swift-Ellis Treatment") in Syphilitic Diseases of the Central Nervous System. J. B. Ayer.
3. Epicondylitis (Franke) or Tennis Elbow. W. P. Coues.

**1. The Treatment of Syphilitic Diseases of the Central Nervous System by Intravenous Injections of Salvarsan.**—L. H. Spooner concludes that it is possible to treat in a satisfactory manner syphilitic diseases of the central nervous system by intravenous injections of salvarsan in an ambulatory clinic. Small doses of the drug are necessary for this purpose, but such dosage yields results. With the exception of six cases placed subsequently on serum treatment and excluded from the author's paper, symptomatic improvement has resulted from thorough treatment in a high percentage of cases

of tabes and in all cases of syphilis of the central nervous system. No distinct improvement has resulted from the treatment of the few cases of general paresis under observation. Improvement in strength and gain in weight is the rule in those who receive benefit. The relief of lancinating pains in tabes and headache in cerebral syphilis is most striking. Biological and cytological changes (in blood and spinal fluid) indicate that there is an organic basis to this symptomatic improvement. It is regrettable that those observations were of necessity so limited. Improvement has been maintained over a long period of time—in many instances for from one to two years. The results of laboratory investigations when obtainable and the amelioration of symptoms correspond. Whereas the failures have been in old standing cases it is impossible to show any constant relationship between the degree of improvement and the duration of the nervous lesions. The most striking improvement follows the first or second injection. Treatment must, however, be persistent and prolonged and should be continued even if all symptoms and laboratory findings have long disappeared. Reactions are infrequent with small doses of the drug. Accidents are rare. Focal accentuations of symptoms (Herxheimer) are disagreeable but of short duration. These are often a hopeful sign. The most pronounced successes are in those who show evidence in blood or spinal fluid of intense syphilitic infection. The failures have occurred in those showing feeble reactions. Phthisis seems worthy of consideration as a contraindication. This treatment might well be advised in all cases of syphilitic disease of the central nervous system and abandoned for the serum treatment when conscientious effort in this simple and safe procedure has failed.

**2. Salvarsanized Serum ("Swift-Ellis Treatment") in Syphilitic Diseases of the Central Nervous System.**—J. B. Ayer draws the following conclusions from the use of salvarsanized serum, the procedure elaborated by Swift and Ellis: The method is safe. It is effective in many cases where other treatment has failed. It undoubtedly attacks syphilis from the etiological point of view, thus tending to cure the disease as well as relieve symptoms. Its greatest effect is in the group of cerebrospinal syphilis, in which a cure may confidently be looked for in some cases with persistent treatment; second, in tabes, in which arrest of disease process is often possible by this means; least effective in general paresis, when well developed, though here if taken in the preparetic stage encouraging results may be obtained. With the originators of the method the authors agree that persistence in its use is the keynote to success in the salvarsanized serum; consequently an estimate from the injection of one or two doses is a judgment more of the "reaction," which in some cases is severe, than of the therapeutic effect of the serum. With the technique of administration and necessary control examinations as laborious as at present the authors do not expect to see this form of treatment in general use, but believe it should be employed by those especially trained when other treatment fails in whole or in part, or in cases where haste is required in order to save vital tissue.

**3. Epicondylitis (Franke) or Tennis Elbow.**—W. P. Coues points out that there might perfectly well be two lesions causing the symptom complex known as tennis elbow, or epicondylitis. First, a partial tearing of some of the muscular attachments from the external epicondyle, giving rise to the separation of bony spicules, with the possibility of a periostitis from such tearing, which need not necessarily be marked enough to show in a radiograph. Second, injury to the radiohumeral joint capsule from antagonistic muscular contraction of the supinator brevis and supinator longus, as believed by Preiser. It does not seem as if Preiser's theory of predisposition to arthritis deformans of the radial head could be accepted in all cases.

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## New York Medical Journal.

*March* 28, 1914.

1. Treatment of Chronic Nephritis. J. Tyson.
2. The Conservation of the Functions of the Ear, Nose, and Throat. W. S. Bryant.
3. Obstructions in the Lower Ureter. L. Buerger.
4. A Teaching Classification for the Terata and Hemiterata. R. A. Keilty.
5. Common Colds. N. P. Stauffer.
6. The Technique of Oil-Ether Colonic Anesthesia. J. T. Gwathmey.
7. Organic and Psychogenic Delirium. H. L. Levin.
8. The Dose of Hexamethylenamine. F. D. Austin.
9. Salvarsan in Rhinoscleroma. L. G. Kaempfer.

**1. Treatment of Chronic Nephritis.**—J. Tyson states that the indications are first to protect the system against toxins which tend to accumulate in the blood because of deficient elimination by the damaged kidney; second, to protect against complications and certain grave symptoms and their consequences; third, to restore the normal structure of the diseased organs. The first indication is met by cutting out protein foods, whence for the most part arise the toxins referred to, and, second, by stimulating the function of organs other than the kidneys whose office it is to supplement the renal excretion. Quite as important as the quality of food is the quantity. Overeating is often the cause of nephritis; especially therefore should it be avoided by the nephritic. Having cut down protein foods and substituted others the next step is to stimulate the excretion of the toxic products of deranged protein metabolism. The functions of the kidneys are stimulated by the saline diuretics, of which potassium citrate is the type, and by the alterative diuretics as iodine and calomel. The skin is also an efficient agent in eliminating toxins. It is availed of most effectually by the hot pack, the hot-air bath, hot vapor bath, or electric light bath. There can be no doubt that the kidney is subject to structural repair. All that promotes natural and normal function and maintains normal circulation, tends to promote healing. The complications of chronic nephritis are numerous, but only a few demand detailed consideration. They include bronchitis, edema of the lungs, pneumonia, pericarditis, more rarely endocarditis, pleurisy, and effusion into the serous sacs. Among symptoms requiring special or modified treatment are uremia and edema, general and local. A brisk purge, a sweat, or a bloodletting may avert the threatening convulsion and coma of anemia. The presence of coma or convulsions militates against the usual modes of giving medicine. A couple of drops of croton oil mixed with a teaspoonful of plain oil may be carried to the back of the tongue, or one-sixth grain of elaterium or one-twelfth grain elaterin dissolved in a small quantity of water. Chloroform may be inhaled to control the convulsions. After the purgative has had its effect an enema of chloral in solution, as much as a dram of the drug in four ounces of water, may be given to supplement the effect of ether and to continue it. Simultaneously, or in close association with these measures, is the sweating which may have been used in the initial stage of treatment. The best method of securing sweating at this stage is by the hot pack or vapor bath. The fluid extract of jaborandi or pilocarpine hydrochloride may be used to facilitate the action of heat, small doses such as a quarter of a grain of pilocarpine being sufficient when combined with the heat; while large doses, though more active, are apt to produce edema of the lungs. The operative treatment of chronic nephritis, Edebohl's operation, is not resorted to as often as it should be.

**2. Conservation of the Functions of the Ear, Nose, and Throat.**—W. S. Bryant refers to the importance of

the integrity of the ear, nose, and throat. The danger from soot, dust, and poisonous gases in every occupation where they occur should be recognized by law and should be minimized by law. When the public is sufficiently educated to appreciate the loss through these remediable hardships it will not be slow in demanding salutary legislation, and in punishing the offenders by legal penalty and public opprobrium. The special means of protection in every instance are obvious. We should view this subject from the viewpoint of the people most affected. Public sentiment should be aroused by an exposition of the dangers and losses from remediable causes, and protective legislation providing general regulations should follow. Public sentiment should be aroused through an appreciation of the value of the functions of the ear, nose, and throat to an active campaign to preserve these functions for the coming generation. Public sentiment should also be moulded to revere as sacred the respect due to the promptings of their sense organs, and to appreciate the value of the warnings and the great danger which these sense organs point out. It should be compulsory that children have the necessary attention to their ears, noses, and throats. The importance of keeping dust down is shown by London, which, largely on account of its dust-free foggy air, is the great health city. We must now choose the means to approach the end in view without dangerous speed, but with the evidence of advance. Legislation should compel all large users of coal to destroy or mitigate all acid fumes and volatile, poisonous elements, and consume all smoke, thus improving the air for breathing. The dust problem does not require legislation as the problem of effluvia does. It can be regulated by city ordinances and by public opinion, which should demand a city ordinance providing for sprinkling oil or a hydroscopic fluid in the streets to lay the dust at all times of the year. Vacuum cleaners, Dr. Bryant maintains, should be used in all public buildings, places of business, manufactories, hotels, and apartments.

8. **The Dose of Hexamethylenamine.**—F. D. Austin concludes that the Ramini-Burnam and phloroglucin tests are very simple, and when used give the physician the earliest method of determining the dose of hexamethylenamine in any given case. It is the duty of every physician who gives the drug to make the test, for without it he cannot possibly know the amount of free formaldehyde he is getting. These tests are of great value in determining the formaldehyde value of the many urotropin compounds. The allied compounds fail to give greater antiseptic values than the pure hexamethylenamine. The conclusion of different investigators in regard to the antiseptic value of hexamethylenamine in the alkaline fluids of the body, is that it is according to laboratory findings absolutely valueless, that it occurs in too weak a dilution, if at all, in the free state. The author has no explanation to offer for the often reported clinical and bacteriological improvements of the secretions, other than the urine, for the author has not tested them as he has the urine. The conversion of hexamethylenamine into formaldehyde is a simple process which will readily occur in an acid medium, but not in an alkaline one. The amount of free formaldehyde excreted is influenced by the size of the dose, by the frequency of its administration, by the degree of acidity in the body fluids, and by the body heat. The low acidity of the urine can be greatly overcome by giving certain acid producing drugs. The ordinary dose of five to seven and a half grains of hexamethylenamine three times daily will fail to give free formaldehyde in an amount sufficient to be of any antiseptic value.

**Journal of the American Medical Association.**

*March 28, 1914.*

1. The Histogenesis of Multiple Basocellular Carcinoma. R. L. Sutton.
2. Radiologic Signs of Duodenal Ulcer, with special reference to Gastric Hyperperistalsis. R. D. Carman.
3. Formaldehyde. H. McGuigan.
4. Observations of the Results of Nine Months' Experience with Neosalvarsan at the United States Military Prison Hospital, Fort Leavenworth, Kan. K. Nelson and E. F. Haines.
5. Hemolysis Due to Intravenous Injection of Distilled Water. E. B. Krumbhaar.
6. Blood Transfusion. Report of One Hundred Fifty-five Transfusions by the Syringe-Cannula System. E. Lindeman.
8. Fixation of the Ptosic Stomach and Colon by Retroperitoneal Implantation. C. A. L. Reed.
7. Blood Transfusion in Diabetes Mellitus. B. O. Raulston and R. T. Woodyatt.
9. Why Prolonged Medical Treatment of Peptic Ulcer is Unadvisable. J. N. Hall.
10. A Sero-Enzyme Diagnosis of Syphilis. F. W. Baeslack.
11. The Removal of the Appendix in All Cases of Appendicitis with Localized Abscess. Van Buren Knott.
12. A Clinical Study of Asthma. B. C. Davies.
13. Diagnosis of Whooping-Cough by Complement-Deviation Test. Preliminary Note. A. Friedlander and E. A. Wagner.
14. The General Action of Quinin in the Treatment of Amebic Dysentery. R. Brooke.
15. Pseudopancreatic Cysts with a Report of Four Cases. F. A. Besley.
16. Chronic Retention of the Urine. Twenty-eight Years of Catheterization. T. L. Deavor.
17. Syphilitic Sore Throat Diagnosed as Diphtheria. Subsequent Eruption Confused with Supposed Antitoxic Erythema. A. L. Glaze.
18. Death During Ether Anesthesia—Status Lymphaticus. W. B. Howell.
19. Ankylosis of the Mandible. R. C. Creasy.

1. **Histogenesis of Multiple Basocellular Carcinoma.**—R. L. Sutton concludes that the theories of Thiersch and of Cohnheim are not tenable in all cases of cancer. In basocellular carcinoma the tumors spring directly from the basal layer of the rete, and are independent of proliferative changes in the corium. It is improbable that either the blood-vessels or substances within the blood-vessels exert any influences on the course or character of the lesions. An important if not absolutely essential, factor in the etiology of both basocellular and prickle-cell cancer is a peculiar quality of the skin, a quality which may be acquired but is frequently congenital and occasionally inherited, and which is characterized by harshness and dryness, with more or less evidence of long-standing dry seborrhea. Judging from the regions commonly involved, exposure to sunlight and to atmospheric changes also plays an important part in the preparatory degenerative process. The long-continued action of the Roentgen rays may give rise to cutaneous changes which predispose to cancerous involvement, but this predisposition is limited to the area exposed, and would not account for an increased susceptibility of the skin on other parts of the body.

3. **Formaldehyde.**—H. McGuigan concludes that formaldehyde is rapidly absorbed from all parts of the gastrointestinal tract and lungs, and may be excreted again by them. It is rapidly oxidized in the body to formic acid and carbonates. There is also a small amount of a dialyzable compound formed in the blood, which is most probably hexamethylenamine, since the latter is found in the urine. Small amounts of formaldehyde may pass through the body without causing apparent inflammation, while larger amounts always cause some. Recovery from severe inflammatory reactions may be rapid and apparently complete. Formaldehyde depresses the heart by direct action. Its action on respiration is transient and apparently the result of irritation, though the quick oxidation would account for some of the increase. Formaldehyde causes a stimulation of the intestinal movements, which, in the case of large doses, are extreme. The antiseptic action of formaldehyde is apparently due to fatigue. exhaustion, and a final firm combination with the drug. There is nothing to indicate that the drug has a field of usefulness in medicine other than for local use.

5. **Hemolysis Due to Intravenous Injection of Distilled Water.**—E. B. Krumbhaar has found that the rapid intravenous injection of distilled water, in amounts equal to from 2 to 3 per cent. of the bodyweight or more, will cause in the dog transient hemoglobinuria and albuminuria. Lengthening the duration of injection time from five to forty-five minutes is without noticeable effect, though a much slower injection might give different results. Hemoglobin stained urine usually appears in the bladder catheter in from twenty-five to thirty minutes after the beginning of the injection. The hemoglobinuria lasts approximately from four to sixteen hours, depending on the severity of hemolysis. Much smaller amounts (as low as from 0.4 to 0.6 per cent.) are sufficient to cause a noticeable hemoglobinemia without hemoglobinuria. Hemoglobinemia appears within from two to four minutes after the beginning of the injection and may last twenty-four hours. In doses that just fail to cause hemoglobinuria, albumin and bile may appear in the urine the next day. No noticeable anemia is caused, but there is a temporary decrease in the minimal resistance of the red blood cells.

7. **Blood Transfusion in Diabetes Mellitus.**—B. O. Raulston and R. T. Woodyatt state that the transfusion of 500 c.c. of peripheral venous blood from a healthy male donor into the peripheral veins of a brother suffering from severe diabetes mellitus had a decided effect on the metabolism of the latter, as evidenced by a marked rise in the output of sugar, ammonium, and acetone bodies, and an increase of the glucose to nitrogen ratio. In severe diabetes mellitus blood transfusion is definitely contraindicated.

12. **A Clinical Study of Asthma.**—B. C. Davies rejects the older classifications of asthma and even the more recent one of intracardiac and bronchial asthma, and considers it only as a reflex acting on the innervation of the circular muscular fibers from irritation from other parts of the body causing hyperemia of the bronchial mucosa and spasm of the muscular fibers and of the diaphragm. The author quotes in support of these views cases in which the asthma was due to gastrointestinal disorders, adenoids and nasal troubles, genitourinary irritation, etc., and was relieved or cured by treatment of the causal conditions. He suggests, reasoning from his own experience, that asthma be no longer considered a disease entity but as a reflex symptom. The examination in these cases should be complete and exact. The treatment very often lies in preventing the attacks; hence it is in the hands of the patients to a large extent, and they should receive full instruction as to its cause and prevention.

13. **Whooping-Cough.**—A. Friedlander and E. A. Wagner find that the complement-deviation test is of the greatest value in the diagnosis of whooping-cough, though Bordet himself, who described the bacillus, concluded that complement-fixation was not an early sign. Their technique for the test is described as follows: "A small amount of blood was taken from the patient's ear, finger, or toe in small test tubes or in Wright capillary tubes. This was kept at room temperature or placed in the incubator until coagulation had taken place. Serum was then separated more completely from the clot in the centrifuge. So far in the authors' tests the fresh active serum has been used. Two drops of the serum were used in each test. Hemolytic system: The Noguchi system was used because of its extreme delicacy and because of the small amounts of material, especially serum, required. Antigen: This is the most important factor in the test. The Bordet-Gengou bacillus was obtained in pure culture. Subcultures were made on Bordet's medium, ascitic fluid agar, and broth serum. The antigen was made from seventy-two hour growths in ascitic fluid agar in the following manner: The colonies which are very tenacious were washed off the agar with sterile salt water. An emulsion was made, and the bacteria were again washed in salt water. From this a standard suspension was made and 0.1 and 0.2 c.c. of this were used in the test. Throughout the tests live bacteria were used. Controls: In each test known normal and known positive tests were used. In each series of tests the hemolytic system was tried out in the usual manner, using a water bath at 37° C. incubation. After primary incubation for half an hour the amount of amboceptor indicated by the preliminary test was added to the final test tubes, and the tubes were again incubated in the water bath. Final readings were taken within the following hour." In each case independent readings were taken by the two authors without the previous knowledge of the clinical history and the tabulated results are given showing their uniformity of positive reactions in cases of pertussis as compared with other conditions. The authors call special attention to the need of fresh antigen in the test.

15. **Pseudopancreatic Cysts.**—F. A. Besley criticizes the term "pseudopancreatic cysts" and gives an account of four cases. The condition is essentially a collection of fluid in the lesser peritoneal cavity and not a true cyst, and only resembles a pancreatic cyst in that the fluid sometimes contains the pancreatic ferments. Three of the four patients whose cases were described were children that had been run over by wagons. The other was an adult who had received his injury in a railroad wreck. Each case gave a history of severe abdominal pain with nausea and vomiting immediately following the accident. There were fever, tenderness, and rigidity, which lasted until the tumor was recognized. The author thinks the tumor can be made out in eight to ten days if carefully searched for and its appearance after an injury, protruding to the left above the umbilicus, together with the other symptoms mentioned, rendered the diagnosis of fluid in the lesser peritoneal sac, most probable. All the cases were treated by incision and drainage.

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## The Lancet.

*March* 21, 1914.

1. The Biology of Tumors. C. Mansell Moullin.
2. The Technique of the Operation of Sclerocorneal Trephining for Glaucoma. R. H. Elliot.
3. On the Nature of Rodent Ulcer, Its Relationship to Epithelioma Adenoids Cysticum of Brooke and to Other Trichoepitheliomata of Benign Nevoid Character, Its Distinction from Malignant Carcimona. H. G. Adamson.
4. Of Arteriosclerosis. L. Williams.
5. Etiology of Endemic Cretinism, Congenital Goiter, and Congenital Parathyroid Disease, Abstract of Experimental Researches. R. McCarrison.
6. The Suppression of Reverse Current in *X*-Ray Coils. R. Morton.

1. **The Biology of Tumors.**—C. Mansell Moullin believes that tumors, no matter what their clinical character may be, are caused by the sudden escape from control of the innate power of asexual reproduction present in some measure in all tissues as part of their life. So long as development is advancing, growth and reproduction are under control. But development depends upon special work, and work in its turn depends upon the special chemical reactions which have been evolved. If these reactions are interfered with, whether by the addition of strange elements or the failure to supply necessary ones, work comes to an end; development stops with it; and the power of growth and reproduction, or that measure of it which the tissues possess at the moment, is set free without limit, except in so far as supplies are concerned, and without control. In the illustrations which the author gives the interfer-

ence with the nutrition and the chemical reactions of the tissues have been caused by the slow continuous working of substances introduced into the body from without. Some have entered through the digestive tract, others through the lungs, and others again through the skin. It does not seem to the author unwarantable to assume that a similar interference can be caused by substances produced in the body itself, more especially as age advances. It need not necessarily be from the place where the tumor grows. It may be at some distant spot from which the substance is carried by the blood stream, as it is, for example, in the case of arsenic. It may be some minute difference in one of the constituent elements of which one is as yet incapable of judging, or there may be an additional one introduced, or some essential one may fail at the moment it is wanted. This is the direction in which one is to look for the next great advance in the biology of tumors, and this is the direction in which investigation should be made.

4. Arteriosclerosis.—L. Williams states that if one would understand the real causes of arterial degeneration one must look deeper than the banal surface causes, such as gout and syphilis, which are not always operative, to the limestone formation which lies beneath. Here one comes upon the powers of resistance of the individual, which rest upon his metabolic efficiency. This in its turn is supported by the vigor and harmony of his ductless glands. When the vigor and harmony of these glands are impaired by circumstances which may be congenital or acquired, the metabolic efficiency deteriorates and the powers of resistance decline. Toxins now succeed where before they were defeated and degenerative processes become operative. In the degenerative processes which attack the vascular system the fibrosis and the calcareous deposit are originally conservative measures which proceed to dangerous excess only because of the want of control of the endocrinous glandular system in general, and of its master gland, the thyroid in particular. Thus in the presence of vascular degeneration one is powerless. When one is appealed to early enough, one may do something to defer its arrival, and the degree of that something will depend upon one's working knowledge of the physiology and clinical behavior of the ductless glands. If one can learn to stimulate the efficiency and promote the harmony of these potent metabolizers one may do much. Without such knowledge one is impotent. But sooner or later, by one means or another, whether by calcium or fibrosis, or what not, the end must come. Even though man should live by bread alone, eschew wine, laughter, and song, he cannot escape.

5. Etiology of Endemic Cretinism, Congenital Goiter, and Congenital Parathyroid Disease.—R. McCarrison presents the following conclusions: Of the offspring of goitrous parents, a small percentage are born cretins; approximately 63 per cent. are born with congenital goiter; 32 per cent. are born with congenital parathyroid disease; and 33 per cent. are born with normal thyroid and parathyroid glands. Cretinism and congenital goiter are due to the action of toxic substances derived from the intestines of the goitrous mother on the fetal thyoparathyroid mechanism. Cretinism represents the maximum, and comparatively rare, effect of these toxins; congenital goiter their minimum and comparatively common effect. Between these extremes all degrees of thyroid involvement may occur with or without associated swelling of the gland. Congenital parathyroid disease is due to the action on the fetal gland of the toxic products of the organism, present in the intestine of the goitrous mother, which are capable of growth under anerobic conditions.

## British Medical Journal.

*March* 21, 1914.

1. The Art of Prescribing. A. P. Luff.
2. The Business Side of Medical Practice. Sir John Collie.
3. Medical Etiquette, Ethics, and Politics. R. C. Buist.
4. Cancer, Public Authorities, and the Public. C. P. Childe
5. Experiences of the National Health Insurance Act. E. F. Pratt.
6. The Milroy Lectures on the Hygienic Aspect of the Coal-mining Industry in the United Kingdom. F. Shufflebotham.

1. The Art of Prescribing.—A. P. Luff states that there is a tendency nowadays to adopt a sceptical attitude as to the utility of drugs and to regard them as mere placebos. It is an attitude which the author has specially observed in those who have neglected to acquire any thorough knowledge of the use of drugs and of their methods of correct administration. One should not be over-influenced by the brilliant work that has been done, and is still being done, in the inoculation departments of various hospitals. While pleading for greater attention to the art of prescribing, the author does not question the usefulness of inoculation treatment, since he is fairly constantly employing it in his own department of work, and is therefore well acquainted with its utility in certain diseases. But it is a method of treatment which has its limitations; for the great bulk of the ailments one is called upon to treat are not cases for inoculation treatment, but require the prescription of drugs. In the author's opinion, the main reasons for the present decadence in the art of prescribing are the altogether inadequate attention given to the teaching of the subject by the majority of the members of the staffs of the various teaching hospitals, and the scanty test applied by so many of the examining bodies as to the possession of a knowledge of rational prescribing on the part of candidates presenting themselves for the final examinations. The want of attention to the teaching of the subject in the large hospitals is certainly in some measure due to the over-pressure of work consequent on the number of patients that have to be seen and treated in a given time—an over-pressure which necessitates, to some extent, the ordering of medicines already prepared according to some formulæ in the hospital pharmacopeia. The prescribing of these ready-made medicines undoubtedly saves the time of the physician or surgeon and of the dispenser; but, unfortunately, the outcome of the custom of ordering ready-made mixtures, etc., is that the students soon fall into the habit and carry it with them into private practice. Consequently they have no opportunity of acquiring confidence in their own powers to write a useful prescription. It has been stated that the hospital practice of ordering mixtures, pills, etc., by the titles under which they appear in the hospital pharmacopeia is not detrimental to the acquisition of a knowledge of a correct prescribing, since the student can always refer to the pharmacopeia for information as to the composition and strength of the medicine ordered. The author, however, strongly maintains that the information so obtained is in no sense comparable to the educational advantage of hearing the dictation of a prescription in full. There is no better method of acquiring a knowledge of correct dosage, and of the avoidance of incompatible ingredients, than by hearing the physician or surgeon dictate his prescription, comment on the dosage of the ingredients, and give his reasons for the employment of such ingredients. On the other hand, if it is left to the student to look up the composition of a medicine from the hospital pharmacopeia, he is apt to forget to do so, and certainly he could never in that way either acquire a title of the knowledge or retain the information so well in his memory as by hearing the dictation of a prescription in full.

### Berliner klinische Wochenschrift.

*March* 9, 1914.

**Pathology of Syphilis and Curative Action of Salvarsan.**—Von Zeissl, like some of his contemporaries, reviews the history of the treatment of syphilis, in order to make a full comparison between salvarsan and the older remedies. The fact is well known, although often forgotten, that intensive treatment with mercury extends back at least to the first reports about the new disease, if not beyond that period—a document used at times for teaching the relative antiquity of the disease. Schellig, the oldest writer on syphilis, speaks of sweating and mercury as two very important remedies. Hensler, the historian, states that mercurial treatment must have reached to some technical development, else it would not have been applied intensively to an unknown disease. For years we have such favorable reports as to mercury that the author compares it with salvarsan. Meanwhile, an opposition movement had developed, as is also the case to-day with the new drug. This was offset by a more rational use of mercury. Up to 1600 even inunctions were proscribed, as, likewise, fumigations. During the next century the war on mercury increased in severity as a result of new forms of abuse, until its indication, as far as the lay mind was concerned, became extinct. Professional condemnation also existed, and continued into the nineteenth century. Then the fabric of antimercurialism was reduced to absurdity when Hermann, a Viennese syphilographer of good standing, actually taught that mercury was the cause of so-called constitutional syphilis. Not until the pathology and natural history of untreated syphilis were known was it entirely possible to discriminate between hydrargyrism and syphilis. The contagiousness of gummata in rare instances showed a unity of syphilis in point of time. After the discovery of the spirochete our knowledge of the disease has increased notably. In regard to the sudden appearance of nerve lesions after salvarsan, research into older works reveals similar conditions in untreated or mercury treated cases. Thus, Mauriac, in 1878, reports cases with evident encephalitis developing very soon after the chancre. Cases of sudden deafness, blindness, etc., are recorded in abundance in the eighteenth century.

**Shellac Concrements in the Stomach and Duodenum.**—Hallas gives a brief monographic account of this rare find, including personal experience. Only a few isolated cases are upon record, the first in 1865, and apparently not over half a dozen authors have reported cases, Hallas, having seen two, which unusual experience caused him to look up the entire subject. In the various cases the concrements were accidentally found. The rarity of the find must not be judged by reported cases, for the pathologists in various countries speak of finding them on rare occasions. A diagnosis *in vivo* is apparently impossible, but a history of varnish drinking, or the mere occupation of the patient, could suggest the presence of such concrements.

**Does Precocious Puberty Imply Mental Precocity?**—Münzer cites a few cases of precocious sexual development in boys and girls. A female, fully developed sexually at the age of six years, was carefully followed up by experts with regard to her mental development. They learned that while physical growth went ahead with unusual rapidity, the psyche did not keep pace with the soma in this respect, and was, in fact, far behind it. In a similar case, in a ten-year-old girl, one saw the face of a woman of twenty-two associated with a childish disposition. It is true that the opposite relationship is seen. For example, a girl of five, sexually precocious, was intellectually mature. This patient had a tumor on the pineal gland. In a few other cases there has been harmony between sexual and mental precocity, but as a rule dysharmony is present.

### Deutsche medizinische Wochenschrift.

*March* 12, 1914.

**v. Behring-Ehrlich Jubilee Number.**—This journal, in common with the *Berliner klinische Wochenschrift*, celebrates the sixtieth anniversary of the birth of these two eminent scientists. Römer contributes a joint appreciation of the latter and their work. Otto writes at length of the native antitoxin in the blood of healthy subjects, convalescents and carriers, and Joseph discusses anaphylaxis and its prevention. Ruppel covers the subject of the changes in the specific treatment of diphtheria, and Boehncke gives the practical results of serum control. These with several minor papers complete the von Behring contingent. The Ehrlich contributions deal naturally with chemotherapy and immunotherapy. Von Wassermann writes of the action of radioactive substances on mouse cancer, and Apolant and Bierbaum on the successful inoculation of the latter into rabbits. Anthrax immunity is discussed by Wernicke, and tuberculosis immunity by Römer and Siebert respectively. An important contribution to bacterial disinfection and chemotherapy is made by Ehrlich's old collaborator Morgenroth. Finally Roux and Metchnikoff write in honor of von Behring. To descend to details among so many valuable articles will almost seem invidious, so that certain statements are selected at random. Otto says of von Behring's serum that new researches only support the original contentions. The nurses and attendants in diphtheria wards are those who are most exposed to contagion; in fact are never free from exposure. A large part of the antitoxin in daily use is therefore bespoken by adults. Carriers, including permanent excretors of bacilli, show a high blood content of antitoxin, convalescents are much lower. As a rule a single diphtheritic infection seldom confers a high degree of immunity; to secure the latter several attacks are probably required. Healthy carriers sometimes go through masked or latent attacks of the disease, as shown by the increased blood content of antitoxin. Joseph states in regard to the prevention of anaphylaxis that the fear expressed in this connection is without foundation and that in any case we have a complete set of preventives for this state, including the production of antianaphylaxis and the application of diphtheria ox serum. In case of a personal history of antitoxin injection or suspicion of the same, we may resort to the Neufeld-Besredka or Friedberger-Mita methods of producing antianaphylaxis. In this condition the sensibilized organism is refractory toward any amount, however small, of antitoxin. In case of an initial injection, notably for prophylactic purposes, the diphtheria ox serum should be used, so that if high-value horse sera have to be given afterward anaphylaxis will be strongly combated. Conversely should a patient have been sensibilized by horse antitoxin the ox serum may be used for second injections. Every effort should be made to antagonize anaphylaxis, for this is the turning point in the general attitude toward serotherapy as a general method of treatment. A point naturally not touched upon in these jubilee papers is the somewhat hostile attitude of Ehrlich toward serotherapy in general, while admitting that several antitoxins have been phenomenally successful. In other words Ehrlich believes that antitoxin therapy has reached its zenith and that chemotherapy must take its place in the future. Von Behring is perhaps of the same opinion, as all his efforts in this field are in the direction of improving his antitoxin.

# Insurance Medicine.

## SUGGESTIONS TO MEDICAL EXAMINER.

BY THE INSURANCE EDITOR.

### THE IMPORTANCE OF BLOOD PRESSURE TO LIFE INSURANCE.

THE following suggestions were offered at the twenty-fourth meeting of the Association of Life Insurance Medical Directors of America, by a committee appointed to consider the question of blood pressure in reference to life insurance.

1. The taking of the blood pressure should not be required unless the applicants are forty years of age or over and applying for $5,000 or over. The opinion was unanimous that no advantage will be gained by requiring the blood pressure at ages under forty, but several favored it without regard to the amount involved if the age is forty or over. As most applications for $5,000 or over come from towns of a size where examiners are specially trained to take blood pressure, and as it is the larger insurers who are especially exposed to the social and business stress favoring high blood pressure, it was agreed that little will be gained by requiring the test with small applications, since the difficulty in securing reliable records will be greater in these cases. As age and amounts increase, the temptation to withhold and conceal information becomes correspondingly greater, and as these are the cases especially exposed to diseases in which high blood pressure plays an important rôle, the need of the test becomes more urgent.

2. While the clinical value of diastolic pressure was acknowledged, it was considered of slight value in apparently healthy individuals and difficult to obtain correctly except at the hands of experts.

3. Kind of instrument. All the present sphygmomanometers are more or less imperfect and not especially adapted to this work. The name of the instrument used and the width of the cuff should be reported.

4. At least two readings should be made at each examination. Some thought there should be five.

5. Position of the applicant. The applicant should sit with the arm on a table so that the muscles might be quite relaxed.

6. The apparatus should be applied after the completion of the applicant's statements and before the physical examination, and again after the examination is completed. At least two or three readings should be made at each of the tests and the average recorded as the actual pressure.

7. An average of 150 mm. on two or three readings calls for a repetition of the test on several days and at different hours of the day.

8. It was agreed that a continued pressure of 150 mm. probably signifies some pathological trouble.

9. A previous history of albumin alone was not considered serious enough to demand the test. The test should, however, be called for in the following cases:

(a) A history of albumin and casts.

(b) A previous record of organic or functional heart trouble.

(c) A syphilitic history.

(d) Two or more apoplexies in the immediate family.

The writer agrees with the suggestions offered by the committee as a whole, but believes they would be improved by the following modifications:

1. Width of the cuff band. The necessity of the wide cuff has become so generally recognized that the narrow bands have disappeared entirely from the market; consequently, any requirement in regard to it is superfluous.

2. The impracticability of a demand for the diastolic pressure should be emphasized, as, aside from its lack of importance to life insurance interests, as far as is known, the results are unsatisfactory and practically valueless unless taken by the auscultatory method.

3. After long experience in testing for blood pressure the writer is convinced that the pressure should be read as soon as possible after the pulse has been obliterated. The point to be emphasized is that the first steps should be taken so carefully and with the mind of the operator so concentrated on his work that a second reading will not be necessary. The first reading records the correct pressure. Subsequent changes occurring during the same test, and these do occur rather frequently, consist of a fall due to the continued constriction of the arm, or a rise due to a state of increasing excitement. The change may begin as soon as a minute after the obliteration of the pulse and extend to 5 to 10 mm. Nothing is gained by prolonging the test so as to take two to five readings. If the observer is not satisfied with the first reading, he should remove the cuff and reapply it later when the subject is free from excitement.

4. While all portable sphygmomanometers are faulty, those made by good makers, mercurial or aneroid, will give accurate readings if checked up with large standard instruments at regular intervals and properly cared for. The mercury should be occasionally renewed as it is very susceptible to the action of oxygen. Even in the closed instrument the sulphur from the bag leads to the formation of mercury sulphide. A well made aneroid manometer compared regularly with a standard instrument is not excelled by any form introduced so far.

In discussing the report of the committee, Dr. J. W. Fisher, said that he had determined the minimum limit for rejection in the younger ages by adding 15 mms. to the average pressure for the age. Dr. Van Wagenen presented the following table showing the average systolic blood pressure by his company in accepted risks at ages 14-70:

| Ages | Number | Low Pressure | High Pressure | Average Blood Pressure |
|---|---|---|---|---|
| Under 15 | 1 | 115 | 115. | 115. |
| 15-20 | 95 | 104. | 145. | 121.18 |
| 21-25 | 307 | 90. | 148. | 121.79 |
| 26-30 | 300 | 100. | 150. | 124.64 |
| 31-35 | 325 | 90. | 155. | 124.77 |
| 36-40 | 588 | 95. | 158. | 126.62 |
| 41-45 | 1342 | 90. | 158. | 128.03 |
| 46-50 | 745 | 104. | 156. | 129.37 |
| 51-55 | 447 | 100. | 155. | 131.61 |
| 56-60 | 176 | 108. | 158. | 135.74 |
| 61-65 | 57 | 112. | 156. | 133.47 |
| 66-70 | 17 | 118. | 150. | 136.88 |
| Total | 4400 | 102.17 | 150.33 | 127.79 |

The averages in this table agree closely with those found in general experience. It would seem that the suggestion for the addition of 15 mm. to the average pressure of each age for determining the minimum limit of high pressure for that age can not apply unless there is some other serious impairment. For instance, it will be found in general practice that applicants at age 26-30 with no more against them than a blood pressure of 139 mm. will not have the slightest difficulty in securing insurance on their lives at ordinary rates.

# Book Reviews.

ORGANIC CHEMISTRY FOR STUDENTS OF MEDICINE. By JAMES WALKER, LL.D., F.R.S.; Professor of Chemistry, University of Edinburgh. Price $2.50 net. London: Gurney & Jackson; Edinburgh: Oliver & Boyd; New York: D. Van Nostrand Co., 1913.

THE aim of the author of this book is most praiseworthy. Appreciating the fact that the medical student has but little time to devote to chemistry, he selects only such chemical processes and substances as are of medical interest. The result is, of course, a much smaller book than the student has been accustomed to; but we doubt if it is entirely satisfactory. One of the difficulties experienced by the beginner in organic chemistry is to appreciate the meaning and significance of the terms used; the present volume is weak in this direction. Again, general principles are of more value to the medical student than isolated examples. The author's definition of an *asymmetric carbon atom* is rather vague; a *satisfied hydrocarbon* and a *saturated hydrocarbon* are not synonymous terms. The medical student should have some knowledge of all the branches of organic chemistry; this knowledge is requisite for an adequate undertaking of physiology, pharmacology, pathology, and hygiene. In the present work, however there is very little physiological chemistry. As an introduction to some work on biochemistry this book, with the limitations above noted, will serve a useful purpose.

THE AMERICAN ILLUSTRATED MEDICAL DICTIONARY. A new and complete dictionary of the terms used in medicine, surgery, dentistry, pharmacy, chemistry, nursing, veterinary science, biology, medical biography, etc., with the pronunciation, derivation, and definition, including much collateral information of an encyclopedic character, by W. A. NEWMAN DORLAND, A.M., M.D., Member of the Committee of Nomenclature and Classification of Diseases, of the American Medical Association; Professor of Obstetrics, Loyola University, Chicago; Fellow of American Academy of Medicine, together with new and elaborate tables of arteries, muscles, nerves, veins, etc.; of bacilli, bacteria, diplococci, micrococci, streptococci, ptomaines and leukomains, weights and measures, eponymic tables of diseases, operations, signs and symptoms, stains, tests, methods of treatment, etc. Seventh Edition, revised and enlarged. Price $4.50. Philadelphia and London: W. B. Saunders Company, 1913.

THE sixth edition of Dorland's Dictionary appeared in 1911, and according to the statement of the publishers over 5,000 new words have been added to this seventh edition. We trust that many of these are words that were omitted from the former edition, for it would be a matter of concern if so many new terms had actually appeared in the language of medicine in the course of two years. At this rate an up-to-date medical dictionary in 1924 will be as large as Webster's Unabridged or the Standard of this year of grace. The general features of the sixth edition have been retained in this, with the addition of some more copied from other dictionaries. The volume is of convenient size, not too heavy, and bound neatly in flexible covers.

DIAGNOSIS OF THE MALIGNANT TUMORS OF THE ABDOMINAL VISCERA. By Prof. RUDOLPH SCHMIDT, Professor of Medicine in the University of Innsbruck. Authorized English Version. By JOSEPH BURKE, Sc.D., M.D. Price $4.00. New York: Rebman Company, 1913.

THE author's long associations with Professor Neusser at the Vienna General Hospital and its unsurpassed clinical facilities have lent an air of undoubted authority to this excellent work, which has been ably translated by an American surgeon. The cases which form the basis of the book have been very carefully studied and in most instances confirmation of the diagnosis was possible at operation or autopsy. For this reason a large number of case histories are introduced in the concluding portion of the book. From a study of these it is evident that early diagnosis of malignant growths is usually omitted, from inexperience of the medical adviser first consulted—a fault evidently as prevalent in certain European countries as with us. The author therefore lays stress on the early symptoms, particularly of gastric, intestinal, and renal neoplasms and discusses very thoroughly the subjective phenomena which are so frequently the forerunners of the objective findings, but unfortunately often passed over by the physician as of little consequence. Prof. Schmidt calls them very pointedly "factors of suspicion." In the introductory chapter on physical examination attention is called to the value of palpation as compared with percussion and auscultation. He likewise comments on the advisability of restricting radiological examination to its proper limits, without desiring, however, to invalidate the importance of this procedure. In classifying according to merit the diagnostic measures that will aid in the determination of gastric cancer, for example, *x*-ray examination, according to Prof. Schmidt, should be placed at the bottom of the list, the clinical methods coming first. Concerning the presence of bacterial and other organisms as diagnostic factors, Schmidt believes that the finding of lactic acid bacilli in the stomach and feces cannot be regarded as specific and advanced cases may occasionally go on without this finding. The author claims that specific symptoms belong only to a certain definite disease process. They are among the greatest of all rarities and in the entire symptomology of malignant neoplasms there is no specific symptom. For this reason there ought not to be any strife in regard to specificity and non-specificity, but rather there should be an agreement as to what place a certain symptom occupies in the list of diagnostic values. The etiology of malignant tumors is discussed with interesting and valuable suggestions regarding history taking. Attention is called to two points worthy of note in forming an opinion as to the genesis of malignant tumors, first, that malignancy in many cases is superimposed on a benign tumor, therefore it will hardly do to presume that there are totally different kinds of origin for benign and malignant new-growths. Hence the study of tumor formations with reference to the etiology should really begin with the benign formations which frequently are the first steps of the malignant one. Second, the probability of a tumor theory must rest on the hypothesis that not only does it not apply to any epithelial growths, but also will be able to explain the malignant connective tissue growths, the more so as even here transitions seem to occur. Schmidt believes that prophylaxis in malignancy is of importance and includes both local and general hygiene. The local measures consist largely of the avoidance of irritants especially in individuals who have had gastric ulcer or other chronic inflammatory lesions in the intestinal canal. Nutritional excesses, according to the author, undoubtedly become predisposing causes in many individuals. General hygienic measures are also of importance and a change of climate should always be considered in every case when possible. The author's personal views about "internal cell traumas" are of interest as he attributes these to conditions of dyscrasia such as uratic (?) diatheses and other metabolic disturbances. The general constitutional level of the organism is, according to Schmidt, not without influence as a predisposing cause, and this factor, after operative removal of malignant tumors, should always be considered.

The special part of the book is devoted to the description of malignant diseases of the various abdominal viscera and the kidneys. This is followed by a large number of case histories personally observed and studied by the author, which are arranged in systematic order to correspond with the text of the previous portion. Whenever possible the operative or autopsy findings are reported. The book is of particular interest to all physicians and surgeons and the translator is to be commended for publishing the English edition of the same.

SCIATICA—A Fresh Study. By WILLIAM BRUCE, M.A., LL.D., M.D. (Aber. With Notes of Nearly 700 Cases. Price $1.75. New York: William Wood & Company, 1913.

THIS book gives an historical survey of the different views held on the nature of this disease by Sir William Gowers, Dr. Lawson, and others. In contradistinction to these the author believes that the hip joint is invariably involved in the vast majority of the cases of sciatica. With this view in mind the author describes the examination of the patient, etc., and gives the record of 676 cases. Authorities on the *x*-ray examination of the hip joint are quoted testifying to the involvement of the joint. A short chapter is devoted to treatment. More than one-half the volume of the book is taken up by the appendix dealing with the anatomy of the hip joint and the histories of 691 cases that have been treated. A bibliography and 18 plates complete the book.

# Society Reports.

## THE MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

*Stated Meeting, Held February 23, 1914.*

THE PRESIDENT, DR. T. PASSMORE BERENS, IN THE CHAIR.

**Saratoga Springs and Its Mineral Waters.**—Dr. ALBERT WARREN FERRIS read this paper and gave a lantern slide exhibition of scenes in and about Saratoga. He reviewed the history of the locality from the time when it was in the possession of the Indians and said that the healing properties of the waters were first reported by Sir William Johnson, who in 1767 was cared for at High Rock Spring by friendly Indians when suffering from an old gunshot wound. This report was supposed to have actuated General Schuyler to cut a roadway to the Spring through twelve miles of forest, in 1783, and to erect a shelter for himself and family while for several weeks they used the water. From that day to this Saratoga had been a more or less popular resort, reaching the position of perhaps the best known and most fashionable spot in America about one hundred years after Sir William Thomson first set the fashion. Dr. Ferris sketched briefly the history of the era of pumping the waters by commercial companies, and wasting them after separating the carbonic acid gas for the market, which robbed the springs of their energy, causing a rapid lowering of the water levels and so depleted the whole mineral water zone. Action of the Saratogians, led by the late Spencer Trask, Frank H. Hathorn, and others, resulted in a law prohibiting the pumping. For practical purposes the mineral waters might be classified as follows: Saline-laxative (including Hathorn No. 1, No. 2, and No. 3), Columbian, Flatwell No. 2, Ditch Well No. 2, Island, Shonts No. 3, Coesa, Peerless, Emperor, and Adams alkaline-saline (including Geyser, Pump Well No. 4; Minoneba, New Shonts, Clark No. 1, and Clark No. 2; the ferruginous or chalybeate, including Flat Well No. 2, Old Red, New Red, and Magnetic. Many of the waters fell into two of these classes. Of special value were the table waters, Geyser and Minoneba, the latter closely resembling Grande Grille Vichy. Prescribed as chosen for individual cases the waters were variously indicated for use in gastrointestinal disorders, gout, rheumatism, arthritis, anemia, and obesity. Some were admirably adapted for use in incipient kidney troubles, in neurasthenia, general fermentation from increase of acidity in the digestive tract, certain skin diseases, and in the elimination of various poisons from the body and the removal of certain exudations due to disease. Fortunately they had two things which closely resembled the spring No. 12, Nauheim, Germany, since they contained the same calcite and magnesite salts, and were therefore suitable for use in giving the Nauheim system for arteriosclerosis, certain other circulatory disorders, and some forms of heart disease. Their chief field of activity, however, would be in the domain of disorders of the digestive tract, in diseases producing tissue change, and in the reduction of obesity. The essayist said he would not dwell on the chemical constituents of the waters as they existed in composition, since full analyses were available in print. All the springs were radioactive. The Bureau of Mines, Washington, D. C., had reported that the radioactivity was due to dissolved radium salts and not merely to absorbed radium emanations, therefore they contained a permanent agent which would produce emanations indefinitely. Dr. Paul Haertl, the director of the laboratory at Bad-Kissingen, Germany, studied the situation thoroughly and stated that our springs were unequaled or at least unexcelled in the world, and he was a competent authority on the subject. His advice confirmed the conviction that the State must proceed at once to the erection of a large bath house and a central drink hall in the center of the village of Saratoga. Dr. Ferris described in glowing terms all the possibilities of the place, including a plan for a pine promenade and equipment and facilities as complete as those in Continental spas. He believed that many thousands of Americans would prefer to go to Saratoga for their cure rather than to undergo the expense and fatigue of an ocean trip, to subject themselves to the vicissitudes of an unknown climate, and dwell for a considerable period in a country whose language they could not speak. Over 7,300 physicians throughout the State had been circularized in order that they might all be informed of the beginnings at Saratoga as well as of the vast enterprise projected. The plans for the immediate future include the erection of a large bath house with administration building and power house and also a central drink hall, to which would be conducted all the available drinking waters in the village proper and in the Geyser district, so that the invalid would not be obliged to go to the source of the various springs whose waters were prescribed for him. The center drink hall would permit the service of waters, either hot, cold, or warm, as prescribed by the physician, and would tend to secure obedience to the physician's order to drink the water slowly. Baths could be had at low prices or free to those whose means were limited. Dr. Ferris urged the cooperation of all physicians in furthering the execution of these plans.

**The Phenomenon of Pathological Antagonism; Its Relation to Diabetes Mellitus.**—Dr. HENRY S. STARK read this paper. (See page 645.)

## NEW YORK PSYCHIATRICAL SOCIETY.

*Regular Meeting, Held January 7, 1914.*

THE PRESIDENT, DR. CHARLES L. DANA, IN THE CHAIR.

**Election of Officers.**—The following officers were elected for the year 1914: President, Dr. William L. Russell; Vice-President, Dr. L. Pierce Clark; Secretary-Treasurer, Dr. Swepson J. Brooks.

**Report of Committee on National Hygiene Movement.**—Dr. STEWART PATON presented this report in which he stated that the work of the committee had been divided into three fields. 1. Original inquiry, which should be interesting and instructive, especially if followed out along the lines laid down by the Wisconsin Society. 2. Observations made in psychiatrical clinics. 3. Observations made of the work in out-patient departments. He emphasized the importance of popular education and believed that following this there would be remarkable success in the work. The popular education committee had taken up an educational program. The importance of this part of the work had been shown during the past year in what had been accomplished in New York, Pittsburgh, Philadelphia, Boston, Raleigh, Texas, and Rutland. It was surprising to see the intelligent interest that had been taken in this subject. Great success was attained in Rutland by inducing the Governor to be present. Dr. Patton said he did not see just why the presence of the Governor should be so effective, but he had been told that there was nothing which would help the movement along more, and in Vermont this seed had borne fruit. In Raleigh, N. C., they had a very interesting meeting. Mr. Daniels of the United States Navy was present and took a direct and personal interest in the movement. So it had been all over the country. He had been told that this field demanded an exhibit and several experts who should explain this national hygiene movement. In the plan of organization the national society would supervise the State societies. It was strange that there should be so much difficulty in finding men who had sufficient medical knowledge to control some of these societies. It was essential that the work should be controlled by medical men. The medical men should exert an influence in dealing with this problem and should do what Rousseau said years ago in regard to the educational system. First, they should find out what was the adult's capacity; second, they should find a level at which he could adjust himself. They should also deal with the problem of medical education. The young men should be trained so that they were well prepared to enter a university at the age of seventeen or eighteen, instead of twenty-two or twenty-three.

Dr. WILLIAM L. RUSSELL said that one aim of the national hygiene movement had been accomplished. This was to interest the United States Government in its objects. The United States Public Health Service was now willing to publish and distribute documents free of charge, and was contemplating entering the field itself.

Dr. L. PIERCE CLARK said the New York public schools in the ungraded class division were now making a permanent exhibit upon the psychopathies of school children and the training and prophylactic treatment of the same. The exhibit with a proper equipment of lecturers was to visit the several normal schools and colleges of the State so that the pupil teachers might be informed of the problem to be solved in teaching psychopathic children. This school museum should

form an integral part or cooperate with the National Hygiene Exhibit, and steps for the affiliation should be taken at once so that the principles in both exhibits might harmonize.

Dr. CHARLES L. DANA emphasized what had been said about the State Societies of Mental Hygiene and believed that they should be organized carefully and along proper lines. The committee was prepared to spend $11,000 in establishing these mental clinics, outside of dispensaries. Personally he did not know where the money was to come from unless through lectures in connection with traveling museums; it seemed to him that the plan of organization was on an expensive basis and might ruin the movement.

**Retarded and Feeble Minded Children.**—Dr. L. PIERCE CLARK presented this report, which included a rough draft of a bill for legislative enactment calling for a State survey of the feeble-minded, with the intent that such a body might formally recommend a permanent State commission to have entire charge of all the feeble-minded in the State. The society ordered and empowered the committee to continue and to cooperate with other agencies interested in this legislative movement.

**The Treatment of Cases of Mental Disorder in General Hospitals.**—Dr. PHILIP C. KNAPP of Boston read this paper. He said that in the various discussions in Boston of the proper disposition of cases of incipient and obscure mental disease before the establishment of the Psychopathic Hospital, when it was suggested that such cases might be sent to the City Hospital, the trustees always opposed it. One of the rules of the hospital was that alcoholic and mental cases were not received. In their last report, however, the trustees stated that one of the advantages of the new neurological services was that it gave an opportunity for the proper care of psychopathic cases. In spite of the rules there had always been a considerable number of cases in the hospital who showed some degree of mental disturbance, as was inevitable in every general hospital. They were not welcomed and were often badly treated, restraint both mechanical and by drugs being employed unnecessarily. The neurological wards at the City Hospital received about four hundred patients yearly. The wards were open and from them a few single rooms opened, but there were no locked doors. Out of 785 patients admitted during the writer's term of service 74 were diagnosticated as one of the forms of mental disease (dementia præcox, senile dementia, general paresis, maniacal depressive insanity) and 93 showed some phase of alcoholism. Many other cases, however, showed more or less mental disturbance; many cases of neuritis had Korsakoff's syndrome; cases of organic brain disease were often mentally affected, as well as the cases of hysteria, epilepsy, chorea, etc. At least one hundred cases a year showed considerable mental disturbance and about forty were committed each year. Many cases, of course, were quiet and well-behaved, but others were much disturbed; they had also to deal with extremely suicidal cases, the most violent epileptic mania, and patients who had to be tube-fed. Such cases used to be restrained, often without necessity. Under existing conditions mechanical restraint was sometimes necessary, but the writer and his colleague, Dr. Thomas, had succeeded in reducing the amount very greatly, and had used sedative drugs very sparingly, very rarely resorting to the more powerful drugs. The result had been satisfactory. Patients were much less disturbed when restraint was not employed, and there had been no suicides, no escapes, and no serious act of violence in four years. The fact that the hospital had no legal right to keep such patients against their will had caused no difficulty. The reception and temporary care of such patients in a general hospital, even without locked doors and a hydrotherapeutic plant, had proved perfectly feasible. The advantages were that it proved an easy way of dealing with cases of acute onset, or those that fell in the hands of the police, without any delay or legal formality. It afforded an opportunity to study obscure cases and to give the family time to realize the patient's condition, to make up their minds to commitment if necessary, and to select a suitable hospital. Finally it permitted the treatment of cases of short duration in the hospital until they recovered, thus sparing them the stigma of being officially judged insane, a matter of some significance in estimating a man's efficiency, or, in some States, of deciding upon matrimony. The writer cited several such cases, and emphasized, in closing, the duty of all hospitals to receive and care for such patients; but unless they were put under the care of competent neurologists, who should have full control of them, they could not be successfully treated.

Dr. AUGUST HOCH said he was much interested in Dr. Knapp's paper which demonstrated the possibility of opening the general hospital wards for the reception of patients suffering from mental disorder. It was an important sign of the times that the mental abnormalities were brought into closer contact with medicine in general, that their importance to the general physician was receiving more recognition, and that the duties which the general hospital had in this direction were being more appreciated. All these changes were bound to develop fully. It might not be out of place to mention the fact that Dr. William Russell had insisted for some years on the duties of the general hospitals in this direction.

Dr. WILLIAM RUSSELL said he had been struck by the experience of some in open wards and it seemed impossible that in four years they had had no accidents at all, nor should there be any when proper precautions were taken. Dr. Russell asked Dr. Knapp if there had been any accidents.

Dr. KNAPP replied that thus far there had been no accidents in the service, and although there had been escapes from the other services, there had been none from the neurological service. Delirious cases in other services, if primarily medical or surgical cases, usually remained in those services until the primary trouble cleared up. The neurologist was called in consultation at times, and, if he advised, the case might be transferred, but this advice was not always followed. He had often advised stopping alcohol in alcoholic cases, but sometimes the alcohol was kept up, against his advice, and the patient died of a "wet brain."

Dr. M. S. GREGORY said that the man who was the greatest source of difficulty in a general hospital was the medical man. He did not pay much attention to these conditions. He was not interested in mental disease and cared little about it. Therefore, proper provision should be made for the care of these patients. The work outlined could be carried out in a few hospitals. He believed in the temporary care of these patients.

Dr. L. PIERCE CLARK asked Dr. Knapp if it were not possible to get physicians and nurses from the hospitals for the insane who intended to go out in private practice to go into the general hospital for a certain length of time and there learn some of the difficulties that they would necessarily meet later in private work.

Dr. FLAVIUS PACKER said that while he was visiting the Medical Inspector of the State Hospital Commission he learned that mental cases would not be taken into the hospital at all, but were cared for in a room over a saloon. This state of affairs existed at Dobb's Ferry.

**On the Mechanism of Some Cases of Manic-Depressive Excitement.**—Dr. C. MACFIE CAMPBELL of Baltimore read this paper, which presented the results of investigations on manic-depressive insanity along the lines outlined in two previous communications to the society. Emphasis was laid on the necessity of going beyond the formal characterization of the disorder and studying the meaning of the whole reaction in the light of the situation out of which the attack developed. For this purpose careful observation and analysis of the patient's utterances were required. The writer described four illustrative cases, which led to the following conclusions: In many cases of manic-depressive excitement the onset of the attack became intelligible in the light of the careful reconstruction of the whole situation out of which the attack had developed. The difficulty of adjustment which led to the manic attack was much less deeply seated than in dementia præcox and allied conditions; the conflict was much more clearly realized by the patient, the flight into the psychosis coincided with the relaxation of efforts which were recognized as inadequate to deal with the actual situation; the cessation of this struggle permitted the frank expression of repressed elements. The elated mood and exuberant activity of the manic patient were thus partly explained. It was important to study closely the content of the utterances of the manic in order to understand the meaning of the situation leading to the attack; this line of investigation included an accurate estimate of the equilibrium of forces which made up the patient's personality, and involved a thorough study of the individual's development. A thorough review of the above factors might put the patient in a better position with

regard to the possibilities of avoiding further attacks.

Dr. August Hoch said it was interesting to listen to a study of manic-depressive insanity in which an attempt was made to understand the mental forces at work. He had been much impressed by the analysis which Dr. Campbell presented, and by his formulation of the mechanism of manic states. But he wondered whether his theory that we were dealing essentially with what might be called an escape reaction was generally applicable, and whether it was not necessary, in making a theory of manic states, to take more cognizance of the meaning of the normal reaction of elation, which certainly was not as a rule a mechanism of escape. In considering this question, Dr. Hoch said he had come to somewhat different conclusions, which, however, were hardly sufficiently crystallized to be spoken of.

Dr. Smith Ely Jelliffe said he was in sympathy with Dr. Campbell's point of view. Such reports as Dr. Campbell had given were the only kind of studies that really counted. The presentation showed careful study. These were definite dynamic studies. Dr. Jelliffe said he felt that the mild manic-depressive cases, some possibly being confused with what Freud had described as anxiety hysterias, offered a very fruitful material for psychoanalytic study and treatment. His experience in the past two years had covered a number of instances of mildly depressed patients, who had been, he believed, greatly benefited in that they had obtained by psychoanalysis a real insight into the dynamic factors of their psychosis. The introverting moments interested him a great deal, and he had found many cases, both with excitements and depressions having the factors Dr. Campbell mentioned and emphasized, showing situations similar to those mentioned by Dr. Campbell, and which proved the point of departure from healthy to psychotic mental adjustment.

Dr. Campbell said, in closing, that it was difficult to cover the ground in a brief communication. He had endeavored to keep his presentation as close to clinical observation as possible, and to show certain demonstrable causes which had much to do with the onset of the manic attack. The paper did not profess to deal with every aspect of the subject, as, for instance, heredity. What he intended to emphasize was that the manic excitement became more intelligible in the light of a reconstruction of the various forces which made up the balance of the individual's life, that the attack to a certain extent represented the abeyance of repressing forces, the relief of tension, and that the expression of the repressed forces was responsible for a good deal of the elation and exuberance of the patient. In estimating the tension at the period of onset, the intensity of the crude *libido* was something which could not be ignored. The manic patient was very frequently aware of the nature of the conflict which led to the attack.

## NEW YORK ACADEMY OF MEDICINE.

*Regular Meeting, Held March 5, 1914.*

The Vice-President, Dr. L. Emmett Holt, in the Chair.

This meeting was held under the auspices of the Section of Medicine.

**The Value of Tests for Renal Function in Early and Advanced Bright's Disease.**—Dr. R. Fitz of Boston presented this communication. He stated that in view of the different types of nephritis and the impossibility of predicting in the individual case by clinical study alone what course the disease would take, or what anatomical changes would be found at autopsy, methods had been devised for estimating the renal function in order to make possible an early diagnosis of existent kidney disease and to offer information in regard to its prognosis and treatment. In reviewing the work which had been of value in the early diagnosis of abnormal renal function, the essayist referred to that of Schlayer who found that in tubular nephritis the renal vascular system reacted to vasodilators and constrictors normally. The urine, however, was dilute, and the kidney was unable to concentrate and excrete sodium chloride when it was injected intravenously. In vascular nephritis, on the other hand, the kidney's concentrative powers mere unaffected, while the vascular response to vasomotor stimuli was lost or exaggerated. This led him to determine whether the excretion of other substances in addition to sodium chloride might be used as a measure of efficiency of the vascular or tubular apparatus of the kidney to replace observations with the oncometer. In tubular nephritis the amount of fluid excreted was not remarkable but in vascular nephritis it varied directly with the vascular functional condition. The amount of urine obtained was one index to glomerular function. Voit discovered that if lactose was injected into an animal intravenously or subcutaneously the entire amount could be recovered in the urine. Schlayer found that in experimental nephritis intravenous injections of this sugar were only well excreted when the renal vascular system was normal, and were held back when the glomeruli were damaged. Schlayer adopted the excretion of water and lactose as indicators of renal vascular activity, and that of sodium chloride and potassium iodide as measures of tubular activity. By using these various tests Schlayer claimed to be able to distinguish certain types of acute and chronic nephritis and to have found their distinguishing characteristics to be sharply demarcated. Vascular nephritis, whether acute or chronic, was characterized by a delayed lactose excretion, by oliguria or polyuria, depending on the sensitiveness of the renal vessels, and by normal chloride and iodide excretion. Tubular nephritis was shown by a normal water and lactose excretion but with delayed chloride and iodide outputs. All grades of mixed functional disturbances were found between these two extremes. In a general way the tests pointed out the severity of the disease, and, since they were all delicate, they often showed functional changes before clinical signs of nephritis developed. The essayist then reviewed the different opinions held in regard to the anatomical changes producing these functional disturbances. The author believed that by following the excretion of these substances used in the tests, and by adding test amounts, it was possible to discover an abnormal renal function before marked clinical signs of kidney disease were manifested and cited a number of cases from the Peter Bent Brigham Hospital, of Boston. They proved on the whole that Schlayer's tests were significant, chiefly because they showed early functional disturbances in the kidney, and by repetition illustrated the rapidity of development of an early disease. Whether vascular and tubular function on an anatomical basis could be differentiated in Bright's disease with the same definition as in experimental toxic nephritis remained to be determined by a careful study of more clinical and pathological material. In advanced nephritis these tests were less useful. Dr. Fitz expressed the opinion that the phenolsulphonaphthalein test as applied by Roundtree and Geraghty had given the most valuable aid to the estimation of total renal function which was known at present. Roundtree and Geraghty had shown from careful studies in nephritis that the amount of phthalein excreted varied in direct proportion to the severity of the disease. In fatal uremia only traces of the dye were found in the urine, while in mild nephritis the amount recovered was nearly normal. In cardiorenal disease where the heart was chiefly at fault and the kidneys were congested without a marked nephritis, a low phthalein output might be observed at first, rapidly rising as the circulation was restored, while, if severe nephritis was present, no change in the phthalein excretion accompanied the improved circulation. In addition to its accuracy the test had the advantage of being rapid and so simple that it could be used by the general practitioner. The test had been used successfully by so many observers that its value must be accepted as a fact. In a few cases, however, the excretion of the dye gave unreliable information. This appeared to be because a diseased kidney might be permeable to one substance while it was impermeable to another. Bard and Bonnet, in studies on renal function in which potassium iodide and methylene blue were used as tests, found that in interstitial nephritis the excretion of both substances was faulty, in epithelial nephritis the kidney was hyperpermeable for both, and in secondary interstitial nephritis the methylene blue excretion was normal or increased, while that of the potassium iodide was diminished. Pepper and Austin had lately called attention to a case of nephritis with marked albuminuria, cylindruria, and edema in which the phthalein output was normal, and Baetjer reported nearly a similar case. Foster illustrated the difficulty of prognosis by the use of any one kind of functional test, giving examples of cases which died of uremia with a practically normal phthalein output shortly before death. However, on the whole, the phthalein test was of great

value, but in order to judge the degree of renal insufficiency with accuracy more than one test must be used. Of substances studied in the blood of nephritics the concentration of the incoagulable nitrogen and urea had been found to be of most importance. Yet cases occurred in which blood nitrogen and phthalein were both normal and chloride retention was an important factor in the disease. Finally acidosis had been shown to exist in uremia. Since no one test was perfect in determining total renal function, cases must be studied from several points of view. A rational dietetic treatment could be given in individual cases based on the conditions disclosed by the study of the kidney's selective excretory capacity.

**The Value of Renal Functional Tests to the Surgeon and the Limitations of these Tests.**—Dr. JOHN T. GERAGHTY of Baltimore presented this paper. He declared that in ascertaining the functional capacity of the kidney, judicious selection of tests was the key to the maximum amount of information from the minimum expenditure of time and energy. The number of tests was now so large that it was impossible to utilize all in any one individual case. It was not necessary, moreover, since all the available information was forthcoming at times from a single test or from a proper combination of a small number of tests. Only through familiarity with the reliability, value, limitations, peculiarities, and significance of the findings of each test in various types of disease was the most profitable selection of tests made possible. Certain tests, such as the lactose and the chloride tests proved of great value to the internist, but were practically valueless from the standpoint of the surgeon. Some tests were valuable for an estimation of total function, but could not be utilized in conjunction with ureteral catheterization. Other tests might be of no value for the estimation of total function, but might be very valuable in conjunction with ureteral catheterization for estimating the relative functional ability of the kidneys. Urea estimations of twenty-four hour output gave, as a rule, information of but little value, but urea estimations of catheterized specimens gave a very accurate idea of the relative amount of work done by each kidney. Renal functional tests had already proven their great value to the surgeon in two types of cases. First, in the surgical diseases of the kidney secondary to obstruction in the lower urinary tract, and, secondly, in the unilateral and bilateral surgical diseases in association with ureteral catheterization. Dr. Geraghty said that in a former communication Dr. Roundtree and he had called attention to the fact that patients with renal changes resulting from obstruction in the lower urinary tract were frequently the subject of hydronephrosis, pyronephrosis, pyelonephritis, pressure atrophy, and the resulting changes in functional activity, and that the urine output, urea and total solids, might be practically normal and yet the patient be on the verge of renal failure which would surely be precipitated by any radical surgical interference. The phthalein test was shown to be of value in all of these cases and to allow of differentiation between those cases with severe renal damage and those in which the renal involvement was slight. It was further shown that the marked improvement of the renal condition and the decreased operative risk which followed the adoption of preliminary treatment, either through the use of an in-lying catheter or suprapubic drainage, was the result to a large extent of the improvement of the renal functional capacity. It was claimed that the test made it possible to determine the cases suitable for operation and also to determine in any given case the most propitious time for surgical intervention. Subsequently a number of tests had been utilized in order to determine if any individual test or any combination of tests furnished information other than that derived from the use of phthalein. Of the excretory tests, lactose, diastase, and urea were employed, and of the retention tests, cryoscopy and blood urea. The lactose test was employed in a series of about twenty-two cases, and in only two was a positive test for sugar obtained. The lactose test in this type of case had proven of little value from a diagnostic standpoint and of no value in relation to prognosis. The prognostic significance of this test in cases of urinary retention as compared with chronic nephritis was striking. The absence of glycosuria following the injection of lactose or its elimination in mere traces in chronic nephrits indicated renal derangement of a severe degree. In the series of cases in which the diastase estimations were made, in some instances with severe renal damage, the diastase content was normal. In a few cases in which the phthalein and the clinical findings showed only slight renal impairment the diastase was markedly decreased. In the majority of instances of disease a decreased diastatic activity was present, but no constant or definite relationship between the diastatic activity and the true renal function existed. Where, however, a complete absence of diastase in the urine occurred, it apparently indicated an extremely bad renal derangement. Urea estimations of the twenty-four hour output gave information of but little value. In the second group of tests, namely, those of retention, a consideration of what was regarded as the normal limit seemed advisable. From their observations it semed advisable to place the limit of normal at 0.55 grammes for urea and —60 for the freezing point. In every case in which a freezing point lower than —60 was encountered, except in one case, the renal function was seriously involved. The blood urea had proven a better index to the renal condition than cryoscopy, and in several of their cases afforded indications of cumulative phenomena earlier than cryoscopy. In no instance was a normal blood urea associated with markedly decreased phthalein, while, on the other hand, in every instance in which the phthalein was high the blood urea was normal. From these results it seemed that their previous claim in relation to the value of phthalein was well founded. This undoubtedly afforded the truest index if the functional capacity of the kidney in this group of cases. In no instance were its findings incompatible with the clinical condition and subsequent history. Diastase and urea were of about equal value and were unreliable indices to renal functional capacity generally, but, where very low values were persistently indicated, they had some prognostic significance. Cumulative phenomena did not occur in the presence of good renal functional capacity and consequently the tests were unnecessary where phthalein was normal. The tests simply indicated the renal function and it depended on the operator what risks he was willing to assume, the probabilities of fatalities increasing as the renal function decreased. They found, however, that, when they had low function which otherwise might be unrecognized, that preliminary treatment in most instances allowed a regeneration of function, which would be indicated by the test, and enabled the patient later to undergo the greater operation of prostatectomy with less risk. In regard to the employment of functional tests in association with ureteral catheterization it seemed desirable to know (1) the total or combined renal function without ureteral catheterization, (2) the relative function, and (3) the absolute functional value, if possible, of each kidney. In this class of cases the shortcomings of most of these tests were very evident, since they gave only a relative functional value of the kidneys. The employment of functional tests in association with ureteral catheterization was attended with two great difficulties, which in certain cases made it impossible always to obtain all the desirable information from any one test, namely, inhibition of function and leakage around the ureteral catheter. Any discrepancy due to inhibition could be determined readily through the determination by phthalein of the total renal function without ureteral catheterization. Unfortunately the inhibition was not always equal on each side, and, under such conditions, one was not justified in accepting the phthalein or total urea from each side as the true index of the relative value of the two kidneys. In this connection diastase and urea per cent., together with the difference in the intensity of urinary pigment and consideration of the total phthalein, were of value. When inhibition occurred the urea per cent. and diastase had equal significance, but when inhibition was absent and leakage occurred diastase was more reliable, since it was not so readily affected through dilution. Phloridzen had proven of comparatively little value in their experience and added practically nothing to the information obtainable from the other tests. Unfortunately the problems presented were not always simple. Cases of bilateral diseases were encountered in which a knowledge of the real function became of absolutely vital importance and in which every source of information must be called upon before the proper line of procedure could be determined upon. In certain cases, particularly those of tuberculosis, it might be possible to introduce the catheter only on one side. In such cases one must depend to a great extent upon the information derived from function re-

garding the condition of the opposite kidney, as cystoscopic findings regarding the appearance of the ureteral orifice were frequently deceptive. Functional estimations had also proven of great value in the differentiation between pyelitis and pyelonephritis. In pyelitis the real function was practically normal while in pyelonephritis there was decreased function, depending upon the degree of destruction. It had enabled them to select with considerable accuracy cases of renal infection suitable for lavage. As to the limitations of functional tests, it should be remembered that functional studies revealed only the excretory capacity of the kidney; by themselves they did not make the diagnosis or settle the prognosis. They indicated only the functional value of the kidney at the time at which the test was performed, but could not of themselves indicate what the renal function would be to-morrow or next week. Furthermore, it did not always follow that an individual with urinary obstruction and a good renal function was necessarily from the standpoint of function a good operative risk. It was known from practical experience that this class of patients was an extremely dangerous one because ascending infection might occur, and did frequently occur, following operation. They should receive preliminary treatment either by the catheter or suprapubic drainage, notwithstanding the fact that they might have at the time when first seen good renal function. Functional tests were of the greatest value when used in conjunction with careful clinical studies, and, when employed with the proper regard for their value and limitation, furnished valuable information in diagnosis, prognosis, and selection of lines of treatment.

Dr. Edward L. Keyes, Jr., said it was rather dangerous to discuss these papers, for after what he had heard from the laboratory side and from the clinical side the answer might be either "Yes" or "No." Yet there was a certain amount of reason for every man's opinion if only from a clinical point of view. He said he had had the opportunity of studying a number of methods for estimating renal function. He had been asked "What is meant by renal function?" It seemed to him the best answer was "Renal function means the excretion of solids dissolved in water." Dr. Geraghty showed a test which only estimated precisely how the kidney acted at a particular moment. The surgeon was not interested in that, but only in how the kidney acted when subjected to a surgical operation. Surgical criticism must depend upon the accuracy in prognosis and not so much in diagnosis. "How will the kidney withstand shock?" The way an operation was performed and the length of time employed were two important elements in the prognosis. Therefore, no two surgeons could expect to obtain the same data in making use of the test. After using various tests Dr. Keyes said he had come to rely more upon the phenosulphonaphthalein test.

Dr. Warfield T. Longcope said that the papers impressed upon all the importance of functional tests in investigating disease of the kidney. He considered several groups of cases. There was one group of classical cases which was very interesting with congestion of the kidney and with the accompanying kidney disturbances. In a fair proportion of these cases there was a broken compensation, reduced excretion, and so on. Within a few days, or a week or more, by improving the cardiac function the renal function would be improved. There was another group of cases with hypertension and some of these might be under observation for many years. There was a high blood pressure, cardiac hypertrophy, and attacks of convulsions considered to be uremic. In many of these cases the renal function would be normal. At autopsy little change would be found in the parenchyma but there would be found, however, extreme changes in the blood vessels not only in the kidney but in the vessels throughout the body. These were cases of vascular disease rather than nephritis as such. He hoped that the work of both the speakers would clear up the situation.

Dr. Nellis B. Foster said that the tests had their limitations. The ideal test would result from a metabolic study. Certain tests, such as the lactose and the chloride, were too delicate.

Dr. Martin W. Ware thought an error was made in functional tests where certain tests were applicable to medical cases and other tests were applicable to surgical cases when all had the same substratum. The test stood in the same position as many remedies for the same disease. What the surgeon wanted to know was what the kidneys were able to do. What they wished particularly to do was to lower the death rate from operations. Phenolsulphonephthalein as a test was acidometric rather than colorimetric. It was used as a measure to determine the degree of acidity of the urine.

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SECTION ON PEDIATRICS.

*Stated Meeting, Held February* 12, 1914.

Dr. William P. Northrup, in the Chair.

Congenital Malaria.—Dr. Murray H. Bass read this paper in which he reported a case which he believed to be one of congenital malaria. He stated that it had been the consensus of opinion that malaria was probably not transmitted *in utero*. However, during the past few years a small number of cases reported by competent observers seemed to offer incontestible proof that, though a rare occurrence, malaria might be transmitted antenatally from mother to offspring. Meara reported the case of an infant born in the middle of October, at Massapequa, Long Island, whose mother and father had suffered from malaria in August, but who had apparently been cured in the course of a few weeks. Ten days after birth the baby, apparently well until that time, began to lose weight and seemed ill. When seven weeks of age the baby was admitted to Bellevue Hospital, where in the routine examination of the blood it was found loaded with malarial organisms. The child died in spite of vigorous quinine medication. Meara seemed to doubt the occurrence of intrauterine infection and evidently did not consider his own case as completely proven. The case reported by Beekel was one of quartan malaria in a child ten weeks of age, born at the end of September, and could not be definitely attributed to intrauterine infection owing to the time that had elapsed before the child showed symptoms and on account of the absence of any history of recent malarial infection in the mother. After a thorough search of the literature Beekel succeeded in collecting eleven cases of congenital malaria which seemed to be absolutely proven. Dumollard and Vialet, in 1909, reported the case of a woman seven months pregnant who was attacked by a severe type of malaria. In spite of large doses of quinine her fever continued and in a precipitous labor she gave birth to a child which lived only one hour. The placental blood, the blood from the cord, and the heart blood all showed plasmodia of the same type as those in the maternal blood. The labor had not been attended with hemorrhage. A. Laffont reviewed the whole subject, reported a case of his own, and concluded that the parasite might be transmitted from mother to fetus, that the rebellious types were not always those transmitted, and that hereditary malaria might be divided into two types, the congenital which occurred in the embryo or fetus, and true hereditary malaria which attacked the fetus but developed in the newborn, the child, or the adult. He believed that congenital malaria might be acute, chronic, or latent. The most recent reported case was that of Tissier and Brumbt. This case occurred in a woman in Algiers. She had an attack of malaria in January and a recurrence in May of which she was apparently cured. In October she gave birth to an apparently healthy child in Neuilly, France, having removed from Algiers on account of the malaria. When nineteen days old the infant developed fever of the tertian type, and plasmodia were found in the blood. It was stated that it was practically impossible for the child to have been infected after birth since malaria and mosquitos were unknown in Neuilly in October. They believed that the infection occurred either at the time of birth or *in utero*. To these cases Dr. Bass said he wished to add one of his own, an infant born in New York City at the end of December of a mother who had suffered from untreated tertian malaria for four weeks during the fifth month of pregnancy. The infant was taken ill at the age of four weeks. The symptoms, pallor, irritability, loss of weight, and green stools, caused the mother to bring the baby when seven and one-half weeks of age for medical advice. An extreme anemia and an enlarged spleen led to a blood examination with the finding of tertian malarial plasmodia. Rapid recovery took place under the administration of iron and quinine. Though it might be admitted that there was no way of definitely proving that the case was one of congenitally acquired malarial infection, the evidence all seemed to point toward that conclusion, for it was incredible that

in that portion of New York City, 120th Street, there should have been mosquitos capable of transmitting malaria in the midst of winter. To this case might be added another. About eight years ago a woman who had suffered from malaria some time previously gave birth to an apparently healthy child. Plasmodia having been found in the mother's blood, that of the infant was examined immediately after birth and the plasmodia were found. After a few doses of quinine these parasites disappeared. Dr. Bass said that it was well known that malarial infection might remain latent for a considerable length of time in the adult and he could see no reason why this had not occurred in the case he had reported. In view of the fact that post-natal infection seemed to be positively excluded, he believed that this might be considered a true case of congenitally acquired malaria. Several months afterward this child died in convulsions during an acute attack of gastrointestinal intoxication, having been ill only twenty-four hours. At autopsy the only gross finding was an enlarged thymus. There was no hyperplasia of the lymphoid tissues at the base of the tongue, or in the follicles of the intestinal tract. The spleen was normal in size and consistency and the mucosa of the intestinal tract showed no erosions or injection. Microscopically the liver showed a slight grade of beginning diffuse necrosis, the kidneys a moderate acute nephritis, and the spleen some hyperplasia of the Malphigian bodies and considerable pigment through its substance. No malarial parasites were found in the spleen. A fact worthy of note was that all the babies appeared to be healthy at birth and this did not speak in favor of the infection occurring during pregnancy, but rather in favor of its having taken place during labor; however, we were not in a position to say how the infection took place.

Dr. Floyd M. Crandall said that if the congenital transmission of malaria was possible it was strange that it did not occur more frequently, still the case reported was pretty positive and went to prove the possibility of such transmission. Dr. Crandall referred to a case which he had reported many years ago, in 1892 he believed. In this case the mother had had a malarial paroxysm and the child had been born during the sweating stage. The following morning the child appeared to be all right. In the afternoon, eighteen hours after birth, the infant became blue and pinched in appearance and it was thought that it was dying when he was sent for. He found that the child had a temperature of 102° F. The same thing occurred on the following day, and the child had four such attacks, each lighter than the preceding one. In those days they knew little of the plasmodia or of blood examinations, but he had attended a meeting where he had heard Dr. Walter B. James read a paper on the subject, so he took blood cultures and had them examined on the third day and the plasmodium was found in the blood of both mother and child. Dr. Crandall said that he did not see, all things considered, how this case could be other than a congenital one.

Dr. Charles Herrman said that twelve years ago he had seen a case which he believed to be congenital malaria in the Italian Colony in Harlem known as "Little Italy." The mother had recently come from Italy and gave a clear history of malarial attacks. The baby was three weeks old. It did not have distinct chills, but had attacks of cyanosis followed by fever. Plasmodia were found in the blood and under quinine treatment the attacks disappeared. Although one could not be absolutely certain the case was in all probability congenital.

Dr. William P. Northrup recalled the case of a baby two weeks old that had malaria. The child was given ten grains of quinine and lived.

**Tropical Diseases in Children.**—Major Frederick F. Russell, U. S. A., presented this communication. He stated that children's diseases in the tropics were very similar to those in this latitude with a few exceptions. Scarlet fever, diphtheria, mumps, and whooping cough were not common. Measles was more often seen, and chicken pox was quite prevalent. Smallpox was so general in most places in the tropics that it was practically a disease of childhood. The more frequent diseases were the diarrheas and dysenteries, eczema, furunculosis and prickly heat, malaria in all its forms, infections, with intestinal parasites, and above all syphilis, both acquired and congenital. In the Far East they had also beriberi, yaws, and at times cholera and the plague. Infections with intestinal parasites were most important, because of their harm to the general health. With but few exceptions tropical cities were backward in sanitation and they had the same sort of infestations as were noted here fifty or sixty years ago. The commonest worm was the *Ascaris lumbricoides*, almost every native up to middle life being infected. It was customary to administer santonin and calomel to children about twice a year as a routine measure. As an instance of the effect of these parasites on the general health Major Russell cited a prison which had had a very high death rate which had resisted all sanitary reforms. It was found that the majority of the prisoners were infected with helminths. Following the general use of anthelmintics, the sick and death rates from all causes showed a remarkable improvement which had since been maintained. The most important nematode among children was the hookworm, *Ankylostoma duodenale* or *Necator americanus*. In countries where it was prevalent almost every native child was infected. The carrier state was frequently encountered absolutely without symptoms; this might be partly due to the development of immunity but more often it depended upon the small number of helminths present. *Oxyuris vermicularis* was rather more prevalent than in the temperate zones. The tape worms and flukes were also found, but the one of most importance was the dwarf tape worm, hymenolipis nana, which occasionally existed in almost unbelievable numbers and produced a variety of symptoms. The almost universal presence of helminths made the examination of the stools of more importance than the examination of the urine. It was absolutely essential to have some workable system for the collection and examination of feces. The specimen did not have to be quite fresh unless examination was to be made for entameba. Aside from the strictly human parasites, those of the dog and the pig were frequently found in children. The question of infection and reinfection was important and involved the instruction of all the families in personal hygiene. The duration of life of most of the parasites was short, one or two years at most, and if reinfection could be prevented they would disappear from the tropics as they had from the North. Malaria was of great importance in children as they were unable to protect themselves from the mosquito and their delicate skins made infection easier than in adults. The malarial index of a district was readily ascertained by noting the percentage of children with easily palpable spleens. All varieties of malaria occurred and the clinical course of the disease was more often atypical than not. Examination of the blood for malaria was also a routine procedure in the tropics. Syphilis, especially in seaport towns, was extremely common and compared to the disease in the North seemed mild and amenable to treatment. Yaws, the younger sister of syphilis, was more interesting. It was a chronic, specific, infectious disease characterized by an eruption of strawberry-like tubercles and more or less constitutional disturbance. It was caused by the *Treponema pertenue* of Castellani, an organism morphologically indistinguishable from the spirochete of syphilis. It had been shown, however, that yaws was a distinct disease entity and not a form of syphilis. The most interesting point about the disease at present was its successful treatment by salvarsan, one dose usually bringing about a complete cure. One of the most interesting and important diseases of the East was beriberi. For years an infantile form had been recognized in breast fed infants. A typical case in an infant occurred in the following manner. A young infant two or three months of age, previously healthy and well nourished, was suddenly seized with paroxysms of pain during which it straightened out the body and became rigid, the abdominal walls and epigastrium becoming tense and hard. The child cried constantly, the face became cyanosed, and the veins of the neck became turgid. The pulse was small and hard. The paroxysm passed off only to recur again and again until death supervened, which was usually within a few days or even a few hours. A chronic form of beriberi with gradual onset and sudden termination was also seen. At autopsy the same lesions were found in infants as in adults. There was extreme dilatation and hypertrophy of the right heart, hydropericardium, degeneration of the vagi and of the cells of the right cervical ganglion, and in most cases extensive subcutaneous edema. The singular point about this disease was its high mortality among breast fed infants. In 1905, 65 per cent. of the mortality among infants was among the breast fed and only 20 per cent. among those artificially fed. Fifty-six of the total infant

mortality of Manila was caused by this disease. It had been shown that beriberi was caused by highly milled white rice and this gave the key to the treatment of the disease in infants. An alcoholic extract of rice bran was prepared and fed to the children, the breast feeding being continued. The improvement was marked and immediate. At the end of the week or less the patients were practically cured. Chamberlain and Vedder had demonstrated conclusively that beriberi was not an intoxication but a deficiency disease. Its eradication was now only a matter of time, and of educating the rice-eating peoples to select the right sort of rice. Tetanus was so prevalent in the tropics that one had to be careful even in giving a hypodermic of morphine. All the bacillary forms of dysentery were also common; the same organisms and the same symptoms were found the world over. Amebic dysentery was also seen but not so commonly. Bilharziasis infection was common in China, Japan, and the Philippines. The principal habitat of the worms was in the portal vein, from whence they descended to the rectum and the bladder and worked their way through the walls of the intestines; the lesions thus produced sooner or later proved fatal, as there was no known efficient anthelmintic for these parasites. The strongyloides was of no particular importance except as an indication of the hygiene of the people. Kalaazar was found in both children and adults and was characterized by great emaciation, enlarged spleen and liver, and often edema of the lower extremities. The parasites causing the disease was the *Leishmania donovani*. The disease ended fatally. Major Russell said a new interest had been awakened in amebic dysentery since the introduction of emetine. After five or ten doses of emetine administered over four or five days there was an apparent cure, but most of the cases relapsed. In a patient who was gaining and had normal movements one frequently found enormous cysts in various stages of development. They developed four nuclei and as long as they persisted treatment must be continued. Major Russell illustrated his paper by an interesting lantern slide demonstration.

Dr. William P. Northrup said that the paper had been exceedingly interesting and that during the reading he had been especially interested in noting the resemblance of beriberi. to scurvy.

Dr. W. T. Longcope said he should like to know how the diagnosis of the cyst form of ameba in the stools could be made with certainty. In the fresh state there must be considerable difficulty in differentiating the cyst forms from epithelial cells, and since it might be possible that these encysted amebæ might be present in certain unexplained cases of chronic diarrhea in this locality, it seemed important that they should know exactly how the diagnosis of these forms might be made.

Major Russell replied that the diagnosis of the cysts of amebic dysentery was not difficult if one used the staining method of Schaudinn. Of course it took some experience but no epithelial cell had a nucleus like that of the cysts. The nucleus of the epithelial cell was larger and never multiple, while the amebic cysts might have four nuclei.

**Pellagra in Children.**—Dr. W. J. MacNeal in the absence of Captain Joseph F. Siler gave this talk which he illustrated with lantern slides. He said that pellagra was not a very important cause of serious illness or death in children, but the common occurrence of this disease in children was a very important feature of the general problem of pellagra. With regard to the manifestation of the disease in children, the skin lesions were similar to those in adults. They were well marked in children. The gastrointestinal symptoms, pain and acute or subacute inflammation of the digestive tract, were found in children as in adults. The involvement of the nervous system was, however, not so marked in children as in adults. One seldom saw the toxic phychoses that were met with in adults. In showing illustrations of the lesions, Dr. MacNeal called attention to the tendency of these lesions to girdle the wrists and said that the statement had been made that when this occurred the patient would die. He also called attention to the bilateral symmetry of the lesions and to the fact that they were more extensive where the skin was exposed to the sunlight. Absence of sunlight did not inhibit the progress of the lesion but delayed it. In children the feet were more commonly involved than in adults. When the lesions ceased to progress there was an increase in the severity of the gastrointestinal condition and of the general toxemia. Dr. MacNeal said that he would not confine himself to pellagra as it occurred in children, but would consider the general subject of pellagra. In a population of 6,600 people in endemic foci of the disease in South Carolina, there were 882 females and 1,005 males under ten years of age. During the two years 1912 and 1913 there developed in this population 91 new cases of pellagra and of these 23 new cases occurred in the female children and 25 in the male children. A statistical study of the food used in six villages, including about 5,000 persons, failed to reveal any consistent relationship between the use of any particular food and the occurrence of pellagra. A somewhat similar study of the location of domicile of old cases of pellagra in relation to domicile of the remaining population in these mill villages had shown that new cases of pellagra developed almost exclusively in persons living in the same house with such antecedent cases or in houses next door to them. In more than one-half the instances of next door relationship a child under the age of twelve years was involved either as the antecedent or as the incident case. The disease spread therefore from a preceding case as a center, a phenomenon that could be satisfactorily explained in their opinion only by assuming that pellagra was an infectious disease. Apparently it was not readily transmitted to any considerable distance. In the transmission from family to family the children seemed to play an important part.

Dr. William P. Northrup said that the saying that when the lesion of pellagra encircled the wrist the patient was going to die reminded him of some of the first information he had had about shingles in his student days. It was said at that time that if the shingles went all the way around the body the patient would die; as a matter of fact they never did go all the way around.

Dr. W. T. Longcope said he felt that he had learned more concerning pellagra during the evening than he had ever known before. Dr. MacNeal had put the whole subject in a new and absorbingly interesting light. Before hearing this report it had occurred to him, as probably to many others, that there were many points of close analogy between beriberi and pellagra, but this idea had been entirely dispelled by Dr. MacNeal's presentation. This report left little basis for the old assumption that pellagra was associated with the ingestion of spoiled corn. Dr. Longcope asked Dr. MacNeal whether one would be justified in making the diagnosis of pellagra when skin lesions did not exist, and also whether he had observed the development of pellagra in suckling infants.

Dr. Alvah H. Doty said that he had always believed that pellagra, like beriberi, was due largely to improper food and malnutrition. While malnutrition might not be a factor in the early stage of the disease, he thought it played an important part as the disease advanced.

Dr. William P. Northrup asked what the popular opinions of the people were regarding pellagra. He said it would be most interesting to hear what the prevailing opinions were among the people.

Dr. W. J. MacNeal said he did not know whether he could answer all the questions asked. If he had forgotten any he hoped he would be reminded of them. As to the diagnosis of pellagra without skin lesions, in the work of the Thompson-MacFadden Commission, no cases were accepted as definite pellagrins unless the skin lesions had been observed either by themselves or by a local physician. Skin lesions might be present in a typical form for only a few days in some cases, so their absence did not negative a diagnosis of pellagra. Cases often went for months without skin lesions and one could not exclude pellagra just because the skin lesions had not been seen. The subject of an insect carrier or secondary host of the parasite of pellagra had been carefully studied by Mr. A. H. Jennings and Mr. W. V. King of the Bureau of Entomology, United States Department of Agriculture, working in collaboration with this commission. Dr. Sambon of London had stated that pellagra was contracted chiefly by field workers and he had incriminated the buffalo gnat (*Simulium*) in its transmission. Jennings and King observed that the disease was contracted chiefly by persons remaining in or about the dwelling house in the daytime and they had suggested that the stable fly (*Stomoxys calcitrans*) might play a rôle in its dissemination. The evidence, however, was inconclusive. The methods used for the disposal of sewage seemed to have something to do with the spread of pellagra. In those portions of the city of Spartansburg equipped with a water carriage sewer system

relatively few cases of pellagra developed, while in those parts of the city where surface privies were used there were many more cases of this disease. To get more definite observations on this point an investigation was made of mill villages with sewer systems. Only three such villages were found and in two of these the water carriage sewer system had been in use for only one and three years respectively. In the third village the water carriage sewer system had been in use for twenty years. A number of cases of pellagra had moved into this village from time to time, but no new case could be proven to have originated there. In regard to the treatment of pellagra, no specific was offered, but very good results had been obtained in several cases. The important therapeutic measures included removal of the patient to a cooler climate, or provision for a comfortably cool temperature in his room, careful but full feeding with plenty of milk and eggs, scrupulous cleanliness, efficient nursing, and cheerful optimism on the part of everyone around the patient. Fourteen patients suffering with pellagra, brought to the Post-Graduate Hospital in 1913, were treated along these lines and all of them recovered from the acute manifestations of the disease, although most of them relapsed the following year after returning to their former environment. Observations were made on a number of cases treated in a hospital in the South by different methods of specific treatment, but several deaths occurred. Personally, Dr. MacNeal said he was opposed to the use of arsenic or other supposed specific treatment during the active stage of the acute attack, but this opinion was not shared by other members of the commission. Salvarsan had been used in the treatment of pellagra, but there would seem to be no real justification for its employment. In reply to the question as to whether he had seen any cases of pellagra in suckling children, Dr. MacNeal said that he had not seen any such cases, but some had been reported on reliable authority. Among the cases on the records of the Thompson-MacFadden Pellagra Commission there was none less than one year of age.

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SECTION ON MEDICINE.

*Stated Meeting, Held February* 17, 1914.

DR. T. STUART HART IN THE CHAIR.

THE contributions were from the medical wards of the Lebanon Hospital.

**Gangrene of the Lung; Operation and Recovery.**—Dr. ABRAHAM MAYER reported this case. The patient was a man thirty-six years of age, born in Italy, and admitted to Lebanon Hospital September 11, 1913. His family history was negative, his father dying of intestinal trouble at the age of sixty and his mother of pneumonia at the age of eighty years. The patient had never before been ill. Twenty-four days before his admission to the hospital he had been suddenly taken sick with a severe chill, followed by high fever. He had severe pain in the right chest with each inspiration. Expectoration, at first slight, became progressively more and more profuse. He was at first thought to have lobar pneumonia, but did not seem to have any crisis. At the time of his admission to the hospital he was only fairly well nourished, looked ill, and had a hot, dry skin. His heart percussed normally as to position and size. The sounds were of good quality and there were no murmurs. The expansion of the lungs was only fair and appeared equal. On the left side there was normal pulmonary resonance, both anteriorly and posteriorly. The respiratory murmur was normal. On the right side posteriorly and just below the angle of the scapula there was an area of dullness, with entire absence of breathing. Radiating from this point as a center moist râles were present over the entire side anteriorly and posteriorly. Examination of the abdomen and the extremities showed no abnormalities. The sputum was very profuse, fetid, and greenish-brown. It contained shreds, and on standing settled into two distinct layers—the lower greenish-red or brown, and thick, the upper more abundant, pale, and thin. When fresh it had a frothy layer which disappeared after standing from twenty-four to thirty hours. Microscopically no tubercle bacilli were found. There were many bacteria, granular and fatty matter, and many crystals. There were few elastic fibers. The first *x*-ray was taken September 15, 1913, and showed a large area on the right side affected. On account of the wretched condition of the patient the operation of opening the chest wall and evacuating the gangrenous material was divided into two stages. The preliminary operation was done on September 19 and on September 22 the operation was completed. Foul-smelling, grumous material and lung detritus were found. The cavity was the size of a lemon and extended to the root of the lung. The patient made a complete and uneventful recovery and was discharged cured thirty-seven days after admission to the hospital. Dr. Mayer exhibited the *x*-ray plates and a specimen of the sputum.

**Traumatic Epilepsy of Five Years' Duration Cured by Surgical Treatment.**—Dr. WILLIAM M. LESZYNSKY presented this report. He stated that experience and observation had shown that surgical operation upon the skull or brain for the cure of epilepsy had well-defined limitations. The indications for operation were epilepsy following cranial traumatism, Jacksonian epilepsy, and grand mal attacks in which there was distinct clinical evidence of a focal lesion. The earlier the operation was performed after the cranial traumatism the more favorable the prognosis. The subject of this report was a man twenty-six years of age, who first consulted Dr. Leszynsky May 18, 1910. When six years of age he had fallen from a height and received a compound fracture of the skull over the vault on the right side. He made an apparent recovery and his physical and mental condition developed normally. He remained in perfect health until the age of twenty-one years, fifteen years after the injury, when he had an attack of clonic spasm affecting the muscles of the left hand and forearm, which was followed by loss of consciousness and a general epileptic convulsion. These attacks had recurred about once a month for the past five years and had not varied in character or intensity. Over the right temporoparietal region there was an irregularly shaped, deep depression (the bone having been removed surgically at the time of the cranial injury) one and one-half inches in diameter, about three and one-half inches above the mastoid process and two inches from the median line. Physical examination revealed nothing otherwise abnormal. It was quite evident that the epileptic attacks were due to focal irritation and early operation was advised. The operation was performed May 23, 1910, by Dr. Henry Roth. There was a scar from a curved incision over the right temporoparietal region, and within this another crucial scar, which was hard, depressed, adherent, and pulsating. The central area showed absence of bone and was about an inch and a half in diameter. The edge of the bone defect was removed. The raised flap consisted of scalp and dura directly over the precentral convolution, including all of the scars. After all bleeding was checked the exposed brain tissue was covered with Cargile membrane, the flap replaced and sutured with silk, a small rubber tissue drain being left in the lower angle of the wound. The patient made a good recovery and had been kept under observation during the following year. He had never had any form of epileptic attack since the date of the operation, a period of three years and seven months. His general health had remained good and he had never received any sedative drugs.

**Gaucher's Disease in a Boy.**—Dr. CHARLES HERRMAN presented the clinical report on this case. The patient was now fourteen years of age. His mother was healthy. His father had had a gastric ulcer for which a gastroenterostomy was performed. There were eight other children. A sister twenty-seven years of age had a tuberculous coxitis and an enlarged spleen. It was noteworthy that these two children were the last of a large family. The patient had had measles and whooping cough, but no manifestations of syphilis, tuberculosis, or malaria at any time. Dr. Herrman said he had first seen the child in 1906 when he was six years of age. The mother said she had observed an enlargement of the abdomen when the child was four years of age. At the age of six and a half years the child had severe abdominal pains and epistaxis. Examination showed a spleen extending eight c.m. below the level of the umbilicus and one c.m. beyond the umbilicus in the median line. The lymph nodes were not distinctly enlarged. The blood showed hemoglobin 75 per cent., red blood corpuscles 4,390,000, white blood corpuscles 4,000, polymorphonuclears 70 per cent., lymphocytes 29 per cent., and eosinophiles 1 per cent. Quinine, arsenic, iron, mercury, and iodides were given at various times without any apparent effect. In January, 1909, the patient had a tooth extracted and this was followed by hemorrhage. In July, 1909, he had severe abdominal pains and vomited a large quantity of blood. He was then admitted to the Lebanon Hospital and remained there one month. The liver extended from the fifth rib above to five c.m. below the

free border of the ribs in the right main line. The spleen extended from the seventh rib above to fifteen c.m. below the free border of the ribs in the axillary line and one and one-half c.m. beyond the umbilicus in the median line. There was some discoloration of the face and a peculiar wedge-shaped thickening of the conjunctiva on either side of the cornea, to which Dr. Brill had called attention. The patient received *x*-ray treatments without any apparent effect. On February 12, 1912, the patient was presented before the Pediatric Section of the New York Academy of Medicine, at which time Dr. Brill made a positive diagnosis of Gaucher's disease. In October, 1913, the patient was again admitted to Lebanon Hospital when he gave a history of having had several hemorrhages from the nose and mouth during the preceding week. He was very pale, had lost in weight, and complained of feeling badly, being troubled with headaches, nausea and dizziness. He was so decidedly worse that it was decided to have a splenectomy performed. Dr. Roth performed this operation on October 22. The patient made a good recovery and was discharged December 11, 1913. He still complained of occasional pain in the abdomen and legs. As a result of the operation there was an increase in the hemoglobin and red blood cells, and a marked increase in the white blood corpuscles, together with an increase in the percentage of polymorphonuclears. It was too early to say that the patient was cured, as the spleen was not the only organ affected, but it did not seem likely that an organ so distinctly changed could be of any value, and it might be that by removing it the organism might be better able to cope with the as yet unknown agent causing this condition.

Dr. HENRY ROTH described the operation performed on this patient whose history had been related by Dr. Herrman. He said that on October 22, 1913, under nitrous oxide gas and ether anesthesia, a vertical incision was made through the outer border of the left rectus muscle, sufficiently long to permit safe manipulation and delivery of the enlarged spleen. Adhesions were present on the upper and posterior surfaces which were readily divided after the vascular pedicle was first secured with a rubber covered clamp, ligated in sections with catgut, and divided between ligatures. The distal one inch of the pancreas was included in one of the ligatures and part of it was removed with the spleen. After covering the raw surface with peritoneum a small cigarette drain was placed down to the stump. The abdominal incision was closed by several layer sutures. The patient stood the operation remarkably well, and was discharged from the hospital forty-nine days after the operation. In an article recently published by N. E. Brill and F. S. Mandlebaum in the *American Journal of Medical Science*, 1913, CXLVI, 863, it was stated that of fourteen authenticated cases of this disease eight had splenectomies performed with five recoveries and three deaths as the result of the operation J. F. Erdmann and J. J. Moorhead (*American Journal of Medical Science*, February, 1914, CXLVII. 213) gave a list of ten operative cases, including two of Wilson's cases, which Mandlebaum did not consider to be types of this disease. The one authenticated case of Gaucher's disease reported by Wilson and operated upon by William J. Mayo on January 7, 1907, died. Erdmann and Moorhead were in error when they counted this case as a recovery. A corrected list showed only eight operative cases, with five recoveries and three deaths. This was the third male case on record and the second male case subjected to splenectomy. He was the sixth patient operated on in this country. In view of the fact that all other forms of treatment had thus far failed to bring about the same amount of improvement which followed splenectomy, the latter procedure seemed justifiable because, even if improvement proved only temporary, splenectomy would surely relieve the symptoms caused by the increased size and weight of the spleen. Furthermore, the improvement in the condition of the blood tended to indicate that the removal of the spleen in this disease had a beneficial effect. Splenectomy was a comparatively safe operation, providing it was done before the general condition of the patient became such that any other procedure of equal magnitude would be too dangerous.

Dr. EUGENE P. BERNSTEIN made the pathological report on the specimen from this patient. He stated that the spleen measured 27 x 13 x 10 cm. in its various dimensions and weighed 1320 grams, or almost three pounds. Its surface was wrinkled and of a translucent purple color. On cut section the capsule was seen to be somewhat thickened. The parenchyma was of reddish-brown color, mottled everywhere with minute hemorrhagic areas about the size of a pin head. The organ cut with considerable resistance, nowhere exuding blood, and presented a firm homogeneous surface from which very little pulp could be scraped off. Malpighian bodies were not distinguishable. The spreads made from the splenic pulp immediately after operation showed numerous large endothelial cells, with irregular outlines, containing one or more fairly large, round, or ovoid shaped nuclei which were rich in chromatin, and were usually situated eccentrically. The number of nuclei in one cell might be very large; in this case the highest count was seven. The protoplasm of the cell was roughly homogeneous. On microscopic section the most prominent feature was the enormous distention of the venous sinuses which were filled with erythrocytes and the above described endothelial cells. The sinuses were round or oval and lined with endothelium. Here and there were found islands of fairly normal pulp cells. The wall of the sinuses was composed of connective tissue supporting the endothelial cells but reticulum fibers were never found extending into the lumen of the aveoli. This was the typical pathological picture of the spleen in this disease which still remained to be explained. The only point of accord among authors was that these cells must arise from the hematopoietic system. Besides being found in the spleen, they were also present in the liver, lymph nodes, and bone marrow.

**Cerebral Syphilis, Treatment with Salvarsan as a Last Resort with Complete Recovery.**—Dr. WILLIAM WEINBERGER presented this patient, a woman thirty-eight years of age, who had been admitted to the medical service of the Lebanon Hospital April 11, 1912, complaining of persistent vomiting, severe headache, dizziness, tingling sensations, and a sense of insecurity in the lower extremities, rendering walking and even sitting difficult. For two or three days she had had difficulty in starting urination. She had had five miscarriages during her married life. Physical examination revealed that the axillary and inguinal lymph nodes were palpable, the pupils unequal, the left being larger than the right, slowly reacting to light; ocular motility was normal; there was occasional nystagmus. The tongue was tremulous, but protruded normally. There was marked pain and tenderness on pressure in both occipital regions with tenderness over the vertebral spines extending down to the middorsal region. There was also tenderness on pressure over the sternum and both tibiæ. The upper extremities were normal, but the lower showed general emaciation. Both knee jerks were slightly exaggerated and there was occasional pseudoclonus on the right side. The plantar reflexes extending down to the mid-dorsal region. There was no objective sensory disturbances. The gait was epistatic and the Romberg marked. Eye ground examination showed residua of a previous specific neuritis. The temperature was normal throughout. The urine contained faint traces of albumin and a few hyaline and occasional granular casts. The Wassermann in the blood was positive. The cerebrospinal fluid was negative, globulin was positive, lymphocytes 30 per cent. This was corroborated by another lumbar puncture. The blood picture examination showed a picture of moderate secondary anemia. On the basis of these findings a diagnosis of basal meningoencephalitis of a specific character extending into the posterior fossa was made. For a number of weeks about ten large doses of iodides, up to 100 minims t.i.d., and injections into the glutei of 20 per cent. mercuric salicylate suspension were given with no amelioration of the symptoms. As a last resort an intravenous injection of 0.6 salvarsan was given. The improvement became manifest about three days after the injection. First the vomiting and headache were favorably influenced, the gait improved, and the nystagmus became less distinct. Another 0.6 gram of salvarsan was then administered as these symptoms persisted. This was followed in the course of time by a complete removal of all symptoms with the exception of a slight degree of nystagmus. When discharged the patient weighed 97¾ pounds as against 73 when admitted to the hospital. The patient was in the hospital for three months and ten days. She had remained well up to the present time.

**Large Aneurysm of the Aorta without Symptoms.**—Dr. SELIAN NEUHOF reported this case. The patient was a man, 67 years of age, who had always been a heavy smoker. His health had been good except for occasional mild attacks of indigestion until 1913, when he began to have slight pains on the left side of his chest and very slight dyspnea when climbing stairs. He gave a history of venereal infection forty years previ-

ous to this time. Outside of his heart and arteries the physical examination was negative. Inspection of the neck showed somewhat exaggerated throbbing carotids. On palpation the thrust at the apex and at the base, both right and left, was somewhat stronger than usual. On percussion the apex was found at the nipple line; apparently the cardiac area was not enlarged. Auscultation showed that at the apex and the lower precordium there was a somewhat rough systolic murmur and a softer murmur replacing the second sound. Both murmurs were transmitted somewhat to the left and towards the sternal border. At the base there was double murmur, the rougher and louder being the systolic. Both were transmitted somewhat above but mainly along the right sternal border. The last examination made a few days ago corroborated all these findings. The average of the blood pressure readings was, systolic 170, diastolic 70. The patient's reflexes were normal. The Wassermann reaction was negative, the Noguchi positive. The examination led one to infer that the patient most probably had a luetic aortitis with aortic dilatation. The orthodiascopic tracing, however, as well as the *x*-ray plates, showed that the patient had a long fusiform aneurysm beginning at about the end of the arch reaching to and probably partly involving the upper abdominal aorta. This latter fact was particularly well seen in the *x*-ray. The patient was given salvarsan intravenously and numerous doses of mercurial injections as well as iodide of potassium. The special points of interest were the long latent period after the infection, the comparative absence of symptoms, with the exception of a few days, the entire absence of decompensation, the absence of all physical signs pointing to a large aneurysm in this location, and the excellent state of preservation of the patient despite his advanced years. This case illustrated the value of the orthodiascope and *x*-ray since without them the diagnosis of this case would have been impossible.

**Typhoid Fever Complicating Malaria.**—Dr. CARL GOLDMARK reported this case. The patient was a girl, 20 years of age, whose family and personal history were absolutely negative. She was admitted to Lebanon Hospital October 10, 1913, with the diagnosis of typhoid fever. One week prior to admission she began to suffer from nausea and vomiting, headaches, abdominal cramps, fever increasing toward evening, and an occasional chill. Her bowels were constipated. These symptoms continued up to the time of admission, at which time her temperature was 100° F., and pulse 112. The physical examination revealed nothing. The Widal and diazo tests were negative. The evening of admission her temperature rose to 105° F. with morning remission to normal. Two days later she had a chill and her temperature rose to 105.5° F. Blood taken durthe chill showed plasmodia of the tertian type. The administration of quinine promptly checked the malaria and for the next nine days the temperature remained practically normal with an occasional rise to 100° F. The patient was discharged as cured twelve days after admission. Nine days later she was readmitted stating that she had felt perfectly well for five days after her discharge from the hospital and that then she started as before with vomiting, abdominal cramps, and fever. Two days before admission she had had a chill, high fever, and perspiration. The physical examination again revealed nothing. There was no roseola. The Widal test was negative. The patient was immediately put on quinine, and for the next two days the temperature varied from 100° to 102° F. As the patient had been taking quinine before admission it was thought that possibly they were dealing with a case of quinine fever and the quinine was discontinued for three days, during which time the evening temperature rose to 104.5° and 106.5° F. with a morning temperature of 101° to 102.5° F. The Wassermann and von Pirquet tests were both negative. Warburg's tincture was administered. The patient then had two chills, one in the morning with a temperature of 106° F., and one in the evening with a temperature of 107° F. The blood was taken during the chills and failed to reveal anything characteristic. The following day the patient had another chill, the temperature going to 106° F. Quinine was given hypodermatically and there was no chill for the next two days though the temperature rose to 105.5° F. Quinine was discontinued and methyl blue tried. During the following two days there were chills with a temperature of 106° F., and during the four following days the temperatures were considerably lowered and unaccompanied by chills. The morning remissions continued. The spleen was somewhat enlarged but otherwise there was nothing that was of assistance in clearing up the diagnosis. They thought they were dealing with a case of malaria complicated by typhoid fever though they had no corroborative evidence upon which to base a positive diagnosis. The patient's temperature again rose to 105° F. and they determined to use neosalvarsan. An intravenous injection was given and the result was striking. The temperature which had been 102.5° F. promptly dropped to 96.5° F. and the whole complexion of the case was changed. Whatever rôle the malarial element was playing to mask the real underlying condition was absolutely eliminated. The typhoid fever now asserted itself and the temperature curve at once became typical of this condition. The Widal test, however, still, remained negative for the next five days when at last a positive Widal reaction was reported on the forty-first day of the patient's first attack or the twenty-first day of the second. The blood culture made by Dr. Bernstein now showed a pure culture of *Bacterium coli communis*. A smear from an abscess that formed at the bend of the elbow also showed the colon bacillus. About a month later another abscess formed on the thigh and this culture showed pure typhoid. The Widal remained positive. The typhoid fever ran a fairly stormy course with a recrudescence on the fifty-seventh day. With the setting in of this rise a slight roseola was apparent for the first time. The patient was discharged from the hospital as cured on the one hundred and tenth day following the appearance of the first symptoms.

## Philadelphia Neurological Society.

At a stated meeting held February 27 in Cadwalader Hall of the College of Physicians, Dr. CHARLES K. MILLS presented a communication entitled "The Different Theories of Aphasia: Can They Be Made to Harmonize?" Dr. F. X. DERCUM discussed "The Clinical Interpretation of Aphasia." Dr. CHARLES W. BURR read a paper entitled "The Relation of Aphasia to Mental Disease." He contended that the dementia often, if not invariably, associated with aphasia is not due to this disorder as such, but is to be attributed to coincident or independent conditions, such as arteriosclerosis, senile degeneration, and the like. Dr. J. HENDRIE LLOYD presented a communication entitled "Sensorimotor Aphasia." Dr. J. H. W. RHEIN read a paper entitled "Apraxia in Relation to Aphasia." Dr. T. H. WEISENBURG read a communication entitled "Anarthria." He protested against the employment of this term to mean inability to speak dependent upon other causes than interference with the function of the organs of phonation and articulation, such as paralysis of lips, tongue, vocal bands, and the like. Inability to speak due to disorders of the central nervous control of the faculty of speech is aphasia. Dr. WM. G. SPILLER exhibited a group of specimens illustrating lesions of the left third frontal convolution and of the temporosphenoidal lobe, in which there were present respectively motor and sensory aphasia. Rarely, however, the speaker said, is the lesion so circumscribed as to be confined exclusively to a single center or to a single localization-area.

**Nervous Cretinism.**—F. G. Crookshank reports the case of a girl, now aged five and a half years, who was in August, 1912, brought to the Belgrave Hospital. The notes then made stated that the child had spoken early, but walked late; that the present complaint was one of slime coming from the mouth, of stumbling, and of being miserable. It was recorded that the skin was harsh, the gait tottery, the knee-jerks increased. A diagnosis of "xerodermia with (?) hypothyroidism" was made, and small doses of thyroid were given. Subsequently, the author saw the child irregularly: little change if any for the better occurred, and the speech became defective. In the spring of 1913, after the demonstration by Langmead of a case of nervous cretinism it occurred to the author that his case was one of the same character. The gait then was more than ataxic; it was that of a child with "ataxic paraplegia." The dose of thyroid was quickly increased and regularly maintained, and the child now walked and talked well, and had lost almost all her symptoms. She was growing fast.—*Proceedings of the Royal Society of Medicine.*

## Books Received.

*The* Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

Die Zuckerkrankheit. By Dr. med. A. Sopp. Paper; 90 pages; price 1.80 M. Curt Kabitzsch, Würzburg.

Progressive Medicine. Edited by Hobart Amory Hare, M.D. Assisted by Leighton F. Appleman, M.D. March 1, 1914. Vol. XVI, No. 1. Paper; illustrated; 406 pages; price $6.00 per annum. Lea & Febiger, Philadelphia and New York.

Entstehung und Entwickelung der Laryngoskopie. By Prof. Dr. Emerich von Navratil. Paper; 53 pages; price 1.60 Mk. August Hirschwald, Berlin.

Gelandebehandlung Herzkranker Kinder im Mittelgebirge. By Dr. H. Roeder. Paper; illustrated; 164 pages; price 3.60 Mks. August Hirschwald, Berlin.

Le Laboratoire du Praticien. Par. Paul Gastou. Paper; illustrated; price 12 frs. A. Poinat, Editeur, Paris.

Handbuch der Tuberkulose, in Fünf Bänden. Herausgegeben von Prof. Dr. L. Brauer, Dr. G. Schroder, Dr. F. Blumenfeld. Vol. I. Paper; illustrated; 580 pages. Johann Ambrosius Barth, Leipzig.

Handbuch der Tuberkulose, in Fünf Bänden. Herausgegeben von Prof. Dr. L. Brauer, Dr. G. Schroder, and Dr. F. Blumenfeld. Vol. II. Paper; illustrated. Johann Ambrosius Barth, Leipzig.

The Early Diagnosis of Tubercle. By Clive Riviere, M.D., F.R.C.P. Cloth; illustrated; 260 pages; price $2.00. Oxford University Press, New York.

Radium Therapeutics. By N. S. Finzi, M.B., M.R.C.S., L.R.C.P., L.S.A. Cloth; illustrated; 112 pages; price $2.00. Oxford University Press, New York.

The Anatomist's Notebook. A Guide to the Dissection of the Human Body. By A. Melville Paterson, M.D., F.R.C.S. Cloth; illustrated; 349 pages; price $2.00. Oxford Univeristy Press, New York.

Die praktische Bedeutung der Missbildungen der Niere, des Nierenbeckens und des Harnleiters. By Prof. Dr. C. Adrian. Paper; 38 pages; price 1.20 Mks. Carl Marhold, Halle a. S.

Der Ausfall des Kopfhaars und seine Behandlung. By Dr. med. Felix Pinkus. Paper; 56 pages; price 1.60 Mks. Carl Marhold, Halle a. S.

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Formulaire de Therapeutique Clinique. Par le Dr. L. Pron. Cloth; 544 pages; price 6 francs. Librairie Maloine, Paris.

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Mental Deficiency. By A. F. Tredgold, L.R.C.P. (London), M.R.C.S. (England). Second Edition, Revised and Enlarged. Cloth; 491 pages; price $4.25 net. William Wood & Company, New York.

Tuberculosis: Its Cause, Cure, and Prevention. By Edward O. Otis, M.D. Cloth; 326 pages; price $1.25 net. Thomas Y. Crowell Company, New York.

Die Therapie des praktischen Arztes. Herausgegeben von Prof. Dr. Eduard Muller, Erster Band. Cloth; illustrated; 1056 pages; price 10.50 M. Julius Springer, Berlin.

Die Therapie des praktischen Arztes. Herausgegeben von Prof. Dr. Eduard Muller, Zweiter Band. Cloth; 664 pages; price 6.40 M. Julius Spring, Berlin.

A Synopsis of Medical Treatment. By George Cheever Shattuck, M.D. Second Edition, Revised and Enlarged. Cloth; 96 pages. W. M. Leonard, Boston.

## Therapeutic Hints.

**A Lotion for Use in Urticaria.**—Bouchard employs the following:

℞ Cocaine hydrochloride,
Chloral hydrate,
Resorcin, āā, 2 grams.
Glycerin, 6 grams.
Alcohol, 40 grams.
Cherry laurel water, 60 grams.
Distilled water, 90 grams.

**The Application of Horse Serum in the Treatment of Wounds.**—M. H. Roziès points out that horse serum is a valuable antiseptic when locally applied to wounds. It is harmless and may be employed in the case of all wounds whether these are clean or infected. It has analgesic properties which are of distinct service in the treatment of burns. In the case of sluggish wounds horse serum stimulates the reparative processes.—*Gazette des Hôpitaux.*

**The Relief of Gastric Flatulence.**—According to A. P. Luff this may be effected by means of the following mixture:

℞ Aromatic spirit of ammonia, 25 minims.
Spirit of chloroform, 15 minims.
Spirit of peppermint, 12 minims.
Spirit of cajuput (B. P., oil of cajuput 1, alcohol 9), 8 minims.

This constitutes a teaspoonful dose, which is to be taken in a wineglassful of water whenever the flatulence becomes troublesome.—*Lancet.*

**Treatment of Tardy Malnutrition of Syphilitic Origin.**—C. G. Kerley states that he has employed the following prescription in the treatment of this condition in children from five to ten years of age:

℞ Bichloride of mercury, 1/60 grain.
Tincture of nux vomica, 3 drops.
Ferrated extract of apples, 1/3 grain.
Quinine bisulphate, 2 grains.

This should be given in a capsule three times daily after meals.—"Practice of Pediatrics."

**The Relief of Pain.**—A. P. Luff states that when the use of morphine is not desirable a combination of analgesics such as the following may be employed:

℞ Novaspirin, 7 grains.
Pyramidon, 6 grains.
Quinine salicylate, 1½ grains.
Codeine, 1/3 grain.

This is to be prescribed in a cachet to be taken every four hours.

**An Effective Combination in Gout.**—A. P. Luff recommends the following in the treatment of acute and subacute gout:

℞ Colchicine, 1/70 grain.
Sugar of milk, ½ grain.
Extract of nux vomica, ¼ grain.
Extract of hyoscyamus, ½ grain.
Extract of gentian, q. s.

This should be administered in pill form. The object of the sugar of milk is to allow the colchicine to be triturated with it before the colchicine is worked up with the extracts, as otherwise the minute amount of the alkaloid would not be evenly diffused throughout the pill mass, and so the risk of a poisonous dose of colchicine getting into one pill might be incurred. One pill is to be taken every three or four hours according to the severity of the attack, which is rapidly relieved by this treatment.—*Lancet.*

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## Original Articles.

### SYPHILIS IN RELATION TO LIFE INSURANCE.*

By HENRY H. SCHROEDER, M.D.,

NEW YORK.

MEDICAL DIRECTOR, MUTUAL LIFE INSURANCE CO. OF NEW YORK; EDITOR OF THE INSURANCE DEPARTMENT, MEDICAL RECORD.

THE crude practice followed in the past for arriving at the value of a risk with a syphilitic history must be given up sooner or later in favor of a more scientific mode of selection, based on the successful results attained in serum diagnosis and modern therapy. The medical officers of life insurance companies have wisely waited until the results of experimental research could be formulated into some practical system. Needless to say, the limitations as well as the advantages of this improved method will not be recognized without a clear understanding of the principles upon which it is founded. Medical directors lead busy lives, and many of them have little time or opportunity for following up the developments in syphilology in a connected way, the literature from dependable sources being scattered, desultory, and confusing. With these suppositions the writer has ventured to present a general review of the accomplishments in experimental research, the mortality, the results of treatment, the causes of death, and the conclusions which may be drawn in the interests of life insurance.

EXPERIMENTAL RESEARCH.—A connected and sufficiently comprehensible digest of this subject, omitting most details of the complicated technique, is included in the following lines:

*Spirochæta Pallida.*—This microorganism of syphilis in man, otherwise known as *Treponema pallidum*, is long, delicate, and non-refractile, has the appearance of a spirally wound wire, and is highly motile. The *Spirochæta pallida* is one member of a large group. Some forms are harmless, others are pathogenic. The *Spirochæta refringens* is one form which is apt to cause considerable difficulty in microscopic identification, as it occurs on ulcerating lesions, in smegma, and on venereal warts; in other words, it is likely to be found just where the *Spirochæta pallida* is sought.

*The Demonstration of Spirochæta Pallida.*—The *Spirochæta pallida* may be detected, in most cases, by microscopical examination in the primary stage of syphilis. This method will probably be more generally adopted in the future, as the Wassermann reaction is of little value before the spirochetes have entered the circulation. It will then be practicable to secure a statement of real value in regard to the nature of the acknowledged venereal sore when the patient becomes an applicant for insurance later on. Every one interested in life insurance medicine has had the task of puzzling over conflicting or doubtful statements in regard to some lesion admitted in the personal history, and of trying to determine whether it was chancre, chancroid, herpes, or some unimportant sore. Another advantage gained from employing this method is the opportunity to make an early diagnosis without waiting, as formerly, for the appearance of the secondaries to gain definite knowledge of the nature of the disease before beginning treatment.

The serum for examination is extracted from the sore. The dark illumination field probably affords the most practicable means for discovering the microorganism, if resorted to before the application of antiseptics or caustics. Rapidity in reaching a result is the great advantage of this method. The other methods are based upon the use of stains. A negative result after one attempt does not justify the exclusion of syphilis any more than the failure to find the tubercle bacillus in one sample proves that the patient is non-tuberculous. Experience, great care, and persistence are required in finding the specific germ of syphilis, and differentiating it from other microorganisms.

*The Luetin Test.*—Noguchi, who perfected this method, uses a suspension of pure cultures of killed spirochetes under the name of "luetin" for the purpose of making a cutaneous test for syphilis. The preparation is injected intradermically in one arm, and a control is often employed on the other. It usually takes from five to six days, sometimes considerably longer, for a positive reaction to appear in the form of a red papule with an area of induration. The papule may go on to pustulation or may persist for some weeks after treatment and after the Wassermann reaction becomes negative. The process is direct and specific, like the tuberculin test, and is particularly helpful in the diagnosis of latent and tertiary cases.

According to Noguchi, the reaction is present in the majority of cases of tertiary, latent, and hereditary syphilis. In general paresis and tabes a positive reaction is obtained in about 60 per cent. of cases. In certain cases of tertiary and hereditary syphilis an inflammatory reaction occurs at the site of the injection of the control fluid, and this may be as strong as that produced at the site of the luetin inoculation.

Nichols reports positive reactions in 87.5 per cent. in latent cases, the ordinary Wassermann indicating only 25 per cent. In latent and tertiary cases together, there were positive results in 84 per cent. against 53 per cent. with the ordinary Wassermann. Five cases are cited in which ordinary Wassermann reactions had been obtained during periods ranging from 15 to 22 months, but in

*Read at meeting of the Medical Section of the American Life Convention, March 5, 1914.

which the application of the luetin test gave indication that syphilis was still present. The use of this method has been greatly restricted through the impossibility of securing good luetin. Noguchi makes the only reliable preparation in his private laboratory, and the supply is therefore very limited. Moreover, the method will not come into general use until it is well known and accepted that there is no risk involved in submitting to the inoculation.

*Complement Deviation or Fixation Test.*—The chemical action in this phenomenon has not been satisfactorily explained. The following terms appear frequently, and require some explanation:

1. Complement is a substance found in the sera of all animals. When joined by an antibody (also known as amboceptor) it dissolves bacteria and red blood cells, but has no power to accomplish this when the amboceptor is absent. Complement is thermolabile, being destroyed by a heat of 55° C. The serum is said to be "inactivated" when the complement has been destroyed by heat. Such a serum may be "reactivated" by the addition of other free complement. Complement has little specificity, so that the complement of the serum of one animal is capable of reactivating the sera of other animals. The blood of the guinea-pig supplies complement which has most ability to reactivate the sera of other animals, and is more uniform in strength.

2. The amboceptor or antibody is formed in the fluids of an animal, accidentally by disease, or intentionally (causing immunity) by the injection of a special cell or poison (antigen). The amboceptors entering into the complement fixation reaction for the detection of syphilis, to be referred to later, are:

A. The amboceptor formed in the blood of the patient by syphilis.

B. The amboceptor formed in the rabbit by the injection of sheep cells.

Amboceptor is highly specific; for instance, the amboceptor of immunized typhoid blood will not unite with complement and destroy sheep cells or the bacilli of any other disease. It is thermostabile, not being destroyed by a heat of 55° C. Serum can, therefore, be inactivated by destruction of the complement by a heat of 55° C. and still have the amboceptor unaffected.

3. Antigen is a body capable of stimulating the formation of antibodies or amboceptor, thereby establishing so-called "immunity." All bacteria, red blood cells and certain other substances are antigens.

When an antigen is present with the amboceptor for whose formation the former is responsible, the amboceptor will attract complement and cause hemolysis.

4. Taking a step backward and reviewing the evolution of the reaction, it may be gathered from the literature that Bordet and Gengou discovered as early as 1901 that if pure cultures of the spirillum of Asiatic cholera were injected into rabbits, immunity was established to the spirillum in these rabbits. Furthermore, if pure cultures of the spirillum were added to the serum of the immunized rabbits, the spirilla were dissolved or destroyed. If, however, the cultures were put in the serum of untreated rabbits, the spirilla were not affected. In attempting to ascertain what substances in the immunized blood were responsible for this destruction or "lysis," it was found that if immunized blood was heated to 55° C. for an hour, it would no longer dissolve the bacteria. Further experiments revealed the fact that if some normal serum was added to the immune serum that had been inactivated by heat, its bacteriolytic power was restored. In this way immunized blood was found to contain two substances which caused dissolution of bacteria, the thermolabile substance now known as complement, and the thermostable substance now known as amboceptor. Later, it was learned that if washed red corpuscles of an animal were injected subcutaneously into an animal of a different species, the latter would become immune to those red cells. For instance, if washed red cells of a sheep were injected into a rabbit, the rabbit became immunized to sheep red cells, and if the serum of the rabbit were separated and mixed with sheep cells, the latter would become dissolved by the process known as hemolysis, this process depending upon the binding of the amboceptor to the complement by means of the antigen.

The hemolytic system is utilized in the complement fixation reaction as an indicator to show whether complement was bound or remains free after it has taken part in another combination.

If the previous combination included an amboceptor and its particular antigen, complement will be bound to them and rendered unavailable to fill the gap in an incomplete hemolytic system forming the second combination. It will be noticed later that red blood cells are not present in the first combination so as to interfere with the binding of the complement.

The "fixation" or "deviation" of the complement in a serum is accomplished, then, by an antigen-antibody combination, whereby the complement is "bound" and rendered unavailable to complete a reaction in a second antigen-antibody combination for which complement is necessary.

5. Hemolysis, or the dissolution of the red blood cells, is accomplished by the addition of complement and amboceptor. Without the presence of complement hemolysis will not occur. The amboceptor and the cells may combine, however, in the absence of complement, and when so combined the cells are said to be "sensitized." The addition of complement to sensitized red cells results in hemolysis.

The complement fixation reaction in syphilis depends upon the ability of the syphilitic serum to fix complement in the presence of antigen. Individuals with syphilis in any form have syphilitic antibodies or amboceptor in their serum.

A further explanation with the assistance of a schematic drawing will clear up the nature of the reaction.

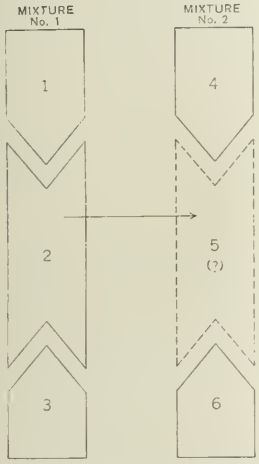
Mixture Number One.—(1) Antigen (extract of syphilitic liver of a fetus) representing the suspected cause of infection. (2) Complement supplied in fresh serum from the guinea-pig. (3) Amboceptor in inactivated serum of the patient. The complement in the serum of the patient must be inactivated by heat. Otherwise, with the introduced known quantity of complement of the guinea-pig, there would be more than sufficient complement to bind (1) antigen and (3) amboceptor, in which case some might pass over to the second antigen-antibody combination and cause hemolysis of the red sheep cells, thereby giving a false impression.

The substances 1, 2, and 3 are incubated a half hour at 37° C. before being added to mixture number two.

Mixture Number Two (another antigen-antibody combination).—(4) Antigen, a fixed quantity of fresh washed sheep cells. These blood cells, the only ones introduced in the test, are depended upon to show whether hemolysis will take place or not. (5) Questionable. This space will not be taken unless the complement of the guinea-pig in mixture number one has not been previously bound and is free to pass over to the second antigen-antibody combination, in which case hemolysis of the red sheep cells occurs and the reaction is then negative. (6) Amboceptor to sheep cells. This is obtained in form of rabbits' serum which has been rendered immune by the injection of red blood cells of a sheep. The rabbits' serum is not always inactivated as the complement in the small amount of serum used is not sufficient to affect the test.

The second mixture is incubated a half hour and added to mixture No. 1.

If the suspected serum is syphilitic, there is an antibody present which has been developed against that particular antigen; the complement will be deviated and hemolysis will be inhibited. In other




words, 1, 2, 3 combine leaving the sheep cells intact and the mixture will remain turbid.

If the patient is not syphilitic no such antibody (amboceptor) is present in his serum. In this event the complement will remain free and hemolysis of the sheep cells will occur. In other words, 1, 2, 3 do not combine, but 2 passes over to 5 and combines with 4 and 6. The sheep cells are then destroyed and hemolysis takes place, giving a negative reaction.

*Titration and Standardization.*—It has been intimated that the complement must be limited to the known quantity and strength contained in the introduced serum of the guinea-pig. This brings up the question of titration, the process for determining the exact strength of the reagents, of the antigen and amboceptor as well as the complement. Serologists should universally adhere to one standard of quantity and strength of the reagents, as their findings will then agree more often and will be correspondingly more valuable. The process of titration and the technique of the tests are delicate, complicated, and tedious, and should be entrusted only to those who have the equipment, experience, ability, and time to carry out every detail with infinite care.

The reagents should be invariably titrated on the day the test is made. The smallest quantity of amboceptor in the presence of which a fixed quantity of red cells will be dissolved by an excess of complement is known as an amboceptor unit. The smallest quantity of complement which in the presence of one amboceptor unit is able to cause solution of the same quantity of red cells is known as a unit of complement. If some other amboceptor with its antigen is mixed with one unit of complement, and time allowed for their combination, the complement will be firmly fixed in that immune system, so that when red cells and one unit of red cell amboceptor are added later, there is no free complement and fixation or deviation of the complement is said to have taken place. The smallest amount of antigen which will completely fix one unit of complement so as to completely inhibit hemolysis in the hemolytic system is known as one unit of antigen.

*Methods.*—The best known applications of this principle are the Wassermann and Noguchi methods. They seem to be equally reliable. Some serologists employ a method composed of what they consider the best features of both tests. Other operators use both tests in every case as a routine measure, finding, when doing so, that the results are sometimes contradictory, and in such an event they accept the positive reaction as an indication of the presence of syphilis.

*Wassermann Test.*—This method is practically the same as that already described in explaining the complement fixation reaction. Since the original investigations by Wassermann, it has been discovered that the hearts of guinea-pigs, oxen, and livers of other animals in alcoholic solution possess the same inhibitory power as the extract of syphilitic livers. These reagents are known as the "organ extract antigens."

*Noguchi's Modification.*—Noguchi recommends a modification of the Wassermann method, claiming that it is more delicate, requires less time and labor, and demands only about one-tenth as much blood from the suspected individual. The great difference between this and the Wassermann method lies in the use of the serum of the rabbit that has been injected with human corpuscles. He found that human serum sometimes contains natural sheep amboceptor, and what would be a positive reaction becomes negative through the presence of this condition.

*Complement Fixation with Spirochæta Culture Antigens.*—Since the success of Noguchi in isolating the *Spirochæta pallida* some operators have substituted a preparation of this microorganism for the organ extract antigen with the hope that the *specific* antigen prepared from such cultures would greatly enhance the value of the complement fixation reaction and eliminate the positive reaction occasionally observed in other diseases. This method has not been in use long enough to justify any conclusions.

*Provocative Wassermann Test.*—Neisser stated before the 17th International Congress of Medicine in London in Sept., 1913, that no opinion concerning a cure for syphilis should ever be expressed until at least a provocative Wassermann test has been resorted to. It is known that some patients who have given a negative Wassermann reaction for over a year, sometimes many years, and in whom

no symptoms appeared during that time, will be found to be still suffering from latent syphilis by means of this test. The method consists of an intravenous injection of salvarsan or neosalvarsan followed by the regular Wassermann test in from 24 to 48 hours, again in about 7 days, and once more in about 14 days. When circumstances permit only one ordinary Wassermann after the injection of the salvarsan, the most reliable result will be obtained by applying the test 3 days after the injection in early cases and 5 days in late cases.

Craig reports a group of 8 cases in which the ordinary Wassermann had been negative for from 15 to 24 months, and were supposed cured. In 4 of the cases, however, the provocative Wassermann proved to be positive. Nichols presents a list of 10 cases with negative ordinary Wassermann for from 15 to 24 months, and were thought to be cured. The provocative Wassermann was positive in 5 of the cases, and the ordinary Wassermann became positive in one of the cases after a period of 24 months.

Craig and Nichols believe that the provocative test in conjunction with the luetin test offers the most available evidence regarding the cure of syphilis. These observers are not prepared to give definite conclusions as to the relative values of the luetin and provocative Wassermann tests, though the provocative Wassermann has given most satisfaction up to the time of their report.

*Interpretation of the Reaction.*—The conventional signs for recording the results of the complement fixation reaction are + +, +, + —, and —. Double plus (++) indicates absolute inhibition; plus (+) indicates at least 50 per cent. of inhibition; plus-minus (+ —) stands for any degree below 50 per cent.; and minus (—) means absolute lack of inhibition of hemolysis. Some serologists employ a slightly modified system for recording their results.

Patients have been assured that they were cured of syphilis upon the strength of a single negative reaction. On the other hand, a diagnosis of syphilis has not infrequently been made in the presence of a plus-minus or a plus reaction, notwithstanding the absence of any history or indication of the disease.

Craig and Nichols are governed by the following conclusions in the interpretation of the reactions, based upon their large experience: If the diseases in which the complement fixation reaction has occasionally been found positive, can be excluded, a double plus reaction is sufficient to establish a diagnosis of syphilis, whether symptoms of the disease are present or not, and whether there is a history of an initial lesion or not.

A plus reaction may be considered as sufficient evidence of the presence of syphilis when there is a history of infection or a presence of clinical symptoms.

A diagnosis should never be made on the appearance of a plus-minus reaction alone. Many normal individuals will give a plus-minus reaction at times, and it cannot be considered, therefore, as having more value than a negative reaction in the absence of a history or symptoms.

A single negative reaction is of no value in excluding syphilis unless repeated tests during the period of a year after the cessation of treatment are all found negative, and a luetin or provocative Wassermann at the end of the year corroborates the negative findings. The examination of the spinal fluid should also be made when possible. In the interpretation of a negative history of the patient, the presence or absence of symptoms and the amount of previous specific treatment must be carefully considered.

The interpretation of the results of the complement fixation test must always rest with the clinician, as the laboratory simply reports the result of the test. It remains, therefore, with the clinician to correlate the laboratory report with the clinical condition or history, and this is only possible when clinicians and the medical officers of life insurance companies, also, have a clear conception of the limitations of the complement fixation reaction in the various stages of syphilis.

It must be added that, in considering the value of the complement fixation reaction, the fact should be borne in mind that laboratory diagnosis is not always the most reliable on account of two factors: 1. The personal equation, or the varying interpretation of the results by different observers. 2. Faulty technique and disregard of standardization.

1. There is a number of degrees between a strong positive and a negative, and the individual opinion of the operator in regard to the exact degree does not always coincide with that of others. Wolbarst analyzes the findings of 37 cases, in which the sera were examined by three competent serologists; agreement occurred in 26 cases, absolute contradiction in 5, and slight discrepancies in 6. It is probable that the discrepancies were due to lack of proper standardization of the reagents.

2. The other factor in the breeding of errors is the failure to resort to careful titration of the reagents.

*Utilization of the Complement Fixation Reaction.*—The reaction is of great value as a guide to treatment either with salvarsan or mercury, an efficient control being furnished for the proper administration of curative agents and detection of relapses by frequent repetitions of the test. Craig and Nichols have demonstrated by means of the complement fixation reaction that there were relapses in 86.8 per cent. of the cases treated by them with salvarsan, most of the relapses occurring within the first 6 months. It would be as difficult to sail a ship without a rudder as to attempt to intelligently treat a patient with syphilis without the assistance of this valuable aid.

The results of the tests will vary within wide limits, becoming negative in about four or five weeks on the average. Cases are reported in which a negative test was secured in six days after the injection of salvarsan, while in others the negative result was not found until 102 days.

The ordinary complement fixation reaction should not be depended upon in establishing a negative diagnosis or in pronouncing a cure. Craig and Nichols, who have contributed largely to this subject through their splendid work, secured the following results:

Starting with the first week after appearance of the initial lesion, they secured 27 per cent. positive and increasing to 79.4 per cent. in the fifth week.

In the secondary stage, Craig examined 1443 cases with active secondary symptoms, of which 95.6 per cent. gave positive reactions. In this stage the complement fixation reaction gives its most reliable results.

In the active tertiary stage the reaction was positive in from 70 to 80 per cent. In latent syphilis 40 to 60 per cent. In congenital syphilis, 90 to 100

per cent. In cerebrospinal syphilis, 40 to 60 per cent.

It is evident, then, that the ordinary complement fixation reaction is a too unreliable and misleading test upon which to base a final decision, especially in late cases, and that the question of a cure can only be solved by a resort to the luetin test, provocative Wassermann test, and examination of the cerebrospinal fluid.

*Precautions, Errors, and Discrepancies.*—Strict asepis should be observed in collecting blood, especially when it may not be examined within twenty-four hours. Fresh blood should be used whenever possible. Craig and Nichols have demonstrated to their satisfaction that certain serum anticomplementary bodies develop under certain circumstances which may give rise to a positive Wassermann reaction.

Aging of the antigen is capable of producing inhibition of hemolysis in doses smaller than ascertained in the original gauging and should be titrated on the day of the test. Old sheep cells develop anticomplementary powers.

A negative Wassermann during a course of treatment with mercurials is of questionable value. At least one month should elapse after leaving off mercury before a negative may be considered significant.

No dependence can be placed on a negative Wassermann in an individual who has ingested a considerable or even fair amount of alcohol within twenty-four hours.

The occurrence of positive tests in such diseases as yaws, malaria, leprosy, and scarlatina does not materially discount the value of the test for syphilis. Most of these affections are exotic. The reaction in scarlatina is transitory and not constantly present. In malarious sections there may be difficulty at times.

Positive reactions in non-syphilitic cases are probably often misinterpretations of negative results due to inexperience, faulty technique, or the failure to follow a recognized standard.

The great and never-to-be-forgotten lesson for every one interested in this line of work is that the tests should invariably be conducted by unquestionably competent serologists, and that the results are unreliable if obtained from other sources. Great practical value of the tests will only be secured by the establishment of central serodiagnostic stations under the control of the health departments and clinics of our large cities.

*The Detection of the Spirochæta Pallida in the Nervous Centers.*—It is recognized that the *Spirochæta pallida* is present in the cerebrospinal fluid in parasyphilis of the nervous centers, the most common of which are general paralysis, tabes, and cerebral syphilis. These diseases are further characterized by an increase in the number of cells and by an increase in globulin.

Neisser, Ellis, and Swift and other serologists are authorities for the statement that the spirochetes colonize in strongholds of poor vascularization in which the nervous system is particularly rich, and where it is difficult for destroying agents to reach them. The perivascular and perineural spaces, as well as the arachnoid space, afford particularly favorite resting places of this kind, and it has been found that there is very little passage of drugs from the blood into these spaces and into the cerebrospinal fluid. Spirochetes lurking in these inaccessible parts and spaces are, therefore, usually beyond the reach of the ordinary or provocative Wassermann test. It has not been demonstrated that the luetin test is reliable enough to justify the final declaration of a cure in these cases.

Ellis and Swift have lately done a lumbar puncture on every patient admitted to the Hospital of the Rockefeller Institute of Medical Research as part of the routine examination irrespective of whether the nervous system showed signs of infection or not. This procedure is justified by them on the principle that if possible abnormalities in the second stage are detected in the beginning, treatment may be started at a time when these abnormal constituents may be made to disappear much more rapidly than later on.

Before, then, the last word can be pronounced as to whether a patient is cured and that there is no latent or tertiary syphilis of the cardiovascular or nervous systems, the following four points of diagnosis, as advised by Nonne, must be cleared up:

1. A provocative Wassermann reaction of the blood.
2. A Wassermann reaction of the spinal fluid carried out according to the method introduced by Hauptman and Hossle in which the quantity of spinal fluid used is about five times greater than the amount of serum taken in the blood test.
3. A cell count of the spinal fluid.
4. A determination of the amount of globulin in the spinal fluid.

Lange's colloidal gold test may be employed in addition to these four methods.

This formidable procedure cannot be requested of applicants applying for insurance unless they happen to be sufficiently desirous of ascertaining for themselves that the disease has been eradicated. The companies will, therefore, sometimes grant policies to applicants who are syphilitic, since the tests which they can call for are limited by feasibility.

Mortality, Treatment and Causes of Death.—A study of the mortality, treatment and causes of death reveals the significance of the results of experimental research.

*Mortality.*—Statistics of the mortality in syphilis are few and unsatisfactory on account of the difficulty, almost impossibility, in tracing the cases. One of the few reports was presented by Dr. Gollmer at the Fourth International Congress of Examining Physicians relating the experience of the Gotha Insurance Company of Germany, between the years 1852 and 1904 in the case of 1,778 men who had been treated for syphilis. There were 487 actual deaths against 290 expected according to the experience of the Gotha among all insured men, a ratio of 168 per cent. An analysis of the statistics according to attained age show the mortality ratio at ages 15 to 35 was 138 per cent.; at ages 36 to 50, 186 per cent.; at ages 51 to 70, 161 per cent.; at ages over 70, 140 per cent. For all ages combined, the mortality ratio for the first five years was 144 per cent., and for the succeeding years, 172 per cent.

Dr. Kaufman Wolf traced the fate of 19 women 20 years after they had been observed by Fleiner in the Heidelberg Clinic in 1891. These women were affected with syphilis in the tertiary stage and were without any history of primary or secondary symptoms. Most of the women were married at the time or married later. Five of the women had died, the cause of death being syphilitic tracheitis, "dropsy," syphilitic cerebrospinal meningitis, pneumonia, and tabes dorsalis. Ten of the

husbands had died, the cause of death being apoplexy in three cases, pneumonia in two, cardio-renal disease in one, tabes dorsalis in one, "dropsy" in one, and accident in remaining two.

The Medico-Actuarial Mortality Investigation has recently completed a study of the experience of the companies represented, the expected deaths being calculated by the Medico-Actuarial table based on standard lives during the years 1885 to 1908 inclusive. The cases are divided into three groups and only include those in which the attack occurred at least three years prior to the date of the application except group No. 3.

1. SYPHILIS, SURELY, THOROUGHLY TREATED, TWO YEARS' CONTINUOUS TREATMENT, AND ONE YEAR FREEDOM FROM SYMPTOMS

| | Actual Deaths | Expected Deaths | Ratio of Actual to Expected Deaths, Per Cent |
|---|---|---|---|
| Between two and five years of application | 13 | 9.32 | 139 |
| Between five and ten years of application | 34 | 19.56 | 174 |
| More than ten years prior to application | 53 | 24.42 | 217 |
| | 100 | 53.30 | 188 |

2. SYPHILIS SURELY, NOT THOROUGHLY TREATED, OR NO DETAILS OF TREATMENT GIVEN

| | Actual Deaths | Expected Deaths | Ratio of Actual to Expected Deaths, Per Cent |
|---|---|---|---|
| Between two and five years of application | 44 | 15.52 | 284 |
| Between five and ten years of application | 54 | 25.52 | 212 |
| More than ten years prior to application | 76 | 59.09 | 129 |
| | 174 | 100.13 | 174 |

3. SYPHILIS, DOUBTFUL

| | Actual Deaths | Expected Deaths | Ratio of Actual to Expected Deaths, Per Cent |
|---|---|---|---|
| More than two years prior to application | 67 | 48.81 | 137 |

Group 1 shows an increasing risk and evidence of the poor results of former modes of treatment, medication having probably been discontinued too soon after the early signs had disappeared, the attending physicians guessing that the cure was complete. The heavy mortality in the late years shows that spirochetes were left lurking in inaccessible parts untouched by treatment.

Group 2 brings out an interesting situation. The mortality was most excessive in the early years, and gradually declined to a still excessive death rate in the late years. The figures seem to corroborate the view held by Keyes and some of his contemporaries that the severe types of syphilis are accompanied by havoc and a comparatively early loss of life, but that after the outburst is well over, the malady appears to more or less exhaust itself so that the surviving patients are less apt to suffer seriously in later life than some of those who have very simple lesions in the early part of the malady. The lighter mortality in the later years in this group appears to have been a case of the "survival of the fittest."

Group 3 shows a mortality more than high enough to prove the necessity of serum diagnosis and proper treatment in doubtful cases.

The Specialized Investigation published in 1903 by the Actuarial Society substantially confirms the conclusions of the Medico-Actuarial Investigating Committee.

*Treatment.*—A general knowledge of the approved and complete method of treatment and the results which may be expected must be in the possession of medical directors before they can successfully cope with the vexed question of whether or not the disease has been eradicated. Statements will be forthcoming from regular physicians testifying to marvelous results from, perhaps, a single dose of salvarsan, the cure having been claimed on the strength of a negative reaction by the simple Wassermann test. Furthermore, another door to charlatanism and quackery has been opened by the introduction of modern chemotherapy and serum diagnosis, both of which afford excellent mediums for deluding the public.

*Salvarsan.*—Ehrlich succeeded in producing this salt of arsenobenzol in experiment number 606, and neosalvarsan, a weaker but less irritating brother, in experiment 914. Neosalvarsan has the advantage of easy solubility and is therefore better adapted for intramuscular injections. The water used must be sterile and chemically pure so as to prevent poisonous bacterial and chemical admixtures of either drug in solution.

*Methods of Treatment.*—Neisser, enlarging upon his own experience, affirmed his belief that mercury and salvarsan destroy the spirochetes, probably, in a direct manner, and also prevent development and multiplication. He believes that salvarsan is far superior to mercury as a means to destroy spirochetes, that it acts more quickly and more intensely, but that a combined salvarsan-mercury treatment is more effective than when either drug is used alone, and, furthermore, that one is enabled in this way to limit the dose of both drugs to a smaller amount, thereby escaping the unpleasant or deleterious effects which are occasionally encountered.

During the first month of the disease, much virus circulates in the blood and it is just at that time that the curative effect of salvarsan is more striking. The fact that unaffected nests of the total mass of spirochetes remain after treatment at times proves that the dosage of the remedy employed was too small, or that the specific microorganism succeeded in reaching centers in the early stages where the remedies could not penetrate. Cases are seen which have been treated in vain for months or years and yet yield finally to appropriate energetic, and careful treatment. It may be regarded a grave error in practice to put off treatment until a typically hard chancre or secondary symptoms develop. The salvarsan treatment should be started as soon as possible after the infection even if the diagnosis is doubtful.

A point of special interest to life insurance companies is that an insufficient total dose during a given period of treatment may result in a "near" cure, thereby eventually doing more harm than good. The danger of "near" cures lies in the fact that when a spirochete center, left latent in the body, again begins to multiply, tissues and fluids that have become normal and bereft of their antispirochetic properties are attacked, and thus in the event of greater proliferation, more damage is done locally than in a tissue still vitiated with syphilis and having more power of resistance. If such a latent spirochete focus becomes reactivated and happens to be lodged in the meninges, some nerve center, or perhaps in or around nerves that branch into a narrow bone canal, the flaring up of the syphilis process may cause serious disturbances.

Neisser holds that the number of relapses in cases well treated with combined salvarsan and

mercury is smaller by far than the proportion of those treated by mercury alone. Unfortunately this rapid beneficial salvarsan effect often misleads patients into prematurely considering themselves cured and to discontinue further treatment. While Neisser is willing to believe that an occasional patient is cured by a single injection of salvarsan if the treatment is begun early enough, he deems it highly important and necessary never to hope for such a result but to let a second treatment follow the first at five or six weeks before a relapse has a chance to develop. He repeats the treatment as often as it is indicated, depending upon the blood reactions for control.

Neisser's experience does not support the assumption that neurorelapses are more common with the salvarsan treatment. He believes that the responsibility for these relapses rests upon the omission of mercury treatment, upon the employment of salvarsan without proper regard to the single or total dosage, upon errors in technique, etc. He deems it especially important for the spinal fluid to be tested in every case before the patient is discharged cured and regrets that this method has not been adopted whenever circumstances permit.

In dealing with syphilis of the central nervous system, it has been found that the direct injection of salvarsan or neosalvarsan into the spinal fluid gives rise to excessive irritation. The blood serum of patients treated with salvarsan has been shown, however, to have a definite therapeutic value when injected into the subarochnoid space. The serum may be taken from another patient or from the patient himself, and must be drawn off within an hour after an intravenous injection of salvarsan. The serum is then inactivated and a culture taken to preclude the presence of microorganisms which might set up a meningitis.

*Causes of Death.*—No disease is so protean in its form as syphilis. Once acquired, it may stamp its impress upon any or all tissues of the body and, even in these days, it is impossible to learn with certainty in some cases when the last imprint of the malady has been stamped out. Lesions of the cardiovascular and nervous systems may, however, be regarded as the chief factors leading to fatal termination.

*Disease of Cardiovascular System.* — Donati pointed out as early as 1909 that syphilis, as an etiological factor, could be demonstrated in 85 per cent. of cases of aortic insufficiency, aneurysm, and mesaortitis, which are suspected from clinical indications. Babcock has emphasized the importance of syphilis in mesaortitis, aortic regurgitation, and aortic aneurysm. In 16 cases of aortic regurgitation observed by him, 15 of the 16 could be attributed to syphilis. Babcock also reported on 10 cases of aortic aneurysm, of which 5 gave positive Wassermann reactions, 2 admitted syphilis, 2 gave no history and were not submitted to a Wassermann, and one gave no Wassermann reaction. In the discussion of Dr. Babcock's paper, Dr. Daland laid particular stress on the predisposition of the spirochetes to endanger the blood vessels even more than the heart itself. Dr. Stone found spirochetes in all cases of aortic disease beginning in the vessels and extending into the heart and it had become a maxim with him to regard all cases beginning after 40 years of age as syphilitic. These reports are corroborated by other competent observers.

Medical directors and examiners are often impressed by the discovery of hardened or thickened arteries in applicants at or considerably under middle age; also by the frequent deaths from cerebral hemorrhage well under the age at which this accident is expected. In most of them, the cause has been imputed to syphilis and, probably, quite justifiably so, as the perivascular spaces are favorite resting centers of the spirochetes. Prompt, energetic, and complete treatment at the right time could have averted the trouble in a large proportion of these cases.

*Disease of the Nervous System.*—Repeated demonstrations of spirochetes in the cerebrospinal fluid in the so-called parasyphilitic diseases give indisputable evidence of the vulnerability of the great nerve centers. Diseases of the brain or spinal cord, as well as of the circulatory apparatus, is a subject of utmost importance to life insurance companies, and while so many of them are known to be of syphilitic origin, the difficulty in excluding them is, nevertheless, greatly increased by the fact that it is impracticable to demand an examination of the spinal fluid for proof that these parts were not invaded during an attack of syphilis which the applicant believes was eradicated. This difficulty, it is hoped, will be lessened at some time in the future by educating the laity, as well as many members of the medical profession, in regard to the vital importance of learning whether the cure is complete or not; further, that a decided opinion is justified only through the knowledge secured by means of the lumbar puncture; and still further, that the process is simple and safe when conducted by competent persons and under proper conditions, both of which may be found at stations equipped for such work.

The responsibility of the specific germ of syphilis in the etiology of many nervous diseases has been satisfactorily demonstrated particularly in cerebral syphilis, general paralysis, and tabes dorsalis. Swift and Ellis give a detailed report of 10 cases of tabes. Spirochetes were discovered in each case, and even when it was not possible to completely exterminate them by means of intraspinous injections of serum taken from the blood of the patient himself or some other syphilitic a few hours after the intraspinous injection of salvarsan, the progress of the disease was more or less arrested. The same observers quote various authorities and give the result of their own experience to show that even in the secondary stage of syphilis, abnormalities of the spinal fluid are indicated at times by an increase in the number of cells, in the amount of globulin, by higher pressure, and by a positive Wassermann reaction of the cerebrospinal fluid. A table of 30 cases exhibited by them divulge the trifling character of the secondary manifestation of syphilis in the majority of patients subsequently developing tabes. Ellis and others hold that syphilitic meningitis may occur in the secondary stage, remain latent, and give no obtrusive symptoms over long periods, and that this complication occurs more frequently than is commonly realized.

Nonne is responsible for the statement that in general paralysis the Wassermann reaction is positive in the blood in almost 100 per cent. and full 100 per cent. in the spinal fluid; in tabes, the reaction is positive in the blood in 60 to 70 per cent., and 100 per cent. in the fluid; in cerebrospinal lues the blood reaction is positive in 80 to 90 per cent. of cases and always positive in the spinal fluid.

Newlin gives an interesting analysis of 43 cases

on all of which the Wassermann and Noguchi methods were employed with positive reactions, the examinations having been carried out by an acknowledged expert. One of the cases was marked as incipient pulmonary tuberculosis (?); tinnitus aurium, 1 case; Henoch's purpura, 1; epilepsy, 14; neurasthenia, 4; hyperthyroidism, 1; hysteria, 1; headache, 1; nephritis, 1; neuritis, 1; sciatica, 1; arteriosclerosis at 50 years of age, 1; one case with intestinal pains and cramps in muscles; Pott's disease, 1; habit spasm, 1; birth palsy, 1; mentally defective and retarded development, 5; congenital lues, 1; Little's disease, 2; chorea, 2; atrophy of scapular muscles, 1.

These few remarks on the rôle taken by syphilis in the causation of disease and death are sufficient to emphasize the ubiquity of the luetic infection and its protean manifestations, it being understood always that syphilis may occasionally be an accompaniment of the disorder rather than the cause.

Conclusions.—Before life insurance companies, as well as the general public, can reap the full benefit of advanced serology and treatment for syphilis, a campaign must be instituted toward overcoming the indifference and ignorance of the laity and educating the members of all grades of society to realize that syphilis may no longer be regarded as a scourge if those affected accept the assistance held out to them and carry out faithfully certain measures which are recognized as of indisputable and inestimable value.

The conclusions directly affecting the interests of life insurance may be arranged as follows:

(1) The medical officers of life insurance companies should not accept an applicant with a syphilitic history until at least one year has elapsed since the date of last treatment, several negative Wassermann's having been secured at regular intervals in the meantime, and a negative provocative Wassermann at the termination of the year. While these requirements are not sufficient to prove an absolute cure, they are practicable and should be insisted on in every case.

(2) A negative provocative Wassermann reaction, especially if repeated, indicates that the spirochetes have been destroyed in those parts which can be reached through the circulation of the blood.

(3) The simple complement fixation reaction is invaluable as a control for proper management during treatment. It is of little value in determining a cure.

(4) Nonne's four points of diagnosis afford the only means for justifying the declaration that a cure has been effected. It is not practicable to require this procedure in an examination for life insurance.

(5) An applicant with a history of tertiary syphilis is not insurable under any circumstances.

(6) A practice of directly demonstrating the *Spirochæta pallida* in initial lesions may prove of value to life insurance companies in the future by affording the applicant an opportunity to furnish an authentic statement later on in regard to the nature of some suspicious sore.

(7) It cannot be repeated too often that reports of the different tests are absolutely valueless unless they come from serologists who are known to be competent and reliable. The tests are exceedingly difficult to make and can be carried out only in well equipped laboratories, and a correct interpretation of the results can be expected only from a highly trained and widely experienced operator. A serologist who attends to this work properly will have little time for any other vocation, as the reagents must be freshly prepared and standardized on the day of the test, the whole procedure requiring about five hours.

(8) No statement in regard to the subject of syphilis can be regarded as always true. Further, the companies are not in a position to exact full proof of the eradication of syphilis, and they must, therefore, adopt the additional safeguard of limiting the policies issued to applicants who have had syphilis to forms in which the contract will terminate at about the age of 55, or to policies in which the premiums are rated up. This practice, combined with careful selection, will avert excessive losses when the late and baneful effects of the disease become most destructive to life.

(9) A rigid examination of the cardiovascular and nervous systems must be carried out whenever there is a history of syphilis. This includes the taking of the blood pressure, as lesions of the blood vessels may begin in the secondary stage before the curative agents have arrested progress, or may develop later through the evil influence of nests of spirochetes which remained in spite of treatment.

(10) The lapse of time since the manifestation of syphilis in any form does not diminish its importance. It is quite probable that the excessive losses reported by the companies were due to a considerable extent to less rigid selection on account of the remoteness of the recorded impairment.

(11) A large percentage of relapses occur after incomplete treatment, especially when only one or two injections of salvarsan have been administered. Relapses will occur occasionally even when the course of treatment was vigorous and prolonged. The relapse may not take place until several years after treatment.

(12) No step in the different requirements should be undertaken by a physician as a medical representative of a company. The sample of blood should be collected by the attending physician and sent to a serologist who is known to be unquestionably competent in that line of work. This precaution may avert trouble and lawsuits.

(13) Many applicants will consider the exactions too burdensome or will not be in a position to comply with them, and, consequently, some business will be lost. It may be added in conclusion, however, that the loss of applicants with a syphilitic history will conserve rather than hurt the ultimate interests of the company.

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# PRESENT STATUS OF TYPHOID IMMUNIZATION IN THE HOSPITALS AND TRAINING SCHOOLS OF NEW YORK.

By ALFRED MEYER, M.D.,

NEW YORK.

In the spring of 1911, the Medical Board of Mt. Sinai Hospital recommended the introduction into the Training School for Nurses of protective vaccination against typhoid fever. This decision was based largely, though not exclusively, upon the very convincing evidence in its favor which had been presented in this country by Major F. F. Russell of the United States Army. In view, however, of the fact that the method had had but little application outside of the army and only a few training schools for nurses had made limited use of it, it was decided not to make the vaccination obligatory but to call for volunteers.

A committee, consisting of the writer as chairman and Drs. Brill and Mandlebaum, was appointed to start the work. The chairman addressed about seventy-five of the nurses, explaining what had been the experience in the army in regard to the incidence and prevention of the disease, but frankly stating that it was not as yet possible to predict the duration of the protection granted, although the probability was that it would last one year and perhaps two or more.

The number of volunteers at first was small for two reasons: first, because the nurses knew of some violent reactions in others who had previously submitted to the treatment both at Mt. Sinai Hospital and at another institution, although they did not know that these violent reactions were due to excessive dosage; and second, *because they had heard of a nurse's complexion being spoiled.* I have never been able to determine which of these two reasons had the greater influence, but I have my strong suspicions.

Two different vaccines were used for the early volunteers, some receiving that prepared by the army laboratory kindly sent to us by Dr. Russell, and others received that prepared at the Mt. Sinai Hospital laboratory. The method of inoculation followed at the beginning was that advised by Dr. Russell, namely: a total of three injections with ten days' interval, although there were sixteen nurses who had four injections at five days' interval.

Previous to the first injection, a Widal test was made in each case and rectal temperature taken. Nurses with temperature even slightly above normal, were excluded, as were those who were menstruating. The wisdom of the former precaution was shown in the case of one nurse who was *excluded* because of a temperature of only 99.8° when she was to get her first injection. Within a day or two she went to bed with what proved to be typhoid fever, which she was evidently incubating when she volunteered.

Most of the early work, that of 1911 and 1912, was done by Drs. Celler and Fried. That of 1913 by Dr. Brill. The vaccine used in the latter cases was prepared by the New York City Health Department, and the interval between injections changed to seven days with a few exceptions. I have data of 115 nurses showing maximum temperatures after each injection and other clinical notes.

There was no constitutional reaction in 12 (temperature not over 99.4°). There was mild reaction in 74 (temperature not over 100.9°).

There was moderate reaction in 28 (temperature not over 102.9°).

There was severe reaction in 1 (temperature 103°).

Widal tests were made in many cases subsequent to the last injection, mostly ten days later, and I have records of fifty-six nurses with Widal tests of whom forty-eight were positive 1:20 = 85 per cent., and thirty-four were positive 1:50 and over = 34 per cent.

From a study of my temperature charts and Widal reactions, I could not establish a relationship between the severity of a reaction at the time of an inoculation and the subsequent development of the Widal; in fact, repeatedly there were reactions ranging from 101.6° to 102.4° with a negative Widal, and positive Widals with no reaction at all. This is in accordance with a private communication from Major Russell in which he reports a positive Widal 1-40,000 in a soldier who had had no constitutional reaction at all. Repeatedly the Widal was negative after the first injection and became positive after the third.

Out of 115 nurses immunized, only 3 were compelled to go off duty, 2 for one-half day each and 1 for three days. This is a sufficient answer to those trustees of hospitals and schools who fear an interruption of the nursing service from the inoculations. There were local reactions in thirty-five cases—mostly slight, not infrequently after the third injection. There were three cases of urticaria covering the whole body, one after the first injection and one after the third; there were four cases of sore throat, thirteen cases of nausea and occasional vomiting, nine cases of headache and a few cases of diarrhea, but this recital appears more formidable than the facts justify.

I know of but one case of a nurse who developed typhoid fever one year and nine months after inoculation. Through some inadvertence, however, she had received only two in place of the customary three inoculations.* It is problematic whether the third inoculation might not have protected her from the subsequent typhoid; nor can the case be regarded as giving a clue to the duration of immunity when inoculations are properly practised. The case was one of true typhoid as proven by blood culture; the course was a mild one, however.

In December, 1913, I sent a circular of inquiry to the public and private hospitals and training schools of Greater New York asking the following questions: (1) Is typhoid immunization applied among your nurses? (2) house staff? (3) administration staff? (4) If immunization is practised, is it voluntary or compulsory?

I have received replies from forty-seven institutions, which I have tabulated below: In twenty-eight of these institutions, nurses were immunized, the immunization, however, being voluntary in twenty-two and compulsory in only five; compulsory in the sixth institution also only when typhoid patients were being cared for; the interesting point is that inoculations are practised in almost all the larger institutions of the city. In thirty of them the house staffs and in eighteen the administration staffs were immunized, but the immunization was voluntary in all instances.

With such a record from the institutions of the

*On further personal inquiry I learned that the third inoculation was not made because of the violence of the reaction following the first two. This lends additional interest to the case.

TYPHOID IMMUNIZATION IS APPLIED AMONG THE NURSES AND STAFFS OF THESE INSTITUTIONS, AS FOLLOWS:

MANHATTAN

| Institutions | Nurses | House Staff | Administration Staff | Voluntary | Compulsory |
|---|---|---|---|---|---|
| Mt. Sinai Hospital | Yes | Yes | Yes | House & Admin. | Nurses |
| N. Y. Infirmary for Women | | Will be | | House & Admin. | Nurses |
| Montefiore Home | No | No | No | | No |
| Fordham Hospital | Yes | Yes | Yes | Yes | |
| Knickerbocker Hospital | Yes, few | Yes, few | Yes, few | Yes | |
| St. Vincent's Hospital | Yes | Yes | | Yes | |
| St. Luke's Hospital | Yes | Yes | Yes, few | Yes | |
| St. Mary's Free Hospital | Yes | Yes | No | Yes | |
| Italian Benevolent Hospital | No | No | No | No | No |
| Presbyterian Hospital | Yes | Yes | Yes | Yes | |
| Hahnemann Hospital | Yes | Yes | Yes | House & Admin. | Nurses |
| Babies' Hospital | No | No | No | Not | practised |
| N. Y. Nursery & Child's | Not | practiced | noless | requested | |
| Lincoln Hospital & Home | Yes | Yes | No | Yes | |
| City Hospital, Blackwell's Island | General | immunizati | oo not prac | tised | |
| Post Graduate Hospital | Yes, 10% | Yes, 80% | No | Yes | |
| Lebanon Hospital Association | Yes | Yes | Yes | House & Admin. | Nurses |
| Sydenham Hospital | Yes | Yes | Yes | Yes | |
| Gouverneur Hospital | Yes | Yes | Yes | Yes | |
| Beth Israel Hospital | Yes | Yes | Yes | Yes | |
| General Memorial Hospital | | Not | practised | | |
| German Hospital & Dispensary | Yes | Yes | Yes | Yes | |
| Har Moriah Hospital | No | No | No | | |
| New York Hospital | Yes | Yes | Yes | Yes | |
| New York Red Cross | | | | Yes | |
| S. R. Smith Infrm. (S.I.) | Yes | Yes | Yes | Yes | |
| Rockefeller Hospital | Yes, limit'd | Yes, limit'd | | Yes | |
| People's Hospital | Yes, limit'd | Yes, limit'd | No | | |
| St. Lawrence Hospital | No | No | No | No typhoid admitted | patients |
| Metropolitan Hospital | | | | Yes | |
| N. Y. Homeopathic Med | | | | Yes, very few | |
| Coll. & Flower Hospital | Largely op | posed by n | urses and d | octors | |
| Roosevelt Hospital | Yes | Yes | Yes | House & Admin. | Nurses |
| Bellevue Hospital | Yes | Yes | Yes | Yes | Yes, for nurses and house staff who take care of typhoid cases |

BROOKLYN

| | | | | | |
|---|---|---|---|---|---|
| Cumberland Street Hospital | | Few | | Yes, nurses | |
| Deaconess' Hospital | Has | not been | practiced | | |
| Williamsburgh Hospital | Yes | Yes | | Yes | |
| Jamaica Hospital | No | No | No | Not practiced | |
| St. John's Hospital | Yes | Yes | Yes, few | Yes | |
| Rockaway Beach Hospital | | | | Yes (one case) | |
| M. E. Hospital | Not practi | sed, but re | commend it | | |
| St. John's, L. I. City | | Yes | | Yes | |
| St. Peter's Hospital | No | No | No | | |
| Kings County Hospital | Few | Most | One | Yes | |
| Brooklyn Hospital & Training School | Yes | Yes | | Yes | |
| Jewish Hospital | Yes | Yes | Yes | Yes | |
| Coney Island Hospital | | Yes | | Yes | |
| German Hospital | Yes | Yes | No | Yes | |
| | 28 | 30 | 18 | 22 | 6 |

metropolis it appears to me there ought to be an extensive imitation of our example in hospitals and training schools of other cities, with the hope of hastening the more general introduction of typhoid immunization into civil life.

785 MADISON AVENUE.

**Carcinoma of the Soft Palate.**—W. G. Howarth reports the case of a patient who ten weeks ago noticed a lump at the angle of the jaw, on the left side. It was not painful, but as it increased in size the patient came to the hospital for advice. He had not noticed anything wrong with the mouth or throat. A large mass of glands infiltrating the left sternomastoid was removed. During the last few days considerable discomfort had been experienced on swallowing.—*Proceedings of the Royal Society of Medicine.*

## A CASE OF FACIAL HEMIATROPHY.*

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The pathology of the disease is rather meagre but first described by Bergson in 1837 and then by Romberg in 1846 as a clinical entity. It is a rather rare disease and so far there are about 140 cases reported in literature.

The etiological factors so far known are mostly traumata of the face and cranium. Ziegenweidt reports a case after a tooth extraction and Rutten one after removal of adenoids. Often the affection had an infectious disease as a precursor. All observers report that it occurs between the ages of ten and twenty years and rarely after thirty.

The pathology of the disease is rather meagre and most authors consider it as a trophoneurosis beginning in the fifth nerve, in the Gasserian ganglion, while some place the onus upon the sympathetic nervous system. In literature we have so far only seven reports of autopsies. Pissling reports a case in which he found a neoplasm on the convexity of the hemisphere, In Jolly's case there was a multiple sclerosis of the brain. In Von Graff's case of a general paralysis there were found besides the characteristic lesions of Dementia paralytica also a diminution in size of the Trigeminus on the affected side and a gray degeneration of some of the fibers; also a brown discoloration of the pia surrounding the root. Mendel reports the following findings in his case: a considerable thickening of the perineurium of the Trigeminus on the affected side, from which the connective tissue of the endoneurium crossed in considerable number through the nerve bundle. On cross section the nerve fibers appeared normal. In some sections, however, there were evident only few isolated nerve fibers within large areas of connective tissue. The cells of the ganglion were normal but there was evidence of a proliferation of connective tissue. Throughout all the branches of the affected nerve there were evidences of an extensive proliferating interstitial neuritis. Of the soft parts the epidermis was only slightly thinned and in some places the stratum corneum and the rete were affected. The diameter of the cutis between the rete and the outer border of the deeper structures was one-third of that of the unaffected side. The facial muscles showed an atrophy without proliferation of nuclei and also without fatty degeneration. Similar findings are reported by Touche in two cases and in one recently reported by Loebl and Wiesel.

We are, therefore justified, in view of these findings, in assuming that in some cases the facial hemiatrophy is caused by a neuritis of the fifth nerve which affects mainly the descending intracranial roots.

The progress of the disease and its clinical features are so characteristic in my case that I shall discuss these in its description.

O. M., female aet, 41, married. With the exception that her mother died of pulmonary tuberculosis her family history is negative. Personal history: of diseases of childhood she had measles and whooping cough at 3 years of age, from which she recovered without sequelæ. She was a bright pupil in school.

*Presented before the section of Neurology, of the N. Y. Academy of Medicine, Dec. 9, 1913.

At the age of 12 years she received a blow on the forehead with a poker. It rendered her unconscious for a few minutes but, with the exception of a swelling which cleared up in 2 days, she suffered no ill after effects. A few months after this accident the hair near the site of the trauma began to fall out and a bluish streak was formed in the middle of the forehead which is still evident to-day. This forms a line of division between the affected and unaffected side. Five months after the blow active atrophy set in beginning at the line of demarcation on the forehead and extending down over the entire right half of the face simultaneously. There was no noticeable discoloration of the skin of the affected area or any subjective sensory disturbances at that time. This atrophy progressed constantly until the 21st year, when it became stationary. At the age of 16 years the right eye began to be affected growing constantly worse until at 22 she could not discern objects but could distinguish light from darkness. She was operated twice on this eye but without success. At the age of 32 she was seized with an attack of epilepsy of the grand mal type. Since then the attacks came at irregular intervals, once every few months or once a week. The seizures came as a rule at night preceded by a spinal or cephalic aura of short duration—a few seconds. She claims to be able at times to ward off an attack by walking briskly and extending her arms. She has never bitten her tongue but invariably urinates involuntarily during an attack. The convulsions are general; at no time were local convulsions observed. During the last seven months only petit mal attacks would come at the rate of once a month. She is under my treatment for that period of time.

Physical examination; marked hemiatrophy of the entire right side of the face embracing the skin, muscles and bony structures. The temporal muscle seems to be completely gone. The skin is rather thin as compared with the left side of the face and of a yellowish brown hue. The facial muscles and those of mastication are considerably involved and to some extent also the right half of the tongue. The muscle tonus of the affected group is good and its functions are not impaired. The electrical reactions to the faradic and galvanic currents are normal. The bones of the affected side as shown on the *x*-ray plate, are decidedly smaller, the inferior maxilla, the right orbit and the right frontal sinus being nearly half the size of those on the left side, giving the face a peculiar assymmetry. The right eye is considerably sunken in, its cornea is anesthetic. Upper half is clear, the lower one opaque. The opacity occupies the whole of the lower portion of the cornea and ends above in a horizontal edge. Seen with a corneal loop this opacity is superficial, brownish in color with a few white dots

Fig. 1.—Facial hemiatrophy.

and shows vesicles, lime deposits and hyaline degeneration. The iris is adherent to the lens, pupil occluded and lens cataractous. Vision equals to hand movements. She has, an old iridocyclitis. The eyebrow on that side is somewhat sparse. The temperature is on both sides alike and there are no sensory disturbances evident other than pain on deep pressure along the course of the two lower branches of the fifth nerve and in the neighborhood of the upper sympathetic ganglia. The Wassermann reaction of the blood

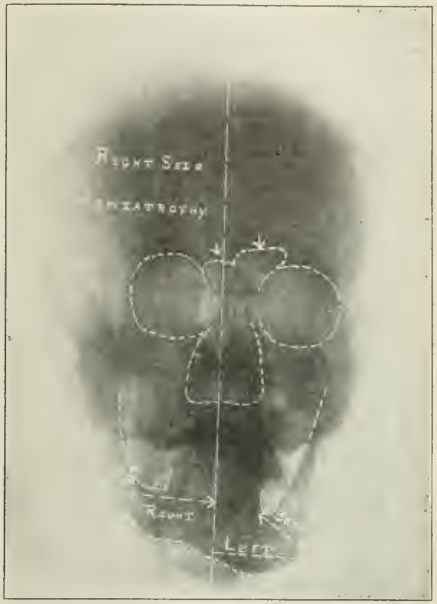


Fig. 2.—Roentgenogram of the case of facial hemiatrophy.

is negative. There is otherwise nothing abnormal about the patient.

The interesting part of the case is that it is extremely rare to have pressure pain along the branches of the fifth, a symptom which is quite marked in this case, and epilepsy as a complication at a rather advanced period of life. One other point of great importance is that the atrophy of the bony structures as hitherto accepted is not borne out by the *x*-ray plate. In bone atrophy we should expect to find a difference in the consistency of the bony structure as compared with the healthy tissue. In this case no such evidence is present. There is absolutely no difference in structure, only the size is one-half. When we remember that the disease started at 12 and as compared with the size of the bones in a normal individual of that age these bones are practically half the size of the adult, it seems reasonable to advance the theory of retardation of growth rather than that of an atrophy.

I am very much indebted to Dr. LeWald for the *x*-ray and to Dr. Jean for his report on the examination of the eye.

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**Industrial Dust and Pneumonoconiosis.**—F. Heim and E. Agasse-Lafont distinguish different varieties of this condition according to the nature of the dust, which may be toxic, infectious, or caustic, or which may be inert, either soft and malleable or hard and resistant. Some cases of penumonoconiosis are chronic, running a slow and prolonged course. This type is caused by inert, hard, and resistant dust. Another type which is known as acute pneumonoconoiosis appears suddenly, running a rapid course. This type is caused by infectious dust containing a pathological agent.—*Archives Generales de Médecine.*

# VISUALIZATION OF THE UPPER INTESTINAL TRACT, BY MEANS OF ROENTGEN RAYS IN CONJUNCTION WITH THE USE OF THE IMPROVED DUODENAL TUBE.*

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THE duodenal tube, in its short existence, has been accredited with having thrown open new fields in the diagnosis and treatment of some pathological conditions of the duodenum, liver, gall-bladder, and pancreas, and has acquired recognition and place among the many other diagnostic measures in the investigation of lesions of the gastrointestinal tract.

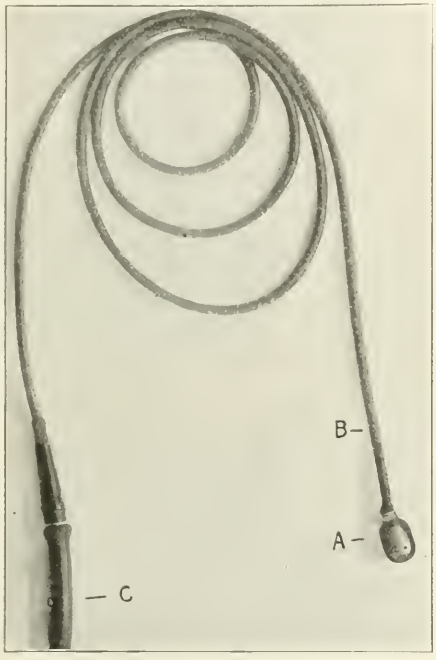


FIG. 1.—The improved duodenal tube.

A number of men in this country and abroad have undertaken a series of investigations by its means and with so many functions already ascribed to it, that if only part of these be found practical, the duodenal tube has already fulfilled its expectations.

The following are some of the conditions in which it is claimed to have a diagnostic or therapeutic value.

*Diagnosis.*—(1) Localization and differential diagnosis of pylorospasm, pyloric stenosis, duodenal obstruction, and duodenitis. (M. Gross.) (2) Diagnosis of duodenal ulcer. (Gross and Skinner.) (3) Removal of a specimen of duodenal contents for bacteriological examination. (Hess.) (4) Removal of a specimen of duodenal contents for the examination of the pancreatic enzymes.

*Read and illustrated with lantern projection slides, before the Section on Medicine, N. Y. Academy, Dec. 16, 1913. An *x*-ray print of only one pathological condition is inserted in this communication, the others being reserved for a future communication.

*Treatment.*—(1) Local treatment of pyloric and duodenal ulcers. (Gross and Einhorn.) (2) Amebic dysentery, with large doses of ipecac through the tube. (Beck.) (3) Transduodenal lavage in the treatment of intestinal fermentation and putrefaction, bronchial asthma, rheumatism, gout, arthritis deformans, constipation (Jutte), and duodenitis. (Gross.) (4) Duodenal alimentation in gastric and duodenal ulcers. (Morgan and Einhorn.) In ptosis and dilatation of the stomach; cirrhosis of the liver. (Einhorn.)

The scope of this paper does not allow me to enter into an analysis of the above claims, further than to state that an experience of over 500 examinations upon 125 patients leads me to regard some of these as mere impossibilities, others as possibilities, and still others as probabilities; yet all of them deserve consideration and thorough investigation. One, however, must regard favorably the following: (*a*) That the duodenal tube furnishes the best means of procedure in ascertaining the functional activity of the pancreas by examining a fresh specimen of duodenal contents for pancreatic enzymes. (*b*) Duodenal alimentation in gastric and pyloric ulcers and vomiting due to gastric and pyloric lesions (*c*) Local treatment of duodenal ulcers, duodenitis, and catarrhal jaundice, the method of which is yet to be perfected. (*d*) Suction of the common bile duct in the impairment of the flow of bile when such is not due to obstruction by gallstones. (*e*) Intestinal therapeutics, the nature and method of which is yet to be established.

In this communication I desire to submit for consideration the subject of visualization of the duodenum and commencing jejunum by means of Roentgen rays in the conjunction of the use of the improved duodenal tube in the diagnosis of atypical chronic or obscure lesions, situated in this part of the alimentary canal, when their presence is suspected or cannot be detected by the well-established methods. It must be remembered that *x*-ray investigations of the upper intestinal tract, for diagnostic purposes, are not always satisfactory, owing to the fact that this part of the intestinal canal is insufficiently filled with the impervious substance, at any given time, to show its course, shape, and size upon an *x*-ray plate. Hence the fluoroscope enabling the direct examination, but also not quite satisfactory, is resorted to by the investigator. About a year and a half ago it occurred to Dr. Wachsmann, Medical Director of the Montefiore Home, and myself, that the course of the duodenum and the commencing jejunum may be made visible by filling the duodenal tube with a suspension of bismuth following the aspiration of a specimen of duodenal contents, the duodenal tube being in duodenum or jejunum. Since then every duodenal case that came under observation at the Montefiore Home was thus examined with the result that in a number of cases this procedure not only aided in the deliberation of some diagnosis, but in some instances it proved to be the only means with which we learned of the correct condition, later verified in all operative cases but two.

In direct bearing upon this subject I desire to emphasize the following:

1. Correct duodenal instruments and speedy intubation. No one will ever advance in this skillful and tedious work until he learns of the difficulties encountered during a duodenal examination, and no duodenal instrument will fully meet its task

unless its construction be based in a view of overcoming these difficulties. It is in this respect where the original duodenal tube has failed and its shortcomings are fulfilled by the modified duodenal tube and gastroduodenal tube, both of which I described

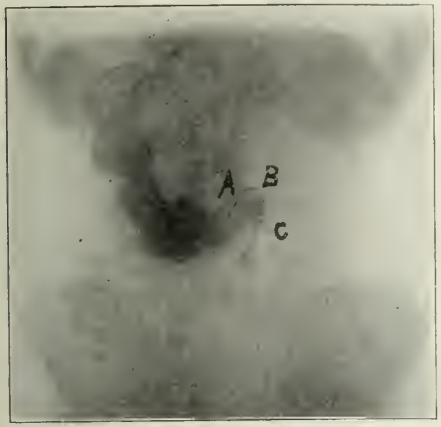


Fig. 2.—The duodenal-tube at the Ampulla of Vater. A, First portion of duodenum; B, curve formed by the junction of first and second portions of the duodenum: C, second portion of duodenum; the stomach filled with bismuth shows deformity in the larger curvature; duodenum unaffected.

in the *New York Medical Journal*, October 18, 1913 —an outcome of a previous experience of a few hundred duodenal examinations. (Fig. 1.)

2. Evidence showing the duodenal tube to be in the duodenum. Before taking an *x*-ray exposure of the duodenum and jejunum, the operator must ascertain that the duodenal tube be *in situ*. The "retraction sign" and "sense of resistance," so much emphasized by others, are of little value, inasmuch as the same will be experienced when the ball of the duodenal tube is in the grasp of the pylorus and the tube itself is coiled up in the stomach. I am, therefore, employing the following three methods: (*a*) Aspiration of a specimen of clear, neutral, and bile-colored duodenal contents following a previously aspirated specimen of colorless hydrochloric-acid contents, is positive evidence that the duodenal tube is in the duodenum, as a specimen of regurgitated duodenal contents, is almost always turbid and usually acid in reaction, free hydrochloric acid being present. (*b*) Upon inflating with a bulb attached to the outer end of the duodenal tube, if the latter is still in the stomach, the epigastrium will become distended and tympanitic and the patient will experience discomfort followed by immediate belching. On the other hand, if the tube is in the third portion of the duodenum or beyond this point the lower abdominal quadrants will become distended and tympanitic; the epigastrium will become depressed, and the patient will neither belch nor experience any discomfort whatsoever. (*c*) Auscultatory inflation. Auscultation while inflating will elicit sounds characteristic to each of the viscus. If the tube is still in the stomach, on auscultation over the epigastrium the sounds will be of a loud, gurgling quality as: gr-r-r-r. If the tube is in the duodenum, on the other hand, the sounds will possess a distant hissing quality as: ss-ss-ss, more distinct on auscultation over the left hypochondrium.

3. Duodenal-tube obstruction. By this term I mean to include conditions in which the improved duodenal tube meets with apparent hindrances during its transversing the duodenum and which may or may not be accompanied by gastric stasis or obstruction. The normal duodenum is horseshoe shaped with its convexity toward the extreme right. The duodenal tube will reach the Ampulla of Vater within a period of one or two hours, as evidenced by the aspiration of clear, neutral, bile-colored duodenal contents, provided the normal curve of the duodenum be intact. In some conditions, however, as in adhesions involving the first and second portion of the duodenum, the curve of the latter becomes distorted and angulated (Fig. 5) and the ball of the

Figs. 3 and 4.—The duodenal tube outlining the course of the normal duodenum and the commencing jejunum; D, larger curvature of the stomach; E, course of jejunum; F, umbilicus; G, duodenal tube along lesser curvature.

duodenal tube thus will be caught and lodged in some of these angles or pockets for many hours, during which time the tube will aspirate mixed gastroduodenal contents of a greenish, turbid acid liquid, simulating the yolk of an egg. In some of

these conditions, on fluoroscopic examination, six hours after a bismuth test meal, the stomach will be found completely empty, showing that while the obstruction is not complete enough to delay the passage of the semi-liquid acid chyme, it is, however, sufficient to delay the passage of the solid ball of the duodenal tube. In such conditions, hence, it is highly desirable to learn of the course and shape of the duodenum and jejunum, which can be accomplished as follows:

*Procedure.*—The introduction of the improved duodenal tube and the aspiration of duodenal contents are accomplished in the manner as outlined in the article above mentioned. On aspiration of clear, neutral, bile-colored duodenal contents, usually occurring within two hours, the operator then fills and distends the duodenal tube with a suspension of bismuth made as follows: Thoroughly stir up with a glass rod, for a few minutes, about a half ounce of bismuth subnitrate into 3 ounces of

Fig. 5.—Duodenal tube outlining the course of the duodenum and commencing jejunum in a case of perforated duodenal ulcer; A and C meeting at an angle; B, which is drawn up to the fundus of the gall-bladder. The jejunum, E, is adherent behind the posterior surface of the stomach as far as D; F, duodenal tube along lesser curvature while in the stomach; G, umbilicus.

milk to a fine suspension. Strain the latter through a funnel and absorbent cotton to exclude coarse and undissolved particles of bismuth. Then fill a 15 c.c. glass syringe, terminating into a point, with the strained suspension and inject the latter into the duodenal tube until a resistance is felt, usually after the injection of about 10 c.c. The distal end of the tube, then, is clamped to prevent the escape of the bismuth. The patient now drinks about a glass of milk containing an ounce of suspended bismuth by mouth. This is necessary in order to differentiate the stomach from the duodenum. The exposure is then made with the abdomen in apposition with the film side of the *x*-ray plate, in a standing posture whenever possible. The duodenal tube then is removed and cleansed.

*Interpretation of Figures.*—A considerable number of *x*-ray plates of the duodenum with the duodenal tube *in situ*, distended with a suspension of bismuth, have established the fact that in Fig. 2 the duodenal tube outlines the normal course of the duodenum. A and C representing the first and second portion respectively. The smooth curve, B, formed by the junction of the first and section portions of the duodenum, is especially to be noted. When this be intact the improved duodenal tube will reach A within a period of 1 hour and, on aspiration, watery, colorless or slightly greenish, neutral or faintly acid contents will be obtained. It reaches B, or the Ampulla of Vater, within a period of 1½ to 2 hours, as evidenced by the aspiration of golden greenish, clear, neutral, bile-colored contents. (Fig. 2.)

*Figs. 3 and 4.*—Here the duodenal tube outlines the normal course of the duodenum as well as that of the commencing jejunum. The relationship between the latter and the larger curvature of the stomach, particularly, is to be noted, namely, that the one is seen below and along the other. (D and E, Figs. 3 and 4.)

*Fig. 5.*—The duodenal tube outlines the course of the duodenum and the commencing jejunum in a case of a perforated duodenal ulcer with adhesions between the duodenum and the fundus of the gall-bladder and between the jejunum and the posterior surface of the stomach. The curve formed by the junction of the first and second portions of the duodenum, seen in Figs. 2, 3 and 4 is represented by the sharp angle, C. The commencing jejunum is not seen running below the larger curvature but, as found at operation, is hidden high and behind the posterior surface of the stomach coming into view at D. In this case the duodenal tube has reached the Ampulla of Vater not before 16 hours, during which time it aspirated gastroduodenal contents, turbid, acid reaction, containing occult blood. I term this delayed passage "Duodenal-tube obstruction," in view of the fact that the *x*-ray examination 6 hours after a bismuth diet revealed no gastric stasis or obstruction, the stomach having been found normal in its shape and size.

Perhaps the history of this case, briefly told, will emphasize the importance of this method of examination.

H. C., at the age of 16, was admitted into a hospital complaining of epigastric pain and abdominal cramps, starting about one-half hour after meals, at intervals of three to four months, each attack lasting about ten days. After four weeks' stay in the hospital he was discharged improved, with the diagnosis of hyperchlorhydria. He was re-admitted one week later with the same complaint when left herniotomy was performed, in the belief, that the left inguinal hernia, then present, might be responsible for the symptoms. A few months later he was admitted into another hospital, where *x*-ray examinations of the gastrointestinal tract and of the left kidney were made and proved to be negative. The patient was then discharged with the advice "to better look for some job." The idea that this might be a case of "Hospitalitis" apparently occurred to the physician in charge, owing to the fact that the patient was a mere boy without parents, penniless and faced a rather trying start. The patient then entered a third, and, later on, a fourth, hospital but without improvement until he, finally, came to the Montefiore Home with a diagnosis of "morphine fiend." The patient was then examined by Dr. Harlow Brooks, who thought of the possibility of a duodenal ulcer which probably escaped recognition by the ordinary methods of examination. I then examined the patient by the method described above and the true condition made itself apparent, namely: distortion of the course of the duodenum and the commencing jejunum by adhesions probably resulting from an old perforated ulcer. Exploratory laparotomy was then performed by Dr. Charles Goodman which revealed a scar of the size of a dime, situated in the second portion of the duodenum and adhesions between the latter and the

fundus of the gall-bladder and between the jejunum and the posterior surface of the stomach (Fig. 5). Gastroenterostomy was performed, followed by an uneventful recovery and, at present, nine months hence, the patient is enjoying good health.

At the Montefiore Home we met with a number of other patients in whom the true condition could not definitely be made out until examined by the above method. The nature of the cases and findings will be reported elsewhere in due time. Considering the short existence of the duodenal tube, its accomplishments and possibilities, it seems as if we are now entering upon an era of great expectations in gastroenterology.*

In conclusion, I desire to express my thanks of appreciation to Dr. S. Wachsmann, Medical Director of the Montefiore Home, whose cooperation has enabled me to carry on my researches in gastroenterology.

Gun Hill Road and Jerome Avenue.

## ON THE ISO-SERUM TREATMENT OF THE INCOERCIBLE VOMITING OF PREGNANCY.

By CECIL KENT AUSTIN, M.D.,
PARIS, FRANCE.

Among the manifold pathological conditions in which a pregnant woman is liable to find herself, there is none that seems so positively lamentable as that known as incoercible vomiting. Others may be more serious *quoad vitam*—placenta prævia, or eclampsia; but neither of these gives the impression of being such a *senseless* performance as incoercible vomiting. A young woman marries, in splendid spirits, health, and physical state, begins to vomit in three or four weeks, and, at the end of ten or twelve, finds herself reduced to an absolute wreck, her life in danger, and obliged to undergo artificial abortion! The picture she then presents is simply pitiable; all the contours of her figure are gone, such patients sometimes decreasing as much as one-third in weight, falling off at the rate of a pound a day; her skin is sallow, dry, and powdery; she may either have profuse ptyalism, or dry lips and parched mouth; she vomits, even at the thought of food, fifty or sixty times a day perhaps, two liters of gastric fluid; there is constant headache, rapid breathing, a quick pulse of low tension, and deranged mentality, and the urine may be reduced to two or three hundred gram. All of this calamitous state has descended on a young and perfectly healthy woman in the accomplishment of the normal and primordial function of her sex, the perpetuation of the species!

I made use of the term "senseless" in the preceding paragraph, in referring to this condition. What I meant to imply was this: One of the cardinal preoccupations of Nature has been to insure that by no possibility the continuation of any species shall be endangered. It is for this purpose that the sex instinct is the dominant feature in life, the pivot about which the entire universe revolves. This care on the part of nature is likewise demonstrated by the wild lavishness with which the reproducing sex is provided with the raw material, if I may so express myself:—witness the roe of one cod, or the 'keys" on one ashtree. The anatomist Sappey, once endeavored to calculate, with the help of the microscope, the number of ova in a woman's ovaries, and reached the remarkable total of 700,000, of which not more than a couple of dozen could ever fulfil the purpose for which they were destined.

*"Purse Stringing of the Small Intestines," etc., *New York Medical Journal*, April 18, 1914.

This being the one aspect of the question—the provision of seed in an almost inconceivable superabundance—it seems so inexplicable that, on the other hand, nature should have surrounded the bearing of children with such a phalanx of drawbacks, inconveniences, disabilities, disorders of function, ailments, and illnesses, that if women were not the remarkable creatures they are, they would never go through a second pregnancy after the experience of a first. There is nothing more striking in nature than this attitude of women toward child bearing, though in saying this I do not lay claim to any originality, the fact having already occurred to the Apostle John nearly two thousand years ago! For instance, I once had a patient who began her first pregnancy with four months of continuous and serious vomiting, and closed it with eclampsia, in which both she and the infant might perfectly well have succumbed; yet it was not a week before she was referring to what she intended to do the next time she became *enceinte!* Where is the man who could be found to act in a similar manner? In this respect, at any rate, women have something in their composition that is totally lacking in their male biological complement.

If this is the case with the bearing of children, what can we say about actual parturition, about the proposition that is then before the woman—to drive a well-developed fetus of 8 pounds, more or less, through a series of four tight rings, hard and soft, without damage to herself or it, mechanical disproportion being possible at any one of them, as regards size or position. In all situations in life there is no poorer policy than to leave no margin for the unexpected; but the childbirth apparatus is one that only works well when everything is *just right*—and how often is that the case? The perils at this stage are infinite, and here again nature appears to have taken back with one hand all the bounty so freely bestowed with the other—700,000 ova—and yet such a multitude of pitfalls laid for the one or two dozen that may possibly serve their purpose. The whole process seems strangely inconsequential. The truth is, and there is no reason for hiding it, that from the woman's standpoint procreation is not a very brilliant affair from start to finish, and that if they were not made of pretty good stuff they would never put up with it.

The frequency of vomiting among primiparæ is very great, and the condition has also this curious peculiarity that it occurs almost exclusively among primiparæ. This point naturally attracted attention from all time, and the theories advanced to account for it have been legion, which, in accordance with the well-known law, indicates that none of them have been of very much value. One of the latest in the field, however, one that is extremely seductive in that it has led to a form of treatment in thorough concordance with the reigning medical doctrines of today, is that championed in France by Fieux, professor of obstetrics at the Faculty of Bordeaux, though it really originated in Germany. This theory is that during the stage in which the chorial villosities flourish, and up to the time when they all disappear except the portion that has given rise to the placenta, the syncitial cells that cover these villosities secrete a species of poison which, when taken up in the maternal circulation, intoxicates the mother and produces the early vomiting of pregnancy. The presence of this toxin determines an antibody-reaction, and on the more or less prompt and effective response on the part of the mother's organ-

ism depends the degree of vomiting; if early and vigorous the patient only experiences a little squeamishness that soon passes off; but if tardy or lacking the serious forms of vomiting occur. According to this theory, also, the relative absence of vomiting in later pregnancies is due to immunity acquired through the elaboration of these antibodies.

The idea that forms the basis for this theory—that the fetus is a species of dangerous parasite, noxious to its mother and against which she is forced to defend herself by the same sort of biological reaction as she would bring to bear against the invasion of some bacterial foe—is unquestionably one that profoundly shocks all one's sense of reason. But in medicine there is little room for sentiment, and we have to be guided by facts alone, and the curious sanction of Fieux' theory are the results that have been obtained from the recent iso-sero-therapy of serious vomiting movement, which has also been extended to the other autotoxic accidents of pregnancy. The authors of this treatment said to themselves: "If we go on the assumption that the various forms of the autointoxication of pregnancy are due to deficiency in the patient's blood of certain substances which in normal cases are present in suitable amounts, would it be feasible to make good this deficiency by injections of serum taken from a normal pregnancy at a corresponding stage of development? And it cannot be gainsaid that the results obtained by putting this idea into practice have been most striking. The cases so far reported have, it is true, not been very numerous; the method is still in its infancy, having first been used only in 1910; and there are unquestionable drawbacks to the idea—it may not always be found easy to procure a donor, or to be positive as to the innocuity of a donor's serum. But still, enough material is now available to supply a general view of the question, at any rate as a preliminary to a more extensive study of the subject, and for this reason the following summary is given of the cases so far reported. In view of the defective organization of the faculty library here this list cannot claim to be complete. Still, it is believed that no very important papers up to the summer of 1913 have escaped notice.

I.—Mayer and Linser (Tübingen), *Münch. med. Woch.*, 1910, December 27.—Herpes gestationis. Vesicles and bullæ, serous or purulent; fever, prostration and albumin. Fifty per cent of these cases prove fatal. Woman six months pregnant, very pronounced case. Injection of 10 c.c. of serum from a healthy but non-pregnant woman produced no change. Three days later, 10 c.c. were given intravenously, from a normal eight-months pregnancy, and again three days later 20 c.c. from another healthy pregnant woman. The temperature began to fall immediately after the first injection from a pregnant woman, and became normal the day after the last injection. The dermatitis dried up and disappeared, and in a few days the patient left the hospital. Five weeks afterwards, recurrence; patient came back to hospital; 20 c.c. intravenous, with same favorable result.

II.—Freund (Berlin), *Med. Klinik*, 1911, March 5.—1. Incoercible vomiting, icterus, album. psychosis, prurigo gestationis. 5-para in her third month. On January 14, 24 c.c. intravenous, serum from a 1-para in her second month. Manifest improvement on the third day. January 21, worse again. Another injection of 25 c.c. from a 2-para in her ninth month. All symptoms disappeared.

2. Three serious cases of eclampsia, all recovered; but they were bled as well. One of them was an extremely grave case.

III.—Rübsamen (Bern)., *Zentralblatt für Gynäk.*, 1911, May 27. Bad general condition, slight icterus, gall-bladder and right renal region sensitive, albumin in urine, pruriginous erythema of right forearm, T. 39°, p. 130, 5-para, 6-7 months pregnant. 15 c.c. intravenous, serum from a 1-para in her ninth month; injection well-supported, but urticaria for several days. Result of treatment negative, so far as could be seen, condition even grew worse; but finally, normal confinement and woman recovered.

IV.—Le Lorier (Paris), Acad. de Méd., July 25, 1911. Incoercible vomiting. Woman at two and a half months, lost 23 kilos in two months, one-third of her weight, pulse constantly over 100, could retain nothing, solid or liquid. Injection of 12 c.c. and, two days later, of 15 c.c. of serum taken from a woman who had had several children and who was now near term. The result was extremely satisfactory and rapid, vomiting decreased very quickly, and in six days the pulse had fallen below 100 and the weight increased 500 grams.

V.—Mayer (Tübingen), *Centralbl. f. Gyn.*, 1911, Sept. 16.

1. Acroparesthesia, tingling and insensibility of finger ends, which were slighly swollen. 1-para near term. Two days after an injection of 10 c.c. from a normal, pregnant woman the trouble had entirely disappeared.

2. Herpes gestationis in a 6-para. Condition grew worse after parturition. Intra-musc. injection of 20 c.c. of serum from a normal pregnancy. Improvement appeared at once. 36 hours later, second injection of 35 c.c. followed by complete recovery.

3. Eclampsia, 2-para, 16 attacks, coma. 20 c.c. intravenous, serum from a normal pregnancy; slight improvement, but attacks recommenced in a few hours. Again 20 c.c. intravenous. Coma disappeared and patient urinated. Again 20 c.c. and all trouble ceased and confinement was normal.

VI.—Freund (Berlin), *Deutsch. med Woch.*, 1911, Dec. 28.—Pruriginous polymorphous erythema in a 1-para at eight months. Did not disappear after delivery. Tried to replace human by horse serum; 25 c.c. intravenous, fresh horse serum. Marked reaction, headache, and fever; but the eruption diminished rapidly and disappeared at the end of two days.

VII.—Fieux and Dantin (Bordeaux), Soc. d'Obst. et de Gyn. de Paris, 1912, Jan. 8.—Incoercible vomiting at 2½ months; very serious condition. Two injections of serum from a normal pregnancy of about 2-3 months, were followed by rapid recovery.

VIII.—Fieux and Dantin (Bordeaux), Soc. d'Obst. et de Gyn. de Paris, 1912, April.—Incoercible vomiting. This patient had incoercible vomiting at her first pregnancy, which ended in miscarriage. Her second pregnancy was normal. In this, her third, there was serious vomiting. One injection of human, non-pregnant serum did nothing, save to lower the pulse a little; but it soon went up again to 104-12. A second, from a normal pregnancy of about 3 months, was followed by depression, and the pulse went below 100 again; 24 hours after the injection the vomiting decreased, to stop altogether in a week. Even after four days the patient was already back on a normal diet.

IX.—Veiel (Darmstadt), *Münch. med. Woch*, 1912, Aug. 27.—Herpes gestationis. In the sixth month of her second pregnancy this patient had pruriginous erythema, followed by a bullous eruption. This was cured by ordinary means in seven weeks. The next three pregnancies were normal. At this, her sixth, toward the end, very pruriginous bullous eruption, without alb. 10 c.c. hypod., serum from a normal pregnancy in its 9th month. Next day, slight improvement; but two days later, bad as ever. Six days after the first injection, 20 c.c. from the same donor. On the following day, patient's condition quite transformed, prurit. had ceased, no new bullæ, and temperature normal. Improvement was maintained, and delivery was normal. Three days later, fresh eruption; but farther injections were deemed unnecessary.

X.—Fieux (Bordeaux), *Ann. de Gyn. et d'Obst.*, 1912, p. 718.

1.—At her first pregnancy this woman had such serious vomiting that abortion had to be performed at three and a half months. At this, her second, vomiting almost as bad. Toward the end of the sixth week, 20 c.c. horse serum; this reduced the vomiting somewhat, but intolerance remained the same, the pulse rose to 100, and urine decreased. 4 days after the first injection, 15 c.c. hypod., serum from a normal, 3-mos. pregnancy. 36 hours later, sudden improvement; vomiting ceased, urine increased, food was retained, and patient gradually returned to a normal state.

2. At her first pregnancy, such serious vomiting that artificial miscarriage was induced at the end of the third month. Her second pregnancy showed vomiting

from the very start, and it went steadily from bad to worse. Towards the end of the second month, 20 c.c. horse serum hypod.; some improvement, but patient's condition very grave, pulse filiform, 104-110. 48 hours later, 15 c.c. horse serum. Next day, sudden and astonishing improvement; vom. soon came to an end, and the pregnancy gradually became a normal one.

XI.—At the XVth session of the Soc. d'Obstétrique de France, held in Paris, October 10-12, 1912, Oui (Lille) reported a case. Very serious vomiting; patient lost five kilos in one month, pulse 140; and other treatments had failed. On Sept. 28, 10 c.c. of the serum of a normal, two-months pregnancy were injected, with success. The patient then had some gastric upset, and vomiting began again; so on Oct. 2, 10 c.c. of a normal, three months pregnancy were injected, again with success. This case, however, is not completely demonstrative, since on Oct. 22, the woman expulsed a dead fetus.

(This case was also reported in the *Bull. Soc. d'Obst. et de Gyn.*, 1913, March, p. 192).

XII.—At the same XVth session, Le Lorier (Paris), reported three more cases of the vomiting of pregnancy treated by this method. The first ended in total failure, and artificial abortion had to be resorted to, to save the patient. The second was a complete success. In the third the vomiting ceased; but it was found that the fetus had succumbed.

XIII.—Freund (Berlin) has recently published an article on the serotherapy of the Dermatoses and vomiting of Pregnancy, and of Eclampsia, in the *Zeitschrift für Gebürtshülfe und Gynäkologie*, Bd. LXXIV, 1913; but I have not yet been able to lay my hands on this periodical.

XIV.—A. Franz (Gratz) *Z-bl. für Gyn.*, Vol. XXXVI, p. 913-916.—In order to turn the difficulty of obtaining the serum of normal pregnancies for use in cases of parturient autointoxication, Franz collected aseptically the blood from the umbilical cord in a number of deliveries, centrifuged it, filtered it through porcelain, and stored it with chloroform in small bottles in the dark. This serum he used with striking success in a case of exudative polymorphous erythema in a woman very near term.

XV.—F. Woly (Gelsenkirchen), *Berl kl. Woch.*, 8 Sept., 1913, p. 1661-2. The author describes still another case of pruriginous dermatosis at eight months rapidly cured by the serum method. But the peculiarity of this instance was that the serum was taken from a woman who had been delivered two weeks previously. The antitoxic substances are therefore still present in the blood at that late stage.

XVI.—Finally, Dantin (Bordeaux) has resumed the question in his thesis (1913): "La sérothérapie dans les vomissements graves de la grossesse et dans les dermatoses gravido-toxiques."

From these reports it will be seen—if we set aside the two cases in which horse serum was used, and Freund's last paper, of which the details are lacking—that the iso-serum treatment of the autointoxication of pregnancy has been applied in twenty instances, as follows: Vomiting, 9 (one failure); eclampsia, 4; herpes gestationis, 5; less well-defined conditions, 2 (one failure); and that with eighteen patients it succeeded, sometimes quite dramatically, while with only two did it result in failure.

The marked success of these injections in the serious vomiting of pregnancy (eight out of nine), when taken together with the generally grave character of this disorder and our almost total lack of any other efficient means of combating it, appears to indicate that in this new method we have acquired a therapeutic agent that may prove of great service. The treatment has in reality only one drawback, the difficulty of being *certain* of the innocuousness of the donor's serum; for as to the possibility of not being able to find a donor for a given case, which has been advanced, this will never prove a serious obstacle. The touching solidarity between women in all matters of child bearing is so infinite that there is no very great danger of any one of them allowing it to be said of her that for lack of a few grams of blood from her arm she had jeopordized the existence of another woman or of that woman's offspring.

20 Rue Chalgrin.

## CANCER STATISTICS.

By A. L. BENEDICT, M.D.,

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So much depends upon statistical evidence in judging of the nature, prevalence, and etiology of an imperfectly understood disease that the following compilation from the recently published Mortality Report of the United States Census for 1911 may be of interest. The statistics are based on the registration area, and their accuracy, in some respects, may be judged from the fact that, of the total of 839,284 deaths, only 1,296 were unknown as to age, while of the cancer deaths the ages were unknown in only 41 cases. The total deaths from cancer and other malignant tumors numbered almost exactly 44,000, about 5 per cent. of deaths from all causes.

A very important item in drawing conclusions as to the essential incidence of a disease like cancer, its relative frequency, mortality, etc., is the distribution of population by age and the conflicting influence of other diseases. In this study we shall compare merely the deaths from cancer (in the necessarily inclusive sense of the census reports) with the total deaths at any given age. This is not an absolutely correct criterion. A person may have cancer and yet die of a different condition, quite accidental or incidental. In the broader sense, especially if we regard cancer either as an infection, to the successful implantation of which certain individual conditions must be fulfilled, or as a constitutional disease in the more exact sense, a person not yet cancerous in the clinical sense, may have the inherent conditions necessary for its development and may be prevented from having cancer, by death due to some other condition. These qualifica-

| | | | | Exclusive of Cancer of Breast and Female Genitals |
|---|---|---|---|---|
| 0– 4 | 0.09% of 209,482 deaths | 0.087% of 115,202 males | 0.095% of 94,280 females | |
| 5– 9 | 0.44% " 18,112 " | 0.49% " 9,483 " | 0.38% " 88,629 " | |
| 10–14 | 0.56% " 12,337 " | 0.41% " 6,481 " | 0.72% " 5,856 " | |
| 15–19 | 0.67% " 21,154 " | 0.77% " 10,927 " | 0.56% " 10,227 " | |
| 20–24 | 0.81% " 32,306 " | 0.76 " 17,138 " | 0.88% " 15,168 " | |
| 25–29 | 1.51% " 34,449 " | 1.12% " 18,514 " | 1.99% " 15,735 " | 1.05% females |
| 30–34 | 2.76% " 34,216 " | 1.83% " 19,315 " | 4.41% " 15,101 " | 1.99% " |
| 35–39 | 4.72% " 38,570 " | 2.26% " 22,197 " | 8.06% " 16,373 " | 3.34% " |
| 40–44 | 7.53% " 37,532 " | (37,522)3.45% " 22,096 " | 13.37% " 15,426 " | 5.73% " |
| 45–49 | 10.49% " 39,457 " | 5.78% " 23,425 " | 17.39% " 16,023 " | 7.76% " |
| 50–54 | 11.16% " 44,130 " | 7.44% " 25,816 " | 18.06% " 18,314 " | 9.30% " |
| 55–59 | 12.25% " 44,023 " | 8.76% " 25,296 " | 16.98% " 18,727 " | 10.00% " |
| 60–64 | 11.71% " 49,651 " | 9.07 " 27,721 " | 15.06% " 21,930 " | 9.59% " |
| 65–59 | 10.41% " 54,306 " | 8.66% " 29,279 " | 12.46% " 25,027 " | 8.45% " |
| 70–74 | 8.58% " 54,898 " | 7.40% " 28,643 " | 9.86% " 26,255 " | 7.07% " |
| 75–79 | 7.02% " 49,019 " | 6.27% " 24,816 " | 7.80% " 24,203 " | 5.58% " |
| 80–84 | 4.98% " 36,108 " | 4.36% " 17,556 " | 5.57% " 18,552 " | 4.00% " |
| 85–89 | 3.61% " 19,564 " | 3.38% " 8,971 " | 3.80% " 10,593 " | 2.75% " |
| 90–94 | 2.78% " 6,761 " | 2.18% " 2,848 " | 3.22% " 3,913 " | 2.42% " |
| 95–99 | 1.91% " 1,518 " | 1.75% " 570 " | 2.00% " 948 " | 1.58% " |
| 100 and over | 1.23% " 405 " | 1.50% " 133 " | 1.10% " 272 " | 0.73% " |

tions, undoubtedly correct in theory, are not, however susceptible of quantitative analysis.

The proportion of deaths from cancer, with reference to the total deaths at any given age, are (by five-year periods) as follows:

Some general comments may be in order. There is a considerable excess of male deaths, 457,308 for the registration area, as against 381,976 females. This is partly accounted for by the slightly higher male death rate, 14.7, as against 13 per 1,000 population of all ages, but to a much greater degree by the general preponderance of males, due, probably, mainly to the disturbing factor of immigration. There is a general impression that, having passed the vicissitudes of sexual life women enjoy a greater longevity than men, probably on account of their more quiet and sheltered life, and this impression is shown to be correct, but at a higher age than is commonly supposed, namely, after 80. The greater number of deaths of males than of females for the first fourteen years of life can scarcely be attributed to excess immigration of males, nor to any essential sexual difference, nor, before the fifth year, to any difference of habit of life. It must indicate a relative excess of male births, as is corroborated by statistics which, however, are not regarded by the census bureau as very exact. The enormous mortality of young children, the risk of death up to the age of five being approximately equal to the risk for the next 35 years put together, is to be regretted, and is being considered to a large degree by the medical profession and sociologists.

In examining the mortality statistics with special reference to cancer, it may be pointed out that the figures for early childhood show no characteristic sexual difference, and a very small incidence in spite of the fact that sarcoma, Hodgkin's disease, and some other conditions are undoubtedly included. If the hypothesis that carcinoma and sarcoma—or other lymphatic tumors, and possibly some forms of leucocythemia—are essentially the same disease (usually by this hypothesis held to be an infection) occurring in different structures, this inclusion is strictly justified. For later years the disturbing element of inclusion of sarcoma, etc., is insignificant, not, indeed, as great as the undetermined factor of error of diagnosis for which no basis of correction is available except by recourse to statistics on such a small scale as probably to introduce a still greater error. It may be pointed out in this connection that the census statistics based on the registration area are probably quite reliable, at least allowing for the neutralization of opposite errors in diagnosis, and that they are of sufficient magnitude to warrant very accurate general conclusions so far as the law of chance is concerned, up to the extreme limit of human life, the minimum series being 133 male deaths at the age of 100 and upward. In this series, only two deaths occurred from cancer, and it is obvious that fractions of a per cent. cannot be considered significant here, although the general conclusion is both concordant with the other statistics in the series and sufficiently exact for practical purposes.

Inspection of the various series of total male and female death rates of cancer (which, it should be noted, are with reference to the deaths from all causes of the respective age groups as 100 per cent., not with reference to population), shows an incidence of cancer of less than 1 per cent. below the age of 25, this incidence being not reliably shown from census statistics for reasons already given. Beyond this age we note a very regular increase in cancer mortality up to maxima differing by ten years between the sexes, and on account of averaging these two elements, differing by five years if the aggregate of both sexes is contrasted with either sex. Following this, we find an almost equally regular downward progression. This phenomenon is, generally speaking, corroborative of the commonly held opinion, but it should be emphasized that the diminishing tendency to cancer after the climacteric is much more gradual and regular than many, including the writer, have supposed. Undoubtedly, many have failed to realize that the maximum incidence of cancer death occurs at least five years after the average time of the menopause, and five years later still, in men; this statement being true with some possible minor qualification, whether we refer to the proportionate or to the actual cancer mortality. It has been said, epigrammatically, that cancer—and some other diseases, as myxedema, diabetes, etc.—tend to occur in the youth of senility, the same idea being expressed more technically in the explanation that at the beginning of senile changes there is a state of excessive irritability of epithelium, which predisposes to cancer. The statistic evidence detracts considerably from the validity of this explanation, or else cancer has a longer latent stage than is often supposed.

The very gradual and steady decline of cancer mortality as age advances may be explained as due to the constantly increasing removal of susceptible individuals, either by cancer itself or by some other, accidental or incidental, condition. It is obvious that all who have been killed by any form of violence, at any age, would, if they had survived, have shown a general average incidence of cancer identical with that actually observed. It is only less obvious that all who have died of any other condition, infectious or otherwise, would, if they had lived, have shown precisely the same cancer incidence, unless something inherent to the disease of which they died, or something inherent in themselves which predisposed to that disease, would have modified their susceptibility to cancer. The only way in which this point can be determined is by carefully noting the susceptibility to cancer in others who have survived similar diseases, and there are no statistics available to determine the actual facts. Barring such determinations it is obvious that the predisposition to cancer must be gauged by its incidence proportionate to comparable age and sex groups.

Analogously, the question as to whether cancer is genuinely on the increase or not, can be accurately determined only by comparison at intervals of years of deaths from this disease, with the totals for respective age and sex groups, and it is even desirable that other details, particularly fecundity, implied to some degree by the social state of women, race, etc., should be separately considered. Here, again, statistics are lacking. The report on Mortality Statistics for 1911 (page 33) gives some interesting data with regard to increase of cancer, with reference to total population. On the average, this increase is 25 per cent. for all ages over 25 (at death, the population being of mixed ages). On inspecting the table of cancer mortality given in this article, it will be noted that the prolongation of life by five years would account for much more than this increase of cancer, up to the age of 50, for the aggregate of both sexes. The average duration of life

has been very materially increased in the last generation, but how much this increase depends on diminution of mortality in infancy and early childhood, and how much in adult life, is not so easily determined, and in the absence of definite evidence on this point, no further conclusion can be drawn than that a very moderate extension of life would account for a very large increase in cancer. However, we can scarcely compare the present with earlier statistics on a large scale and say whether or not the present cancer mortality is what may be termed normal or not.

These statistics point to a method for settling the question of heredity in cancer. It is obvious that, on the average, any family can be judged as to hereditary tendency to cancer only after an age is reached at which cancer occurs with sufficient frequency to reduce the element of chance to a minimum. Approximately, one in ten of all persons, of both sexes, between the ages of 45 and 69, dies of cancer, if at all in this period. This statement may be modified by reference to the table according to sex and other age groups. For example, if one could collect statistics of grandmother and numerous sisters, mother and numerous sisters, and one's own sisters dying between the ages of 40 and 69, one-sixth would normally die of cancer. To be of any value, such statistics would have to include a large number of separate families showing on the one hand more than one cancer death, and on the other hand none at all. It is obvious that a long-lived family would normally show much more cancer than a short-lived one. The late development of cancer is also an objection to the theory of heredity, though not a positive one, since we have little knowledge of the actual duration of cancer in the body. It should also be understood that if one includes in the term family more than two or three generations it is so intricately connected with other families that conclusions are scarcely justified, unless, indeed—what is extremely improbable—the genealogic implication that a family depends upon heredity from a male, is scientifically correct. To emphasize this point it is only necessary to call attention to the fact that any one's ancestors progressively double in going back from one generation to the next and reach beyond a thousand ancestors in the tenth generation, not to mention intermediate generations and collaterals.

During active sexual life and the climactertc, including the period up to the complete cessation of functional activity and of its after effects, it is well known that cencer of the female genitals and the breasts is especially frequent, amounting to over 50 per cent. of all cancers in women, in the decade 40-49. Subtracting these cancers, the mortality rates for the two sexes for respective ages differ much less and, indeed, are slightly less for females in the period 25-29 and after 80. The cancer mortality for females corresponds fairly well to that of males, if we compare between the ages of 35 and 75, the male mortality of the next higher age group. This fact may be interpreted to substantiate the popular notion that women age more rapidly than men during this period. The higher mortality for females, even after excluding the essentially sexual glands and epithelial tissues may be construed as (1) a special sexual predisposition; (2) as indicating false diagnosis in ascribing tumors originating in the parts to adjacent parts; (3) as indicating some influence on the part of these organs, either as receptive of infection or of the nature of a hormonic action, which determines cancer elsewhere. As cancer of the male breast is not unknown and as vestigial female parts and analogues to male vestiges in the female exist in the male, it is not entirely fair to subtract cancer of the breast and genital organs in estimating the true, residual female tendency to cancer but the error is slight.

On the other hand, it may be asked whether if the female parts highl susceptible to cancer did not exist, or existed in a condition unaffected by sexual life, the same women would not succumb to cancer elsewhere. This question is too recondite to be answered positively but it may be stated that, in general, women succumb to cancer of the stomach and liver, and of other regions of which statistics are given, with about the frequency of men. Exceptions are the buccal cavity and skin, explained by greater frequency of irritation by smoking and by greater mechanic and thermic exposures, respectively. These groups are not large enough to affect the statistics to any great degree. Moreover, the general consistency of the net percentages after deducting sexual structures, especially in regard to the diminishing mortality due to exhaustion of susceptible material, is suggestive. It seems warrantable, therefore, that the high incidence of women to cancer of the breast and genitals, is really due to local predisposing and even determining causes and is not a vicarious localization of cancer in general.

Can any deductions be drawn from statistics as to the essential nature of cancer, particularly as to its infectiousness. In spite of a strong inclination to ascribe cancer to some germ (not necessarily a bacterium), which inclination is justified by analogy to granulomata, it must be admitted that the statistic evidence is rather against this theory. We may, of course, exclude anything approaching frank contagion, either analogous to air-borne infections to which most persons are susceptible or to a venereal infection. In the former case, we should expect a much earlier incidence, even if not more general, a more even distribution between the sexes, a steady fall as susceptible material was exhausted, and at least an appreciable influence on genital cancer due to prevalent aseptic precautions during pregnancy and labor, not to mention the improbability of genital infection from air-borne virus. In the latter case, we should expect some approach to the same relative frequency of genital cancer in the two sexes. The clinical lack of evidence of direct communication of cancer is also noteworthy. Yet, with all allowance for predisposition by early senility of epithelial structures, mechanic and other irritations, these may act, as in other diseases, comparatively infrequently and requiring special conditions for successful implantation of microorganisms, merely to favor the localization of an infectious process. Light might be shed on this problem if statistics could be gathered as to genuine repetition of cancer. But in the first place, there are no statistics of this nature on a large scale, and individual case reports are rare. The writer has seen only one such case—cancer of the stomach ten years after removal of cancerous breast—in an experience of over 25 years. It is doubtful whether even 5 per cent. of cancers are cured. A later malignant infection within a few years would reasonably be ascribed to a latent metastasis. The difficulty of the statistic problem is, however, considerable.

Provided that all cancer cases were submitted to operation—or radiant or other treatment shown to be relatively efficient in producing a radical cure—about 850 cured cases (on an approximate 5 per cent. estimate of curability) could be collated in a year, between the ages of 30 and 59. It is impossible to estimate the average normal death rate of this number, but considering their age, the undermining of health by disease, and in most cases, by a serious operation, it is doubtful whether much over half would survive ten years, irrespective of cancer. According to the initial age, this group of, say, 400 or 500, would have an average susceptibility to cancer, barring the removal of the locus minoris resistentiæ, of about 10 per cent. If it were possible to collect accurate data of such a series from widely separated reporters, we should expect 40 or 50 cases of repeated incidence of cancer by the law of chance, providing we could eliminate the two factors of exhaustion of susceptibility, however explained, and the lessened expected incidence owing to the sacrifice of what has been shown in the past to be a vulnerable site; and, provided further, that we could eliminate the question of long latent metastasis, or persistence with latency, of part of the original tumor, it is obvious that in about 15 years a very satisfactory amount of statistical material could be gathered, except for the difficulties of securing proper collaboration. If a repetition of cancer occurred in a percentage of the survivors, notably, higher or lower than 10 per cent., conclusions of considerable value, though not absolute, could be drawn regarding immunity or predisposition to recurrence, and in connection with other data these would be significant as to the essential nature of cancer, though, of course, they would not settle the question of infectiousness, since an infection may either immunize, predispose or be neutral as to recurrence.

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## EPIDEMIC ICTERUS.

By AUGUST STRAUCH, M.D.,

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Epidemic and subepidemic occurrences of icterus catarrhalis have long been noted, and among children especially they have been observed more frequently than among adults. Usually the epidemics have been small, confined to a house, a school, a family, a street or prison, a small community or a small area of a town, and they have ceased after a short period, though sporadic cases may in large cities continue throughout the year. However, more extensive epidemics have been observed, especially among soldiers, as, for instance, during the Civil War, when the patients in the armies numbered 10,929 cases as the highest record, with forty fatalities, or during the Franco-German War of 1870-71, when 2.4 per cent. of the soldiers of the First Bavarian Division suffered from jaundice.

In some epidemics adults exclusively, in others both adults and children, and in others children only were the victims. (Children's epidemics of Kramer, Rankin.) The greater number of records of epidemics among children are from England, Russia, Germany, Sweden, and France. Rehn reports 31 children and 8 adults, 1868, at Hanau, in Germany; Rasmussen, 73 cases in Denmark (48 children), and Meinert established the fact that from time to time there occur epidemics of jaundice in the population of Saxony. Kissel in an interesting publication reported 96 children, with 6 cases of death, in Moscow; Flesch 36 cases in Budapest; Nicolaysen 123 cases, with 50 children, in Christiania, 1901-1902; Ewer 115 cases in Berlin, 1904, and the *British Medical Journal* of 1904 contains not less than 10 reports of small epidemics of jaundice.

House, or family epidemics, also are as mentioned above, repeatedly recorded, and we find among English publications especially the statement, that wherever one child is affected by catarrhal jaundice other members of the family as a rule become affected, and occasionally all the children in the house may suffer. Aside from the record-breaking epidemics of the Civil War we find in the literature of this country only occasional references to epidemic jaundice, especially in the Northern States. During the last few years D. P. Dixon reports an epidemic (1907) in Talladaga of 200 or more cases with 25 children and 8 infants. Leslie saw in and about Andover (Maine) 135 cases of epidemic icterus within 6 months. Collins reports a local epidemic in Austin (Minnesota) of about 200 cases, the youngest 10 months old, during October and November, 1910, and he mentions local epidemics at Lake Wilson and Cambridge in the same State. Reports of house epidemics are published by Barker and Staden on 6 cases in the Baltimore City jail and by Robertson on six children in Onancock, Va.

The disease begins generally with loss of appetite, headache, pain in the limbs, nausea, vomiting, epigastric pain, lassitude and often fever. From one to three or four days later icterus of the scleræ and the skin sets in; the urine contains bile pigment, the stools may be diarrheic, constipated, or of normal consistency; as a rule they are clay colored, sometimes acholic or entirely normal; the liver and spleen are often enlarged and painful upon pressure. In some epidemics tonsilitis or bronchitis was a common symptom. As a rule, the duration of the disease is short, a few days to three weeks; the prognosis generally good, though the patient may get much emaciated and anemic; some epidemics, however, present more serious features and apparently slight cases may become grave and occasionally may end fatally (icterus malignus, Weil's disease, acute yellow atrophy of the liver). Meinert for instance saw among 518 patients 13 cases of exitus *letalis* of which two presented the picture of acute yellow atrophy of the liver.

I am induced to make these remarks and bring together these data as the result of the observation of jaundice in a family, affecting the four children consecutively within three to four weeks, the family residing in Irving Park, a suburb of Chicago.

Case I.—I saw the first patient, a girl six years old, on November 10, after she had been sick for about a week. Repeated vomiting, diarrhea, clay-colored stools, colic pain, loss of appetite, high fever, very intense jaundice. Liver was enlarged and painful upon pressure. Child remained only a few days in bed.

Case II.—A four-year-old boy became sick on November 30 with attacks of abdominal pain. No vomiting, no diarrhea, but stools soon became clay colored, the skin and scleræ icteric, and the urine brown. On December 5 icterus moderate; on December 7 icterus had disappeared; scleræ were white. No appetite; peevishness and lassitude persisted throughout those days, but the child was never confined to bed.

Case III.—Boy, thirteen years of age, became sick on December 1 with nausea, vomiting, colic pain, malaise; he felt very sick. On December 2 no fever; colic pain, vomiting repeatedly, constipation. After Carlsbad salt a few liquid, brown dejections. December 3, scleral icterus, slight fever, nausea, dejections liquid, brown colored. Boy feels very sick. December

7, liver enlarged, painful upon pressure, abdomen painful upon pressure, no enlargement of spleen; very intense icterus of sclerae and skin; no vomiting, no nausea, no appetite; urine brown colored. The boy was for about three weeks bedridden; the scleral icterus present for more than four weeks. Considerable emaciation.

Case IV.—Girl, 10½ years old, became sick on December 4 with vomiting, epigastric pain and fever; stool normal. On December 5, colic, nausea, vomiting, scleral icterus, no fever, pulse 72. On December 7, liver and spleen somewhat enlarged, painful upon pressure. Icterus of skin very marked; flatus; no malaise. Within the next week the symptoms disappeared; liver and spleen slowly decreased in size to the normal. The child was in bed for the first few days.

Upon investigation I found this fact: That about the same time, at least in one family, living only two blocks distant from the first family, all eight children became affected by jaundice. Contact among the children of the two families was very improbable. The character of the disease in the cases observed by me was mild, with the exception of the third patient, in whom it was rather severe. In one child there was moderate bradycardia, an uncommon feature in childhood, especially in the very young. (Henoch, Kissel.) The fact that the onset of the symptoms in each child did not occur at once, but successively, during a few weeks, rendered acute indigestion due to an error of diet or acute food poisoning improbable, and the anamnesis substantiated this view. The disease occurred in November, and in the beginning of December, when the weather was cool and damp. It is a notable fact, established from the study of the various epidemics, that fall and winter are the most common seasons for the occurrence of epidemic icterus, and not the summer, when the greater prevalence of acute and chronic gastrointestinal disturbances would lead us to expect a more frequent participation of the ductus choledochus in the catarrhal process of the duodenum. This fact and also that icterus is seen very rarely in the ages when errors of diet and gastrointestinal diseases with involvement of the duodenum are most common, to wit, in infancy, renders unsatisfactory the theory, that epidemic jaundice and perhaps also sporadic icterus catarrhalis (vulgaris) are caused simply by the spreading of an ordinary gastroduodenal catarrh to the ductus choledochus with resultant mechanical obstruction. Even in the adult jaundice is rare compared to the great frequency of common gastrointestinal catarrh from indigestion, errors of diet, alcoholic excesses, acute food poisoning, or some other factor. The origin seems rather to be due to a specific infectious agent, and this view is gaining adherents more and more. However, here arises the difficult problem of the pathogenesis of this icterus. It is most probable that the specific agents call forth a catarrh of the ductus choledochus and of the finer ramifications of the bile ducts, causing a more or less marked mechanical obstruction to the flow of the bile, with the stomach and intestinal tract—perhaps only the duodenum—participating in various degrees. How far toxemia and hemolytic causes or a disturbance of the function of the liver cells by bacterial toxins, that are produced in the intestines and carried through the portal vein into the liver, are responsible, causing paracholia and acachectic icterus, is an open question. The epidemic occurrence of "icterus catarrhalis" and the subsequent immunity mentioned by some authors speak also in favor of a specific infection.

A few epidemics have been observed simultaneously with epidemics of typhoid fever (M. Stoos) or in connection with influenza, as for instance in the epidemics recorded by Meissner, Young, Calvert, and Meinert in Dresden. A few epidemics followed revaccination with humanized vaccine lymph (Luermann, Jehn) so that a transmission of the infectious agent through vaccination was thought of. In other cases drinking water (Dixon, Collins) foodstuffs and milk were considered the carriers of the virus, but in the majority of cases no clue pointing to any etiological factor or factors could be found.

The bacteriological investigations so far have yielded no definite results. The demonstration by Jaeger and Banti of bacilli of the proteus group in a series of cases of icterus infectiosus gravis (Weil's disease) (and levis) throw some light upon the etiology; but it remains to be decided, whether or not other microorganisms as for instance colon bacilli are active in the majority of the cases of icterus levis, injuring the bile ducts and the liver directly by their invasion or their toxins.

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**Secondary Colipyelitis.**—Bloch states that this affection is a not infrequent complication of gonorrhea, and may be divided into a pyelitic, a nephrotic, and a pyelonephritic form. The first two may be latent in the acute stage, so that the diagnosis may only be made when the chronic stage is reached. Coli infection proceeds as a rule from the bladder upward and by the lymphatic route. The appearance of the affection is favored by certain factors which facilitate the ascent of the coli bacilli. These comprise: temporary overpressure in the bladder, called forth by strongly irritating irrigations; temporary slowing of the urine stream, caused by slight impediments in the ureters, and finally mechanical irritation in strong hyperemia of the urogenital systems. In the acute stage of pyelonephritis internal treatment is indicated, while in the other two forms local therapy alone is indicated in this stage. If the secondary coli pyelitis is recognized at the right moment and treated complete recovery will result in the great majority of cases. In the pyelonephritic form parenthymatous nephritis may develop. —*Deutsche medizinische Wochenschrift.*

# MEDICAL RECORD.

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## THE PROBLEM OF PERNICIOUS ANEMIA.

ONE of the most vexing problems in modern clinical medicine is that which is concerned with the origin of pernicious anemia. In 1878 Eichhorst differentiated two types of this disease, namely, a protopathic or cryptogenic form and a deuteropathic or symptomatic form. This division is the one which is substantially recognized at the present day. Pappenheim describes a blood picture in pernicious anemia which is sharply distinguished from that of genuine Biermer's disease. Türk describes a type of pernicious anemia with known factors and another type in which the factors are unknown. O. Roth has had the opportunity of observing in Eichhorst's clinic in Zürich a number of cases, from the study of which he has been able to draw a few important conclusions with reference to this subject. His results are reported in the *Zeitschrift für klinische Medizin*, Vol. 79, Nos. 3-4.

Among these cases there were two occurring in brothers in whom the disease began at the ages of 45 and 59 years, respectively. In both patients the disease was of the cryptogenic type, the genuine Biermer's disease. The question arises whether both cases represent a mere coincidence or whether they indicate a familial tendency to this disease. As regards familial occurrence, other cases have been reported, for instance, by Weill and by Wilson but particularly by Schaumann, who observed the multiple occurrence of pernicious anemia in as many as eight families. In some of his cases he was dealing with a bothriocephalus anemia, in some with a cryptogenic anemia, and in others with both types. Another of Roth's cases occurred in a 62-year-old male, who also suffered from cirrhosis of the liver. This condition was confirmed at autopsy. The question arises whether one is dealing in this instance with a causative relationship between both conditions or with a mere coincidence. The author believes that cirrhosis of the liver may play a rôle in the production of some cases of pernicious anemia.

Another one of his cases was that of a woman aged 48 years in whom examination of the blood showed a typical pernicious anemia and who presented a marked rise of temperature that lasted for several weeks. At autopsy there was found a nodular tuberculosis of the spleen, a miliary tuberculosis of the liver, and a widespread caseous glandular tuberculosis which was most marked in the tracheobronchial lymph nodes. The same problem arises in this case as to whether there was any relationship between the tuberculosis and the pronounced anemia which had every earmark of a symptomatic pernicious anemia. There can be no question that tuberculosis may give rise to severe anemia, but it is probable that a hemolytic anemia is not caused by tuberculosis without the presence of some other factor. Two other cases studied by the author occurred in patients 71 and 72 years old, respectively. Both of these were undoubtedly cases of pernicious anemia associated with marked cachexia, emaciation, and muscular atrophy, all of which gave one the impression of some underlying malignant cause. It occurred to Roth that possibly in these cases the blood condition might be the result of senile changes. The fifth phase of pernicious anemia in conjunction wtih other conditions was noted in the case of a gravid woman who also presented signs of pernicious anemia.

In summing up the results of his studies of the above cases, Roth concludes that one may recognize a number of factors that may play a causative rôle in pernicious anemia. The familial occurrence would speak in favor of an individual predisposition. Tuberculosis of the lymph glands and spleen, cirrhosis of the liver, and senility would give rise to a symptomatic pernicious anemia. It must be admitted that these conclusions are of extreme interest, but nothing new has been added by Roth to what is already known about pernicious anemia, whose real origin is still deeply veiled in obscurity.

## PNEUMONIC HEMIPLEGIAS.

OCCASIONALLY in the course of an attack of pneumonia, a cerebral accident will occur. As a matter of fact, such accidents are not of very rare occurrence, and in the *American Journal of the Medical Sciences* for February, 1914, Dr. Charles F. Withington discusses the matter at some length. He points out that pneumonic hemiplegias may be divided into two classes: (1) Those caused by gross anatomical lesions, such as meningitis of pneumococcic origin, thrombosis, embolism, softening, abscess, etc. (2) A group to which exclusive attention is given in Withington's article. The cases in this group occur generally in young and vigorous people and their prognosis is relatively much better than that of the first group. Four principal explanations of the hemiplegias of this group have been offered: (1) Encephalitis, of the Strümpel type. Hoppe-Seiler gives pneumonia as one of the rarer causes of encephalitis and seeing that the relation of the latter condition to influenza is now generally recognized, it is possible that it is to pneumonias of influenzal origin that encephalitis has a particular relation. Comby has shown that encephalitis is related to other infections like pertussis, enteritis, mumps, typhoid fever, etc. Mollard and Dufort describe the case of a man taken on the seventh day of pneumonia with marked cerebral symptoms, but giving on lumbar puncture a clear fluid. He died the following day, when an encephalitis was found. (2) A second assigned cause is hysteria.

(3) Circulating organisms. If pneumonia is, as is now believed, a septicemia, there is little doubt that its organism may be carried in the blood stream to the grain, but as Withington points out it is somewhat difficult to understand how circulating organisms should so mass themselves in the brain as to produce hemiplegia. (4) Circulating toxins. The same objection, however, applies to circulating toxins as to circulating organisms. Stephan in 1889 attributed the symptoms to a vasomotor ischemia caused by ptomains in the blood which set up a vascular reflex analogous to what may occur in uremia.

Even in conditions producing cerebral edema, it seems reasonable, as suggested by Robert T. Edes, that hemiplegia might be caused if the posture of the patient made an excess of the fluid gravitate to one side of the brain. Of the above mentioned theories of the production of pneumonic hemiplegia, Withington is of the opinion that more than one is correct.

Several cases of this accident in pneumonia are given by the author, who also draws attention to the fact that the mortality of many of these toxic forms of pneumonia with hemiplegia does not seem to be greatly increased by the supervention of the cerebral symptoms. It is likewise pointed out that the importance of the phenomena referred to is great from the prognostic point of view and seems to be hardly appreciated.

## RADIUM THERAPY.

One of the most recent discussions on radium therapy was held before the Medical Society of London on March 9. Major A. E. Hayward Pinch opened the discussion and gave a fairly exhaustive review of the present position of radium as a therapeutic agent. With regard to the radium treatment of malignant disease, he affirmed that the proper treatment of such disease which was operable was by operation, and he did not use the word "cure" for the results of radium treatment in relation to new growths. In carcinoma of the tongue and mouth there had been some encouraging results by the use of small and powerful tubes. Carcinoma of the esophagus had been temporarily benefited but Pinch had not seen a case of arrest of the growth through the agency of radium. The annular type of carcinoma of the rectum was influenced more than the plaque variety of growth. Some very good results had followed treatment of carcinoma of the bladder, and he had seen no results equal to those obtained by radium, operation excepted, in carcinoma of the uterus. The neoplasms which responded best of all were the sarcomata, particularly those in the nasopharynx, and the lymphosarcomata. Melanotic sarcoma was best left untreated by radium. In lymphadenoma great and rapid temporary improvement had followed such treatment. Pinch insisted that it was incumbent upon all to exercise the greatest caution in the publication of their results, and more especially of statements which might afford an opportunity for distortion by the lay press. The effects of garbled announcements in the daily papers were often most tragic, and the amount of mental distress caused to patients and their relatives when they were informed of the true position of affairs was incalculable. He could find it in his heart to wish that all workers with radium might be pledged to a policy of silence for two years, and although this was impossible, he could, at any rate, urge the deletion of the word "cure" from their vocabulary when speaking of the radium treatment of malignant disease. No one could deny that we did possess in radium a therapeutic agent of great power, but how powerful it would prove to be was still a matter for conjecture.

Most authorities on radium therapy, if there may be said to be authorities regarding the action of a therapeutic remedy concerning which so much has yet to be learned, confess that its limitations are great and disclaim for it curative properties, at any rate, in the treatment of malignant disease. Exaggerated assertions as to the remedial or curative properties of radium are not only unjustifiable but are productive of an immense amount of harm. Unguarded statements respecting medical treatment of any description are seized upon by the lay press and retailed to the public in a form often quite different from that in which it was first issued. Publicity used with discretion is for the good of all, but unreliable accounts of medical matters are distinctly injurious both to the medical profession and to lay readers.

## A More Hopeful Outlook in the Philippines.

The Philippine Legislature adjourned on the last day of February and will not convene again until October, and there is great rejoicing thereat in Manila among all but the native politicians and the most ignorant of the population. Not the least of the jubilation is due to the fact that the solons failed in their endeavor to have the Director of Health removed and a subservient Council of Health composed chiefly, if not entirely, of Filipinos, appointed in his stead, as well as to take from him the control of the Philippine General Hospital. The post of Director of Health in Manila is not an enviable one in these days. He is subject to almost incessant attack from the native press because of his efforts to prevent the spread of cholera and plague which ever menace the city, he has had to accept a Filipino assistant who openly boasts that the natives will soon be in complete control of sanitary affairs, and he has been indicted, on the strength of some forty trumpery charges of malfeasance brought by a legislative committee, because he did not heed the ignorant protests of natives who were put to temporary inconvenience by his efforts to save their lives. That the enemies of sanitation have not succeeded in their efforts to oust Dr. Heiser is due largely to the loyal support of Governor-General Burton Harrison, who has learned much since his arrival in Manila and is brave enough to admit it. Mr. Harrison several times has assumed full responsibility for unpopular orders which Dr. Heiser was forced to issue and which without this support of the Governor-General might have failed of execution. It is most satisfactory and comforting to know that the filipinization of the island government will not, for the present at least, involve serious crippling of the work of sanitation.

### Abuses of the Diagnostic Laboratory.

Within the past few years there have sprung up in many of the larger cities of the country a number of diagnostic laboratories in which chemical and microscopical examinations of the body fluids and excreta are made. The charges for these examinations are not large, and the service which the laboratories have rendered to the busy practitioner has been considerable. There is, however, one phase of this work that calls for comment. Many patients are in the habit of bringing specimens, usually of urine, to the laboratory without the knowledge of their physician and of receiving reports which they believe themselves competent to interpret. This is particularly to be observed in the case of many diabetics who are practically guiding their own treatment according to the laboratory report. The danger of this practice requires little comment. The diabetic may congratulate himself that he is on the road to recovery when he reads in the report that his urine contains little or no sugar, when in reality he may be on the verge of coma. The sufferer from chronic nephritis may be deluded by the report that his urine is free from albumin at a time when an attack of uremia is imminent. Of course, the individual who essays the task of treating his own ailment is not likely to be guided by the advice of those who are wiser than he. Nevertheless it is the physician's duty to warn his patients against the danger of self treatment. The physician who avails himself of the services of the so-called diagnostic laboratories should insist upon the maintenance of an absolutely confidential relationship between himself and the laboratory. Under no circumstance should the report of the analysis be entrusted to the patient.

### The Pancreas Toxicosis.

The subject of Abderhalden's reaction of proteolytic disintegration—caused by the entrance into the blood of organic substances of a more or less alien character, which are disposed of through digestion by enzymes, either pre-existent in the blood or generated for the occasion—has naturally developed a new pathology. Let us suppose that the pancreas becomes the seat of an acute inflammation and rapid necrosis. Then the entrance into the blood of the products of autolysis of the gland causes phenomena which are closely associated with the symptoms which follow the abolition of its function. Severe as are the latter, they cannot be compared with the results of absorption of toxic material, which naturally occurs at an earlier period. Von Bergmann and Strauch have for many years studied pancreatic autolysis in necrosis following acute pancreatitis and have found that fatal poisoning rapidly occurs in certain cases. In a paper read before the Biological Section of the Medical Union of Hamburg on Dec. 16, 1913 (*Muenchener medizinische Wochenschrift*, March 3), they announce the results of attempts to study the affection with Abderhalden's reaction, especially when only suspicion exists as to a latent state (in sufficiently obvious cases such a resource is not indicated). The authors do no more than state that a positive Abderhalden is of much value in such cases. In a long discussion on Abderhalden's reaction in general, which took place afterwards, no mention whatever was made of the pancreas, so that the authors are, no doubt, pioneers in this subject.

### Tuberculin Treatment of Spina Ventosa.

The successful use of tuberculin in local conditions of doubtful origin has been demonstrated again and again. Whether this result indicates the tuberculous nature of the lesion, or whether a tuberculin general reaction, with fever, has simply caused the disappearance of some long-standing condition, is beside the mark. We are only interested at present in the possibility of curing spina ventosa with tuberculin. At a meeting of the Hufeland Society of Berlin, last January (*Berliner klinische Wochenschrift*, March 9, 1914), Dönitz presented a paper on this subject. Under *x*-ray control both destruction and atrophy of bone, as well as new formation, were in evidence; and all lesions yielded in the main to old tuberculin. This medication is specially indicated in lesions of the ribs, sternum, vertebræ, joints, etc. Karewski expressed the view that tuberculin improves local conditions only indirectly, by raising the general resistance of the organism. He sees no evidence that tuberculin *per se* exerts a specific influence over spina ventosa, the successful management of which can go ahead under the old regimen. Closing the discussion Dönitz admitted that he regarded tuberculine rather as a stimulant than a specific.

## News of the Week.

**Deaths in New York.**—During the week ending April 4 there occurred in New York City 1,612 deaths, giving a death rate of 15.06 per 1,000 of population, as compared with 1,512 deaths and a rate of 14.68 for the corresponding week of 1913.

**The Plague in Havana.**—There have been five cases of plague in Havana during the present outbreak. In order to put an end to it Dr. Juan Guiteras, the Director of Sanitation, has ordered that sixteen blocks in the infected portion of the city be closed for several days while the rats in the district are being killed.

**Affiliation of College and Hospital.**—Through the trustees of Columbia University announcement was made last week that the managers of the Presbyterian Hospital, New York, had reorganized the administration of the scientific and therapeutic work at the hospital so as to provide for single responsibility for both medical and surgical services. Dr. Theodore C. Janeway, Bard professor of the practice of medicine at the College of Physicians and Surgeons, has been designated medical director of the hospital, and Dr. George E. Brewer, professor of surgery at the college, has been designated surgical director. Dr. William G. MacCallum, professor of pathology at the college, has been appointed pathologist to the hospital.

**Hospital Overcrowding.**—A night inspection of the hospital quarters on Blackwell's Island made by the Mayor of New York and several members of the Board of Estimate on April 7, will lead, it is hoped, to a great improvement of the accommodations. Overcrowding, poor food, and shortage of nurses were among the defects pointed out. At the Metropolitan Hospital, where the worst conditions exist, it was found that 1,070 tuberculous patients were being cared for, although the hospital has accommodations for only 800. In the sixteen glass shacks put up for the fresh-air treatment of the tuberculous, 197 patients were found sleeping in quarters designed to hold only 67, and the ventilation of the rooms was insufferable. Through all

the hospitals on the Island it has for some time past been found necessary to put cots in the corridors and even to make up pallets on the floors of the wards. After the inspection the members of the Board of Estimate announced themselves ready to make the necessary appropriations to remedy the congested conditions.

**Aviation Deaths.**—During the first three months of 1914, 38 men in all parts of the world lost their lives through the failure of their machines or the uncertainty of air currents, five of these deaths occurring in the United States. Since the death, in 1908, of the first victim of aviation, 462 men have been killed as the result of accidents while in the air.

**International Surgical Congress.**—Dr. W. W. Keen of Philadelphia has been elected president of the next Congress of the International Surgical Association to be held in Paris at the end of September, 1917. The officers of the association, re-elected at the meeting held this week in New York, are: *President*, Dr. Willems of Ghent; *Secretary*, Dr. Mayer of Brussels; *Treasurer*, Dr. Lorthioir of Brussels.

**The American Surgical Association.**—At the annual meeting of this association, held last week in this city, the following officers were elected: *President*, Dr. George E. Armstrong, Montreal, Canada; *Vice-Presidents*, Dr. Lewis S. Pilcher, Brooklyn, and Dr. Frank E. Bunts, Cleveland; *Secretary*, Dr. Robert G. Leconte, Philadelphia; *Treasurer*, Dr. Charles L. Gibson, New York; *Recorder*, Dr. Archibald MacLaren, St. Paul; *Members of Council*, Dr. W. J. Mayo, Rochester, Minn., Dr. A. G. Gerster, New York, and Dr. Charles A. Powers, Denver, Col. The next meeting will be held in Rochester, Minn.

**Personals.**—Dr. Milton Schnaie, first assistant physician at the Montefiore Country Sanitarium for Consumptives, Bedford Hills, N. Y., has resigned to become medical director of the new Jewish Home for Chronic Invalids and Consumptives at St. Louis, Mo., which position he will assume on May 1.

**Control of Cancer.**—A public meeting of the American Society for the Control of Cancer was held at the New York Academy of Medicine on April 10, Dr. Clement C. Cleveland, vice-president of the society, presiding. After Dr. Cleveland had spoken on the needs of the society, which has for its objects: "To disseminate knowledge concerning the symptoms, diagnosis, treatment, and prevention of cancer, to investigate the conditions under which cancer is found, and to compile statistics in regard thereto," Dr. William J. Mayo of Rochester, Minn., made some introductory remarks, and addresses were made by Mr. Frederick L. Hoffman of the Prudential Insurance Company on "The Statistical Evidence of an Increasing Liability to Cancer," by Dr. Francis Carter Wood, director of Cancer Research, Columbia University, on "The Nature of Cancer and Its Cure," and by Dr. J. Collins Warren, chairman of the Harvard Cancer Commission, on "The Control of Cancer from the Point of View of the Cancer Commission of Harvard University."

**Smallpox in New York.**—The discovery of two additional cases of smallpox in New York last week, making a total of six cases reported within a month, has caused the Commissioner of Health to issue a strong appeal to all citizens to protect themselves by submitting to prompt vaccination against the disease.

**Typhus Patient at Ellis Island.**—A patient suffering from typhus fever, who had reached Ellis Island from the steamship *Cameronia* of the Anchor line on April 7, was discovered while the immigrants were being inspected at the Island and was promptly sent into quarantine at Swinburne Island. The other steerage passengers from the same ship were quarantined at Hoffman Island, and arrangements were made for the thorough disinfection of the ship. Several passengers with the disease have lately been brought into port, but this is the first case known to have passed the quarantine officials.

**Doctors Leave Nassau.**—Because of some disagreement as to the proper conduct of hospital affairs, the three physicians forming the house staff of the Nassau Hospital, Mineola, N. Y., handed in their resignations on April 8, and immediately left the hospital.

**Scarlet Fever in Richmond Borough.**—Scarlet fever has been quite prevalent in Dongan Hills, Staten Island, N. Y., since the end of last January. During February 13 cases occurred; during March, 12 cases, and during the first week of the present month 4 cases were reported. The responsibility for the increased number of cases of this disease probably rests with the parents of certain children who failed to summon a physician during their children's illness, and permitted the children to return to school while they were still in an infectious condition and capable of spreading the disease to others. Some time later the cases were recognized as scarlet fever by a physician of the Department of Health and the children were excluded from school; but the damage had already been done. The Health Department now has the situation well in hand and it is probable that few additional cases will occur.

**Gifts to Charities.**—By the will of the late William P. Sandford of Brooklyn, N. Y., the sum of $5,000 is left to the Methodist Episcopal Hospital of that city.

The William W. Backus Hospital of Norwich, Conn., receives $15,000 by the will of the late John Eccles of Norwich.

The Exeter Cottage Hospital of Exeter, N. H., has received a bequest of $10,000 from the estate of the late Mrs. Elizabeth S. Hall.

**Antivaccination Bill.**—The Massachusetts State Senate on April 10 passed an antivaccination bill which provides that any person who has reached the age at which attendance at school is permitted or required, and who presents a written statement from a parent or guardian, or by himself, if twenty-one years old, which declares that such parent or guardian or person is opposed to vaccination, shall not, as a condition precedent to admission to the public schools, be required to submit to vaccination, except at the time of a threatened or actual outbreak of smallpox, when the school board shall temporarily debar such person from the schools.

**Medical Society Elections.**—New London County (Conn.) Medical Society. Annual meeting at New London on April 2. Officers elected: *President*, Dr. Anthony Peck, Norwich; *Vice-President*, Dr. Edmund P. Douglass, Groton; *Clerk*, Dr. Leone F. La Pièrre, Norwich; *Councilor*, Dr. Patrick J. Cassidy, Norwich.

Lafayette Parish (La.) Medical Association: Annual meeting at Lafayette on March 27. Officers elected: *President*, Dr. John Leon Chiasson, Scott; *Vice-President*, Dr. George R. DeLaureal, Broussard; *Secretary-Treasurer*, Dr. Merrick E. Saucier, Marksville.

**The Late Dr. Le Fevre.**—At a meeting of the Medical Board of the Beth Israel Hospital the following resolutions were adopted:

*Whereas*, The Medical Board of the Beth Israel Hospital has learned with deep sorrow of the death of Dr. Egbert Le Fevre, consultant physician to the hospital for the past twenty years, and

*Whereas*, Dr. Egbert Le Fevre was a man of noble character, sterling integrity and of high medical attainments, and was always ready and willing to devote his very valuable services to the welfare of the patients and by his uniformly kind and courteous treatment of the members of the Visiting Staff, as well as the patients, has gained for himself the sincere appreciation of the Medical Board and the gratitude of the sick poor; be it

*Resolved*, That as a mark of the esteem in which Dr. Le Fevre was held by the Medical Board and in appreciation of his services to the Beth Israel Hospital, the above resolutions be spread on the minutes of the Medical Board and that a copy be sent to the family and be published in the medical press.

L. J. Ladinski, M. D., *Chairman*,
D. Robinsohn, M.D.,
A. A. Himowich, M. D.,
*Committee on Resolutions.*

**Obituary Notes.**—Dr. Charles F. Lauer, of Brooklyn, N. Y., a graduate of the New York Homeopathic Medical College and Hospital in 1863, and a member of the New York State Homeopathic Medical Society, died at his home on April 9, aged 74 years.

Dr. Thomas Lee of Camden, N. J., a graduate of the University of Pennsylvania, Department of Medicine, Philadelphia, in 1876, died at his home on March 24, aged 72 years.

Dr. William E. Easter of Hamburg, Ark., a graduate of the Western Reserve University, Medical Department, Cleveland, O., in 1853, died at his home on March 23, aged 82 years.

Dr. Elihu Britton Silvers of Rahway, N. J., a graduate of the College of Physicians and Surgeons, New York, in 1852, a member of the Medical Society of New Jersey, and the Union County Medical Society, of which he was a former president, and formerly superintendent of schools of Rahway and a member of the Board of Education, died at his home from heart disease on April 2, aged 85 years.

Dr. Charles Emery Rowell of Stamford, Conn., a graduate of the New York Homeopathic Medical College and Hospital in 1875, formerly mayor of Stamford, and a member of the Board of Health, died at his home on March 28, aged 64 years.

Dr. Gustavus Pierrepont Davis of Hartford, Conn., a graduate of Yale University in 1866 and of the College of Physicians and Surgeons, New York, in 1869, a member of the Connecticut State and Hartford County Medical Societies, and one of the founders of the Hartford Free Dispensary, died at his home on April 1, aged 69 years.

Dr. George W. Brumley of Biggers, Ark., died at his home on March 23, aged 69 years.

Dr. Marvin M. Johnson of Waycross, Ga., a graduate of the Medical College of Georgia, Augusta, in 1902, a member of the Medical Association of Georgia, and president of the Ware County Medical Society, died suddenly in his office from heart disease on March 21, aged 34 years.

Dr. Thomas W. Stumm of St. Paul, Minn., a graduate of the Rush Medical College, Chicago, in 1901, a member of the American Medical Association, the Minnesota State Medical Association, the Ramsey County Medical Society, of which he was a former president, and the Academy of Medicine of St. Paul, and physician to St. Luke's, St. Joseph's, and the City Hospitals, died suddenly in Vienna, where he was pursuing his studies, on March 20, aged 42 years.

Dr. Levi Hall of Minneapolis, Minn., a graduate of the Hahnemann Medical College and Hospital, Chicago, in 1882, died at his home on March 22, aged 81 years.

Dr. A. O. Hardenstein of Vicksburg, Miss., a graduate of the Hahnemann Medical College and Hospital, Philadelphia, in 1889, died in the Presbyterian Hospital, New Orleans, after a short illness, on March 21.

Dr. Leander F. Murray of Holden, Mo., a graduate of the Louisville Medical College, Ky., in 1876, and a member of the Missouri State and Johnson County Medical Associations, died at his home after a long illness, on March 21, aged 67 years.

Dr. S. H. C. Bixler of Greenville, Pa., a graduate of the University of Michigan, Department of Medicine and Surgery, Ann Arbor, in 1870, and a veteran of the Civil War, died at his home on March 28, aged 69 years.

Dr. Alvin Isaac Miller of Harrisburg, Pa., a graduate of the Hahnemann Medical College and Hospital, Philadelphia, in 1872, died at his home on March 26, aged 64 years.

Dr. Oliver H. Sterner of Philadelphia, a graduate of the Jefferson Medical College, Philadelphia, in 1889, died at his home from pneumonia on March 27, aged 55 years.

Dr. John Thomas Shepherd of Chattanooga, Tenn., a graduate of the University of Maryland, School of Medicine, Baltimore, in 1874, formerly physician to the Hamilton County Hospital, died suddenly at his home on March 22, aged 66 years.

Dr. Horace E. Seastrunk of Orange, Texas, a graduate of the Barnes Medical College, St. Louis, in 1896, died at his home after a long illness, on March 25, aged 39 years.

Dr. Martin Hagen of Virginia, Wis., a graduate of the Chicago College of Medicine and Surgery in 1908, and a member of the American Medical Association, the State Medical Society of Wisconsin, and the Crawford County Medical Society, was instantly killed by being thrown from his horse on March 23, aged 42 years.

Dr. Philip M. Fitzsimons, of Cambridge, Mass., a graduate of the University of Vermont College of Medicine, Burlington, in 1892, and a member of the Massachusetts and Middlesex District Medical Societies, and formerly a member of the Cambridge School Board and Medical inspector of schools, died at his home after a long illness, on April 4, aged 56 years.

Dr. William Stockton Wilson of Newark, N. J., a graduate of the Jefferson Medical College, Philadelphia, in 1861, for three years during the Civil War a surgeon in the United States Army, and a member of the Medical Society of New Jersey and the Essex County Medical Society, died at his home on April 10, aged 75 years.

Dr. Thomas A. Rex of Los Angeles, Cal., and formerly of Philadelphia, a graduate of the Georgetown University School of Medicine, Washington, in 1865, an assistant surgeon in the United States Army during the Civil War, and a member of the Medical Society of the State of Pennsylvania, died at his home on April 1, aged 76 years.

# Correspondence.

## THE FRIEDMANN SERUM AND THE SOCIETY OF GERMAN SANATORIUM PHYSICIANS.

To the Editor of the Medical Record:

Sir:—A sensational statement appeared last month in some of the New York newspapers that on the occasion of the annual meeting of the Association of German Sanatorium Physicians on February 28, 120 of these physicians had carefully investigated the results of Friedmann's work. It was reported that 40,000 cases had been treated with Friedmann's serum and that the successes had been simply phenomenal. It was furthermore stated that Dr. Friedrich Franz Friedmann had been the guest of honor at a banquet given by the sanatorium physicians and that he had been effusively thanked by Privy-Councillor Professor Dr. Pannwitz for his work, in the name of the sanatorium physicians present. Finally, it was said in the newspaper report that Dr. Friedmann had made the statement to an American press representative that Professor Ehrlich had expressed the opinion that the Friedmann serum was absolutely harmless.

In a communication received by the undersigned, bearing the signatures of the president, Dr. O. Pischinger, the vice-president, Dr. J. Ritter, and the secretary, Dr. Schellenberg, of the Association of Sanatorium Physicians of Germany, Austria, and Switzerland, he was requested to enlighten the American medical profession concerning the incident connected with their visit to the Friedmann Institute in Berlin, and to give the facts the widest possible publicity, at least among medical men.

First of all, the officers of the association expressed their astonishment that the visit of the sanatorium physicians to the Friedmann Institute should have been used as a means of advertising Friedmann and his remedy abroad. Because of the reports of cures which constantly crept into the German medical and lay press and the demands for the remedy from many sanatorium patients, it was natural that the sanatorium physicians while visiting Berlin should wish to see for themselves what was going on in the Friedmann Institute. Thus they asked Friedmann to show them his cases and give them a talk on the indication for his remedy. About 60 of the 125 members of the association visited the Friedmann Institute on February 26 and 27, 1914. They distinctly stated that their visit was in no way to be considered a pilgrimage to pay homage to Friedmann for his discovery but rather an investigation to find out just how much truth there was in his claims. Many had already tried the remedy and had been disappointed, others were prejudiced, and it is for this reason that they wanted to examine critically into Friedmann's claims. It is absolutely untrue that a banquet was given to Dr. Friedmann. After the conclusion of the visit there was a confidential conference, without Dr. Friedmann, at which the members concluded to discuss the theme again next fall and in the meantime collect as much material as possible.

That the undersigned may not be accused of prejudice or misinterpretation, I wish to quote in German the most essential statements which were made as the result of the visit of the association to the Friedmann Institute:

"Wir waren uns darüber einig, dass die uns von Friedmann gezeigten Fälle klinisch recht schlecht beobachtet waren und im Allgemeinen keineswegs als 'Erfolge' angesehen werden konnten. Wir haben uns gewundert, dass uns keine ordnungsmässig geführte Kurve gezeigt wurde. Die Roentgenplatten, die man uns zum Beweis zeigte, bewiesen tatsächlich garnichts. Wir geben zu, dass einzelne Fälle allerdings einen gewissen Eindruck auf uns gemacht haben, *wobei wir uns aber auch darüber klar waren, dass solche Fälle auch ohne jede Behandlung und bei jeder Behandlung vorkommen können*, und das die Zahl dieser Fälle verhältnissmässig *viel* zu klein war, um ein günstiges Urteil über das Mittel abgeben zu können."

(We were of the unanimous opinion that the cases shown by Friedmann had been clinically very badly observed, and as a whole could not at all be considered as successes. We were astonished that no carefully recorded temperature and weight curves were shown. The *x*-ray plates which were shown to us as evidence of cures did not actually prove anything whatsoever. We will admit that some cases indeed made an impression upon us, but here we must also remember that such cases occur without any treatment or with any kind of treatment, and that the number of them was altogether too small to permit of a favorable judgment of the value of the remedy).

I have since received a letter from Geheimrat Prof. Dr. Pannwitz in which he substantiates what has been said in the official communication from Drs. Pischinger, Ritter, and Schellenberg. He particularly expresses his indignation at the use of his name in connection with a banquet which never took place. He declared the whole thing to be a newspaper invention.

Prof. Dr. L. Brauer, Director of the Eppendorfer Krankenhaus of Hamburg, who had also heard the American version of the sanatorium physicians' visit to the Friedmann Institute in Berlin, wrote me a letter full of indignation and said at the same time that he had tried Friedmann's remedy at the Eppendorfer Krankenhaus and the results had been unfavorable. He has reported these unfavorable results recently at the Balneological Congress and the Hamburger Aerzte Verein, and intends to publish more on the subject at an early date. He has since sent me the advance sheets of his forthcoming communication regarding Friedmann wherein he says: "The pulmonary cases treated in the Eppendorfer and Salemburg hospitals with Friedmann's method did not improve, but some of them without a shadow of doubt were rendered worse by the treatment. Five cases of bone and joint tuberculosis in children treated with the Friedmann serum by Dr. Trepler in the Salemburg institution were not influenced at all by the treatment and in one case, although the movement of the afflicted joint increased, the general condition of the lesions was rendered worse."

In paying a gratifying tribute to the earnest and unbiased work done with Friedmann's serum by American investigators, which likewise gave unfavorable results, Professor Brauer advised me, in the interest of the German medical profession, and especially in the interest of the unfortunate patients who naturally are inclined to accept such advertised endorsement as genuine, that it would be most desirable for the present status of the Friedmann remedy in Germany to be made clear to the American medical profession and the laity.

S. A. Knopf, M.D.

New York.

## THE METROSCOPE.

To the Editor of the Medical Record:

Sir:—If any of your readers can give me any information concerning an instrument called the metroscope it will be of much service to me.

Montgomery in his "Signs and Symptoms of Pregnancy," 1857 page 173, quotes from "Des Maladies propres aux Femmes," page 752, as follows: "In 1829 M. Nauche proposed for adoption a practice founded on a suggestion made by M. Maygrier in 1822, viz., that certain conditions of the gravid uterus might be ascertained by auscultation instituted per vaginam; for this purpose M. Nauche had constructed a modification of the stethoscope under the name of metroscope, one end of which was to be applied to the os uteri * * * the movements of the fetus might be recognized * * * long before the mother felt them herself, or ballottement could be accomplished."

Any information, comment, or criticism will be thankfully welcomed.

DOUGLAS H. STEWART, M.D.

128 WEST EIGHTY-SIXTH STREET, NEW YORK.

## OUR LONDON LETTER.

(From Our Regular Correspondent.)

BIOLOGY OF TUMORS—CONGRESS OF AMERICAN SURGEONS—WELCOME TO SURGEON-GENERAL GORGAS HIS LECTURE ON THE PANAMA CANAL—ARTERIOSCLEROSIS ETYMOLOGY—DOCTORS' WIVES—MEDICAL CYCLOPEDIA FOR FAMILY USE.

LONDON, March 27, 1914.

MR. MANSELL MOULLIN, consulting surgeon to the London Hospital, took for the subject of his Hunterian lecture at the College of Surgeons, "The Biology of Tumors." The underlying problem is not, he holds, the nature of the force which makes tumors grow, for growth is a property of all living tissues, but it can suddenly be interrupted at some spot when the force which controls growth and directs it toward development is removed leaving the tissues to simply increase and multiply in any direction. The nature of this force, he thought, may in some instances be traced to interference with chemical changes in the tissues. The causes of such interference would thus become factors in the production of tumors. This view was elaborated with great skill as to the different kinds of tumors which are to be regarded as buds that grow out of normal living tissues always developing along the same line as the stem but never attaining a higher stage. Consequently a natural classification would give three groups: First, those arising from the primitive organism, then those arising after it has become differentiated into germ and somatic cells. The bud or tumor growing from either of these cells reproduces more or less perfectly the arrangement of the previous cells. The lecturer spoke of the different varieties, and passed on to show that clinical classification is valueless. Whether a tumor is malignant or benign depends on the degree of maturity reached by the cell from which the bud branched off. If that parent cell had advanced so far as to have attained distinctive characteristics but not to have lost all power of reproduction, the bud would imitate it, growing slowly and pushing aside other structures, *e.g.* adenomata built of buds resembling the parent gland but never so perfect. On the other hand, if the parent stock is in the embryonic stage, composed of rapidly growing cells, such as spring up to replace older, worn out, or lost cells, the bud cells will be of the same embryonic type, multiplying rapidly and invading everything around. So cancer does not arise from tissues perfectly developed, but from cells engaged in repair and restoration.

Prof. Mansell Moullin said the assumption that cancer and sarcoma were essentially different from all other tumors was not supported by evidence, but that the cancer cell or the sarcoma cell, like the cells of all other tumors, was the descendant of a normal tissue cell, which in its earliest youth, while retaining all its primitive reproductive power, had suddenly assumed an individuality of its own and was no longer bound by the laws that control the growth and development of its host. Why a cell or group of cells should thus cease to develop and retain its power of growth and reproduction, giving birth in this way to another individual is the problem of the biology of tumors. The lecturer's suggested solution was that development being dependant, like growth, on certain chemical changes taking place in the living cell interference with them must produce corresponding effects. Development is the persisting succession of growth in one direction by a group of cells, generation after generation, leading to modification of chemical constitution and of structure. If the changes should be interrupted at some point, as for lack of some essential factor, or the intrusion of an unnecessary one, the special reaction concerned is brought to a standstill at whatever stage it may be. Development ceases but the power of reproducing may remain. Then growth goes on, a tumor resulting, reproducing the parent's structure at the stage at which it was at the moment of interruption. Other changes than chemical may also affect tissues, *e.g.* mechanical or the action of living organisms, and the lecturer cited some of these. When there is no interruption of the changes development continues.

We are "going straight ahead" with preparations for the reception of the Clinical Congress of American Surgeons in July. A committee meets at the Royal Society of Medicine and most of the hospitals will be ready to receive members during each day and in the evenings there will be addresses by surgeons from the provinces and abroad.

We have had Surgeon-General Gorgas staying here a few days on his return from South Africa, to which he went at the request of the Johannesburg Chamber of Mines to examine the sanitary conditions under which their workmen lived. He has had a warm welcome with the two colleagues, Dr. Darling and Major Noble, who accompanied him in his South African work. The three were entertained at dinner by the Medical Director-General and some eight officers, and a number of other compliments and testimonies of esteem showered upon them.

The Directors of the British South Africa Company gave a luncheon on Thursday to the three colleagues who had inspected for them the valleys of the Mazoe district, north of Salisbury. This Surgeon-General Gorgas reported to be naturally well drained and salubrious, so that it cannot be considered as essentially malarial. The precautions against anopheles mosquitos should therefore be increased for these insects could most certainly be more easily controlled in Rhodesia than in such a region as Panama. The local administration is carrying on an efficient campaign deserving of commendation to exterminate malaria in the company's districts where it still prevails.

The dinner (on Monday) was quite an Anglo-American commemoration of medicine and science. After the usual loyal toasts Lord Bryce gave the President of the United States and referred par-

ticularly to the Carnegie and the Rockefeller Institutes and the International Health Commission, then holding up the President as a conspicuous example of a man having wide learning and brilliant literary gifts as well as solid judgment and capacity for great affairs. The American ambassador in responding said Surgeon-General Gorgas won his way to his position and was well entitled to whatever honor they could bestow. His elevation was a good measure of the President's discernment and wisdom. It needed a trained mind thoroughly to appreciate the value of a trained mind. In this and also in politics, President Wilson had shown that a trained mind was the chief instrument of success. Sir Havelock Wilson proposed the health of Gorgas himself and said he had fully justified the wisdom of the men who selected him for the task and gave him a free hand. Havana, a hotbed of yellow fever for generations, had been cleared by his work in nine months, and the scourge of Panama had been eliminated. But one could boast of a share in his exploit as it was based on the work of Sir Patrick Manson and Sir Ronald Ross.

In reply Surgeon-General Gorgas spoke of their obligations to their brave predecessors who had made the discoveries which rendered their work possible. But for those discoveries they would probably have done no better than the tireless workers of twenty-four years ago under French leadership.

On Monday afternoon at the Royal Society of Medicine we had a good opportunity of observing in another capacity the man we had been lionizing, for Gorgas himself read a paper on the Panama Canal in which he described the precautions they had to take and the methods they employed to insure the destruction of yellow fever and of malaria. They determined to make an effort to get rid of the disease carriers and prevent their reproduction. Therefore they laid it down that the larvæ were to be considered offensive nuisances and issued an ordinance to the effect that any person having mosquito larvæ on his premises would be liable to fine or imprisonment. In effect punishment was very rarely inflicted. It was surprising, he said, to how great a degree men of the Latin race were influenced by kindness and gentleness—especially surprising to Anglo-Saxons who were accustomed to the rougher methods of police courts. The most important measure carried out was drainage and this was under the surveyance of inspectors. He looked upon the use of oil as more or less a confession of failure; yet a thousand barrels a month were used at the canal work. A carbolic solution was largely employed as a larvicide. Enormous quantities of quinine were consumed for about half the force were induced to take a dose once a day as a prophylactic. He mentioned, too, that in the early stages a good deal of work outside their department was thrown upon the engineers; as an example they took charge of the church organization.

Mayor Noble, at the conclusion of the lecture, exhibited a number of illustrative slides. Surgeon-General Gorgas also, in reply to a question, said several cases were brought on from the outside, but had never given rise to others.

A sad story comes from West Bromwich—suicide of one of its leading practitioners, Dr. Plummer, under an erroneous idea that he was to blame for the death of a patient. He left a note to the coroner to say in such a case a man ought not to live and belong to the profession to which he always hoped to be a credit. The death was one after childbirth. Experts testified at the inquest that the doctor's self-reproach was uncalled for as the case was a very uncommon one, that he had done everything possible and the woman's death was in no way due to anything he had done or left undone. The jury returned a verdict of suicide while of unsound mind.

Dr. Leonard Williams was asked to open a discussion at the Chelsea Clinical Society on "Arteriosclerosis," which he did in a capital speech repudiating many notions that are common enough. He prefaced his objections to them by one as to the term selected as the title of the discussion. "Arteriosclerosis," he said, "is not only a bastard, but a parvenu, like all bastards and parvenus, it is deceitful, observing the true and suggesting the false." Se he proceeded to speak of arterial degeneration as more "in conservance with dignity, both etymological and scientific." I sympathize with him. Our literature abounds in words even more offensive—some of them as misleading as politicians' statements.

The project of a Family Medical Encyclopedia attracted attention from the way in which it was advertised with the names of about a score and a half of distinguished medical men as leading contributors. So much indignation was expressed that most of these contributors repudiated their share in the matter and wrote to the newspapers that they only corrected the proofs or advised the editor on some points. The first number—for it is coming out in parts—has now appeared and is full of advice which calls for condemnation as at the least promoting dangerous self drugging. But that is another question. The names of the contributors and their qualifications are set forth for the admiration of the "family" readers. No doubt we shall again be favored with columns of indignation at this and fresh repudiations and explanations almost rivaling the "honest misunderstandings" of prevaricating politicians.

I don't know that the wife of a doctor differs so much from other married ladies as to need a special society to tell her the essentials of success in domestic economy, dress, furnishing, the purchasing power of money, and so on. But such an organization is proposed and steps are being taken to establish it. An insert of *The Hospital* of March 21 invites candidates to join in the attempt to form a cooperative society for such persons. Every candidate must on applying declare she is a doctor's wife—no others being eligible. If 1,000 join before May 2 the promoters will go forward and the doctors' wives, duly dubbed D. W., will be able to obtain advice on the management of their households and every other assistance. Let us hope the management of their husbands will not be included. It is common enough to hear that married ladies are apt to resent interference or even advice from their mothers-in-law. How they will embrace the opportunity of enjoying the attentions of a cooperative union of mothers-in-law remains to be seen.

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**Hematoma Auris; Operative Treatment.**—G. J. Jenkins reports the case of a woman, aged 32, in whom a hematoma was the result of a blow. When seen next day the swelling involved the whole of the internal surface of the cartilaginous part of the pinna, and was about the size of a hen's egg. An incision was made along the margin of the helix. The blood was on the external surface only and extended somewhat into the meatus.—*Proceedings of the Royal Society of Medicine.*

# Progress of Medical Science.

## Boston Medical and Surgical Journal.

*April 2, 1914.*

Children's Hospital of Boston, 1869-1914. History and Progress of Forty-five Years.

1. The Architecture of the Children's Hospital. C. A. Coolidge.
2. The Development of the Hospital with Especial Reference to the Medical Service. T. M. Rotch.
3. The History of the Children's Hospital, with Especial Reference to the Orthopedic Department. R. W. Lovett.
4. The Work of the Children's Hospital in 1913. J. L. Morse.
5. Orthopedic Surgery at the Boston Children's Hospital. A Review of Thirty Years of Continuous Service. E. H. Bradford.
6. Infantile Scorbutus. J. L. Morse.
7. Inguinal Hernia in Children. J. S. Stone.
8. A Case of Chondro-Osteo-Sarcoma. Amputation at the Hip. R. W. Lovett.
9. Obstetrical Paralysis with Especial Reference to Treatment. J. J. Thomas.
10. Round Shoulders with Short Clavicles. A. Thorndike.
11. Removal of Foreign Bodies from the Esophagus and Lower Air Passages by the Aid of Endoscopy in Children. D. Crosby Greene and F. E. Garland.
12. The Influence of Alkalies Upon Gastric Motility. M. Ladd.
13. A Study of the Etiology in One Hundred and Seventy-five Epileptic Children. A. W. Fairbanks.
14. Hemorrhage Following Tonsillectomy. F. E. Garland and D. C. Greene.
15. Poliomyelitis. Operative Treatment. R. Soutter.
16. The Importance of the Early Recognition of Acute Arthritis of the Hip-joint in Infants. A. T. Lerg.
17. The Diagnosis of Enlarged Thymus and the Symptomatology of Hyperthymatism. P. H. Sylvester.
18. The Treatment of Cervical Adenitis in Children. W. E. Ladd.
19. A Case of Lymph Cyst of the Mesentery. C. G. Mixter.
20. Flat Foot in Children. A. Ehrenfried.
21. Fyelitis in Infancy and Childhood. W. T. Wyman.
22. Two Cases of Cirrhosis of the Liver in Childhood. T. Ely.
23. The Report of a Case of Multiple Bone Tuberculosis Atypical in its Distribution and X-ray Appearances. H. J. FitzSimmons.
24. The Significance of the Von Pirquet Reaction in Surgical Tuberculosis in Children. L. B. Robertson.

**6. Infantile Scorbutus.**—J. L. Morse states that there has been a rapid and progressive increase in the number of cases of scurvy coming to the Medical Out-Patient Department of the Children's Hospital during the last four years. This increase has been not only absolute, but also relative to the total number of cases. A summary of the author's figures shows that 18 or 20 per cent. were fed on "stale" foods, that is, condensed milk or prepared foods mixed with water. Forty-four or 50 per cent. were fed on either prepared foods or condensed milk. In the thirty-seven cases in which milk was used either with or without prepared foods and data were given as to whether it was heated or not, the mixture was given raw in one, or 3 per cent.; pasteurized in six, or 16 per cent.; boiled, scalded, or sterilized in 30, or 81 per cent. It is probable that the milk was boiled in at least one-half of the other cases in which milk was used with prepared foods, because the directions on the can containing the food used in these cases call for boiling. It is also probable that in a considerable proportion of the cases on modified milk prepared at milk laboratories the mixture was pasteurized. It would appear from these figures that prepared foods, "stale" foods, and the heating of milk to the temperature of pasteurization or higher may all play a part in the etiology of scurvy. The fact that three cases developed in babies taking only breast milk shows, however, not only that no one of these can be the exclusive cause, but also that there must be some other cause. The most striking fact in these figures is, however, that 54 of the 58 cases, or 93 per cent., in which there are data as to the freshness of the food, were fed on foods which were not fresh, that is, containing either no milk or cooked milk.

**14. Hemorrhage Following Tonsillectomy.**—F. E. Garland and D. C. Greene state that the question as to why, following a tonsillectomy, one patient bleeds and another does not is a perplexing one. The bleeding is not necessarily due to excessive trauma or careless cutting of the constrictor muscle. In practically all of the cases the authors have seen, which number about one hundred, the bleeding has occurred following easy operations in which the tonsillar fossæ and pillars of the palate remained entirely intact. A possible explanation, which they have been unable to verify, is this: there is often noticed in the fossa after removing a tonsil a plexus of small veins due possibly to chronic inflammation. It is possible to conceive of the knife or snare splitting open one of these veins longitudinally so that in the movements of the throat the forming clot is continuously expelled from the remaining part of the vein, and bleeding is produced. Be this as it may, it seems to the authors that the bleeding is more often venous than arterial. Small arteries which are seen pumping in a throat just after removing the tonsil usually cease bleeding in a few minutes and do not require ligating. The dangerous type of bleeding, the kind which goes on to exsanguination and death, may be described as an ooze. This continues for hours without giving any of the textbook symptoms of hemorrhage. The blood may be expelled by coughing, but the half-conscious patient more often swallows it. Accordingly, unless vomiting occurs, hemorrhage may continue without the slightest evidence. The authors have recently seen such a case in which the nurse, of more than average experience, did not detect bleeding until ten hours after operation. She noticed that the patient, a child, swallowed frequently, but not until a large quantity of blood was expelled from the stomach did she realize the danger. Safety from this danger lies in a careful inspection of the patient's throat at intervals after operation. Although such inspection may not disclose the actual bleeding point, owing to the obvious difficulties in the way of obtaining a good view of a semi-conscious patient's throat, and to the fact that the bleeding may be low in the fossa and thus escape detection, there is one sign which is unfailing in these cases, and that is a clot which forms in the fossa above the bleeding point. This clot is always present, and its presence is sufficient evidence of bleeding. When removed it quickly reforms. This danger signal appears at the beginning of the bleeding, and not as most signs do, when death is near. By careful observation of the throat, and an early detection of the clot, one is enabled to deal immediately with the situation. One should not wait for other signs, but should at once suture the pillars. This process takes about three minutes, and as but little blood is lost the patient's recovery proceeds in the usual manner.

**17. Diagnosis of Enlarged Thymus and Symptomatology of Hyperthymatism.**—P. H. Sylvester points out that one should be on the lookout for enlarged thymus in cases of asthma, persistent bronchitis, and laryngeal or tracheal stenosis. Inasmuch as the percussion outlines correspond so closely with those shown by the roentgenograms, the enlarged thymus should be found on examination by the ordinary methods of physical diagnosis, of which threshold percussion is apparently accurate and satisfactory in the hands of one familiar with children. Children showing an enlarged thymus present two fairly uniform sets of respiratory symptoms: those due to pressure on the trachea, as shown by cyanosis, slow, labored breathing and supraclavicular and substernal retraction, and those presumably due to toxemia or hypersecretion of the thymus, namely, breathing of the asthmatic type characterized by fairly easy inspiration and long, difficult expiration, accompanied by râles. Inasmuch as in all the cases treated by the author the symptoms for which treatment was instituted disappeared when the physical evidences of enlarged thymus disappeared, there is a casual relationship between the enlarged thymus and

the pressure symptoms, and the enlarged thymus and the asthmatic symptoms, which were obviously not due to pressure and were therefore probably due to hypersecretion. Pressure symptoms and toxic symptoms may be combined in the same case, but those of the toxic type are more constant.

**19. Lymph Cyst of the Mesentery.**—C. G. Mixter notes that there are four methods of procedure in the treatment of mesenteric cysts: (1) Aspiration, which has been practically discarded on account of the large percentage of recurrences; (2) enucleation, which can be applied only in a limited number of cases owing to the interference with the circulation of the intestine on removal of the cyst; (3) marsupialization, or drainage of the cyst by stitching its walls to the anterior abdominal parietes; (4) extirpation of the cyst with resection of the adherent intestine. The last is the method of choice and though Coley stated three years ago that the mortality is forty per cent., this is undoubtedly lower at the present time. Drainage of the cyst by connecting it with the abdominal wall is useful in cases where a radical removal is impossible or where there is severe infection. Treatment of the cyst by this method does not lead to the establishment of permanent fistulæ.

## New York Medical Journal.

*April* 4, 1914.

1. Modern Technique in Urethral Stricture. C. H. Chetwood.
2. The Advantages and Disadvantages of Quarantining Hospital Wards for Measles. E. E. Graham.
3. Dreams. A. L. Benedict.
4. The Mischief of Free Medical Service. W. S. Gottheil.
5. Differential Diagnostic Value of Cyclic Indicanuria in Gastro-Intestinal Diseases. G. Baar.
6. A Contrast in Psychanalysis; Three Cases. T. A. Williams.
7. A Retrourethral Cystoscopic Guide for External Urethrotomy. D. A. Sinclair.
8. Rontgenology of the Intestinal Tract. G. Rosenbaum.
9. Affective Activity Emotion, as the Cause of Various Bodily Diseases. Cause of Various Neurasthenic Bodily Diseases. G. E. Barnes.

**2. Advantages and Disadvantages of Quarantining Hospital Wards for Measles.—E. E. Graham** presents some of the ideas that have occurred to him as regards the treatment of children in a ward where a case of measles has broken out. The object should be to reduce the number of patients in a large ward as rapidly as possible and transfer them to a small ward. If the parents desire to take a child home, one ought to allow them to do so, provided the child is over three or four years of age and can secure good medical attention and nursing at home. The board of health should be given the names of such children. If a child has previously had measles and is convalescent one ought to send this child home without consulting the parents. It will not carry the disease and is sufficiently advanced in convalescence to leave the hospital. It is of no advantage to keep this child in a hospital for three to six weeks. If it is an only child it should be sent home whether it has had measles or not, provided it is over three years of age and can, if measles develops, receive good medical attention and nursing at home. If it has not had measles and the other children of the household have had measles the child should be sent home if over three years of age and the conditions at home are favorable for good nursing and care. All other children should be kept in strict quarantine in the hospital for fourteen days after the rash appeared in the measles case. These children may, however, be transferred to a room or small ward and the large ward scrubbed, fumigated, and immediately put into use. If a child over three or four years of age has previously had measles it may be admitted to the ward if acutely ill, the parents being informed that it will be exposed to measles. All the beds in the ward should be separated by glass partitions; if a case of measles occurs one should remove the measles patient and also the child on either side of the measles patient, and the ward should be scrubbed over a space of twenty feet around the measles patient and patients should then be admitted to the ward.

**3. Dreams.**—A. L. Benedict states that dreams seem to depend largely upon afferent stimuli, as of cold or heat, pressure or pain, or upon the recollection of experiences received during the day, or at least recently, or else upon the continued mental action along the same lines which have been pursued in the day's work. Strong desires, emotions, and experiences may or may not be manifest in dreams. So far as subjective experience with dreams is concerned it has seemed that the kind of dream that ought naturally to be expected has been lacking, and that the stimuli which produced the dream were of a trivial nature, which did not make any particular impression during their actual experience. In a general way, however, dreams represent personal matters of interest. A further point to which collective study should be directed is the frequency with which mental problems unsolvable during the waking period have been carried to completion in dreams.

**4. The Mischief of Free Medical Service.**—W. S. Gottheil believes that the prime source of failure in the public ambulant medical service in New York City is the fact that the community is attempting to get something for nothing. But the dispensary physician will be paid in one way or another, like every one else, or his work will be worth just what it costs, which is nothing. There are two ways in which the dispensary physician can take his pay: (1) In experience. The public clinic is the post-graduate field of development for the embryo specialist, and in some cases this may be regarded as a partial return for services rendered. But this entails, on one hand, large classes of patients, for most cases are entirely routine, of no interest or value, and attention to them is merely unrewarded drudgery. (2) In getting private patients. The dispensary authorities necessarily frown upon this form of remuneration, since it is directly opposed to their interests. But the author holds that this practice is absolutely legitimate, and he knows that it is done in every ambulant medical institution of which he has any knowledge. The burden of medical charity must be placed where it belongs—on the community; and a community like New York City that collects and spends the revenue of a kingdom every year will not be loath to assume this burden when once the necessity is realized. Medical services to the sick poor, if these services are to be efficient and conscientious, must be paid for like any other services. Volunteer service is unsatisfactory and seems likely to remain so. It takes advantage of the unorganized state of the medical profession to exploit its members and is unworthy and undesirable.

## Journal of the American Medical Association.

*April* 4, 1914.

1. Conservative Operative Treatment of Long-Standing Inversion of the Uterus. H. S. Crossen.
2. Spinal Transplant. H. B. Thomas.
3. Methods of Examination of Illiterates for Mental Defectiveness. M. H. Foster.
4. The Practical Application of the Roentgen Method of Gastric and Duodenal Diagnosis. A. W. George.
5. The Surgical Treatment of Spinal Cord Injuries, with Report of Cases. R. Wallace.
6. Eczema Marginatum of the Toes. D. W. Montgomery and G. D. Culver.
7. Paratyphoid Fever with Report Including Post-Mortem Examination of a Fatal Case of the "A" Type. L. D. Bristol.
8. Further Simplification of Quantitative Determination of Chlorides in the Urine. F. C. McLean and L. Selling.
9. Tumor of the Middle Cranial Fassa, Involving the Gasserian Ganglion. W. A. Plummer and G. B. New.
10. Surgical Treatment of Urethro-Rectal Fistulas. E. Viko.
11. The Presence in the Urine of Dialyzable Products Reacting to Ninhydrin. C. Jamison.
12. Voluntary Displacement of the Eye. A. H. Kimball.
13. A Case of Infantile Uterus and Appendages with Result of Treatment. H. R. Elliot.

14. Easily Prepared Diluting Fluid for Counting Red Cells. J. G. Callison.
15. A Case of Dorsal Dislocation of Proximal Phalanx of Great Toe. D. W. Deal.
16. A Sterile Electric Engine for Bone-cutting. W. G. Stern.
17. Instruments for the Manufacture of Autogenous Bone Nails, Pegs, and Grafts. H. H. Trout and R. L. Rhodes.
18. Apparatus for Endoscopic Galvanocautery Operations on the Vesical Orifice. H. McClure Young.
19. Some New Cameras for Laboratory Use. R. B. Wilson.
20. A Means of Facilitating the Application of Leg-Dressing. J. S. Davis.

**3. Examination of Illiterates for Mental Defectiveness.**—M. H. Foster concludes that there is no one test for feeble-mindedness, and that only by a routine examination of all the mental faculties can one make an accurate diagnosis. The amount of acquired knowledge and the capacity of the mental functions should both be measured. Physical signs and facial appearances are of but little use in picking out defectives. The examination should be conducted along scientific lines with a clear comprehension of the psychological basis of all the tests employed.

**5. Spinal Surgery.**—R. Wallace discusses the surgical treatment of spinal cord injuries with special reference to the decompression treatment by laminectomy. The operative possibilities are limited, but a discriminating diagnosis of the site and nature of the lesion should be made promptly, and operative interference should be resorted to whenever feasible, before a greater or permanent damage to the cord results. A simple laminectomy affording decompression to the compressed cord has within the last few years given striking results. It has been shown that several laminæ and spinal processes can be removed with but little detriment to the patient and but slight danger of trauma to the cord. An incision is made over the spinous processes; the laminæ are freed by blunt dissection from the overlying musculature and thoroughly exposed. By means of a chisel, saw or forceps, the laminæ are freed close to the transverse processes and removed. An aperture somewhat more than the diameter of the cord must be insured to give free and unrestricted decompression. Care should be taken not to wound or open the dura unless there is special indication. A wide exposure of the canal is necessary and the angulation of the cord is completely relieved. Occasionally it becomes necessary to open the dura and examine the cord, but the opening should be closed carefully with catgut. The muscles and aponeurosis should be approximated and the skin closed with linen, reinforced, if desired, with silkworm gut. Drainage should not be employed. The scar tissue which forms is exceedingly fibrous and at times shows a reformation of bone. The cord is well protected and the spine needs no special support except in cervical fractures. Within a few days the patient may be changed from side to side and bolstered with pillows. The bowels and the bladder should receive attention and soon faradism and massage may be used. In spite of the advice of Elsberg as to the need of conservatism in recent fractures of the spine and injury to the cord, the author states that with bone pressure threatening the destruction of the cord some of the most startling results have been obtained by prompt interference. Early operations undoubtedly give the most satisfactory results, and the author reports four cases in his own practice. In all laminectomy was performed except in one, a gunshot wound shattering the transverse process of the twelfth dorsal vertebra. There were very slight symptoms of compression but more of irritation in this case, and the patient rapidly recovered. The question of operation must be decided with each individual case, but spinal decompression by adequate laminectomy should not be postponed without good and sufficient contraindications.

**7. Paratyphoid Fever.**—L. D. Bristol notes that in laboratories in which bacteriological examinations are made, a suspected serum should be tested for paratyphoid aggultinins, both A and B, after the serum has been pronounced negative three times so far as the true typhoid Widal reaction is concerned. More accurate studies and blood cultures should be made in all cases which resemble typhoid fever. An anti-paratyphoid vaccine should be tried in the treatment of the disease, and as a measure of prevention such vaccines should be used either alone or in combination with a typhoid vaccine.

**11. Ninhydrin Reaction in Urine.**—C. Jamison finds that whenever the urine is strongly acid in pregnant women, the ninhydrin test gives a negative result. In ten non-pregnant women suffering from various surgical conditions the urine gave a distinct positive reaction, as was also the case of four other non-pregnant women and two men, one of the latter suffering from nephritis. The urines of four healthy men were tested on another day and all gave negative reactions. In view of these results it was thought that the amino-acids present might be accounted for by the action of the bacteria on pus and other albuminous matter present in the urine, especially in that of women. To avoid this the urine was thoroughly boiled as soon as voided, and all the material used in the tests was handled under aseptic precautions. Under these conditions ten urines from non-pregnant women suffering from various surgical conditions and two from pregnant women were tested. At the end of twenty-four hours the dialysates from eleven of them showed positive reactions with a freshly prepared solution of ninhydrin, and one of them a negative reaction. The case giving a negative reaction was one of carcinoma of the breast. The author's conclusions from the experiments were as follows: (1) After dialyzing the urines of pregnant women the dialysate always gives a positive reaction to ninhydrin. (2) After dialyzing the urines of non-pregnant women the dialysate frequently gives a positive reaction to ninhydrin, occasionally under the same conditions the urines of men give positive reactions.

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## The Lancet.

*March* 28, 1914.

1. The Physiology and Pathology of Uterine Hemorrhage H. Beckwith Whitehouse.
2. Anesthetics and Diagnosis. J. Blumfield.
3. On Operations for Hemorrhoids: a Review of 850 Cases A. Neve.
4. An Investigation into the Effects of Drinking-water upon the Causation of Dental Caries in School Children. J. B. Cook.
5. A Case of Malarial Coma Lasting 46 Hours; Recovery. A. G. Tresidder.

**4. The Effects of Drinking-Water in the Causation of Dental Caries.**—J. B. Cook points out an association between excessive softness of water and an increased amount of dental caries among the school children. The environmental conditions, so far as it is possible to measure them, do not seem to be a source of the relation between the hardness of water and the amount of dental caries. These correlations and partial correlations merely call attention to an association between the nature of the drinking water and the amount of dental caries and must not be regarded as necessarily indicating cause and effect. There may well be other factors at work which have a greater influence.

**5. Malarial Coma Lasting Forty-six Hours: Recovery.**—A. G. Tresidder reports a case of this condition in a gunner, aged twenty-three, serving in the Punjab. Although the diagnosis of this case was not confirmed by the blood examination it seemed to the author that there could be no doubt that this was a case of malignant malaria. The fact that the patient had been well dosed with

quinine before the author saw him would have accounted for the absence of parasites from the peripheral blood. The possibility of the case being one of uremia was fully negatived by the following facts: (1) The daily quantity of urine passed was normal. (2) The albumin only amounted to a trace, which disappeared with the subsidence of the fever. (3) No examination revealed the presence of casts. (4) No history of any etiological factors of nephritis could be obtained. (5) The administration of quinine in full doses resulted in a complete cure. The essential pathology of this condition has been conclusively proved to be due to the blocking of the small cerebral vessels with parasite laden corpuscles. One's object in treatment must therefore be to destroy the parasites and to flush them out of the blocked capillaries. In the author's opinion these cases should therefore have been treated energetically and persistently with quinine, commencing with an intravenous injection of 5 to 10 grains of the bihydrochloride in a pint of saline solution, and subsequently giving intramuscular injections of the same drug in 10-grain doses twice a day until consciousness was restored. The administration of salines intravenously and per rectum have accomplished the second object. One must not, however, be satisfied with the disappearance of the acute symptoms and the apparent restoration to normal health, for the liability of malignant malaria to recur even after a return to temperate climates and after long intervals is a well-known clinical fact. Some even doubt whether malignant malaria can ever be cured, but the author thinks that one is hardly justified in taking such an extreme view. Five grains of quinine in tablet form should be taken every other day for a period of at least three months, and the author thinks that if this method of treatment is conscientiously carried out few cases will recur. In the event of the slightest recurrence resort should be taken at once to the intramuscular method of treatment, which is of especial value in combating this form of malaria. The author has never seen any harm result from injections of quinine; there is no risk of tetanus if the injection is made under strict aseptic precautions.

## British Medical Journal.

*March* 28, 1914.

1. Systolic and Diastolic Blood Pressure Estimation, with Special Reference to the Auditory Method. J. C. McWilliam and G. S. Melvin.
2. Systolic and Diastolic Blood Pressures in Aortic Regurgitation. J. R. Murray.
3. Three Cases of Pancreatic Cyst. H. Bethan Robinson.
4. A Renal Cyst Causing Chronic Intestinal Obstruction. E. C. Bevers.
5. Subcutaneous Injections of Emetine in Pulmonary Tuberculosis. J. A. Raeburn.
6. An Economical Treatment of Inebriates. A. M. Rosebrugh.
7. The Milroy Lectures on the Hygienic Aspect of the Coal-mining Industry in the United Kingdom. F. Shufflebotham.

**1. The Auditory Method in Blood Pressure Estimation.**—J. A. McWilliam and G. S. Melvin point out that it is being gradually recognized that systolic pressure estimation, though valuable, gives very insufficient information regarding circulatory conditions in health and disease, and that a knowledge of the range of pressure change during the whole cardiac cycle would be of great importance in various ways. The auditory method, employed in a certain way, offers distinct advantages in the estimation of the systolic pressure, but its greatest importance lies in its relation to the estimation of diastolic pressure. The simplicity, ease, and rapidity of the auditory method are strong points in its favor. It gives all the information that is to be obtained by more cumbrous and time consuming methods, and with greater precision, the index being a much sharper one than is present in other methods; it also causes less disturbance to the patient than slower methods which involve a longer compression with the armlet. In the cases in which the Erlanger or the Pachon apparatus gives dubious or unreadable indications the auditory method has always in the authors' experience given a definite verdict. It is greatly superior to the palpatory and sphygmographic methods that have been proposed. The authors are satisfied that all the evidence as to diastolic pressure gained by the other methods and much more also can be better obtained by the simple and quick auditory method. The diastolic estimation in this way is as easy as that of systolic pressure, and is relatively little if at all complicated by certain sources of fallacy (for example, state of arterial wall) which may come into question in systolic estimation. This method, measuring the diastolic as well as the systolic pressure, has the great advantage, as compared with the ordinary tactile method, of giving the numerical range of pressure variation in the artery during the whole cycle of the pulse beat; that is, the pulse pressure range.

**3. Pancreatic Cysts.**—H. Bethan Robinson reports three cases of pancreatic cyst, which were operated on successfully and which were of different types, the first an isolated cyst in connection with the back of the head and the other two of the prepancreatic or peripancreatic variety. The first, apart from other features, was of interest from the viewpoint of the diagnosis. The possibility of the existence of an enlarged gall gladder was considered, but the freedom of the cyst from the liver and its apparently deep and retroperitoneal situation made this improbable. The two other cases had much in common clinically. In Case 3 the cyst pushed its way forward between the stomach and the transverse colon, perhaps in the more usual direction. In Case 2 the cyst projected above the stomach, pushing it downward and toward the left. They were both what Korte, Osler, and others have described as "pseudocysts," but not of that form to which the same term is also applied in which the effusion occurs primarily into the lesser sac of the peritoneum. The onset of both was attended by acute symptoms, starting without any apparent cause, and both were associated with destructive changes in the gland tissue.

**4. A Renal Cyst Causing Chronic Intestinal Obstruction.**—E. C. Bevers reports a case of this condition in a woman fifty-two years of age. He notes that the interest of this case was in the difficulty of diagnosis. The swelling appeared to be cystic and to have a point of attachment in the left lumbar region. The diagnosis made before the operation was that of a mesenteric cyst, and even when the abdomen was opened this was the impression given; it was only when the left kidney came into view that the true nature of the case became clear. A renal condition had not been considered, as there was no swelling or resistance in the left loin, and the latter area was resonant; also the extreme mobility of the tumor and its obvious intraperitoneal nature seemed opposed to a condition connected with the kidney. Renal tumors either have the colon in front of them or push it toward the middle line; it is rare to find them becoming pedunculated, and to all intents and purposes they are intraperitoneal structures to the inner side of the colon, as in this case. Large single renal cysts may be of a serous nature, springing from the cortex of the kidney while the rest of the kidney is healthy, or they may be paranephric cysts originating in renal or adrenal rests. Both serous and paranephric cysts may be connected with the pelvis or one of the calices of the kidney by a narrow channel. The symptoms that these large cysts give rise to are due to pressure on surrounding organs. The second point of interest in this case is the chronic intestinal obstruction produced. This was brought about in two ways: in the first place the splenic flexure of the

colon was constricted where it passed around the neck of the cyst, and in the second place the heavy cyst itself was pressing upon the descending colon.

### Berliner klinische Wochenschrift.

*March* 16, 1914.

**The Ehrlich-von Behring Number.**—Since two of Germany's most distinguished scientists chanced to be born almost simultaneously sixty years ago, this number of the *Wochenschrift* is virtually a jubilee affair, being made up almost entirely of papers which comprise memories and appreciations of the two men, along with contributions from pupils of the latter and co-workers in the same field. The tribute is practically international in scope. A simple enumeration of the contributions with an occasional word as to their purport, must necessarily supplant for the nonce any attempt to single out the leading articles of the journal. The opening article by Lazarus is a brief appreciation of Ehrlich, with special reference to the enormous obstacles surmounted by the latter, and especially his fight for the introduction of salvarsan therapy, and his defence of the latter against hostile criticism. This struggle he has shared in common with von Behring—as shown by Much's appreciation. Both men succeeded in introducing into world-wide usage remedies little short of heroic, which, while bringing about enormous reductions in morbidity and mortality, have been repeatedly accused of numerous untoward effects, insignificant indeed when compared to the beneficent consequences. One knows not which is the more admirable in the parallel cases—the struggle to champion the cause once entered upon, through a wealth of data and dialectic, or the more self-effacing efforts to improve the products and the technique of their use. This should be and generally is the fate of all pioneers in science, and our two have accepted their lot with more than common steadfastness. Richet of Paris contributes a few words concerning Ehrlich as the logical successor of Pasteur and Koch. Heubner, the eminent Berlin pediatrist, gives a retrospect of what von Behring has done in antagonizing diphtheria, a children's plague. Salomonsen in an open letter to Ehrlich recalls the students at the summer term, Breslau, 1877, who have since made their mark. In this connection he quotes Welch of the United States, who refers to those "wonderful days." There were assembled together Ehrlich, Weigert, Welch, Lassar, Rosenbach and many others who afterwards attained distinction. The teaching body was naturally composed of men of the highest efficiency. Lesser and von Zeissl contribute articles on the modern treatment of syphilis, chiefly, of course, dealing wth salvarsan therapy. Calmette of Lisle and Bordet of Brussels, both Pasteur Institute directors, discuss the lipoid content of the blood, merely "in honor of the two great savants" to whom the number is dedicated. Babès also contributes, from the same viewpoint, a technical study of the metachromatic corpuscles of acid resisting bacilli. Römer writes exhaustively on the diphtheria bacillus, while Flexner, in a complimentary paper, gives the most recent finds and theories of acute poliomyelitis. Carrel reports continuous finds in a cultivated strain of connective tissue, while Noguchi discusses the latest methods of bacteriological study of infectious diseases. Pawlow writes on the instability of the reflexes of internal inhibition. Two Moscow men report a case of rhinoscleroma of bacterial origin (Frisch's bacillus), unsuccessfully treated by an auto vaccine, although improving under *x*-rays, radium, and carbonic acid snow. After passing several papers on indifferent subjects we find a long article by Maragliano on antituberculous vaccination, while Wassermann discusses the nature of the reaction which goes by his name. Finally Roux and Metchnikoff jointly contribute a paper on Ehrlich's life work.

### Münchener medizinische Wochenschrift.

*March* 10, 1914.

**Ehrlich Jubilee Number.**—This number of the *Wochenschrift* deals with Ehrlich's sixtieth birthday and with his work, notably in the direction of the salvarsan treatment of syphilis. Gennerich gives the results of treatment in the Marine Hospital at Kiel. Schreiber attempts to demonstrate the rationale of action of both salvarsan and mercury in syphilis. Dreyfus narates three years' experience with salvarsan in diseases of the nervous system and Iwaschenzoff contributes a similar paper. Leredde gives the technique of the salvarsan sterilization of syphilis. Wechselmann and Eicke limit themselves to the use of neosalvarsan, and Katzenstein confines himself to the intravenous exhibition of the latter. Seyffarth writes of concentrated neosalvarsan. Hasdrat and Lesser each describe syphilitic reinfection following salvarsan treatment; Pöhlmann discusses drug anaphylaxis. Plaut gives a brief appreciation of Ehrlich. Among these numerous contributions we can do no more than cite almost at random some salient points. Gennerich believes that salvarsan is specially indicated in syphilis in the public arms of defence. The subjects are young and vigorous and the proper use of the drug, say within the first six months, ought to result in a permanent cure. Iwaschenzoff deduces from material in St. Petersburg that salvarsan can undoubtedly benefit tabes dorsalis, as a form of syphilis of the nervous system, everything depending on proper technique and dosage. It cannot be seen that the other writers on the salvarsan therapy come to any new and definite conclusions. Hardrat sums up his two cases of reinfection as follows: Both were examples of late primary or secondary syphilis when first seen and were treated rationally year in and out with Wa R negative and fully normal liquor. Both subjects reappeared at the same time with new chancers (not chancre redux). Secondary phenomena appeared tardily and both gave a positive Wa R in the cerebrospinal fluid. One patient, heretofore healthy, developed syphilitic cachexia. In neither case was there a positive spirochete fluid. Lesser's case warns us that in all cases in which a married man is infected out of wedlock the wife should be examined. The man in the case had become reinfected after a neosalvarsan cure and had infected his wife during his second attack. In his article on drug anaphylaxis Pöhlmann states that considering the enormous recorded material we are still deeply ignorant of the rationale of the subject. It is not identical with drug idiosyncrasy, yet the two must be closely related to each other. Old experiments and clinical phenomena are cited to show the transmissibility of an acquired anaphylaxis. Qnite recently the author studied these subjects in connection with a quinine rash. The patient, a young married woman, took quinine for a cold in the head. Two powders were taken two hours apart. Soon after the second dose had been taken the patient's face became hot, her hands reddened, and itching mascules appeared. She remembered that she had once had a similar experience after taking a powder of unknown nature. The exanthem pursued a rather severe course, and consisted of papules and wheals. Animal experiments carried out under the usual conditions showed that the quininized serum of the woman caused the symptoms nroduced by quinine alone. No true anaphylaxis was present, therefore, and we can only state that the woman had simply been poisoned by the quinine, to which she showed great vulnerability.

## Insurance Medicine.

**General Life Insurance Medicine.**—Florschütz divides his subject into twelve captions, of which four refer to fundamental principles and eight to the external and internal factors in medical selection. The original matter appeared in the "Insurance Library," a recently published work of reference. The editor of the *Blätter* reproduces in this number but one chapter of the original which deals with our notions of normal, adaptable, and substandard risks. Selection is entirely up to the medical directors of the company—in Germany the revising physician. A normal risk has a certain average expectation of life. It is at once apparent that for substandard risks we have no such guide to serve us. Insurance examiners, however, know that a certain percentage of normal risks are doomed to unforeseen premature deaths. However it happens, these very subjects are most strongly attracted to life insurance. For one reason or another, they fear an early death. Many such actually present evidence through which they are made uninsurable, although many a man technically insurable is already doomed, and is really a substandard risk of an extreme type. Closely related with this subject is that of the fallibility of medical selection for the early years of insurance. Medical selection, however, cannot be made more rigorous; in fact, according to some it has already gone too far, for it throws out insurable material, just as it accepts uninsurable material. The first named, as technically substandard risks could be insured for some term; while the latter, despite all calculations, may die at any time. Owing to the sharp competition of companies, substandard risks are welcomed. This term is of course very vague and might be made the subject of classification to some extent, based on average mortality statistics, which should exceed to a certain degree the same figures for normal risks.

The normal risk may be defined as one readily passed by examiner and medical director. The next class, that of "adaptable" risk, is determined largely by the revision department. This corresponds apparently to a class of risks in the United States which are held up *pro tem*, until certain conditions have been complied with—the disappearance of this or that symptom after a period of observation. The line between these and substandard risks is of course difficult to draw, at least in certain cases. In Germany the examiner of revision, naturally a man of unusual experience, actually examines the risk for the company, while with us he as a rule sees only the report of the examiner.—*Blätter für Vertrauensärzte der Lebensversicherung*, 1913, November-December.

**Ever-Increasing Interdependence Between Life Insurance Companies.**—In speaking on the above subject Mr. Henry Abels, President of the American Life Convention, shows that through all the vicissitudes that the life insurance business has experienced, it has emerged stronger and better, and more favorably understood by the insuring public than ever before. All of the improvements made have been brought about through a realization by all those having to do with life underwriting of their interdependence, crystallized into active cooperation. As the several parts of a building work independently, yet supplement each other, so the structure of life insurance is dependent in the same manner upon the companies composing it. Whatever benefits one company is an advantage also to the others; whatever injures one works a detriment to all.

Human life—the most vital asset of the nation—is the essential element of the institution of life insurance. Interdependently must the companies, as benefactors of mankind, seek to educate the masses with regard to prevention of disease and conservation of health—thus lessening sickness, suffering, and sorrow, and promoting the happiness of the race. Conservation has become the keynote in the economic and industrial world to-day. Life insurance—than which there is no greater influence for economic and social advancement—has embodied in its very existence the supreme idea of conservation. The life companies, responding to present-day needs, are directing their forces toward increased action in placing the institution of life insurance as a foremost factor in the general conservation movement. Again is seen the interdependence of the companies. Through the combined efforts of many of the companies results have been produced in conserving the interests of humanity through life insurance.—Association of Life Insurance Presidents, December, 1913.

**A Test for Albumin in Urine.**—A. E. Osmond presents the following test for albumin in the urine. It has been given a thorough trial with all sorts of urines for over a year, and has been checked up by controls made by the nitric acid, the ferrocyanide acetic acid, and the heat tests, and has proved to be equal in delicacy to any of those mentioned and to possess furthermore certain features which make it superior to them as a routine measure.

Picric acid, 5.00; citric acid, 10.00; sodium chloride, 100.00; distilled water, 1000.00. This gives a solution yellow in color—practically the amber of clear urine; a specific gravity of 1065 at 15° C.—which is much heavier than that of urine, and containing no chemicals which react with anything but albumin.

Technique.—Place two or three c.c. of the reagent in a test tube. Filter the urine until it is perfectly clear. Then allow the urine to float very gently upon the surface of the reagent. Albumin will be shown as a white zone at the line of contact of two amber fluids.

Advantages.—(*a*) The reagent being isochromic with the urine the white ring of precipitated albumin is shown very clearly. (*b*) The reagent contains no chemicals which react with any urinary pigments, bile, etc., therefore no color zones are formed which might hide a small amount of albumin. (*c*) The heavy specific gravity—1065—prevents ready mixing of the urine and the reagent; thus, should albumin be present, it is not apt to be diffused and overlooked. (*d*) The reagent keeps indefinitely—it is always ready for use. (*e*) If spilled this reagent does no damage to clothing or fabrics. (*f*) Boiling produces no change, nor is it dangerous. In cold weather with a urine cloudy from phosphates which the filter does not remove, boiling the reagent first is a distinct advantage as the hot reagent restores the clearness to the urine as the fluids come in contact. (*g*) The reagent does not throw down crystals of salts of urea or nitrogenous substances in concentrated urines. (*h*) In cold weather there may be a feathery deposit of crystals. These settle to the bottom of the bottle and may be removed by filtration or brought back in solution by heat. The activity of the reagent is not affected.—*Lancet-Clinic*, December 13, 1913.

# Book Reviews.

TUBERCULOSIS—ITS CAUSE, CURE, AND PREVENTION. A Revised Edition of "The Great White Plague." A Book for Laymen. By EDWARD O. OTIS, M.D. Professor of Pulmonary Diseases and Climatology, Tufts College Medical School; late President of the Boston Tuberculosis Association; late Visiting and Consulting Physician to the Massachusetts State Sanatorium. Price, $1.25 net. New York: Thomas T. Crowell Company, 1914.

DR. Otis has written a popular work on tuberculosis, and has accomplished this object excellently well. Such a work is always welcome, for in a campaign against tuberculosis, if it is to be effective, it is absolutely necessary that the public shall be educated concerning the salient facts of the disease and especially with regard to preventive measures. Insistence is laid upon the necessity for treatment of tuberculosis in the incipient stage, and a much needed warning is uttered against allowing the disease to gain too firm a hold before consulting a physician. All phases of the malady are fully discussed and in such clear language, that the lay reader will have no difficulty in following and comprehending the text. The book should act as a beacon light to those afflicted with tuberculosis and should rank high as an educative factor among the community at large.

THE ELEMENTS OF BANDAGING AND THE TREATMENT OF FRACTURES AND DISLOCATIONS. By WILLIAM RANKIN, M.A., M.B., Ch.B. Dispensary Surgeon, Western Infirmary, Glasgow; Extra Honorary Assistant Surgeon, R. H. S. C., Glasgow. With sixty-eight original illustrations. Price, $1.50. London: Henry Frowde; and Hodder & Stoughton, 1913.

THIS is an elementary work intended as a guide for the medical student in his work in bandaging and the treatment of fractures and dislocations. Emphasis is rightly placed on the commonest conditions and complications, and the methods employed are simple and serviceable.

CLINICAL DIAGNOSIS AND URANALYSIS. A Manual for Students and Practitioners. By JAMES RAE ARNEILL, A.B., M.D.; Professor of Medicine and Clinical Medicine in the University of Colorado; Physician to the Denver County Hospital, St. Joseph's Hospital, and St. Luke's Hospital, Denver; Consultant to the Children's Hospital, Denver; Member of the Advisory Board of St. Joseph's Hospital for Consumptives and New Mexico Cottage Sanitarium, Silver City, New Mexico. Second Edition, Revised and Enlarged. Illustrated, with 83 Engravings and a Colored Plate. Price $1.00 net. Philadelphia and New York: Lea & Febiger, 1914.

THIS little book should prove useful to students and practitioners. It contains all that they are likely to require on the subjects of clinical diagnosis and uranalysis, and the methods of procedure have been selected with unusual skill. Lengthy and time-consuming processes are omitted, and possible sources of error are indicated. The reader will find in this volume the usual tests for blood, stomach contents, feces, sputum, and urine; and several of the newer procedures, such as cryoscopy, examination of the cerebrospinal fluid, and various serum reactions are included.

MATERIA MEDICA, PHARMACOLOGY, THERAPEUTICS, PRESCRIPTION WRITING. For Students and Practitioners. By WALTER A. BASTEDO, Ph.G., M.D., Associate in Pharmacology and Therapeutics at Columbia University; Assistant Attending Physician to St. Luke's Hospital, New York City; Consulting Gastroenterologist to the Smith's Infirmary and to the Red Cross Hospital; Consulting Physician to St. Vincent's Hospital, Staten Island; Fifth Vice-President of the National Convention for the Revision of the United States Pharmacopœia; formerly Curator of the New York Botanical Garden. Illustrated; price $3.50 net. Philadelphia and London: W. B. Saunders Company, 1913.

THIS is the latest textbook on materia medica, and it differs in some respects from other books of the kind. In the first place, the author makes no pretence at including every drug that has ever been heard of; he does not even mention all that are included in the United States Pharmacopœia, but makes a selection of those which he believes will be most helpful to the physician in the treatment of the sick. In the next place, the relative space allotted to the various drugs is based upon the author's idea of their relative importance and not upon the number of preparations belonging to the drug. Of course this stamps the book with more of the author's individuality than is sometimes found in textbooks. The discussion on digitalis is particularly good; it is one of the most lengthy chapters in the book. The author seems to have the knack of combining the results of laboratory experience with those of clinical research, and this makes the book more useful to the practitioner. The chapter on alcohol is one of the longest in the volume, and takes up more space than that on digitalis; it is a great help to the modern medical student to be told what is meant by the terms "highball," "cocktail," "milk punch," and "eggnog" (page 302); formerly such information was not obtainable from books, but had to be acquired practically. Tobacco is another topic which occupies several pages; more space is devoted to this drug than to ergot, iron, salicylic acid, the bromides, aconite, phenol, or the iodides.

A COURSE OF LECTURES ON MEDICINE TO NURSES. By HERBERT E. CUFF, M.D., F.R.C.S.; Medical Officer for General Purposes to the Metropolitan Asylums Board; late Medical Superintendent, North Eastern Fever Hospital, Tottenham, London. Sixth Edition. Price $1.25 net. Philadelphia: P. Blakiston's Son & Co., 1913.

WE are not at all surprised to see that this volume is in its sixth edition. Both in the amount of information which it contains, and in the manner of its presentation, this book is a model of what a book for nurses should be. There is no attempt on the part of the author to write a book on practice, but it is assumed that the nurse takes an intelligent interest in her patients and wishes to learn something of the diseases from which they are suffering, and so the author offers an explanation of the symptoms and the object of the treatment. The lectures are on: Germs and infection, use of stimulants in cases of acute illness, feeding of infants, forced feeding of sick children, pulse, inflammation, pneumonia, inflammation of the kidneys, infectious fevers, enteric fever, scarlet fever, diphtheria, measles, whooping cough, bronchopneumonia, paralysis, hysteria, some forms of internal hemorrhage, dropsy, diseases of children, and massage. The author emphatically states that he does not expect nurses to remember all that is in this book, but that he hopes it may serve to increase their interest in their work.

LECTURES ON MEDICAL ELECTRICITY TO NURSES. An Illustrated Manual. By J. DELPRATT HARRIS, M.D. Durh., M.R.C.S.; Senior Surgeon and Honorary Medical Officer in Charge of the Electrical Department, Royal Devon and Exeter Hospital. With 23 illustrations. Price $1.00 net. New York: Paul B. Hoeber, 1913.

THIS is a small volume of less than one hundred pages, well printed in large type, and sufficiently illustrated. The contents are admirably adapted to their purpose, and the author has used the most simple language in his descriptions, and has explained every technical term. The book will be of value to every nurse who is in charge of patients undergoing any form of electrical treatment.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by HOBART AMORY HARE, M.D.; Professor of Therapeutics and Materia Medica in the Jefferson Medical College, Philadelphia; Assisted by LEIGHTON F. APPLEMAN, M.D.; Instructor in Therapeutics, Jefferson Medical College, Philadelphia. December 1, 1913. Price $6.00 per annum. Philadelphia and New York: Lea & Febiger.

THIS number contains chapters on diseases of the digestive tract and allied organs, the liver, pancreas, and peritoneum, by E. H. Goodman; diseases of the kidney, by J. R. Bradford; genitourinary diseases, by C. W. Bonney; surgery of the extremities, shock, anesthesia, infections, fractures and dislocations, and tumors, by J. C. Bloodgood; and practical therapeutic referendum, by H. R. M. Landis. All of these contributions are up to the usual high standard of this publication. It is interesting to note in the last chapter that in addition to the comments on the numerous drugs used as remedial agents there are sections on diet, fresh air, and Friedmann's cure; but there seems to be no reference to the radium cure of cancer. Silence is sometimes very eloquent.

# Society Reports.

## NEW YORK ACADEMY OF MEDICINE.

### SECTION ON SURGERY.

*Stated Meeting, Held February 6, 1914.*

DR. HERMAN A. HAUBOLD IN THE CHAIR.

**Frambesia—Two Cases.**—Dr. CHARLES E. FARR, presented photographs of two patients whose condition had been diagnosed as frambesia, or yaws. The diagnosis had simply been made on the clinical symptoms; no *Spirochæta pertenuis* had been found in the tissues. This disease was very common in the South, but practically never seen in New York.

**Tuberculosis of the Tongue.**—Dr. CHARLES E. FARR presented this patient who had been suffering from pulmonary tuberculosis for two years when a small ulcer appeared on his tongue. It was not characteristic of anything in particular, but might have been actinomycosis, syphilis, or simply a chronic ulcer. As the patient had phthisis it was suspected that it might be tuberculous. The tubercle bacilli were found and the ulcer excised. This condition was not common in the tongue, there being perhaps not more than one-half dozen cases in the city; but nevertheless one should bear the possibility of its occurrence in mind. The patient had had several small nodes in the submental region, but they had subsided.

**Idiopathic Dilatation of the Colon.**—Dr. JOHN F. CONNORS presented this patient, a man forty-three years of age. His family history showed that his mother had died of stomach trouble and his father had died at the age of fifty years from an unknown cause. His present illness had begun six days before his admission to the hospital with vomiting, no movement of the bowels, tense abdomen, tenderness, a fluid wave and shifting Douglas. An enema given one hour after admission returned clear. There was marked distention on the whole left side of the abdomen. The abdomen was opened when something protruded through the incision which was thought to be the transverse colon, but it proved to be the enormously distended colon. The distention extended from the middle of the transverse colon down through the colon. An opening was made at the sigmoid flexure, through which gas and a yellow serous fluid were discharged. Dr. Connors said he had passed his finger down to the rectum and found no obstruction. After operation the patient's pulse was 132, temperature 100° F., and respirtation 30. On the third day an enema was given and there was no return. He was then delirious for four days and there was no return from the enemata during all this time, and no vomiting. The patient had been troubled with this constipation for three years, going sometimes as long as twelve days without a movement. The first time he had vomited was a few days before his admission to the hospital. It was decided to do a resection; this began at the middle of the transverse colon and included the splenic flexure. Since the operation the patient's abdomen was perfectly flat and showed no abnormal signs. The *x*-ray, however, showed that there was still some stasis.

**Multiple Adenomata of the Colon.**—Dr. FRANK C. YEOMANS presented this patient, a young man who had come under his care in August, 1913. He had come from South Carolina, but had lived in New York nine years. His illness began fourteen months before with diarrhea which had recurred from time to time. At the time that he came under Dr. Yeoman's care his bowels acted every hour, blood and mucus were present, and there was great prostration and anemia. The rectum was studded with adenomata which bled on contact. There were many adenomata on the sigmoid and colon. The patient made an uneventful recovery after extensive resection, had gained twenty pounds, and was within six pounds of his normal weight. These cases of multiple adenomata were of rare occurrence. Dr. Yeomans said he had seen one in a child six years of age and one in a man of fifty-six years. Multiple polypi of the rectum and sigmoid were the only conditions to be confused with adenomata, and diarrhea was more characteristic of the latter condition. There was always the danger of the transformation of the adenomata into true cancer, this change being said to take place in 46 per cent. of the cases. Irrigations and a palliative enterostomy produced irritation of the tumors and had to be maintained for a long time. Removal of the tumors singly was difficult and unsatisfactory. The operation might be done in two stages. An enterostomy might be made in the lower ileum. If the condition persisted after long irrigations, implantation might be made low down in the sigmoid.

**Advanced Carcinoma of Inferior Maxilla—No Recurrence in Three Years.**—Dr. GEORGE H. SEMKEN presented this patient. He had first seen the patient September 15, 1910. The etiological factor in the case was not clear. An extensive epithelioma involved a large portion of the lower jaw on the right side and had extended high up in the cheek and along the floor of the mouth as far as the tongue. Externally there was induration of the cheek, lips, and chin. The extensive operation which was performed did not cross the cancer area at any point. The new cheek and chin were formed by flaps from the neck. The internal deficiency was supplied by a flap from the tongue. The patient was out of bed in three days. The cosmetic effect was remarkably good considering the extensive nature of the operation.

**Resection of the Superior Maxilla—No Recurrence in Five Years.**—Dr. GEORGE H. SEMKEN presented this patient, who had been operated on September 15, 1908, for epithelioma of the superior maxilla. The bone was resected from the first molar or bicuspid to the alveolar process. There were no enlarged carotid or lymph glands. There was a slight ptosis of the eye. This might have been prevented by preserving the attachment of the temporal bone to the coronoid process. An other interesting point which he believed the textbooks mentioned was that after a resection made in the usual way one might break off at the palate bone and leave carcinomatous tissue, that was, one might cross the carcinomatous path. He had made a clean excision of the superior maxilla and there had been no recurrence.

**A Case of Strangulated and Gangrenous Obstruction.**—Dr. JOHN A. HARTWELL presented this patient because he illustrated his paper. The man had had cirrhosis of the liver and had been tapped three or four times. Eighteen months afterward he came to him with a strangulated and gangrenous hernia. In the following thirty-six hours seven liters or 7,000 c.c. of normal saline solution were administered under the skin in the pectoral region by means of two hypodermic needles connected with a tank above. The condition of the patient required resection, and an anastomosis was done. There were enormous adhesions, but apparently the cirrhosis of the liver was a thing of the past. There was no general peritonitis, but a terrific local one. The liver was small and there had been no recurrence of the cirrhosis. The remarkable thing in this case was the large amount of fluid that the patient had been able to take by hypodermoclysis.

**A Patient with Unusual Symptoms Cured by Cholecystostomy.**—Dr. EMILY D. BARRINGER presented this patient, a woman thirty-seven years of age, unmarried. Her family history was negative and her personal history showed no serious illness, save some of the diseases of childhood, until the beginning of her present illness. About two and one-half years ago she began to have attacks of persistent vomiting, the first attack lasting five days. The attack was preceded by a headache and was diagnosed as gastritis. These attacks became more frequent and she was obliged to give up one position after another, being subjected to all kinds of diet. During one of these attacks, in September, 1912, she was removed to the hospital, where she was kept under observation for two weeks and her condition diagnosed as pyloric spasm. The attacks were usually preceded by headache and followed some indiscretion in diet. During the two and one-half years before Dr. Barringer saw her the patient had been subject to gastric distention and eructations. She was in one of these attacks when Dr. Barringer first saw her, vomiting violently at intervals of about one-half hour. The abdominal symptoms were negative, the picture being that of an acute gastritis. Four or five hours later the vomiting was still persisting and there was slight tenderness over the gall bladder region. She was removed at once to the hospital for observation, on April 25, 1913. The urine at the time of admission showed traces of albumin, hyaline and granular casts, acetone, and traces of indican. She had a leucocytosis of 15,000 and there was slight tenderness over the gall bladder on deep pressure. The temperature was about 99° F. There was a gradual fall in the leucocytes. Save for the slight tenderness on deep pressure over the gall bladder and very slight rigidity over the right upper rectum there were no gall-bladder symptoms. A test meal showed hyperchlorhydria, but otherwise a normal condition. In view of the violence of the attacks an exploratory operation was advised. The patient was

operated upon on May 6 through a free incision in the right hypochondrium. A careful search failed to reveal anything abnormal save that the gall bladder seemed unnaturally full of bile. It had then occurred to the speaker that possibly these attacks might be connected with hyperdistention of the gall bladder and that by its actual back pressure on the pyloric end of the stomach or the duodenum might cause a partial obstruction. For lack of other findings Dr. Barringer said she felt justified in draining the gall bladder and by a cholecystostomy made it impossible for it to become hyperdistended. This was done. The gall bladder was apparently normal and no stones were found. The patient had a great deal of postoperative nausea and vomiting, but gradually improved and was discharged in the early part of June, 1913. The patient returned to the hospital later with a severe attack of vomiting and in a much weakened condition from ill-advised food. After proper care and a rest in the country she returned in apparently excellent health and had gained twenty-eight pounds.

Dr. W. C. Cramp said he had had a case of tuberculosis of the tongue similar to the one reported. A section was removed and examined and proved to be tuberculosis. The affected area was then excised.

Dr. Herman A. Haubold said that the case to which Dr. Cramp had referred had occurred where he was working with Dr. Cramp. It was well to bear the possibility of this condition in mind, as one might occasionally meet with it.

**Intestinal Obstruction.**—Dr. John A. Hartwell presented this communication in which he described his experimental work in intestinal obstruction in dogs. He stated that this study was undertaken to determine the cause of death following intestinal obstruction. There were three general theories to account for death following intestinal obstruction: (1) The nervous. There was no evidence in support of this theory. (2) The bacteriemic. In testing this theory it had been found by a study of seven dogs in which the blood, liver, and spleen were found sterile in both aerobic and anaerobic cultures that bacteriemia was not a necessary factor in producing death, though it might be a complicating factor. (3) The theory of toxemia, either from food, from secretions, or from bacterial toxins. In order to make a study of food decomposition a series of animals had a complete obstruction produced in the lower duodenum and upper jejunum at varying periods after taking food. The results of this study made it reasonably certain that alterations of food residues in the tract above the obstruction had little to do with causing death. Dr. Hartwell summarized his experimental work as follows: "1. There are two factors at work in producing the symptoms and causing death in intestinal obstruction. First, the loss of water from the tissues, due to excessive drain into the bowel in response to the irritation set up by the retained secretions. This water may be replaced by subcutaneous injection of normal saline solution, and the symptoms caused are thus entirely controlled with the saving of life. Second, the entrance into the circulation of poisonous materials, which occurs only when the mucosa is damaged. This damage results largely from the trauma inflicted by the overdistention acting on the circulation, but possibly also from the chemical action of the digestive ferments stagnated above the obstruction. Such a damage having resulted, there occurs a bacterial invasion into the bowel wall with a death of tissue cells, which is invariably demonstrable by microscopical examination, and in this process the poisonous substances are elaborated. The action of these poisons is apparently not influenced by the administration of saline subcutaneously. The absorption of a poison from any source whatever, as long as the mucosa remains intact, is not a factor. 2. The development of bacteriemia as a cause of death is excluded." The essayist declared that while it was not always safe to transfer the findings of experimental work to clinical practice, and as yet they had not opportunity to apply the teaching of their investigation to the bedside, there were certain applications which seemed justified. It had always been a matter for speculation as to why high intestinal obstruction in man was so much more acute than low obstruction. The explanation was found in the fact that water absorption was entirely stopped in the first, and, in addition, enormous amounts of water were thrown out in the vomitus almost immediately after the obstruction occurred. A rapid desiccation took place, with a severely damaged metabolism, as shown by the deranged urinary output. These conditions obtained much more gradually when the obstruction was low in the bowel. It was a familiar observation that a chronic obstruction might take place in the bowel and progress until the opening was only pin point in size and yet no serious symptoms arise, even though for many days there might be cessation of fecal passage from the bowels. When, however, a complete closure supervened there arose immediately evidence of a severe condition. The explanation of this was found in the fact that so long as gas could escape through the constriction there was no distention of the intestine and hence no damage to the intestinal wall and no absorption of poisonous materials. The stoppage of gas was immediately followed by both these conditions, and unless promptly relieved would result fatally. The practical application of the principles elaborated by the experimental work followed two lines. First, the water extracted from the tissues by the enormous outpouring into the bowel must be replaced. This could be done by means of a continuous hypodermoclysis administered under the skin in the pectoral region by means of needles of the ordinary hypodermic caliber, but longer. In this way the fluid was absorbed almost as rapidly as it entered, two or three liters being given without withdrawing the needles. The absorption would continue until the normal water content of the tissues was reestablished. This procedure had no influence on symptoms resulting from damaged intestinal wall, and hence it was imperative to surgically relieve the obstruction as soon as it was discovered. A second point of practical importance was in regard to the advisability of opening the bowel and, either temporarily or permanently, draining off the contents. Whenever there has resulted from the obstruction any considerable damage to the bowel wall above the constricted point there was danger of serious symptoms arising from the absorption of materials resulting from these changes. Therefore, in the presence of such changes, the more rapid emptying of the bowel through an enterostomy, after relieving the obstruction, might be a wise thing to do. Whether the drainage of the intestine should be made to continue depended on the extent of the damage done. If this was great it was advisable to establish an enterostomy, because there would be some further accumulation of the poisons which would be absorbed unless there was free exit for them. An enterostomy would be necessary if the contents of the bowel above the obstruction were blood tinged, demonstrating a damage to the bowel wall. If the bowel contents were simply fluid feces, the rapidly returning peristalsis, after the obstruction was released, would force the contents onward, and there would be no danger of poisonous absorption when once they reached the normal bowel below the obstruction, because the mucosa here possessed a defense against such absorption.

Dr. W. H. Luckett said that he took issue with the statement that toxic material was not poisonous when it met with the normal mucosa. Perhaps it was not poisonous theoretically, but practically and clinically it was. Hematogenous secretions and toxic materials should be washed out. He failed to see the mechanism which produced the dilatation; it might be increased pressure from within, but it was not from the distention. Dr. Luckett asked Dr. Hartwell if the patient had vomited coffee grounds material. This distention must be manifest for some time before the toxic condition became evident. The case he had intended to present would have been interesting in this connection. He did not vomit coffee grounds material and the stomach pump was used. He then collapsed before there was time for the production of toxemia.

Dr. A. Ernest Gallant said that this confirmed the statement of Warren Robinson, who related an instance of acute dilatation of the stomach after anesthesia. He claimed that the duodenum was clamped between the aorta and the superior mesenteric vessels. He could not understand why the patient had died six hours after if the condition was due to toxemia occurring through the damaged mucosa. That seemed to him to be pretty quick work. Dr. Gallant asked Dr. Hartwell how soon they killed the dogs to find out how many hours it took to damage the mucosa. In these cases the condition was similar to that of cholera and took the water out of the patient very rapidly. The speaker said he could not understand Dr. Luckett's viewpoint. He had seen patients recover so rapidly from their terrible condition, just within a few hours, that there must be something else than the mere poisonous effect on the mucosa. In regard to the question of how to overcome this condition, no one had really succeeded. Opening the stomach itself during gastrostomy had not been successful.

Dr. George Draper said he was not prepared to discuss the mechanical problem, but the hypothesis was in-

teresting. The obstruction had been made with clamps and those devised by Dr. Hartwell were very ingenious and should be a great help. In regard to the bacterial origin of the toxemia, if it were a toxemia, according to their studies no aerobic or anaerobic bacteria occurred in that part of the intestine. Why was the onset so sudden? The onset of bacterial toxemia was usually seventy-two hours. With regard to the giving of water they had tried it in only a few cases, about twelve, and had not given as much as Dr. Hartwell gave. They had tried pylocarpine and the animals lost weight at about the same rate as in intestinal obstruction. There were no symptoms to show that the loss of water was producing a change in metabolism. The pulse was the same, and this was not the case in intestinal obstruction; in this condition there was something more than mere loss of water. They had found that dogs in which obstruction had been produced lived longer when fed on the watery secretion of epithelial cells. There might be a bacterial element in the toxemia, but he predicted that the cause would be found in the biochemical enteric situation.

Dr. Angelo L. Soresi said he wished to call attention to the effect of traumatism on the mucosa. In grafting experiments with mucosa he had used iodine on the mucosa and the experiments had failed because of the iodine. If the gut was milked to remove feces the dog died or was very much sicker in comparison with dogs handled gently. Injury to the mucosa caused trouble.

Dr. Alexis V. Moschcowitz said that in rather a large experience with intestinal obstruction he had found it advisable never to perform an enterostomy when he could establish the fecal current at one operation. When a primary operation was possible the results were infinitely superior to enterostomy. Another point about which he wished to speak was that while the theory advanced by Dr. Hartwell was very interesting it did not quite explain the symptoms of intestinal obstruction. Dr. Moschcowitz said he had no substitute for the theory, but he had had cases of complete obstruction in which the patient was not as sick as in those cases spoken of in which there was no interference with the circulation. He recalled having operated on an enormous volvulus of the sigmoid; it was as thick as the thigh of an adult and measured thirty-two inches in length, and the patient was not sick at all.

Dr. John A. Hartwell said he was speaking of intestinal obstruction and the references to acute dilatation of the stomach had no bearing on the subject. One could produce obstruction of the pylorus in dogs and they would be in no worse condition than though their tails were cut off. As to Dr. Luckett's question, he thought the distention was actually from pressure from the inside. When there was no damage to the mucosa the dogs were not sick, and when the mucosa was damaged they were sick. Whipple had found the same thing. They rarely got a black hematogenous vomitus. If the fluid passed on there was no danger below the seat of obstruction. Dr. Hartwell agreed with Dr. Moschcowitz that an enterostomy was a bad thing, but occasionally one had to resort to it. His experience had not been absolutely discouraging. The point made by Dr. Draper in regard to the rôle played by biochemical processes was well taken. In doing a double occlusion marked and active bacterial growth had been obtained from the part of the intestine removed. When the dogs died soon they had always found this explained by the damage to the mucosa, and when the dogs did not get very sick there was no, or very little, damage to the mucosa. They had found that the dogs were sicker when the obstruction was higher up in the intestines than when it was low down.

**Nonreducing Operations for Fracture.**—Dr. William Darrach, after reviewing the indications for nonreducing operations, gave a lantern slide exhibit showing the results of nonreducing operations in a number of cases in which he had operated.

Dr. A. J. Brown said that Dr. Darrach had brought up an important subject which was well worth serious discussion. From the points brought out by Dr. Darrach it seemed that his object was to obtain function rather than to remedy the deformity. In taking away bone one should exercise great care in regard to the muscles, tendons, and ligaments that the limb might be brought into correct anatomical relation with the remainder of the body. Dr. Brown suggested that in operations on the ankle lengthening the tendo Achilles to the anterior lip of the tibia, thus making it possible to get more than 10 or 15 degrees flexion.

**Primary Carcinoma of the Liver.**—Dr. Frank C. Yeomans presented this specimen. The patient, a man thirty-seven years of age, was operated on in 1906 for carcinoma of the liver. They would probably say that if it had been carcinoma of the liver the patient would not be alive. In 1913 he had attacks of severe pain after an injury and a growth was found on the site of the old scar. He was operated upon the second time November 14, 1913, and a tumor the size of a grape fruit was found attached to the old scar tissue of the liver. The patient died an hour after the operation. The carcinoma, which was seminecrosed, was exhibited. In the report of nine cases of primary carcinoma of the liver which had been operated upon three had died at the time of the operation or soon after.

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SECTION ON OBSTETRICS AND GYNECOLOGY.

*Stated Meeting, Held February* 24, 1914.

Dr. Asa B. Davis in the Chair.

**Pregnancy Complicated by Typhoid Fever with Hemorrhage and Relapse; Delivery at Term; Report of the Bacteriological and Serological Findings in Mother and Child.**—Dr. Samuel Berkowitz made this report. He said that in two-thirds of the cases of pregnancy complicated by typhoid fever, the fetal prognosis was grave on account of abortions, miscarriages, or premature deliveries (Liebermeister) caused by the toxemia (Sacquin), or the hyperpyrexia acting as an insolation upon the fetus (Runge). These two conditions also tended to produce uterine hemorrhage, separation of the placenta, nephritis, and hyaline degeneration of the uterine musculature, as well as asphyxia and death of the fetus with the induction of labor. The patient was thirty-one years of age and was admitted to the Beth Israel Hospital toward the end of the first week of the typhoid fever and about five months pregnant. The disease was moderately severe and was complicated by an intercurrent relapse about the end of the third week of her illness and an intestinal hemorrhage about a week later. Forty-eight hours after admission the uterine souffle was heard and one day later the fetal heart sounds. One month after discharge the patient was again admitted; she was in labor, and in a few hours a full-term normal baby was delivered. Cultures were made from the placenta and the tissues stained for typhoid bacilli; also cultures were made from the placental blood and from the cord with negative results. The mother's blood, which had been positive during the illness, was now negative for the Widal reaction. The same result was obtained on examination of the child's sera and the mother's milk. The stools of the mother and child were negative for typhoid bacilli. Ten days after delivery the mother and child were sent home. They were under continued observation for eighteen months and found to be in excellent condition. Foulkrod contended that the severity of the disease was intensified by pregnancy up to the fourth month, but mildly so after the sixth month. According to Lynch typhoid fever was more often seen during the first half of pregnancy. Only eight out of twenty-six cases reported in the literature, or 30.6 per cent., gave a positive agglutination reaction (Brickner and Oppenheimer.) In the treatment of this condition the danger to the mother should be considered as the indicataion for interference.

Dr. Asa B. Davis recalled three cases of pregnancy complicated by typhoid fever with hemorrhage, two being operated on. Toxemia was undoubtedly present in these cases. In many of these instances the fetus was very feeble, and this toxemia resulted in death. The induction of labor, unless forced upon one, should be avoided. The operation was not a simple one and should not be performed except for good reasons because of the added strain upon the mother.

**Tænia Saginata in the Appendix.**—Dr. M. Caturani presented this specimen, which consisted of an appendix in the lumen of which were two living segments of tænia and corresponding eggs. The appendix had been removed during an operation for a pelvic condition. The patient was an Italian woman, thirty years of age. Infection had followed her first childbirth seven years ago, and a few months afterward she had been subjected to an operation. The left adnexa were removed and as a result the patient developed hernia on the line of the abdominal incision. Dr. Caturani said he had operated on the patient for the hernia on February 4, 1914, at which time he freed the uterus from adhesions and removed the right tube and a small myoma which was imbedded in its wall. The uterus was suspended. The appendix,

which was retrocecal and covered with adhesions, was removed as a routine measure. The appendix was relatively long and showed a wide opening at the base. At the touch something strange could be detected at the lumen, which proved to be a tænia; another segment, easily displaceable, was brought toward the apex and out through a small opening made in the wall. The patient reluctantly admitted that she had noticed frequent emissions of segments of tænia in the feces during the past three years. She had never had any real appendicular attack. In a similar case reported by Robb the patient had been operated on for tuboovarian abscess, not for appendicitis. It seemed that the presence of this kind of worm in the appendix did not affect the organ. Examination showed a slight chronic inflammation of the structure of the appendix and lymphoid hyperplasia. The examination of the two segments removed from the appendix, as well as of many others, showed that this tænia was the *Tænia saginata*.

**Carcinoma of the Body of the Uterus in an Eighteen-Year-Old Patient.**—Dr. HERMANN GRAD reported this case. At the age of eighteen she was admitted to the hospital and it was thought that she had either a polypus or a submucous fibroid. A hysterotomy was performed and there was found a large mass of soft material villous in structure. After a curettage and the removal of an ovarian cyst the wound was closed. The pathological report was carcinoma of the uterus. For three months the patient did not menstruate.

Dr. HERMAN J. BOLDT said there was a true transitional stage in these cases of typical carcinoma of the body of the uterus. He believed that these cases should be operated upon and in a radical manner.

Dr. ROBERT TILDEN FRANK asked Dr. Strong regarding the pathology because he did not catch the pathological differences found. The extreme youth of the patient was interesting.

Dr. L. W. STRONG said that he might well come under criticism for the opinions that he had expressed in Dr. Grad's case if one did not consider that in the case of the curettings he had no means of judging how the basal glands were acting, that was whether they were invading the myometrium or not. The appearance of the curettings was that of a destructive adenoma; the cells were in several rows with some grade of optical unrest and mitosis. These things did not in themselves invariably constitute carcinoma, but it was by their grade of intensity that one judged. When, however, the entire uterus was seen it was found that the glands were not invading, or at the most only superficially, much as an adenomyometritis invaded. It was found that the basal glands were of a simple type and that many had a low columnar epithelium due to their distension into cysts. The whole mucosa was tremendously hyperplastic, villous, and macroscopically presented the picture of adenoma destruens. The microscopic picture showed that the diagnosis must be adenomatoid hyperplasia of the endometrium, which of course was not malignant.

Dr. GRAD closed the discussion and said that the carcinoma might have been due to ovarian irritation. There was no doubt but that the patient had a malignant neoplasm. There was much bleeding and she was losing strength. After the curettage she gained in weight. There was no doubt in his mind regarding the surgical aspect of the case. He believed that the girl would remain well.

**Vaginal Fixation, or Interposition Operation for Prolapsus Uteri.**—Dr. HERMAN J. BOLDT presented these specimens, which consisted of parts of the corpus uteri and the cervix removed in doing a vaginal fixation, and said that he had seen several cases during the last few months in which the operation had not been as satisfactory as the patients had been told they would be. He attributed this to the omission on the part of the surgeon who did the operation to excise a wedge-shaped piece of the body of the uterus, and to do a high amputation of the cervix, thus reducing the size of the organ. By these measures a good result would many times be procured which would not otherwise be possible. These parts of the operation were important unless atrophy of the uterus had already occurred. The proper repair of the pelvic floor was also very important. Dr. Boldt stated that the pathologist's report verified his position. One of the specimens sent to the pathologist consisted of the cervic uteri and the other of many pieces of tissue, uterine scrapings, and a piece of the uterine wall, showing the peritoneal covering and mucosa. In both specimens the mucosa was very much thickened and the glandular elements showed marked hyperplasia. The myometrium showed hyperplasia of the connective tissue, chiefly in the intima of the thickened walls of the blood vessels. The diagnosis in both cases was chronic metritis. Dr. Boldt said that the steps in the operation as practised by him when the uterus was large and bulky were as follows: After thoroughly divulsing the cervix, a longitudinal incision was made of the anterior vaginal wall from just beneath the meatus of the urethra to the cervical junction of the vagina, and a transverse incision of the vagina at its insertion to the vaginal part of the cervix. The anterior wall was widely separated from the bladder and there was complete separation of the bladder from the cervix, bringing the body of the uterus well out into the vagina. A sufficiently large piece of the uterine body was then excised and the wound closed with two rows of interrupted chromicized catgut sutures. If the patient was still menstruating she was sterilized by exsecting the uterine cornu, closing these wounds, and tying the uterine ends of the tubes. A high amputation of the cervix was done covering the raw surface with the vaginal mucosa, after a ligature had been placed on each of the broad ligaments. After pushing the bladder into the peritoneal cavity and holding it out of the way by fastening the fundus of the uterus well forward in the vagina, the sutures for fixating the uterus were put into position, using interrupted catgut; then as much of the superfluous vaginal mucosa as necessary was removed. The sutures were then tied. Finally, the pelvic floor was built up by exposing the levator muscles and bringing them together with three interrupted kangaroo tendon sutures, or heavy iodinized catgut. The perineum was built up higher than normal.

**Microphotograph from a Case of Chronic Metritis.**—Dr. BOLDT showed this microphotographic section, which had been made from a patient who had been bleeding for about two years and had been told by two physicians that her uterus required removal. The condition shown was variously called metroendometritis, fibrosis uteri, and hyperplasia uteri. From a strictly anatomical point of view the term chronic metritis was the nearest correct, but all of the names represented the same condition from a pathological point of view. It was Dr. Boldt's opinion that such patients could be cured of their metrorrhagia by other methods than removing the uterus. Carbolic acid or chloride of zinc, as he had described on other occasions, would positively cure nineteen out of twenty of these cases. The patient had not been bleeding for three weeks, whereas, previously the bleeding had been nearly constant. The pathologist's report described the specimen as a flat, grayish, firm, fibrous-like piece of tissue, three by two cm. in extent, and not remarkable in the gross. The microscopical examination showed a mild degree of acute inflammatory reaction associated with a considerable necrosis of the interglandular stroma. The histological elements of the endometrium that could be definitely studied showed no particular pathological change. The glands were only moderately numerous and their epithelial cells were normal throughout except that they stained poorly. There was no evidence of malignancy, but a moderate degree of fibrosis with arteriosclerotic changes.

Dr. HERMANN GRAD asked Dr. Boldt if the wedge removed was from the anterior or lateral aspect of the body of the uterus. He was surprised to learn that the body of the uterus diminished in size and there was no doubt but that the patients did better after this operation. In those cases in which the uterus was heavy he advised bringing the uterosacral ligaments forward and shortening the round ligaments. He had performed twenty-two of these operations with success.

Dr. BOLDT, in reply to Dr. Grad, said that the wedge-shaped piece was taken from the anterior portion of the body of the uterus because this was the part in direct contact with the vagina. He made a long section which was easily closed.

**The Clinical Significance of Sarcomatous Changes in Uterine Fibromyoma.**—Dr. SAMUEL HERBERT GEIST read this paper. He stated that it was his intention to define some indications for the use of the Roentgen rays and radioactive substances in the treatment of uterine fibromyomata. In the study of three hundred and sixteen cases of uterine and cervical myomata he had found that sixteen showed sarcomatous changes of various types. He pointed out the difficulty of making a clinical diagnosis before operation and also a macroscopical one at the time of operation. The clinical histories in his sixteen cases showed nothing characteristic

upon which a diagnosis of malignancy could be based. The macroscopical appearance of the tumor in only two cases suggested malignancy to the surgeon. The author mentioned that other investigators had only made the diagnosis of sarcoma after recurrences had taken place. It was also pointed out that the ages of the patients ranged between thirty-four and sixty-one years; the occurrence of the condition was most common about the time of the menopause. *X*-ray treatment, while it might favorably influence the size of the tumor, did so in all probability by its action on the ovary, and although the hemorrhage might cease and the growth diminish in size there was, in patients at this age, the danger of leaving behind a potentially malignant tumor. In a number of cases, after supravaginal amputation, recurrence had taken place in the pelvis and most commonly in the cervical stump. Occasionally after a panhysterectomy recurrences had arisen and for this reason the author urged the advice of a competent pathologist at the time of operation, and a panhysterectomy, with liberal resection of the broad ligament, if a diagnosis of malignancy was made. The proper treatment in women at the time of the menopause, with fibromyomata giving rise to symptoms, was operative.

Dr. W. L. Strong said that Dr. Geist's paper suggested a number of points of rather a controversial nature in regard to the histogenesis and classification of these tumors. Meyer and others would not admit that a sarcoma could arise from a mature cell and would not put weight upon the origin from blood vessel musculature. In the opinion of many authors the sarcoma was a sarcoma from its very inception, and did not arise from a changed muscle cell, but from an embryonal cell of connective tissue origin. Many tumors had been diagnosed in the past on the basis of tracing gradations from normal cells to tumor cells. But tumors grew entirely by multiplication of their own cells and not by the transformation of normal cells, nor was a tumor cell of a myoma transformed into a sarcoma cell. The only safe criterion for the diagnosis of sarcoma of the uterus was infiltrative and destructive growth; mere richness in cells, mitoses, and even irregularities in size of cell, did not constitute sarcoma.

Dr. Robert Tilden Frank said that he agreed with Dr. Strong in the statement that it was the opinion of many authors that sarcoma was a sarcoma from its very inception, and did not arise from a changed muscle cell. It arose from an embryonal cell of connective tissue origin. Several men might be given portions of the same specimen of sarcoma of the uterus and there would be received diametrically opposite reports of their findings. The reports regarding recurrences differed, some giving from one to seven, others from one to ten. There were very few men who were able to report one, two, or three, of the cases seen during the course of many years. As to the value of the *x*-ray, he feared the man who was not trained in its use. If the tumor was small it should be treated tentatively, but if large it should not be treated so. The difference in the mortality rate between supravaginal and complete hysterectomy was not very great.

Dr. Herman J. Boldt said that very often when the tumors were examined a second time a large number of them would be found to be malignant. In many instances amputations were done for supposedly benign tumors which subsequently were found to be malignant. He had seen probably ten or twelve cases where a supravaginal amputation had been performed, recurrences had followed, and the patients died. Supravaginal amputation he preferred because, as a rule, it left a better roof of the vagina. If there was an eroded cervix he did a panhysterectomy.

Dr. Herman Grad referred to the statistics regarding sarcomatous changes in these cases of uterine fibromyoma, and called attention to a paper of Dr. Graves of Boston which was read in 1905, in which it was stated that of thirty-five cases examined three had sarcomatous degeneration. If the fibroid was large and palpable and gave pressure symptoms it was his custom to operate. But if the tumor was small he gave other than operative measures a trial. The supravaginal operation upon these fibroids was a simple operation and gave a low mortality. Two questions of import were not clear in his mind: In what percentage of cases did malignancy occur? In what percentage of cases did myocardial changes occur? They did not know whether or not these fibroids produced myocardial changes.

Dr. Samuel Herbert Geist said that in a recent article it was clearly shown that muscle cells were present in sarcomata. What was found depended largely upon the man at work. The fact that many of these cases were overlooked and not diagnosed showed that the men had a tendency to err on the wrong side.

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## MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK

*Stated Meeting, Held February* 16, 1914.

The President, Dr. Reynold Webb Wilcox, in the Chair

**Address of the Retiring President.**—Dr. Reynold Webb Wilcox, the retiring president, made a short address, in which he spoke of the satisfactory manner in which the purposes for which the association was organized had been carried out. During the ten years in which he had served as an elected member of the Council and during the four years of his presidency, he said, a very high standard of scientific work had been maintained and absolute harmony had prevailed in the society, and he trusted and believed that the same conditions would continue to characterize its history. He then introduced the president-elect, Dr. Thomas S. Southworth.

**Resolution on the Retirement of Dr. Wilcox.**—Dr. P. Brynberg Porter, the recording secretary, presented a resolution on the retirement of Dr. Wilcox, which was seconded, with eulogistic remarks, by Dr. Thomas Darlington, chairman for the Borough of Manhattan, and unanimously adopted.

**Address by the President Elect—Some Observations on the Child of To-Day.**—Dr. Thomas S. Southworth, the president elect, said that many factors had contributed to the increased attention at present paid alike by the parent, the humanitarian, and the State to the preservation and expansion of child life. In the city of New York alone there were now no less than 924 agencies whose activities were correlated through the Child Welfare Committee. This movement for the child was the more significant when we considered that it was really only in its beginning. The magnitude of the beneficent results which would eventually be accomplished it was as yet impossible to foresee. Besides the invaluable services rendered as advisors to other branches of the work, our profession had been eminently progressive in the more circumscribed field of medical endeavor. Allowing for the differences in the incidence of disease in infancy, youth and adult life, every advance in general medicine was carefully scrutinized, tested, and adapted for the benefit of the child. The problem which had most immediately engaged the attention of the pediatrist was that of nutrition after the birth of the child. Under careful scrutiny and a vast amount of laboratory and clinical investigation, the old haphazard empiricism of artificial feeding of infants had given way to the acceptance of certain fundamental principles which were brought into play as the necessities of each individual infant indicated. The former hard-and-fast methods had been replaced by a series of useful measures, each with its scientific basis, which might be employed upon the appearance of definite indications and in accordance with the experience and judgment of the physician. Owing to the realization that the inherent biological differences between the milks of different species made these artificial measures at times ineffectual, there happily had arisen coincidently all over the civilized world a fuller appreciation of the importance of a mother's nursing her child. As might have been expected, the first outcome of this movement had been the demonstration of the fact that a far larger proportion of mothers were able to nurse their babies, wholly or in part, than had previously been considered possible; and this had further led to the desirable concentration of attention upon the problem of so improving the health, nutrition, and hygiene of the mother as to restore an additional number to the ranks of those able to nourish their offspring. There was still, however, a tendency, even in the medical profession, to undervalue or neglect partial breast-feeding. In our institutions for young children it had taken many years to impress the life-saving value of partial breast-feeding, but it was now a matter for congratulation that in some of them paid wet-nurses had been secured, and that in Boston and in Bellevue Hospital here the purchase of drawn breast-milk from needy women had been established upon a fair commercial basis. While attention had been sharply focussed upon the feeding

of the child during the first two or three years of life, the diet of the child from three to ten had received comparatively little consideration. With the passing of the traditional period of anxiety for the first summers on a mixed diet, vigilance was relaxed, and, under the guise of a needful variety, the child was allowed a range of articles which was at variance with the simple primitive needs of a normal, growing young animal. With the dietetic bars down, digestive disturbances crept in which in earlier years had been scrupulously avoided, and the appearance of the child of six or seven belied the promise he had given at three. Then, again, too many unnecessary and often ill-advised pleasures were apt to be forced upon the child, and the complexity, extravagance, and even rather doubtful nature of some entertainments arranged for children not only stimulated them unduly, but had been found to encroach too much upon the hours which should be given to study, rest, and healthful outdoor exercise. A timely protest had just been registered by the formation in this city of the Parents' League, which aimed at a rational abatement of these conditions. In all populous communities the opportunities for exposure to infection were manifold. Possibly one reason why the circus and similar gatherings were the greatest exchanges of germs was because few except the most intelligent parents could bear to leave at home the child who showed some symptoms of beginning illness on the morning of a long-promised treat. Then, too, there was the temptation to the parent to enjoy the child's pleasure in the sights of the crowded shops, unmindful that such a passing pleasure might be too dearly paid for if there he contracted the contagious cold so widespread during our autumn and winter months. Habits were easily formed in childhood, and bad habits, such as the sucking of fingers, were readily checked at the start, before they had taken root in the subconscious self. Aside from their unseemliness, the potentialities for evil from them were very great. Why guard the child with quasi-sterile and aseptic measures, and yet allow the dust and dirt from everything he touched to be transferred by moist fingers to his mouth, with ever-present danger of infection? Many rather absurd contradictions arose in the effort to give expression to the modern solicitude for the health of children, and some of the most glaring appeared daily among the important side issues of the milk question. In view of the proven risk from bovine tuberculosis and other ills of bacterial origin, the use of a certified or at least pasteurized milk had become a fixed rule in all thoughtful families, yet one constantly found the same parents giving butter of unknown origin to their children, in blissful ignorance of the findings of Hess that tubercle bacilli, as well as other harmful bacteria, were found in larger relative proportion in butter than in the milk from which it was made. With equal carelessness, junket was made for children from ordinary, dubious milk, while the ice cream served them was often, both in its origin and composition, the despair of the pure food expert. Having referred to the danger attending the wearing of the short stocking or sock except in warm weather, Dr. Southworth went on to say that in no respect perhaps had the attitude toward the child changed more completely than in the school. New methods, a human interest, shorter periods, more interesting presentation of the subjects, alternation of lighter with harder work, fresh air, and hygienic exercise under the guise of recreation had now made the act of learning an enjoyment, instead of an irksome task. All honor was due those pioneers in modern education who had cast off the bonds of tradition and opened the way for vocational training in our schools. Necessary as were the fundamentals in education for all children, early or late there came a point where instruction was best differentiated for their present and future needs. Since instruction in the family had vastly decreased, special instruction was imperative for the schoolgirl if she were to take her natural place in the home ordained to failure. Might we not have happier and less extravagant homes, less divorce, less vague seeking for a mission in the market-place, if the girl's education always fitted her to perform her functions in the world with less groping and less drudgery? In the world of efficient business men learned their trade before full responsibilities were thrust upon them; should it not be thus with the women and the mothers who were to be? Well might our satisfaction be great with what had been accomplished and what had been begun for the child in our day and generation, and great our confidence in the survival only of the best; but, with all our advances, we were yet far from the day which would see the eugenic superman outnumber his less fortunate brother. Insistent nature would often thwart our higher purposes, and it was given to us to aid her progress chiefly by removing from her path the unnecessary obstacles of man's making.

**The Value of Cocaine in Disturbances of Metabolism.**—Dr. William H. Porter, in this paper, said that unless cocaine was chemically pure it might contain some of the two highly toxic alkaloids found in erythroxylon coca, one of which, isatropyl-cocaine, was a decided heart-muscle poison. The varying results where cocaine alone was used, and the sudden development of toxic symptoms frequently described, might be due to preparations containing these impurities. Personally he had never seen any one develop toxic symptoms when cocaine was being used internally. It was not the purpose of the paper to consider the local effects or the hypodermic administration of cocaine in connection with surgical operations, but to deal exclusively with its effects upon the system and show its value when administered by the mouth, as internal medicaments were, in profound disturbances of metabolism. While all were familiar with the great value of cocaine used hypodermically or by direct local application, its great power for good in connection with the large field of internal medicine, he was convinced, was not so fully understood as it should be. This assertion was based upon his personal observation and use of cocaine in hundreds of cases, which had presented all forms and kinds of metabolic disturbances, both acute and chronic. Both historic and experimental evidence seem to prove conclusively that this substance has the power to augment forcefully almost all the physiological activities of the animal economy, and this not only for a short time, but to sustain these augmented functions for a considerable period; so much so that the working power of the system is materially enhanced. The effect of cocaine when given internally within its physiological limits, as all therapeutic agents were supposed to be when administered scientifically, was to stimulate first the cerebral hemispheres, next the medulla, and afterward the spinal cord. It lessened fatigue, and to a certain extent augmented both mental and muscular activity. The respirations were increased, and the muscular contraction of the heart was slightly quickened and also increased in force. There was a slight rise in blood-pressure, and the augmentation of both the respiratory and circulatory activity enhanced the reduction processes of the body, a highly essential requisite in defective metabolism. Thus, it quickened intestinal peristalsis and also alleviated abdominal pain; effects naturally tending to improve digestion and the absorption of food products. Glandular activity in general was slightly augmented and the temperature slightly raised, and all this occurred without any perceptible change or specific symptoms noticeable by the subject. With such results as these, it was not to be wondered at that the native Peruvians felt that they could endure more and were stronger for chewing the leaves of the coca plant. On the other hand, cocaine, like all other alkaloids and glucosides possessing stimulating properties, when it was pushed beyond a certain point depressed or arrested the physiological activities which it had at first augmented. Cocaine seemed to excite all the functions of the body more uniformly than any other known alkaloid. Hence its greater value in disturbances of metabolism, and this was probably the reason why it caused improvement in all the patient's symptoms when all other measures at our disposal had failed. So long as the dose was kept well within the physiological limit, only good would result, but beyond this limit bad results must follow, as was the case with all foods and therapeutic agents when pushed beyond such limit. An interesting point in connection with cocaine was the fact that patients who are profoundly depressed by it when applied locally (possibly through reflex over-stimulation), can take one and two grains of it internally three times a day, not only with no untoward effects, but with highly beneficial ones. From the observation of several instances of this kind the speaker had concluded that the local and the internal effects of cocaine are entirely different and must be studied separately. There was something entirely different, he said, in its peripheral reflex stimulation and its oxidation reduction within the body. To fully understand what was meant by this observation reduction process, as applied to therapeutic agents, necessitated first a brief study of what happened to normal foodstuffs in their transit through the animal economy. With a clear appreciation of this, much of the mystery in connection with the action of our therapeutic agents was eliminated, and they fell easily into a class of food

products, though of higher chemical activity than the ordinary foods. It was now well established that all food substances acted along one of three or four different lines: (1) All inorganic substances were solvents or mechanical irritants; (2) they acted as mechanical irritants by multiplication or division of the molecules before they were finally reduced to less complex compounds; (3) they underwent direct oxidation reduction —applicable to all simple, reducible substances, like the starches, sugars, and fats, by which process there was evolved simple caloric force with which to energize all the chemical and physiological activities of the animal economy; (4) they underwent a peculiar isomeric change, or rearrangement of the atoms, as a result of which, while there was no change in the number of the atoms, there was a wide difference in the appearance of the molecule, with a radical difference in its actions. Now, when we came to analyze the action of cocaine, or any of the oxidizable alkaloids or glucosides, we found the same conditions or chemical laws controlling their transit through the body. When such substances were undergoing this oxidation reduction there was evolved a certain amount of caloric force, just as in the case of all foodstuffs. Primarily the amount of caloric power was in direct proportion to the amount of oxygen consumed, but with all substances the law of mechanical irritation and the effects of isomeric transmutation had also to be taken into consideration in appreciating their full action. It was quite probable that it was in these isomeric transmutations, and not alone in the heat production caused, that we had the explanation of the peculiar train of symptoms and intensive activities resulting from the internal use of alkaloids. It should always be remembered that the rapidity with which the transmutations were brought about was largely responsible for the severity of action observed. In some instances, as in the case of aconitine, the amount which could be taken was very small, while with other alkaloids, such as cocaine, much larger quantities could be administered before any perceptible effect was produced or before the physiological limit was passed and the toxic stage reached. The comparatively large amount of cocaine which could be taken and the slowness of its transmutation might perhaps account for its decided uplifting and sustaining power. To suppose that it could in any sense take the place of normal food products would be absurd, but all the evidence went to prove that, in conjunction with a well-regulated diet, it greatly assisted in the perfect utilization of the food, and in a remarkable manner. It stimulated and excited the sluggish masses of protoplasm into activity when all other measures failed to do so. In health, under its influence, one could endure with greater mental and muscular strain, especially the latter. It should not, however, be used in health, for under ordinary circumstances it was not required. This rule was one which, when the physiological economy was entirely normal, should be applied to all highly stimulating substances, yet it was a well-known fact that throughout the ages mankind had always sought, found, and used some more stimulating substance than ordinary food, and probably always would. In all disease processes, and in all profound disturbances of metabolism, in which the normal foodstuffs were no longer capable of exciting into physiological activity the protoplasmic masses of the economy, when everything was at a standstill, as it were, or when it became apparent that the patient was steadily losing ground, the addition of half a grain or more of cocaine three times daily had, in a large number of instances under Dr. Porter's observation during the past twenty-five years, produced almost miraculous changes for the better, even in cases which seemed almost hopeless. In all chronic affections its power for great good could not be over-estimated. For the last ten years he had employed it more and more in the acuter diseases. When it was given early in pneumonia, and throughout the attack, the results obtained had convinced him that the chances for recovery in this disease were greater than without its administration. The same might be said of all acute affections, for if it had the great sustaining power which all the evidence seemed to show it possessed, the ability to eliminate the toxins of disease must be markedly augmented by it. Although he had prescribed cocaine extensively for nearly thirty years, he had yet to see the first instance in which the patient had acquired the so-called cocaine habit as a result of its internal use. Therefore, in his judgment, cocaine was a very valuable remedy in connection with internal medicine, and one which had not received the attention it really deserved. In closing, he stated that he usually gave it in combination with caffeine and strychnine. If the criticism were made that when a remedy was used in conjunction with other substances, one could not judge accurately as to its true value, he would refer to the emphasis which he had placed on the improvement following the use of cocaine when all other known remedies had failed. This, to his mind, was the highest test for any remedial agent. The discriminating mixture of several alkaloids in one prescription by the scientific physician, who knew the exact chemical composition of each and just what each would accomplish alone and in combination, he believed to be a decided advantage.

Dr. Ransford E. Van Gieson said that he had employed cocaine internally for the past ten or twelve years, and with excellent results. He had given it in small doses, a quarter of a grain three times a day, usually in combination with nux vomica. He had never observed any tendency whatever to the formation of a drug habit, and believed that Dr. Porter was entirely right in his assertion that the internal administration of cocaine did not beget such a habit.

Dr. Porter stated, in answer to a question, that he almost invariably gave cocaine in capsule form. The beneficial effects of the drug, he believed, were due chiefly to the isomeric change after its ingestion to which he had referred in the paper.

## State Medical Licensing Boards.

### STATE BOARD EXAMINATION QUESTIONS.

KENTUCKY STATE BOARD OF MEDICAL EXAMINERS.

*December* 11-13, 1913.

(*Continued from page* 644.)

BACTERIOLOGY.

1. Name the important pathogenic diplococci.
2. Define the following terms: (*a*) germicide, (*b*) antisepsis, (*c*) asepsis, (*d*) sterile, (*e*) disinfectant.
3. What is essential to the life of bacteria?
4. Give method of staining cover glass preparations.
5. Give in detail a method of staining tubercle bacilli in fluids.
6. By what laboratory methods may rabies be diagnosed?
7. Give details of examination of suspected urethral discharge for gonococci.
8. What is infection?
9. Name five culture media.
10. (*a*) Describe the Klebs-Loeffler bacillus and (*b*) how would you stain it?

PATHOLOGY.

1. What are the pathological changes in appendicitis?
2. What are the structural changes in the various types of cirrhosis of the liver?
3. What are the causes of stricture of the esophagus?
4. (*a*) What changes take place in progressive muscular atrophy? (*b*) What is the cause of the changes?
5. Give the pathology of arteriosclerosis.
6. What lesion of the brain and spinal cord would you expect in a syphilitic in the tertiary stage?
7. Differentiate between the sounds of an acute pleurisy and acute bronchitis that you would expect to hear with your ear against the chest walls of a patient.
8. If you were given a specimen of pus and asked to determine the identity of the organism that caused its production, give some of the details as to how you would proceed.
9. (*a*) What lesion do you consider most characteristic of typhoid fever? (*b*) Describe it.
10. (*a*) What is a sequestrum? (*b*) How are sequestra formed?

OBSTETRICS AND GYNECOLOGY.

1. What is the hygiene of pregnancy, and what advice would you give a pregnant woman from an hygienic standpoint?
2. How would you differentiate between pregnancy and ovarian tumor?
3. (*a*) Describe an eclamptic attack, (*b*) give premonitory symptoms.
4. (*a*) How would you manage inevitable abortion? (*b*) Give some of the dangers of an abortion.
5. (*a*) How soon after the birth of a child would you

ligate the umbilical cord? (*b*) How would you ligate and dress it?

6. (*a*) What indication would induce you to insert your hand into the uterus during or after labor, and (*b*) what precautions would you observe?

7. What are the dangers in the use of forceps in delivery, and how are they avoided?

8. What care would you give the mother after labor?

9. What is phlebitis and how would you guard against it while managing a case of labor?

10. Give the symptoms and treatment of mammary abscess.

## ANSWERS.

### BACTERIOLOGY.

1. The *important pathogenic diplococci* are: The diplococcus gonorrheæ, diplococcus meningitidis, and diplococcus pneumoniæ.

2. *Germicide* is an agent which kills microorganisms.

*Antisepsis* is the inhibition of the growth of microorganisms.

*Asepsis* is the absence of microorganisms.

*Sterile* is the condition of a substance when all microorganisms have been killed or removed.

*Disinfectant* is an agent which removes or kills infectious microorganisms.

3. *Essentials to the life of bacteria:* Most bacteria require proper temperature, generally at or near that of the body; oxygen is generally needed, those that cannot live without it being called aerobic, and those that can grow without it anaerobic; nutriment of a proper kind, containing both organic and inorganic materials; a slight degree of moisture; a medium of slightly alkaline reaction, and rest. Individual bacteria may require modifications of the above essentials.

4. Cover glass preparations may be stained by Ziehl's carbolfuchsin method, Gabbett's method, Gram's method, or Loeffler's method with methylene blue. (See QUESTIONS 5 AND 7.)

5. The fluid must be centrifuged for a long time. Some of the sediment is placed on a slide with a small quantity of egg albumin; it is covered with some carbolfuchsin, and allowed to steam over a small flame for about two minutes, care being taken that it does not boil. Wash it thoroughly in water and then decolorize by immersing it in a solution of any dilute mineral acid for about a minute. Then make a contrast stain with solution of Loeffler's methylene blue for about a minute; wash it again and examine with oil immersion lens. The tubercle bacilli will appear as thin, red rods, while all other bacteria will appear blue.

6. "Rabies may be diagnosed in an animal by observing the course of the disease, by autopsy and by inoculation of test animals and observation of the course of the disease in them. If the suspected animal be caged, the question of rabies may be settled in a few days, for, if he is mad, the raging stage will be quickly followed by the characteristic paralysis and death. If the animal has been killed, a careful autopsy may reveal the absence of food from the digestive tract and the presence there of abnormal ingested material (grass, wood, or stones), highly suggestive of rabies. Microscopic examination of the central nervous system may reveal the Negri bodies, characteristic of the disease. For confirmation of the diagnosis a portion of the brain or spinal cord, removed without contamination, should be injected into the brain of guineapigs and rabbits and the effects observed. This last test carried out by an experienced observer is the most trustworthy of all."—(MacNeal's *Pathogenic Microorganisms.*)

7. To demonstrate *gonococci:* On a cover glass make a smear with the discharge as thin as possible, and let it dry in the air; cover it with a freshly made solution of anilin-oil-gentian-violet for one or two minutes; wash it in distilled water; leave it in Gram's solution for two minutes; wash it in 95 per cent. alcohol until decolorized; wash it in distilled water; counterstain with a dilute carbolfuchsin without heat, or with a saturated aqueous solution of Bismark brown; wash in distilled water, dry with filter paper, mount, and examine with an oil-immersion lens. The gonococci will appear as *diplococci within the leucocytes,* which have been *decolorized by Gram's stain,* and have taken the counterstain.

8. *Infection* is the invasion of the body by living pathogenic organisms under conditions suitable to the life and growth of the latter.

9. *Five culture media:* Agar, blood, milk, potato, and gelatin.

10. The *characteristics of the bacillus of diphtheria:* The bacilli are from 2 to 6 mikrons in length and from 0.2 to 1.0 mikron in breadth; are slightly curved, and often have clubbed and rounded ends; occur either singly or in pairs, or in irregular groups, but do not form chains; they have no flagella, are non-motile, and aerobic; they are noted for their pleomorphism; they do not stain uniformly, but stain well by Gram's method and very beautifully with Loeffler's alkaline-methylene blue.

A sterile swab is rubbed over any visible membrane on the tonsils or throat, and is then immediately passed over the surface of the serum in a culture tube. The tube of culture, thus inoculated, is placed in an incubator at 37° C. for about twelve hours, when it is ready for examination. A sterile platinum wire is inserted into the culture tube, and a number of colonies of a whitish color are removed by it and placed on a clean cover slip and smeared over its surface. The smear is allowed to dry, is passed two or three times through a flame to fix the bacteria, and is then covered for about five or six minutes with a Loeffler's methylene-blue solution. The cover slip is then rinsed in clean water, dried, and mounted. The bacilli of diphtheria appear as short, thick rods with rounded ends; irregular forms are characteristic of this bacillus, and the staining will appear pronounced in some parts of the bacilli and deficient in other parts.

### PATHOLOGY.

1. *Catarrhal* appendicitis is characterized by slight swelling and minute erosions of the mucosa. The muscular and serous coats will show slight infiltration and the lumen will contain epithelial and pus cells. In the *necrotic* or *gangrenous* variety the inflammatory processes are destructive. The mucosa is destroyed and the muscular and serous layers are soon attacked. The inflammation involves neighboring surfaces and a fibrinous peritonitis develops. This may be local, and by giving rise to adhesions between adjacent tissues no further extension takes place. The process may be very rapid and perforation follow before any restricting adhesions form; this is accompanied by a general and frequently fatal peritonitis. In *interstitial* appendicitis there is a tendency toward excessive connective-tissue formation and it generally terminates as a chronic thickening.—(McConnell's *Pathology.*)

2. There are two important forms of cirrhosis of the liver: hypertrophic and atrophic. The following table (from Thayer's *Pathology*) will assist in distinguishing them:

| | |
|---|---|
| *Synonyms.* Charcot's Hypertrophic, Unilobular Hepatogenous, Biliary. | Laennec's, Atrophic, Multilobular, Hematogenous, Hob-nail liver. |
| *Jaundice.* Early and marked, bile often absent from feces. | Late and slight, bile usually present. |
| *Ascites.* Late and unimportant. | May be early; often enormous. |
| *Spleen.* Enlarged early and markedly. | Late and less. |
| *Alimentary hemorrhage, piles.* Not common. | Common. |
| *Liver.* Large, smooth, mottled, green. | Small, rough, pale, or yellow. |
| *New fibrous tissue.* In fine lines and strands between acini and cells, involving all parts equally. | In broad bands, making prominent islands in which the single acinus may appear nearly normal; distributed irregularly. |

3. The following classification of the causes of stricture of the esophagus is taken from Herrick's "Medical Diagnosis": (1) *Intraesophageal:* Foreign body, mass of food. (2) *Interstitial:* Neoplasm; cicatricial tissue, as from toxic gastritis, ulcer (syphilitic, peptic); esophageal abscess; congenital; spastic stricture. (3) *Extraesophageal:* Enlarged glands, *e.g.* sternal, cervical, bronchial, from tuberculosis, cancer, suppurative adenitis; mediastinal, or cervical celulitis; vertebral disease; dislocation of hyoid bone or clavicle; cancer of pleura or lung; ossification of stylohyoid ligament; swelling of cricoid; pericardial effusion; cardiac hypertrophy; aneurysm.

4. *Progressive muscular atrophy.*—"Two theories as to the origin of the pathological changes are held: one that the initial lesion is in the cord (Charcot), the other, in the muscular interstitial connective tissue

(Friedreich). The morbid alterations are of two groups: spinal and muscular. The spinal changes consist in the atrophy and degeneration of the anterior columns, wasting and disappearance of the multipolar ganglion cells of the anterior horns with hyperplasia of the neuroglia; rarely, the hyperplasia extends to the lateral columns (amyotrophic lateral sclerosis; also atrophy, and degeneration of the anterior nerve-roots. The muscular changes consist of a progressive wasting of the muscular tissue, with increase of the interstitial connective tissue. The final result is that the muscle is converted into a more fibrous band with numerous fat cells, the development of this latter material taking place outside of the muscular elements and in the newly formed connective tissue."—(Hughes' *Practice of Medicine.*)

5. *Arteriosclerosis.* Causes are: Age, male sex, heredity, high living, alcohol, syphilis, uric acid, nephritis, tuberculosis, rheumatism, diabetes.

The large arteries are chiefly affected. The earliest changes are a small-celled infiltration of the subendothelial tissue, which may be either replaced by fibroid tissue or undergo fatty degeneration.

Degeneration usually occurs, and the softened mass either bursts into the artery or becomes converted into a calcareous plate. The process extends to the middle coat, which is at first softened, and the muscular tissue is destroyed in patches. The result is either weakening of the wall and dilatation into an aneurysm, or the deposit of lime salts and calcification of the middle coat. The external coat is thickened, and helps to prevent dilatation. The conditions which are secondary to atheroma are thrombosis, detachment of a plate forming an embolus, or "dissecting aneurysm," due to the blood-stream getting under a plate and tunneling under the tunica intima.

6. Gumma.

7. *Acute pleurisy* will give friction sounds, generally on one side only; *bronchitis* will give fremitus, and is generally bilateral.

8. A pure culture must be obtained. Liquefied gelatin must be inoculated with the mixture of bacteria, and after thorough agitation so as to separate each cell from its neighbor, the liquid is poured on to the surface of a sterile plate. The gelatin now solidifies and imprisons, as it were, the separated cells. Each of these now multiplies and reproduces its kind; eventually, in the course of a day or two, a small growth, perhaps of the size of a small pinhead, appears. This is called a colony, and since it is derived from a single cell it constitutes a pure culture. Such is the principle of the dilution method for obtaining pure cultures. The isolation once accomplished, all that is necessary is to transplant the colony to sterile culture media so as to keep up the growth.—(*Reference Handbook of the Medical Sciences.*)

9. The most characteristic lesion of typhoid fever is found in the lymphatic structures, especially in the solitary follicles, Peyer's patches, mesenteric glands, and spleen. In the first stage of typhoid fever Peyer's patches become swollen, hyperemic, and reddened; a few days later they appear as whitish or gray elevations, and the hyperemia has disappeared; the surface of the patch is smooth and its edge is sharply defined; after the first week necrosis may occur; the center of the patch becomes softer, more yellow, or sometimes even red from the absorption of blood pigment. The necrotic portion falls off, leaving an irregular ulcer, with necrotic and undermined edges. These ulcers are elongated, with the long axis parallel with that of the intestine, and a smooth floor. The ulcers may heal or go on to perforation.

The spleen becomes congested and enlarged, is liable to infarction, and contains the bacilli.

10. A *sequestrum* is a portion of dead bone which is separated from the living bone.

"This separation occurs by the process of demarcation, as in necrosis of the soft parts. This line consist of an area of absorption of the calcareous matter and proliferation of the cellular elements. The necrotic portion, or sequestrum, acts as a foreign body, and by its continued irritation keeps up a suppurative inflammation of the surrounding tissues. Fistulous communication with the exterior is usually observed. If the sequestrum is peripheral and has been discharged, the periosteum or the bone may replace the lost tissue by regeneration. If the fragment is large or centrally placed, discharge is impossible and suppurative inflammation continues, sometimes for years. In these cases considerable hyperplastic material may be deposited over and around the sequestrum, and thus irregular thickening of the bone may be produced."—(Stengel's *Pathology.*)

OBSTETRICS AND GYNECOLOGY.

1. By the *hygiene of pregnancy* is meant the care which should be observed by the pregnant woman for the preservation of health and strength both of herself and of the fetus. The pregnant woman should take moderate exercise in the open air; in the last month massage may take the place of exercise. Daily bathing in tepid water, care of the teeth, regularity of the bowels, ample sleep in a well-ventilated room, plenty (but not too much) of simple, nourishing and easily digested food, at regular hours, clothing not too tight, especially about the abdomen and breast; attention to the nipples, regular examination of the urine, and the restriction of marital relations are the main points to which advice should be directed.

2.—

| PREGNANCY. | OVARIAN TUMOR. |
|---|---|
| The usual signs of pregnancy are present. | There is an absence of the chief sign of pregnancy, as a general rule. |
| The patient is generally in good health, with an increase of body-weight; there is no characteristic facies. | In advanced cases the ovarian facies is present—a pale, drawn expression, with yellowness of the skin and general emaciation. |
| The abdominal tumor is hard, non-fluctuating, situated in the median line, and reveals the fetal signs. | The abdominal tumor is soft, fluctuating, showing usually more or less growth to one or the other side, and does not reveal the fetal signs. |
| There is generally a suppression of menstruation. | Continuance of menstruation is the rule, although it may be altered in character; suppression has been noted. |
| The cervix is soft (Goodell's sign). | The cervix is probably not altered. |
| There is history of exposure to the possibility of impregnation, with rapidly developing enlargement in the median line. | The history is obscure, with a slowly developing tumor beginning on one or the other side. |

—(Dorland's *Obstetrics.*

3. "*Puerperal eclampsia* is an acute morbid condition, occurring during pregnancy, labor, or the puerperal state, and is characterized by tonic and clonic convulsions, which affect first the voluntary and then the involuntary muscles; there is total loss of consciousness, which tends either to coma or to sleep, and the condition may terminate in recovery or death. The *causes* may be: Uremia, albuminuria, imperfect elimination of carbon dioxide by the lungs, medicinal poisons, septic infection; predisposing causes are renal disease and imperfect elimination by the skin, bowels, and kidneys.

*Symptoms:* Headache, nausea, and vomiting, epigastric pain, vertigo, ringing in the ears, flashes of light or darkness, double vision, blindness, deafness, mental disturbance, defective memory, somnolence; symptoms easily explained by the circulation of toxic blood through the nerve centers. These may be preceded by lassitude, and accompanied by constipation or by diarrhea. Headache is perhaps the most significant and common warning symptom. In bad cases the urine is reduced in quantity (almost suppressed), very dark in color, its albumin greatly increased, so that it becomes solid on boiling. Next comes the final catastrophe of convulsions. The convulsive fit begins with twitching of the facial muscles, rolling and fixation of the eyeballs, puckering of the lips, fixation of the jaws, protrusion of the tongue, etc., soon followed by violent spasms of the muscles of the trunk and limbs, including those of respiration; hence lividity of the face and stertorous breathing, biting of the tongue, opisthotonus, etc. The fit lasts fifteen or twenty seconds, ending in partial or complete coma, possibly death; or consciousness may return, to be followed by other convulsions."—(King.)

4. *Management of inevitable abortion:* "Two methods of treatment have been advised for these cases. The first is *the expectant plan:* Place the patient in bed,

and if the bleeding is profuse insert a tampon of iodoform gauze (one yard) well up against the cervix. If this fails to control the hemorrhage, reinforce it by another yard or two of gauze and a perincal pad and binder. Small doses ($5\frac{1}{2}$) of the fluidextract of ergot should now be given every two or three hours. At the end of from eight to twelve hours remove the tampon, when the ovum may be found extruded from the cervix; if not, a vaginal douche of mercuric chloride (1:4000) must be given, and another tampon introduced. If, upon the removal of this second tampon at the end of ten or twelve hours, the ovum is not discharged, then more vigorous methods to secure its expulsion must be adopted. *Active plan:* The physician's hands and instruments are sterilized; the patient is etherized and placed on an appropriate table; the genitalia are thoroughly cleansed and a vaginal douche of mercuric chloride (1:4000) is given; the anterior lip of the cervix is brought down to the vulvar orifice; the cervix is dilated if necessary; the placental forceps is introduced into the uterus, and as much as possible of the ovum is removed; the uterus is thoroughly curetted, and an intrauterine douche of sterile water is given. A light tampon of iodoform gauze is placed in the vagina; the patient is then returned to bed. A strip of gauze may be placed in the uterus in cases of sharp retroflexion, to secure free drainage, and occasionally an intrauterine tampon will be necessary, when the uterus refuses to contract and hemorrhage persists after the use of the curette."—(*Pocket Cyclopedia.*) The dangers are: Sepsis, hemorrhage, and subinvolution.

5. *Ligature of the cord.*—"As soon as respiration is well established, lay the child on the bed on its back. Wait for a few minutes until the cord shows signs of ceasing to pulsate. Then take the cord at a spot about two inches from the umbilicus, squeeze away the Wharton's jelly so as to make it a thin cord, and apply a ligature, and tie tightly with a surgical or reef knot. Apply a second ligature about three inches from the vulva. The second ligature is not necessary unless there is a second child in the uterus, when it may save its life if the circulations of the two children communicate. Cut the cord between the ligatures half an inch from the umbilical ligature. Take care to hold the cord up on the fingers when cutting, otherwise you may easily injure the infant. When the child has been bathed and is ready to be dressed, the cord should be carefully dried; it should be seen that it is not bleeding; then it may be powdered with boric acid and starch powder and wrapped in a small dressing of dry sterile gauze."—(From Johnstone's *Midwifery.*)

6. The *hand may be passed into the uterus:* To aid in version, to extract an adherent placenta, to remove a piece of placenta which has remained behind, to stop a postpartum hemorrhage. Except in the last case (when there is no time to be lost) the hand should be made as sterile as possible, and a sterile glove should also be worn.

7. The *dangers in the use of forceps* are: Sepsis, injuries to the soft parts or to the child, and hemorrhage. All antiseptic and aseptic precautions should be observed, extraction should not be made too rapidly, the utmost care must be employed, compression on the fetus (particularly on the skull) must not be too prolonged, the mother's bladder must be emptied, and traction should be exerted only during the pains.

8. *Care of mother during puerperium: "During the first week* the patient keeps the bed, but after the first few hours she has considerable license. She may assume the sitting or half-sitting posture to take her meals and to nurse the baby, and, if necessary, for evacuation of the bladder and rectum. She should assume the lateroprone posture both right and left, several times a day, and lie upon her abdomen for at least an hour daily. Frequent change of position favors uterine drainage and massages the uterine supports. *During the second week* she has greater liberty, while the greater part of her time is spent on the bed or lounge. She may sit up for her meals, to urinate, and for bowel movements, and she should spend at least half an hour, twice daily, in abdominal and leg exercises to keep up her muscular tone. *The third week* she may be moved to a chair for a part of the day, having the liberty of the room. After sitting up for any length of time she should be instructed to take the genupectoral position before lying down. Prescribed exercises for the legs and abdominal muscles are to be taken daily. *The fourth week,* if all goes well, she may leave the room and have the benefits of air and sun. Physical exercises should be continued. The duration of the lying-in period and the degree of freedom to be given the patient after the second week must, however, depend on the character and amount of the lochia, the general progress of her convalescence, and the rate of the uterine involution."—(Polak's *Obstetrics.*)

9. *Phlebitis* is inflammation of a vein, and is due to infection during labor or the puerperium. The most rigid asepsis and antisepsis must be observed by physician and nurse; and nothing which is not as near sterile as possible should be allowed to come in contact with the genital tract of the parturient or puerperal woman.

10. *Mammary abscess* is characterized by pain, swelling, tenderness, feverishness. Sometimes it begins with a chill, fluctuation may be elicited, the neighboring lymphatic glands may enlarge. *Treatment* consists in making an incision radiating from the nipple, and drainage, though antiseptic and aseptic precautions must be observed; the breast should be put at rest for a couple of days; saline cathartics may be necessary, also supportive measures.

(*To be concluded.*)

## BULLETIN OF APPROACHING EXAMINATIONS

| STATE | NAME AND ADDRESS OF SECRETARY | PLACE AND DATE OF NEXT EXAMINATION† |
|---|---|---|
| Alabama* | W. H. Sanders, Montgomery | Montgomery |
| Arizona* | J. W. Thomas, Phoenix | Phoenix |
| Arkansas | W. S. Stewart, Pine Bluff | Little Rock....May 12 |
| California | C. B. Pinkham, Sacramento | Los Angeles ...June 16 |
| Colorado | David A. Strickler, Empire Building, Denver | Denver |
| Connecticut* | Chas A. Tuttle, New Haven | New Haven....July 14 |
| Delaware | J. M. Wilson, Dover | Dover.....June 16 |
| Dist. of Col'bia. | Geo. C. Ober, Washington | Washington....July 14 |
| Florida* | I. D. Fernandez, Jacksonville | Jacksonville |
| Georgia | C. T. Nolan, Marietta | Atlanta<br>Augusta.....June 3 |
| Idaho* | J. F. Schmershall, Jerome | Wallace |
| Illinois | A. Sawyer, Springfield | Chicago |
| Indiana | J. W. Gott, Crawfordsville | Indianapolis...July 14 |
| Iowa | G. H. Sumner, Des Moines | Des Moines.....June .. |
| Kansas | H. A. Dykes, Lebanon | Kansas City...June 9 |
| Kentucky | J. N. McCormack, Bowling Green | Louisville.....June .. |
| Louisiana | A. B. Brown, Cusach's Bldg., New Orleans | New Orleans...June 4 |
| Maine | F. W. Searle, Portland | Portland |
| Maryland | J. McP. Scott, Hagerstown | Baltimore.....June 16 |
| Massachusetts* | W. P. Bowers, State House, Boston | Boston.....May 12 |
| Michigan | B. D. Harison, 205 Whitney Building, Detroit | Ann Arbor...June 9 |
| Minnesota | T. McDavitt, St. Paul | Minneapolis |
| Mississippi | S. H. McLean, Jackson | Jackson.....May 12 |
| Missouri | J. A. B. Adcock, Jefferson City | |
| Montana* | Wm. C. Riddell, Helena | Helena |
| Nebraska | H. B. Cummins, Seward | Lincoln.....May 27 |
| Nevada | S. L. Lee, Carson City | Carson City...May 4 |
| N. Hamsphire | Henry C. Morrison, State Library, Concord | Concord.....July 1 |
| New Jersey | H. G. Norton, Trenton | Trenton.....June 16 |
| New Mexico | W. E. Kaser, East Las Vegas | Santa Fe |
| New York | H. H. Horner, Univ. of State of New York, Albany | New York<br>Albany.....May 19<br>Syracuse<br>Buffalo |
| N. Carolina | B. K. Hays, Oxford | Raleigh.....June 9 |
| N. Dakota | G. M. Williamson, Grand Forks | Grand Forks...July 7 |
| Ohio | C. J. Matson, Columbus | Columbus.....June 2 |
| Oklahoma | J. W. Duke, Guthrie | Oklahoma City |
| Oregon | B. E. Miller, Portland | Portland |
| Pennsylvania | N. C. Schaeffer, Harrisburg | Philadelphia...June 1 |
| Rhode Island | G. T. Swarts, Providence | Providence ...July 7 |
| S. Carolina | H. E. Boozer, Columbia | Columbia....June 1 |
| S. Dakota | P. B. Jenkins, Waubay | Deadwood....July 7 |
| Tennessee | A. B. DeLoach, Memphis | Memphis<br>Nashville....May ..<br>Knoxville |
| Texas | W. L. Crosthwaite, Waco | Austin.....June 23 |
| Utah | R. W. Fisher, Salt Lake City | Salt Lake City |
| Vermont | W. Scott Nay, Underhill | Burlington...July 14 |
| Virginia | Herbert Old, Norfolk | Richmond ...June 23 |
| Washington* | C. N. Suttner, Walla Walla | Seattle.....July 7 |
| W. Virginia | S. L. Jepson, Wheeling | Charleston....April 21 |
| Wisconsin | J. M. Beffel, Milwaukee | Milwaukee...June 30 |
| Wyoming | J. B. Tyrrell, Laramie | Cheyenne |

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for all the details regarding the examination in any particular State.

Oklahoma now reciprocates with the following States: Texas, New Mexico, Nebraska, Nevada, Michigan, Wisconsin, Indiana, Kentucky, Arkansas, Tennessee, Mississippi, Georgia, North Carolina, West Virginia, and New Jersey.

**The Backflow of Pancreatic Juice into the Nursling's Stomach.**—A. Reiche concludes from his observations that there is a distinction between the young infant and the adult in regard to the backflow of pancreatic juice into the stomach. Whereas, in the adult this phenomenon has been frequently observed, in the nursling it has not yet been demonstrated. The digestion in the nursling's stomach of fat and albumin by means of the ferments of the pancreatic juice may therefore be excluded.—*Zeitschrift für Kinderheilkunde.*

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## Original Articles.

### THE NUTRITIVE SIGNIFICANCE OF DIFFERENT KINDS OF FOODSTUFFS.*

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Among the modern sciences that bear upon the everyday life of man there are few which appear to meet with so little popular recognition as does the science of nutrition. The average individual, among laymen and physicians alike, regards the fundamental problems of food and diet as permanently solved. He worships the dictates of custom and habit in matters pertaining to his nutritive welfare, satisfied to depend upon the long experience of the past. A person who has promptly accepted the latest and most radical pronouncement of modern hygiene and adjusted his living conditions to meet the newest suggestions in the domain of sanitary science, is as likely as not to ridicule even the conservative conclusions of a student of dietetics.

Few of us realize that despite the apparent permanence of our dietary habits, these really represent the results of a progressive change in methods. Man did not always prepare his food by the procedures which are now-a-days regarded as fixed and unchangeable. Until the art of cooking was perfected the régime of the human individual must have been different from much that is now almost universal. Primitive methods were inevitably unlike the present day practices. "Water could not be a cooking medium until man advanced at least to the first stage of pottery making, when some rude basket daubed with clay was water-tight and sufficiently heat-proof." (Kinne and Cooley.) Indeed, one may well ask why we cook at all. "Primitive man thought only that the food had a better taste. He may have decided, too, that it was easier to masticate; but we have learned that in some cases we may, with right methods of cooking, make it easier to digest farther on in the alimentary canal. Modern science carries us a step farther and teaches us that cooking destroys lower organisms, such as harmful bacteria that may be present, and even animal parasites in meats." (Kinne and Cooley.)

Again, peoples in widely separated parts of the earth subsist upon the greatest diversity of unlike foods. The meat and blubber of the Eskimo contrast with the rice and vegetables of the Filipino in source and numerous details of composition; yet no one would venture to maintain that either dietary is utterly inadequate. In the face of such reminders of the inequalities of food supply set by geographical or economic conditions, and of the variations progressively evolved in the historic development of races, we need no longer approach the question of possible reforms in dietetics in an apologetic way. On the contrary, he would be rash indeed, who were bold enough to assert that the final word in relation to practical nutrition has been spoken.

Food constitutes the chief item of the living expenses of the people; yet most of them understand very little about what it contains, what are its functions as nourishment, whether they are economical or wasteful in their purchases and the preparation of the diet, and whether they are satisfying their nutritive needs in adequate measure. The reason for such ignorance a generation or two ago is easily appreciated. The first analyses, by modern methods, of materials for the food of man or domestic animals were not made in this country until 1869. Little was known about the composition of the body, of the nature of the nutritive ingredients, and the amounts of them required. Since then progress has been rapid. The statistics of nutrition have been accumulated abundantly and widely.

Probably no single contribution to the science of nutrition has been more fruitful in its consequences than the calorie idea. It was no small achievement to put the body's need for physiological fuel upon a definite basis and to give a concrete significance to the energy factor in nutrition. The food requirement has at length become a matter of accurate estimation rather than intuition. Undernutrition can be demonstrated by direct dietary investigations. The increased demands for food fuel for the working man, as well as the relative abundance of the ration of the infant at different stages of growth, need no longer remain veiled in the mystery of guesswork.

Only within the past twenty years has the development of scientific methods rendered possible really accurate investigations relating to these questions. As Professor Armsby has lately expressed it: "They show that the transformations of chemical energy into heat and work in the animal body take place according to the same general laws and with the same equivalencies as in our artificial motors and in lifeless matter generally. The great law of the conservation of energy rules in the animal mechanism, whether in man, carnivora or herbivora, just as in the engine. The body neither manufactures nor destroys energy. All that it gives out it gets from its food and all that is supplied in its food is sooner or later recovered in some form. We are fully justified, therefore, in speaking of the food as body fuel, and in our studies of its utilization we may be confident that any food energy which does not reappear in the

*Read at a meeting of the New York Academy of Medicine, March 19, 1914.

form of heat or work has not been lost but has been stored up in the body as the chemical energy of meat, fat, etc., which may later serve to supply food energy to the human body."

There are, however, certain limitations in the application of the calorie idea in nutrition that are sometimes overlooked. It is not sufficient that a food material should give evidence of energy-yielding components in the laboratory of the food chemist. The energy must be available. Filter paper and cotton wool, finger nails and hair, paraffin and wax, are instances of carbohydrate, protein, and fat-like products; but inasmuch as they cannot be digested and absorbed by man the calories which they yield in the laboratory can never be put at the service of the organism. Physiological analysis must supplement the conventional tests of the chemist whenever innovations in articles of diet are proposed.

The foregoing remarks serve further to direct attention to another step in the path of progress—the recognition of the dominant importance of digestion in nutrition. The familiar proximate principles in the foods—the fats, carbohydrates, and proteins—are not the immediate nutrients of the tissues. The functions of tissue construction and metabolism are relegated entirely to the products of the profound digestive changes to which the food is subjected in the alimentary tract. It is amino-acids and simple sugars like glucose, not albumin and starch, nor albumose and dextrin, nor even so simple a compound as cane sugar, that furnish the immediate pabulum for the hungry cells. It would be interesting, if time permitted, to dwell upon what this newer knowledge means in the practical work of the physician. To furnish undigested food where the alimentary processes are an impossibility, is a useless waste and may be a positive menace.

The modern conception of dietary deficiencies, rudimentary as it still is, nevertheless differs fundamentally from the food superstitions of a century ago. The development of the idea that the ration of man can be defective in both quantity and quality has served to place many disease conditions in a new light. Invading microorganisms and pathological neoplasms are no longer to be regarded as the sole forms of menace to the body. A pronounced lack of iron or of calcium may also bring nutritive disaster in the long run.

Deficiencies of this sort are not as common as those of protein and energy. Instead of providing for them from the drug store, however, we are learning to supply iron by using larger quantities of eggs, green vegetables, fruits, and the coarser milling products of the cereal grains; and to correct a shortage in calcium by using larger amounts of milk and cheese. Indigestible food material, as it occurs in so many plant products in the form of cellulose and related carbohydrates, is properly looked upon as "roughage"—an adjuvant furnishing to the diet a frequently desired texture or bulk.

Among the novelties of viewpoint in the domain of food deficiencies is the appreciation of the chemical dissimilarities between different proteins. They vary among themselves in respect to the proportions of the amino-acids which they can yield. Some, like gelatin or like zein, the chief protein of the maize kernel, are even completely lacking in certain of these nutritive units. The possible physiological significance of this appears in a new light, now that the apparent inability of the animal body to construct some of the amino-acids is known. There are amino-acids, like tryptophane, which are doubtless indispensable to life; others, like lysine, which are essential for new tissue construction such as occurs in growth; others again, like glycocoll, which the body itself can manufacture as needed. The physiologically balanced ration of the future, therefore, will not merely take into account the energy value and relative proportions of the great groups of familiar nutrients. It must realize the need of a suitable supply of more specific products. The widely debated question of high- and low-protein derives a new significance when the dissimilarity of the individual proteins and their unlike nutritive rôle is taken into account. It is futile to speak of a protein minimum; for there are various minima set by the chemical unlikeness of the nitrogenous components of the diet.

Recent researches have revealed the possible existence of even more subtle factors than the energy-yielding fuel or the tissue-constructing components of the diet. Thus supposed growth-promoting constituents, minute admixtures of substances which avert special forms of malnutrition such as are seen in scurvy and beriberi, and similar, as yet vague, food accessories are being presented for recognition. The appreciation of the possibilities in this field has only begun, and the overhasty generalizations already heralded are to be condemned. One need, however, only recall the remarkable Wisconsin experiments showing the widely unlike outcome of the prolonged feeding of cattle on so-called balanced rations, derived in each group entirely from a single plant source, to learn the importance of the newer knowledge. Fortunately the diet of most classes in our American communities is so varied that the chance of continually missing essential adjuncts is small. For this reason every innovation pertaining to the nutrition of the masses should favor a comprehensive rather than a restricted source of the nutrients. No fad or doctrine which limits the range of food supply should be tolerated so long as our information is still so limited. Too often it is prejudice or propaganda, rather than poverty, which enforces unsuspected deficiencies.

A few instances of widespread misconceptions and bias in respect to foods may serve to emphasize some of the points already alluded to. An unjustified prejudice against certain so-called "artificial" foods is still retained in the minds of many. This applies especially to commercial glucose. It is not easy to understand why the hydrolysis of starch in a factory needs to be condoned, when one recalls the similar service which is daily rendered by the alimentary tract of man. Unfortunately the misguided policy of a few manufacturers, whose unscrupulousness now appears more as an exhibition of stupidity than of crime, has served to divert attention from the fundamental teaching of science in respect to glucose. Quoting an authoritative government bulletin: "Its nutritive value is practically the same as that of other carbohydrates, and there is no reason to suppose that when properly made it is not wholesome." (Abel.) Obviously the extensive use of isolated foodstuffs like glucose, in the dietary, might well lead to a nutritive impoverishment in the important accessories that occur in the natural foods. That is, however, another matter and applies equally well to commercial cane sugar which is, in a sense, likewise an

"artificial" product sanctioned by the custom of comparatively few years. Aside from the peculiar appeal which cane sugar makes to the palate there is at present nothing to recommend its superiority over the other related sugars that find their way into the diet. I might cite the most vigorous condemnations of cane sugar and beet sugar respectively in current publications—all based upon a fabric of pseudoscience or ignorance.

The debate of red *vs.* white meats is resumed at less frequent intervals than formerly and would scarcely deserve mention here were not physicians the chief offenders in reviving it. Unfounded discriminations and prescriptions of this sort sometimes involve unnecessary expense to those who can least afford it.

In the undervalued and maligned banana we have an example of what ignorance and improper habits of eating can do to detract from the deserved popularity of a wholesome food. Bruised, damaged, and exposed to decay by improper methods of marketing and serving, though nature furnishes the banana in a sterile package; eaten before it is ripe because the green fruit appears more attractive to some; insufficiently masticated by many, though rarely by untutored children; this delicious fruit has acquired an unmerited reputation as an indigestible offender. The real culprit is man, not the banana; and why he should disdain a raw potato or a green apple, yet attempt the alimentary conquest of an unripened, indigestible starchy banana instead of the duly ripened sugary fruit—and then expect comfort—is a mystery.

Owing to an inexplicable tradition of unknown origin it is still necessary in America to issue a physiological defence of cheese. Although it has been employed in the most diverse parts of the world for untold years as a staple of diet, there are not a few people who continue to regard this relatively cheap, wholesome, and palatable food product as likely to produce alimentary disturbances. It is high time for this delusive assumption to be dismissed from the public mind. The myth of the indigestible cheese belongs in the same category with indigestible beefsteak or indigestible milk or indigestible pie—all coming within the range of human possibility, but chargeable primarily to culinary or personal shortcomings rather than to any dietetic imperfection of the food itself. Condimental cheeses of high flavor and peculiar texture may best accompany a moderate menu and thereby add to its attractiveness, but the mild-flavored sorts can well serve as substantial components of the dietary to replace other protein foods, particularly where expense is an item of inevitable importance.

The prejudice against skimmed milk has a different origin. It owes its inception to the undisputed fact that the removal of the cream decreases the nutritive value of milk, and if done surreptitiously constitutes an adulteration and a fraud. The residual milk is, however, in no way damaged by the lack of fat. It is a wholesome source of protein, sugar, and other dietary essentials which should not be despised because they are present in a discarded by-product of cream and butter manufacture which sometimes is misrepresented to be whole milk. The widespread aversion to the purchase of cream-free milk is undoubtedly in part due to the confusion of the criminal motives of an occasional dairyman with the residual nutrient possibilities of the food product.

Among other familiar dietary traditions is found the idea that all acid fruits, or strictly speaking, the organic fruit acids, function as true acids in the organism. Most of them, like citric and malic acids, to which may be added the widely used lactic and acetic acids, are burned up in metabolism, so that their salts behave like potent alkalies. Sodium citrate is equivalent in this sense to the carbonate of the alkali. Tartaric and benzoic acids form exceptions to the rule and traverse the body unchanged. The grape and plum, the prune and the cranberry, with their non-metabolizable acids, thus differ from the apple, orange and lemon, from vinegar and sour milk, in respect to the behavior of their acid component.

It is not only in the direction of antipathy that dietary notions are often perverted. Certain foods, like the mushrooms, have been the subject of overenthusiasm. We read about the neglected wealth of delicious vegetable beefsteak of the fields left to decay when it might fill the nutritive wants of the underfed multitudes, if only they were encouraged to gather the fungi. The error of the belief was pointed out by me long ago. The edible mushrooms are anything but rich in the longed-for protein; indeed, they scarcely approach the crudest vegetable in food value. The chemist, like the mushroom lover, has in the past been misled into false conceptions regarding the virtues of these vegetative forms.

Final pronouncements are not always reliable in the domain of nutrition. Viewpoints may change. A few years ago we learned to reject the claims of the extraordinary virtues of the extract of meat as a real nutrient. To-day, while admitting the justice of this attitude, the newly recognized unique influence of the same product in provoking the flow of the digestive juices places a new interpretation on the dietary rôle of soups and bouillon, and opens a new field for their application in dietotherapy. The new researches in anaphylaxis have likewise taught the need of conservatism in judging alleged idiosyncrasies to food. Strawberries, buckwheat, eggs, milk, shellfish—all may offend the hypersensitive individual in ways that promise soon to be explained along rational lines. Well authenticated claims need to be recognized and interpreted in some more modern spirit than that which expresses itself in the indefinite misnomers of autointoxication or ptomaine poisoning.

The time has come for the unravelling of fact and fancy in practical dietetics. It is not unlikely that some of the apparently inexplicable, yet empirically demonstrated results of special forms of feeding may become untangled as the newer ideas are introduced into the analysis of problems of nutrition. The studies of Osborne and myself and others on growth lend some sanction to the popularly accepted superior value of cod-liver oil, of egg yolk fat, and butter in contrast with other more familiar food fats. There are demonstrable physiological virtues in milk which cannot be expressed in terms of energy or the familiar nutrients. In breaking away from stolid empiricism and conservative indifference in matters of diet, we need not be blind to the valuable contributions embodied in the experience of generations of mankind. But when the physiologist has succeeded in some degree in interpreting or correcting this experience, it will become the duty of the dietitian and of the physician to act as advance agents in the promulgation and the application of the newer knowledge in everyday life.

# FOOD FROM THE STANDPOINT OF ENERGY.*

By GRAHAM LUSK,

NEW YORK.

THE popular agitation of the pure food question has caused the mind of the public to respond to certain chords of enthusiasm when struck by certain leaders of the movement and yet there is much of underlying truth which has entirely escaped the serious minded individual. This is due to the fact that there has been necessarily involved in the movement much that is in the nature of commercial warfare. Take, for example, the manufacture of tomato catsup. One manufacturer heralds his product as a pure food product because it is free from benzoate of soda. The public is delighted and trustfully purchases the product. It has no knowledge that the quantity of benzoate in the rival product is so small as to be entirely harmless, or that the catsup which is free from benzoate may have been prepared from decayed tomatoes whose inferiority is entirely disguised by the oil of cloves and other spices which have been added to the preparation.

This shows that, above all, pure food calls for honest inspection at the sources of its production and distribution. It means cleanliness. And this begins in the individual home, in the icebox of the citizen and next in the icebox of his butcher. Sometimes one wonders of what value pure food can be to the poor when they are permitted to use the streets in which their children play as places for the dumping of refuse.

Another imperfectly understood problem is the quantity of food needed for the support of a man. This ignorance causes much misunderstanding and is all the more astonishing since successful cattle raisers have long since applied the principles of scientific nutrition for the well being of their cattle and with wonderful success. Why not the same for babies and for families? The educated physician can intelligently prescribe proper diets for the sick. Why cannot scientific knowledge be made effective in welfare work among the general populace? Instead of the distribution of real knowledge one can recall the political war-cry of a "full dinner pail" and the socialists' dogma that half the world is starving. A newspaper has published articles on "Starving America," in words calculated to make the judicious grieve and the hair of the nervous to stand on end. If there were any truth in the allegation that America is "starving" it would be indicated in the vital statistics, and the citizen of New York City would not be able to point to the fact that the death rate was lower in 1913 than in any of the great cities of the world.

If the statements which have been made in these opening remarks appear to be sensational and contrary to the doctrines expounded by one's favorite newspaper, it should be recalled that the truth is often sensational. It has been stated that if at the beginning of the month a person made up his mind to tell the truth freely on all subjects, he would find himself in jail before the month was over.

Even an educated person accomplishing his usual tasks and enjoying the pleasures of life may never have thought that all his activities were dependent on the oxidation of the food stuffs which are in his breakfast, dinner, and supper. A word with him about his "heat production" reveals the fact that he is not aware that he is producing any heat—except when he is angry. His life is so full of interesting events and pleasant reflections that it has never occurred to him that the dead body is cold because the oxidative processes are no longer active, and that his body is warm because of the continued burning of materials within himself. This maintains him as a machine. When he has taken vigorous exercise to which he is unaccustomed, he rejoices that he has a fine appetite, but he does not consider that the larger intake of food is merely to replenish the body on account of the increased fuel consumed by the body's muscles in order to accomplish the work done.

The demand of the body for fuel in the form of food is inexorable. If it is not supplied death from starvation occurs. In the case of infants it takes days in the case of adults weeks to bring about the fatal result.

How necessary a knowledge of nutrition may be follows from this typical story. The father was a woodsman of the mountains, and the local physician deficient in a knowledge of nutrition. The baby was sick, retained no milk when given it, and had been placed on a diet of oatmeal water with a little milk sugar. The baby cried all night, the mother was worn out, and the physician reported the case as one of chronic malnutrition. The remedy was easy. Diluted whey and milk sugar led up to diluted milk and milk sugar, calculated to contain a sufficient supply of energy. The baby slept and throve. The alleged state of "chronic malnutrition" was nothing but one of partial starvation.

The body of the infant must be supplied with food to promote growth and to maintain the motions of life whose sum total are measured by the heat produced. In the adult a quantity of food fuel is necessary to maintain the body in repair and to yield the energy which affords the power to accomplish mechanical work.

Dr. Mendel has spoken about the limitations of the caloric method of computing nutritive values. And yet, all in all, it is the best method. Nature, through the device of appetite, usually provides against the use of wrong food. A man who leads a life of sedentary occupation requires 2,500 heat units or calories to maintain his body machinery. He needs also water, salts, proteins, and certain newly discovered substances called vitamines. All these materials are to be found in milk, beans, bread, and other great fundamentals of nutrition. He will not take solutions of cane sugar or of glucose as the exclusive mainstay of his life. Yet glucose taken alone yields 2,500 calories at a cost of 4 1/6 cents, and 2,500 calories in the form of cane sugar costs 8 1/3 cents. Glucose is the cheapest food fuel known, but, like cane sugar or butter fat, is not a complete food, in that it does not contain everything necessary for life. Commercial glucose is absolutely harmless. The author has taken 4 ounces in water, a friend has taken 8 ounces. Of course, this does not mean that because one can take into the system 750 calories contained in glucose and oxidize it, that glucose alone can exclusively be used, in the way that gasoline can be used in the engine. Human fuel is always a mixture of food substances and mixed so that the taste is agreeable. Glucose has been frequently administered in typhoid fever and children of the author's friends have taken it without the slightest harmful result. Pancakes eaten with a syrup in

*Read at a meeting of the New York Academy of Medicine, March 19, 1914.

which glucose forms the basis of composition gives a cheap and nutritious form of food strengthening and appetizing to young and old alike.

This merely presents the idea of how food may be regarded as fuel.

It has already been remarked that the person who leads a life involving sedentary pursuits requires 2,500 calories for his maintenance. Recent work of Becker and Hämäläinen in Finland has shown how much energy is needed by people in various occupations. The women may be first considered. The work day was of eight hours.

A seamstress sewing with a needle required 1,800 calories.

Two seamstresses using a sewing machine required 1,900 and 2,100 calories, respectively.

Two bookbinders required 1,900 and 2,100 calories.

Two household servants employed in such occupations as cleaning windows and floors, polishing knives, forks and spoons, polishing copper and iron pots, required 2,300 to 2,900 calories.

Two washerwomen, the same servants as the last named, required 2,600 and 3,400 calories in the fulfilment of their daily work.

Concerning the fuel requirement for the occupations of men:

Two tailors required 2,400 to 2,500 calories.

A bookbinder required 2,700 and a shoemaker 2,800.

Two metal workers, filing and hammering metals, required 3,100 and 3,200 calories.

Two painters, occupied in painting furniture, required 3,200 and 3,300 calories, and two carpenters engaged in making tables required the same amount of energy.

Two stonemasons chiseling a tombstone needed 4,300 and 4,700 calories.

Two men sawing wood required 5,000 and 5,400 calories.

The proverbial reputation of sawing wood as a strenuous occupation has here its scientific verification and explains the disinclination of the hungry to engage in this useful occupation, as well as the unpopularity of charitable wood yards.

The above-mentioned series of experiments were made upon men and women the intensity of whose oxidation processes was determined by the direct measurement of the carbonic acid gas which they expired. The calories required were calculated from this. It was further found that this calculated requirement of energy was approximately the quantity which the individuals were actually taking in their food.

The figures are highly significant. A man must have sufficient calories in his diet if he is to live properly and perform labor satisfactorily.

| | Cost in Cents per 1,000 Calories | Per Cent. of Calories in Protein |
|---|---|---|
| Glucose | 1 2-3 | 0 |
| Corn meal | 2 | 8 |
| Wheat flour | 2 1-2 | 12 |
| Oatmeal | 2 4-5 | 13 |
| Cane sugar | 3 1-3 | 0 |
| Dried beans | 4 | 19 |
| Salt pork (fat) | 4 1-2 | 1 |
| Rice | 5 | 7 |
| Wheat bread | 5 1-3 | 12 |
| Oleomargarine | 7 1-2 | 0 |
| Potatoes | 7 1-2 | 8 |
| Butter | 10 | 0 |
| Milk | 10 | 17 |
| Smoked ham | 10 3-4 | 34 |
| Cheese | 11 2-3 | 25 |
| Loin pork | 12 1-4 | 18 |
| Leg of mutton | 16 1-4 | 30 |
| Sirloin beef | 21 | 37 |
| Turkey | 40 1-4 | 37 |

One may reach an approximate monetary valuation of energy from the preceding table which shows the cost of 1,000 calories in various fundamental foodstuffs. In a second column the percentage of protein calories has been added.

These are foods at Washington Market prices. If the cost of cooking and serving and rental be included, the cost increases. Thus at Child's restaurant pork and beans served with three slices of bread and a piece of butter costs 18 cents per thousand calories. This restaurant caters for a well-to-do portion of the public.

It would be a matter of great interest if some benevolent person would establish a restaurant which prepared pork and beans on a large scale and sold it hot with bread and with a large cup of hot coffee which was made half with milk. Possibly in this way 1,000 calories in a well-balanced ration could be sold for about 10 cents, and most people after leaving such a repast would feel very comfortably satisfied. It would be most economical to serve only this one satisfactory ménu. If the patron of such a restaurant acquired larger means he could buy beefsteak at his pleasure elsewhere, but he could always feel that something substantial and of benefit to his body could be had for 10 cents (or less) if he wished it. It would be a fine alternative to the free lunch offered in the saloon. It seems as though the sale of a standard balanced ration at little or no actual profit is a very reasonable way to help the hungry and strengthen those who do not understand the right way in which to obtain real nourishment for the support of their work.

Of course, it is understood that this diet will not satisfy everybody. It especially will not satisfy those of all classes who demand the luxuries of the world without rendering to the world an equivalent therefor.

The writer has elsewhere ("The Fundamental Basis of Nutrition": Yale University Press, 1914) set forth his view regarding the desirability of placing on the label of every package, can, glass, or jar containing food, a statement as follows: "This contains x thousand calories, of which y per cent. are proteins of grade A, B, C, or D." The adoption of such a plan would, at a glance, inform the prospective purchaser the approximate nutritive value of the article examined.

There has been space to follow out only a certain line of thought, but the whole question of economical nutrition is well worthy of serious consideration. It should be taught to girls in the schools that in their own homes benefits may be reaped. The science of nutrition offers to social workers much that could be of value to the community if it were well enough understood to be practically applied.

## RESULTS OF THREE YEARS' CLINICAL WORK WITH A NEW ANTISERUM FOR CANCER.*

By WILLIAM N. BERKELEY, A.B., M.D.,

NEW YORK.

THIS paper is a clinical summary of my experimental work of the last three years upon the preparation of an antiserum for cancer. The first two of the three years' work was partly done at the Loomis Laboratory of Cornell University, with the very helpful scientific advice and sympathy of the director, Prof. S. P. Beebe, to whom my hearty

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thanks are herewith extended, as well as to the trustees of the Huntington Cancer Research Fund for valuable financial aid.

The work here described has been in direct continuance of that provisionally reported before this same Section in February, 1912—two years ago—by Dr. Beebe and myself.

But little introduction is required. I may, however, observe once more, as was remarked in the former paper, that local remedies for cancer, such as fulguration, radium, and *x*-rays, can rarely meet the indications in full, because typical cancers metastasize, and the secondary growths develop in distant vital organs where local treatment is impossible. Therefore a scientific remedy for cancer must be one which is soluble in the blood and lymph, capable of transportation, thereby, to all portions of the organism, and possessed of a selective affinity for the cells of the tumor to be destroyed.

In view of the numerous and successful modern immunity studies of the bacterial cell (tetanus, diphtheria, and others) it is but a step to conceive of the plan of attacking the cancer cell in the same way. The idea was advanced years ago by v. Dungern and a voluminous bibliography was published on the subject by E. Vidal in 1911 (Transactions of the International Cancer Congress, Paris, same year), with some suggestive experiments by the author along the same line. Beebe's success with a thyroid antiserum in 1906 gave a further stimulus to the cytotoxin idea in this country; and there is little doubt that the human ascitic fluid so successfully used by Eugene Hodenpyl during the two years before his untimely death in 1910 was of the same general character.

Perhaps the measure of success that has attended my own work, where so many others have failed, has come largely from careful attention to small details in the chemistry of the cancer antigens used, and to patience in studying the effects of injections in various parts of the body of the experimental animal, dosage, interval between doses and species of animal used. All these points, however, will be considered at a more convenient season. This paper is a report of clinical results only, and is addressed exclusively to practising surgeons.

For a surgical cure of cancer four or five years are usually demanded; hence, my present results are provisional only. But they are, I think, worthy of comment.

To gain a sufficient and convincing clinical experience I have used my serum upon patients with many kinds of malignant tumors, and in all clinical and pathological stages. Out of 104 cases seen in the period mentioned only 15 were turned away as being too far advanced to give reasonable hope of at least temporary relief.

In the same period I have received between 135 and 140 tumors sent me from time to time by surgical friends interested in the research. Of these growths about 25 per cent. proved to be nonmalignant or atypical; the rest were used in making stock and autoserum.

Of all the malignant growths removed by primary operation microscopic sections are now in my possession except in three instances—where the clinical evidence was overwhelming, or where some other pathologist was intrusted with the diagnosis. In the cases of recurrent and inoperable cancer that have been treated also, I have sections of nearly all the growths. All these sections are now on file.

The clinical diagnosis was made in nearly every case by from two to a dozen surgeons, some of them among the most eminent in this country, and errors in the cases diagnosed malignant I believe to be negligible.

The Serum.—Taking first the serum, it has been given in doses of 5 to 50 c.c., intravenously and subcutaneously at intervals of a few days. It has been used in most cases unmodified except by inactivation. Latterly I have gotten much more satisfactory results with a serum concentrated by the method of E. J. Banzhaf, of the New York Department of Health. And here I must not neglect to acknowledge gratefully Dr. Banzhaf's personal and kindly assistance in this part of the work.

The *anaphylactic effects* (blushing, swelling, urticaria, pain, and rise of body temperature) with the unmodified serum have continued to be about as formerly reported. Out of several hundred injections there have been two cases (not in my care) of immediate and alarming anaphylactic shock following intravenous administration, from which, however, the patients made a prompt and satisfactory recovery after stimulation. Such accidents can, I believe, be largely avoided in susceptible patients by suitable precautions, and by using concentrated serum, which is much less toxic. On the other hand, some patients have repeatedly taken 30 c.c. of rabbit serum and 50 c.c. of sheep serum intravenously without the slightest local or general reaction, and one patient looked forward with pleasure to her (subcutaneous) injection and always felt better within half an hour after.

*Therapeutic Effects.*—In the matter of laboratory tests of the efficiency and strength of the various sera sent out, progress of the highest importance has been made. Precipitin reactions I have given up. They may be made readily to occur with fresh suspensions of cancer cells (sterilized with chloroform, not over four days old), but, while specific to a certain extent, the quantitative relations *in vitro* are vague, and the clinical results variable. Latterly I have found that a complement fixation test is quite practicable. and not only practicable but so delicate that the amount of antibody in each serum may be accurately titrated. I should, perhaps, make this claim with some reserve, inasmuch as many professional serologists say it has never been done before by any one who knew how, and a few even declare that it cannot be done. However, this is a part of the subject that will require careful treatment elsewhere.

After early primary operations we are able, of course, to judge of "cure" only by the failure to recur in a given time, but in treating secondary or inoperable growths one may reasonably rely upon the following criteria: (1) Relief of pain, (2) gain in weight, (3) shrinkage of the tumor.

The serum is best given in ascending doses intravenously. When this method is badly borne intramuscular injections will be found to work almost as well. As in the case of all therapeutic sera, immunity develops (anti-antitoxin) generally after six or eight injections. Though there have been some happy exceptions to this rule, the indications are that a cancer which cannot be cured by six or eight maximum injections will not be amenable to the serum treatment.

Clinically this confines the serum treatment to: (1) The destruction of microscopic remnants left after a primary operation; (2) the production of

immunity to cancer in persons not yet clinically ill of the disease but threatened with it; *e.g.* cases of *leucoplakia linguæ*, old ulcer of the stomach, bad cervical tears, chronic uterine inflammation, persistent mastitis. Such an application as this may not unlikely prove to be its sphere of greatest usefulness as soon as it can be prepared in larger quantities and at less expense. But the demonstration of its prophylactic value in these cases will, of course, be generally denied till its curative effect has been set upon a permanent basis; (3) a very few early and localized recurrences will probably be curable.

CASES.—Eighty-nine cases were regularly undertaken. Several changed their minds after operation and refused the serum. Several died of the immediate surgical procedure. In my early ignorance of the proper dosage and fear of dangerous by-effects I gave my first two cases six and eight doses respectively of one-half of one cubic centimeter. Both recurred in six weeks. Three cases received one dose (5 c.c.) only, and cannot be counted. This leaves 71 cases—32 secondary or inoperable and 39 treated after primary operation.

None of the cases classed as inoperable has been cured, but from the point of view of the research the results are of prime importance. Over two-thirds of them made a favorable response for a time; only six or eight entirely failed. Out of the 25 that were benefited I may call attention to the following, selected almost at random:

Case 20 in my files, maiden lady of 43 years, had a foul, ulcerated recurrent breast tumor 3 inches in diameter. The ulcer healed in six weeks, and in two months nothing was left of the growth except a nodule of the size of a hickory nut. The patient then unfortunately refused further treatment. I have written to her physician, Dr. Samuel Pierson, of Stamford, Conn., for recent news of her. No reply. Microscopic sections from this case were examined by four of the best pathologists in the city. All called it typical cancer.

No. 3 had a huge infiltrating cancer of the left lower jaw starting in the mucous membrane of the mouth near the tonsil. Pain entirely relieved for six weeks, and tumor reduced to half its size.

No. 7, an aged laborer, had a slowly growing cancer of the esophagus and had swallowed no solid food for nearly two years. After three injections his pain was entirely relieved, and he ate meat, bread, and vegetables for several weeks. The effect of the serum then wore off and the patient relapsed.

No. 16, fungating cancer of the tonsil, Irish laborer, 55 years, was relieved of his pain for six weeks, and part of his tumor sloughed, the rest shrinking somewhat, then slowly beginning to grow again.

No. 25, in care of Dr. L. G. Baldwin, had a recurrent uterine cancer in the bladder and vaginal *cul-de-sac*. Bladder symptoms disappeared for several weeks, and the vaginal nodule was reduced to half its size. All the symptoms then recurred without further response (cervix serum).

No. 27, recurrent breast cancer, supraclavicular nodules softened and shrunk, and pain relieved for two weeks; then relapsed (breast serum).

No. 19, unmarried woman of 40 years, breast case. Recurrent cutaneous nodules and enlarged axillary glands shrunk up markedly, some disappearing. Pain relieved entirely and morphine discontinued up to the time of her death, which was caused by influenza 6 months after treatment was begun.

No. 2, boilermaker, 46 years, referred by Dr. B. P. Riley. Massive cancer of the tongue; whole organ was involved and had attained the size of a bullock's tongue, protruding from the mouth; agonizing pain, cachexia, enlarged submaxillary glands, enlarged spleen. Pain relieved for three weeks, general shrinkage of the growth; spleen at the end of two weeks hardly palpable. Symptoms then recurred, and the patient ceased to respond to the injections.

The following report of No. 22, which I did not see, has been kindly sent me by Dr. John Van Doren Young, her physician, (original letter on file): "The patient, Miss V., 38 years old, came to me January 30, 1912. She had a large carcinoma of the right breast which had ulcerated, and the axillary glands were also involved. The left breast was also a mass of carcinoma; glands not so large and no ulceration (diagnosis confirmed by microscope). Operation February 2, 1912; both breasts, all muscles and glands removed—a most severe and as complete an operation as possible. March 13 I removed nineteen small recurrences. Within a few days several more were seen and I asked Dr. W. M. Ford to see her in consultation. When he examined her there were thirty-five nodules. After the first injection of serum sent by Dr. Berkeley no more made their appearance, and those that were present turned blue in the course of the next five injections, then dimpled, turned blackish, dried, and could be picked off. * * * I do not know how to interpret the effect in this case, but it was most remarkable."

This patient was a Spanish lady, only temporarily in New York and without means, and when Dr. Young refused to guarantee her a cure from further treatment her friends sent her back to Europe, where she has since died.

There is nothing in the literature of the action of normal heterologous serum like this; it appears to me unreasonable to suppose that such effects can result except from a specific antibody.

*Cases Treated After Primary Operation.*—Of the thirty-nine cases treated with autogenous or stock serum (or both) after primary operation it must be noted that my work has been little advertised, and that the natural tendency of surgeons after a complete and clean primary operation is to hope for the best and trust to the operation alone for cure, only referring their cases when such hope is manifestly gone. Consequently my "primary" list is a relatively unfavorable one to begin with.

Furthermore, the amount of growth left behind, and its circulatory accessibility (bone, lymph-nodes, scar-tissue) is always in a measure conjectural, and the correct dose of the anti-serum (quantitative relation) is correspondingly in doubt. This I believe to be the main cause of failure when failure has occurred.

However, if we count out four cases in which a large and rapidly growing tumor recurred in the wound within three weeks following the operation (before any serum was available), and three more in which liver and spleen were already enlarged when the operation was done, there have been seven failures. I might try to explain these away, but it looks fairer simply to admit them as failures.

Of the successful cases those not recurring in nine months, of course, prove little, but with some among the apparent cures (all of them called by the surgeons "bad cases") the time elapsed since operation is two years, one year and eleven months, two years and two months, two years and five months,

two years and eight months, two years and one month, two years and nine months.

Several of these are of unusual interest.

No. 16 (Miss L., Dr. R. M. Rawls) had a relatively small cancer of the breast, which had, however, spread extensively in the axilla, and was removed only with great difficulty (Halsted operation). She received the serum intravenously without the slightest clinical reaction, not showing even a rash. She was reported in health twenty-one months after operation. Dr. Rawls thinks she is still well.

No. 19 (Dr. W. M. Ford, July, 1911) had a tumor of the breast which weighed, when dissected out cleanly after operation, nearly 2 pounds. She was in perfect health when last heard from and at work in a New York department store.

No. 5 (Dr. L. G. Baldwin) had a large malignant ulcerated breast tumor, numerous glands, and marked cachexia. Dr. Baldwin writes me recently: "She has gained 25 pounds and feels perfectly well, though it is now two years after her operation. I never saw such a result in the years before I used your serum."

No. 31 (Mrs. S., Dr. Baldwin, Brooklyn, and Dr. Harris F. Brownlee, Danbury, Conn.) had a cancer of the sigmoid. In March, 1912, Dr. Baldwin had done an exploratory incision at the Skene Sanitarium in Brooklyn and had refused to operate, seeing that the growth could not all be removed. After hearing of my serum he telephoned last May and asked if I would undertake the case. I reluctantly consented. She had a makeshift operation (about five-sixths of the tumor being removed) in the same month and received auto and stock serum in June, July, and September of the same year. Dr. Baldwin wrote of her recently: "She has gained 20 pounds and is perfectly well. The sigmoidoscope discloses no structure. If this case does not recur the cure will be certainly due to the serum." Dr. Brownlee has kindly informed me in the last few days that she is still in perfect health.

No. 38 (Dr. Austin Flint, Jr., and Dr. W. M. Ford) was reported by Dr. Ford in the MEDICAL RECORD more than a year ago. She had a uterine cancer, recurring in the bladder after operation. The original uterine mass was cut up and sectioned by Dr. Ira Van Gieson, who reported his sections as showing undoubted cancer (signed letter). The indurated mass, persisting in the vesicovaginal wall after operation, was reported by Dr. Alfred T. Osgood as recurrent cancer (cystoscopic examination). This patient's recovery was rapid and entirely satisfactory, pain, induration, and strangury disappearing entirely in three or four weeks, after five injections of stock. A few weeks before Dr. Van Gieson's recent unfortunate death I saw him again about this diagnosis, and he repeated that there could be no question of its correctness, that the specimen had been one of unusual interest and that he had studied it carefully. I see no reason for the skepticism expressed by one or two subsequent medical writers about this case except that the patient recovered. All the physicians who actually saw her (a dozen or more) before and after treatment were deeply impressed.

As to the propriety of publishing this report there are arguments pro and con. It is true that the cases believed to be cured are not yet sufficiently tested by time and extravagant claims may prove unjustified. On the other hand, this report states nothing but facts, and unless the exact limitations of the serum treatment are carefully set forth I shall continue to receive only the moribund and hopeless cases, and doubt and discouragement will be the only results for some years to come. I have therefore decided to publish it simply as a statement of progress to date.

133 EAST SIXTY-FIRST STREET.

## THE ROLE OF EXERCISE IN THE TREATMENT OF VISCEROPTOSIS, WITH SPECIAL REFERENCE TO THE SYSTEM OF W. CURTIS ADAMS.*

BY STELLA S. BRADFORD, M.D.,

MONTCLAIR, NEW JERSEY.

IN reading the medical journals one is tempted to ask which is more truly the burning question of the hour, visceroptosis or psychotherapy, and one also wonders whether the latter is necessitated by the former.

In this study of visceroptosis I shall make no reference to symptoms. It may suffice to state that they include all symptoms known to the profession. The etiology of the acquired cases must, however, be considered, if treatment is to be at all rational.

That the viscera shall remain in place is provided for in four ways: (1) By ligamentous attachment. Each organ of the abdominal cavity has ligaments formed by thickened folds of peritoneum, in some instances combined with muscular tissue, which attach it to the posterior abdominal wall. (2) By adjustment to contiguous structures. Each organ is fitted to the organs and structures with which it is in relation laterally, and above, and below. For instance, the lower surface of the liver takes its form from the structures below it. The duodenum seems moulded over the head of the pancreas. The kidneys get their firmest support from the structures which touch them laterally and to whose shapes they are adapted by layers of fat. (3) Intraabdominal pressure. According to the researches of Dr. Haven Emerson, there is a positive pressure, that is, a pressure greater than atmospheric pressure, within the abdominal cavity, equal at all levels, and exerted equally in all directions. The chief factors in maintaining this are the tone of the diaphragm, the tone of the anterior abdominal walls, and the tone of the pelvic floor. Granted that this exists, it is easy to see its effect on a suspended organ such as the stomach, or colon, or uterus. Such an organ rests on this pressure as a solid body floats in water. (4) A position of poise. Dr. Joel E. Goldthwaite, in his article on posture, has given a most graphic description of the attitude of poise. The chief factors mentioned are the erect head, high chest, flat abdomen, spinal curves slightly convex backward in the dorsal region, and convex forward in the lumbar region, the axis of the pelvis at right angles to the plane of the brim of the pelvis and 60° from the horizontal, tense Y-ligament, tense iliopsoas and hamstring muscles, straight knees, with tense calf muscles, and the weight borne by the forward part of the feet. Muscles of neck and back, chest, and abdomen are in slight contraction, but none is strained. In this position, because of the forward slant of the dorsolumbar spine, and because of the arrangement of the posterior abdominal and pelvic

*Read before the Brooklyn Society of Internal Medicine, November 27, 1913, and before the Brooklyn Medical Society, December 19, 1913.

muscles and fat, making the anteroposterior diameter increase from below upward, being least opposite the fifth lumbar vertebra, the stomach, liver, kidneys, spleen, and pancreas, are supported, as it were each in its own compartment on a slanting shelf. Similarly, because the chest narrows, as an inverted cone, towards the lower part, the liver and stomach are largely held by its walls. Moreover, in this position, the pelvic cavity is largely posterior to the abdominal cavity, and the weight of the abdominal organs falls upon the anterior abdominal wall, and upon the slanting posterior wall, and not upon the pelvic organs.

A loss of poise, with the head dropped forward, sternum depressed, chest flattened, neck muscles straining to hold up the falling chest, of necessity invalidates the other visceral supports. If there is increase of the lumbar curve, though the spinal support remains, the abdomen is shortened, the abdominal walls relax and protrude, and the intra-abdominal pressure becomes negative. If the lumbar curve is flattened, with the resultant thigh and knee flexion, in addition to the loss of the support of the intraabdominal pressure the abdominal viscera lose their spinal support, and their weight falls directly on the pelvic viscera.

This physical condition underlying visceroptosis should be classed as a final cause. Back of it are what might be called contributing causes. These include habits of standing, sitting, and walking, of dressing and of working. These contribute to but will not actually cause a loss of poise, and visceroptosis.

Back of the contributing causes again are the secondary or predisposing causes. These are overeating or drinking, causing dilatation and prolapse of the stomach and intestines; sedentary life, with the weight of too much fat; malnutrition, with its flabby muscles and loss of the fat which should form the adjustment between organs; too many pregnancies, destroying abdominal walls, and structural poise.

But back of all these are what might be called the psychological, the fundamental causes. These might be summarized as life in which the impossible is attempted; life in which there is not enough of daring, of claiming of responsibility; life overwhelmed by the nearness of a too dominant personality; life deadened by continued disappointment in love or ambition; life powerless because of lack of adjustment between heritage, training, and daily living; life spent in a past of sex or drug excess or in dreams of past or future greatness rather than in present day actualities. It is these psychological causes which are fundamental. In the last analysis they are responsible for the protruding chins, the depressed chests, the weak backs and abdomens, the flexed thighs and knees, which seem to be the result of bad habits of living and working, and which are themselves the final causes of visceroptosis.

The treatment has six divisions: (1) Psychological adjustment. This can not be disregarded for without it no treatment will be effective, but often the process of adjustment must be continued over a period of years. (2) Establishing the details of diagnosis by all the means open to science. The symptoms and appearance of the patient tell the story, but palpation, percussion, and the *x*-rays can give clues to details of diagnosis and a treatment which, as suggested and carried out by Sir Arbuthnot Lane, is transforming prognosis. (3) Treatment of symptoms by cathartics, Russian oil, irrigation, tonics, and diet. (4) Making a place for the viscera. This obviously includes returning the spine to its normal curves, and elevating the chest, with an increase in its anteroposterior diameter, and a broadening of the costal angle. These things can be accomplished of course only by exercise. (5) Returning the viscera to their proper place. This is done manually, as with the kidney or uterus, or by massage of the abdomen. It is done by posture, as in elevation of the foot of the bed, by the Goldthwaite posture after meals, by the knee-chest, and inverted chair positions and headstands. It is done by the passive exercise advocated by Dr. E. M. Mosher. It is done also by those operations involving freeing of evolutionary bands of adhesion, in which Lane has proved so powerful a leader, and of which Bainbridge is so brilliant an exponent. (6) To hold the viscera in place. This has been attempted by binders and kidney pads, which owe their good effect to the reinforcement of the natural intra-abdominal pressure, or where this is lacking, to a pressure transmitted through the abdominal contents. It has been done by the tacking operations, so often ineffective because the causes remain. These are tried most often for the uterus, ovaries, kidney, and colon. But pleating, gathering, and tucking operations are often necessary in addition. The "ostomies" are sometimes essential, and sometimes valuable as a short cut, because most patients can not or will not give the time necessary to undo the evils which have been done, and to prevent their recurrence. Repair operations which restore the integrity of the pelvic floor, or of the abdominal wall, as in the cure of hernia, must of necessity increase the intraabdominal pressure and hence aid in holding the viscera in place.

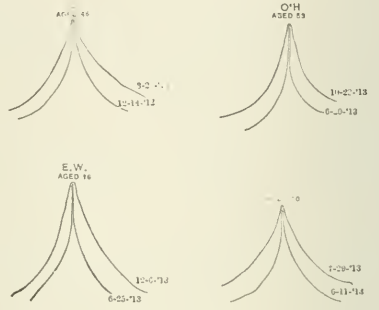
In this scheme of treatment the rôle of exercise is evidently to make place for the viscera, and to hold them in their place. To this end, the effect of exercise both on the bony structure, and on the muscular system should be considered. That it can improve the circulation, and therefore the tone of the organs themselves, and of the general metabolism, goes without saying.

As to the effect on structure. Exercise can make the spinal column flexible, thus making possible a return to the normal curves and hence a shelf on which the viscera may rest. It can make the chest flexible, can elevate the anterior chest wall, can elevate the ribs, and widen the costal angle, making space in the upper abdomen for the viscera. Moreover, it can make flexible the shoulders, thighs, hips, and knees, without which flexibility a position of poise is impossible. Exercise can improve muscles. By improving the muscles of the back, abdomen, thighs, and calves, a person gains the wherewithal to maintain poise. By developing the quadratus, the psoas, and the iliacus, shelves and compartments are provided for the support of the viscera. By improving the quadratus, the psoas, the muscles of the anterior abdominal wall, especially their transverse fibers, the muscles of the pelvic floor, and the diaphragm, intraabdominal pressure is increased. By improving the intercostals, and especially the diaphragm and the transverse abdominal muscles, the chest is elevated and held in a position of poise. One naturally asks, what exercises will accomplish this? My experience in following the work of Mr. W. Curtis Adams along these lines in his sanatorium in Pompton, New Jersey, is responsible for this paper. I will therefore describe a few of his exer-

cises, telling some of the main things accomplished by them.

1. The exercise called "scissors." The patient lies on his side, with arms lightly but completely extended, and thighs and legs extended. From this relaxed position he raises his feet from the floor, and, keeping the position of extension, swings one forward and the other backward, alternating rhythmically. This exercise involves practically all the muscles of the back, abdomen, pelvis, and thighs, but those most involved are those most often slighted in ordinary life. To take the position and hold the feet from the floor requires, for most people, the use of the abductors of the upper thigh, and adductors of the lower, yet the muscles most called on are the external and internal oblique and transversalis in their lower fibers, and the quadratus, the latissimus dorsi, and erector spinæ of the upper side. A person ideally constructed could, however, lie in this position with almost no muscular effort, and the exercise, done with a relaxed and receding abdomen, would be accomplished as lightly and easily as a pendulum accomplishes its swing. The exercise itself, as done by patients, is a flexion and extension of the thigh on the pelvis. The flexion involves mainly the psoas and iliacus, and, to a lesser extent, the upper anterior muscles of the thigh proper. The extension involves chiefly the gluteus maximus, the semimembranosus and semitendinosus. Since, however, the motion of the thigh is so free, its weight tends to carry the pelvis, also, forward and backward. This is resisted by the reverse action on the other side. Hence this exercise becomes really a resistance exercise of pelvic flexion and extension, and the muscles most developed are those most needed in poise, namely the anterior abdominal muscles, the erector spinæ and latissimus dorsi, and those of most value in the support of the viscera, namely the quadratus lumborum, the psoas, and iliacus. That radical changes can be accomplished in the spinal curves by this exercise is shown in the accompanying charts. What this exercise can accomplish for prolapsed abdominal and pelvic viscera, if done in the headstand position, can readily be seen.

2. The second exercise to be described is "pumping." A beginning patient lies on his back with knees flexed, and all his muscles relaxed. Pressure is made at some point of his abdomen, and he is told to inhale at that spot. The position of the pressure is changed and he is again told to inhale. Then he does the same, using his own hand to localize the spot. Gradually he learns by his breath to lift just that part of the abdominal wall indicated, gradually the chest becomes more flexible, falling with each inspiration, rising with each expiration. The costal angle widens, the ribs are elevated, and the anteroposterior and lateral diameters of the chest are increased. That there is more space for all the thoracic as well as abdominal viscera is a natural consequence. Moreover, the increased tone of the diaphragm and abdominal walls of necessity increases the intraabdominal pressure, and this in itself tends to hold the organs in place. The accompanying charts showing changes which this exercise has made in costal angles give an indication of the other changes also accomplished.




The explanation of this exercise is as follows: Since the diaphragm and anterior abdominal walls are both controlled by the respiratory center, the contraction of the one and relaxation of the other readily occur together, the abdominal wall being pushed outward by the pressure of the diaphragm transmitted through the abdomen. Pressure helps localization, and gives the effect also of a resistance exercise. Moreover, in expiration it supplements weak abdominal muscles, and increases the intraabdominal pressure which is transmitted to the diaphragm making it taut over the organs it presses upon as a fulcrum, and so arching the chest as a bow is arched by a taut string. When proficiency in this exercise is obtained, the bulging of the abdominal wall takes place only in the upper part, the break in the recti coming in the line of the aponeurotic band. The lower part of the abdomen is held firm by the passing of the aponeurosis of the external and internal oblique and transversalis in front of the recti. By this contraction of the lower abdomen the intraabdominal pressure is increased, and by the limitation of the bulging of the abdominal wall to its upper third, the pelvic organs are guarded from the transmitted downward pressure of the contracting diaphragm.

3. "Rotation" is the next exercise for consideration. The patient begins as for pumping. He is then told to execute a circulatory motion in his upper abdomen, raising it on inhalation and lowering it on exhalation, first clockwise and then counterclockwise, the plane of the clock face being at right angles to the longitudinal axis of the body. He is usually slow in accomplishing this. After he has

learned to do it, and to do it with legs extended and toes together, it will be found that, though his attention is still fixed on the upper abdomen, he is using all the muscles of his back and abdomen and of his upper arms and thighs, that his chest is moving freely, and that the play of the vertebræ on one another is constant, making correction of any deformity which has not involved bone tissue a possibility. The factors taken advantage of in addition to those used in pumping are: *a.* The asymmetrical shape and attachment of the diaphragm, by which a tendency to an irregular rotatory motion is the natural result of a pull started in any one direction. *b.* The unused transverse fibers of the abdominal muscles. *c.* The interdigitation of the origin of one muscle with the attachment of its neighbor, necessitating, in a position of relaxation, motion of the second if the first contracts. If the diaphragm moves, so must the transversalis. Motion of this necessitates motion in the internal oblique and external oblique, this of the serratus magnus and of the latissimus dorsi, this of the trapezius, and so on, up and down, forward and backward. Moreover, if one muscle contracts with the body relaxed, equilibrium is maintained by the action of its opposing muscles. In other words, there is no limit to the amount of development possible from this exercise even in the very weak or partially paralyzed.

4. One other exercise should be mentioned, and that is the "bicycle." Lying on his back with his feet in the air, the patient flexes his thigh, then his leg, then his foot, then extends his foot, then his leg, then his thigh, doing at the same time the opposite on the other side. In addition to strengthening the muscles of flexion and extension, this will accomplish much in rendering flexible the ankles and knees, chiefly by lengthening the Achilles and hamstring tendons and thus making possible a position of poise. Moreover, if the abdominal muscles are relaxed, the abdominal viscera will be elevated by transmitted pressure.

Certainly the sequence of emphasis in the use of exercise in the treatment of visceroptosis is as follows: (1) Render joints flexible whether the rigidity is due to adhesions, poor circulation, or tense muscles. (2) Render the chest flexible whether its stiffness is due to lack of circulation and nutrition of bones, cartilages, joints, or muscles. (3) Strengthen the back muscles. (4) Strengthen the abdominal muscles. (5) Strengthen the diaphragm.

I might thus summarize the principles underlying Mr. Adams' work: A chain is as strong as the weakest link, therefore attend to that link. Visceral, circulatory, respiratory, mental, moral, and spiritual tone varies with the tone of the diaphragm. Without a good back, a good diaphragm is not available. In a position of rest, advantage can be taken of muscular interplay, and of the fact that no great strain can come to a muscle working against the muscle which naturally opposes it. In a position of strain, that is in the erect position, the action of muscles in the spasm of strain has to be contended with, and overcome. What one gets for himself he has to keep.

In conclusion I would express my very great debt to Mr. Adams for what I have learned of diagnosis and treatment through his knowledge of normal and pathological structural and muscular conditions. Moreover, I would make a plea to physicians not that they all use these exercises, but that they learn to employ as much skill in recognizing structural and muscular pathological conditions as in detecting disease, and that such conditions, when recognized by them, be considered not final but remediable by a system of exercises involving muscular education and coordination, and adaptable to the individual needs.

29 Crescent Street.

## HAS THE TUBERCULOSIS DEATH RATE DECLINED RECENTLY?

By THOMAS J. MAYS, M.D.,

PHILADELPHIA, PA.

A FEW days ago, while interested in a collateral subject I consulted the Transactions of the Ninth Annual Meeting for the Study and Prevention of Tuberculosis (1913), and inadvertently found in it an address by Dr. Frederick L. Hoffman of Newark, New Jersey, on the decline in the tuberculosis death rate from 1871 to 1912. In the introduction of this address he takes great pains in counselling his audience on the vital importance of employing trustworthy methods in all statistical investigations, and incidentally states that he was moved to give this advice on account of an article which he read recently, and which he denounced as "a grossly misleading attack upon the national and, in fact, the world-wide campaign against tuberculosis, based upon absurdly fallacious calculations, unsupported by an appeal to facts," and in which an attempt is made to show that tuberculosis "is not contagious, and that it has not been decreased at all by the measures adopted to combat it during the last ten or fifteen years."

I take pleasure in confessing that I am the author of that article,* and plead guilty to the last charge, and since Dr. Hoffman evinces a lingering feeling that the statistics which I quote are unreliable and untrustworthy, I shall take the liberty of subjecting his own to the same methods that I applied to mine and find out whether they lead to conclusions different to those which I deduced in my article.

Whether the present crusade has reduced the mortality from consumption or not is only to be ascertained by comparing the death rate of this disease while it has been in operation, with a like period of the same before it was called in vogue. This crusade came into existence in the middle or the late nineties; therefore, fifteen years before the latter period and fifteen years after it will cover the whole period to be investigated (1882 to 1911). The average death rate of the first five years of that period supplies the first base of observation; that of the five middle years (1895-1899) gives the middle base, and that of the last five years furnishes the third base. (In some of the localities ten years are substituted for the five-year averages.) Throughout this paper the figures are first reduced to a per mille, and then to a percentage basis. The first interval is between the first and second, and the second interval between the second and the third base.

Dr. Hoffman's address contains more than twenty different statistical collections on the mortality of consumption in America and Europe, giving a mass of material which is based on an aggregate population of over 175,000,000, dating back a hundred years, and is truly a great testimonial to his diligence and industry. Of these I made an analysis of ten, which will be presented in the table below,

*"Effect of Present Prevention on the Spread of Consumption," Medical Record, November 30, 1912.

and will, I think, explain itself, in connection with what has already been said:

DEATH RATE OF TUBERCULOSIS OF THE LUNGS IN THE LOCALITIES INDICATED

| Name of Localities | Per Mille Death Rate First Base | Per Mille Death Rate Second Base | Per Mille Death Rate Third Base | Per Mille Decrease in Death Rate First Interval | Per Mille Decrease in Death Rate Second Interval | Total per Mille Death Rate Decrease | Total per Cent of Death Rate Decrease | Per Cent. Decrease in Death Rate First Interval | Per Cent. Decrease in Death Rate Second Interval | Per Cent. of Decrease in Death Rate in Favor of First Interval | Per Cent. of Decrease in Death Rate in Favor of Second Interval |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Thirty to fifty American cities | 2 80 | 2 15 | 1.86 | 0 65 | 0 29 | 0 94 | 33 57 | 24 27 | 10.35 | 13.92 | None |
| Massachusetts, Rhode Island and Connecticut | 2.61 | 1 97 | 1 46 | 0 65 | 0 51 | 1 16 | 44 44 | 24 51 | 19 53 | 4.98 | None |
| Large German cities | 3 23 | 2.29 | 1.79 | 0 94 | 0.50 | 1.44 | 46.13 | 30 00 | 16 00 | 14 00 | None |
| Southern whites in American cities | 2 85 | 1 94 | 1 59 | 0.91 | 0 39 | 1.30 | 45 61 | 31 92 | 13 69 | 18.23 | None |
| Southern colored, in American cities | 6 35 | 5 06 | 4 30 | 1 29 | 0.76 | 2 05 | 32 12 | 20 21 | 11 43 | 8 78 | None |
| New York, Philadelphia and Boston | 3.40 | 2.51 | 2.13 | 0 89 | 0.38 | 1 27 | 37 35 | 26 96 | 10.38 | 16.58 | None |
| New York City | 3 72 | 2.70 | 2 24 | 1 02 | 0.47 | 1 49 | 40 03 | 27 44 | 12.62 | 14.82 | None |
| Philadelphia | 2.82 | 2.18 | 2 07 | 0 64 | 0.11 | 0 75 | 23 80 | 20 30 | 3.49 | 16.81 | None |
| Boston | 3.66 | 2.58 | 1.85 | 1 08 | 0.73 | 1 81 | 49.46 | 29.40 | 19.94 | 9.46 | None |
| England and Wales (all tuberculous diseases) | 2.43 | 2.01 | 1.65 | 0 42 | 0.36 | 0.78 | 32.09 | 17.27 | 14.81 | 2.46 | None |
| Total average of above | 3.38 | 2.53 | 2.09 | 0.83 | 0.44 | 1 29 | 38 46 | 25.30 | 13.17 | 12 12 | |

In the above table the first and third columns designate the beginning and ending of the thirty-year period under observation, and the second column represents the time when the prevention campaign was introduced; therefore the interval between the first and second columns marks the time when no special efforts were made to diminish consumption, and the interval between the second and the third column covers the time when the present prevention campaign was in its swing. The fourth and fifth columns indicate the per-mille rate of reduction which took place during these two intervals. The eighth and ninth columns show the same differential rate of reduction between the two intervals in the shape of percentage figures. The tenth column groups all those localities which give the greater per cent. reductions during the first interval, and the eleventh those localities which give the greater per cent. reductions during the second interval. It is rather surprising that all the greater reductions are found in the tenth column.

This table undoubtedly shows that the consumption crusade does not come up to the expectations which its sponsors held out to the public. It may be contended, however, that this is true only of ten of Dr. Hoffman's localities out of a possible twenty-four, and that the remainder may put a different phase on the matter. In reply to this it may be said that all of them were subjected to the same test, and were found to tell the same story except the collection of the mortality of all the tuberculous diseases in England and Wales. Here it developed that there was a greater decrease of one-third of 1 per cent. in the female population in the second than in the first interval, but the aggregate of both males and females shows a 2.25 per cent. greater decrease in the first than in the second interval. It must be borne in mind here that this collection includes all other tuberculous diseases, besides those of the lungs, and is not altogether pertinent to the subject.

Now if one thing stands out more prominently than another in this whole investigation it is the uniform and overwhelming evidence that the present prevention crusade is not only a failure as a prophylactic measure, but really a provoker of the disease, inasmuch as the aggregate figures plainly show at the bottom of the table that its death rate was 11.22 per cent. higher at the end of the second interval than it was at the time when the crusade began. And if Dr. Hoffman was justified in condemning my investigation of a year ago so unsparingly as he did, does he not think that he is bound to visit his own conclusions with greater condemnation, because they make out a much stronger case against his favorite theory than mine?

Now in view of all the wild claims which are constantly being made in reference to the profound beneficence which this crusade is conferring on the human race, it may seem strange to some that there is such a wide divergence between this attitude and the facts which have been brought to light in the present inquiry. To those, however, who are in close touch with the history of this movement this is no surprise. They realize that its whole fabric is founded on a deep-seated obsession, of which the history of medicine records numerous examples; these, like all similar epidemics, have their day, and then succumb to the inevitable return of sense and reason. If an insignificant number of the prognostications that have been made in the last ten or fifteen years as to what the crusade would do to consumption had materialized, this disease would have become extinct long before now.

1829 Spruce Street.

## A COMPARATIVE STUDY OF THE IMAGINATIVE POWERS IN MENTAL DEFECTIVES.

By HOWARD A. KNOX, M.D.,

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Some of us having gazed into the smoke of a choice cigar, or into an open fireplace, may have seen, perhaps, the sweetheart of other days, or the vision of a farmhouse away off in some old country town. This was imagination—the imagery of a cultured mind—and so we shall accept it; but what of these powers in the uneducated, and in those with whom the latter are so often confused, the mentally deficient?

It has been claimed that one of the most essential and the most common details, missing or undeveloped in ordinary congenital inferiors of even the higher grades, exclusive of actual geniuses, was native ability or constructive imagination, *i.e.* the

GROUP OF 25 AVERAGE "NORMALS"

| Case No. | Age | Sex | Impression | Blot No. | Reaction, Time, Seconds | Head | Answer to Stock Question |
|---|---|---|---|---|---|---|---|
| 1 | 19 | M. | Alert | 1 | 7 | No | A pennant |
| | | | | 2 | 3 | | Cat |
| | | | | 3 | 3 | | Cat |
| | | | | 4 | 4 | | Cloud |
| | | | | 5 | 5 | | A heart |
| | | | | 6 | 6 | | Bunch of flowers |
| 2 | 28 | M. | Average and alert | 1 | 4 | Yes | Curved street |
| | | | | 2 | 5 | | Piece of cloud |
| | | | | 3 | 3 | | Mouse |
| | | | | 4 | 5 | | Leaf of a tree |
| | | | | 5 | 4 | | Piece of earth |
| | | | | 6 | 4 | | Plant |
| 3 | 21 | M. | Average | 1 | 3 | No | Smoke |
| | | | | 2 | 5 | | Donkey |
| | | | | 3 | 3 | | Cat |
| | | | | 4 | 5 | | Don't know |
| | | | | 5 | 7 | | Dog |
| | | | | 6 | 4 | | Don't know |
| 4 | 21 | M. | Average | 1 | 6 | No | Smoke |
| | | | | 2 | 3 | | Beans |
| | | | | 3 | 1 | | Mouse |
| | | | | 4 | 2 | | A bud |
| | | | | 5 | 1 | | Piece of earth |
| | | | | 6 | 3 | | Serpent |
| 5 | 29 | F. | Average | 1 | 7 | No | Something painted |
| | | | | 2 | 9 | | Don't know |
| | | | | 3 | 5 | | Animal |
| | | | | 4 | 4 | | I am confused |
| | | | | 5 | 3 | | Fly pet |
| | | | | 6 | 3 | | I never saw it before |
| 6 | 15 | F. | Facetious, but intelligent | 1 | 4 | No | Never saw anything like it |
| | | | | 2 | 3 | | Animal |
| | | | | 3 | 3 | | Mouse |
| | | | | 4 | 2 | | Butterfly |
| | | | | 5 | 4 | | Never saw anything like it |
| | | | | 6 | 4 | | Butterfly |
| 7 | 29 | M. | Stupid | 1 | 2 | No | Fish |
| | | | | 2 | 3 | | Dog |
| | | | | 3 | 2 | | Alligator |
| | | | | 4 | 2 | | Flower |
| | | | | 5 | 2 | | Bottle |
| | | | | 6 | 3 | | Flower |
| 8 | 17 | M. | Average | 1 | 7 | No | Beast |
| | | | | 2 | 5 | | Cat |
| | | | | 3 | 3 | | Mouse |
| | | | | 4 | 6 | | Butterfly |
| | | | | 5 | 6 | | Hill |
| | | | | 6 | 6 | | Plant |
| 9 | 23 | M. | Average and alert | 1 | 4 | No | Mountain |
| | | | | 2 | 4 | | Head of beast |
| | | | | 3 | 6 | | Beast |
| | | | | 4 | 6 | | Leaf |
| | | | | 5 | 5 | | House |
| | | | | 6 | 4 | | Don't know |
| 10 | 20 | F. | Emotional and frightened | 1 | 2 | No | Don't know |
| | | | | 2 | 3 | | Don't know |
| | | | | 3 | 4 | | Don't know |
| | | | | 4 | 5 | | Don't know |
| | | | | 5 | 4 | | A house |
| | | | | 6 | 2 | | Don't know |
| 11 | 20 | M. | Average | 1 | 6 | No | Mountain |
| | | | | 2 | 5 | | Bear |
| | | | | 3 | 4 | | Mountain |
| | | | | 4 | 7 | | Butterfly |
| | | | | 5 | 4 | | Dog |
| | | | | 6 | 6 | | Butterfly |
| 12 | 17 | M. | Stupid | 1 | 6 | Yes | Road |
| | | | | 2 | 4 | | Beast |
| | | | | 3 | 5 | | Beast |
| | | | | 4 | 4 | | Rose |
| | | | | 5 | 5 | | Spear |
| | | | | 6 | 3 | | Thing on three feet |
| 13 | 22 | F. | Average | 1 | 4 | No | Ribbon |
| | | | | 2 | 4 | | Elephant |
| | | | | 3 | 3 | | A lizard |
| | | | | 4 | 3 | | A leaf |
| | | | | 5 | 2 | | A cheese |
| | | | | 6 | 4 | | A berry |
| 14 | 27 | M. | Emotional and apprehensive | 1 | 4 | No | Cloud |
| | | | | 2 | 3 | | Mountain |
| | | | | 3 | 3 | | Mouse |
| | | | | 4 | 5 | | Rose |
| | | | | 5 | 4 | | Castle |
| | | | | 6 | 3 | | Bell |
| 15 | 19 | F. | Average | 1 | 2 | Yes | A flame |
| | | | | 2 | 2 | | An animal |
| | | | | 3 | 4 | | A small lizard |
| | | | | 4 | 2 | | A cloud |
| | | | | 5 | 3 | | A building |
| | | | | 6 | 2 | | An umbrella |

GROUP OF 25 MENTAL DEFECTIVES

| Case No. | Age | Sex | Impression | Blot No. | Reaction, Time, Seconds | Head | Answer to Stock Question | Mental Age Years |
|---|---|---|---|---|---|---|---|---|
| 1 | 21 | M. | Dull | 1 | 8 | Yes | I don't know | 9 |
| | | | | 2 | 6 | | Don't know | |
| | | | | 3 | 11 | | Don't know | |
| | | | | 4 | 9 | | Don't know | |
| | | | | 5 | 9 | | A jug | |
| | | | | 6 | 7 | | I don't know | |
| 2 | 23 | M. | Average | 1 | 6 | No | A skull | 7 |
| | | | | 2 | 8 | | I don't know | |
| | | | | 3 | 5 | | Mouse | |
| | | | | 4 | 11 | | Don't know | |
| | | | | 5 | 5 | | Don't know | |
| | | | | 6 | 8 | | A cap | |
| 3 | 22 | M. | Dull and stupid | 1 | 8 | Yes | Hand | 7 |
| | | | | 2 | 6 | | Dead body | |
| | | | | 3 | 7 | | Don't know | |
| | | | | 4 | 3 | | Don't know | |
| | | | | 5 | 4 | | Nothing | |
| | | | | 6 | 3 | | Don't know | |
| 4 | 22 | F. | Apathetic | 1 | 5 | No | I don't know | 9 |
| | | | | 2 | 8 | | Never saw anything like it | |
| | | | | 3 | 11 | | Savage animal | |
| | | | | 4 | 5 | | Nothing | |
| | | | | 5 | 4 | | Never saw it before | |
| | | | | 6 | 7 | | Nothing | |
| 5 | 17 | M. | Average | 1 | 8 | No | Stairs | 8 |
| | | | | 2 | 5 | | Cave | |
| | | | | 3 | 4 | | Cat | |
| | | | | 4 | 4 | | A Christian | |
| | | | | 5 | 6 | | Man | |
| | | | | 6 | 4 | | A hand | |
| 6 | 18 | F. | Average, but inclined to be facetious and flighty | 1 | 7 | No | Candle | 9 |
| | | | | 2 | 7 | | Nothing at all | |
| | | | | 3 | 8 | | A thief | |
| | | | | 4 | 4 | | I don't know | |
| | | | | 5 | 5 | | A horse | |
| | | | | 6 | 2 | | Don't ask me | |
| 7 | 29 | M. | Alert and active but stubborn and vindictive | 1 | 4 | Yes | A rope | 9 |
| | | | | 2 | 15 | | I don't like this | |
| | | | | 3 | 6 | | A turtle | |
| | | | | 4 | 5 | | A sign | |
| | | | | 5 | 3 | | I don't know | |
| | | | | 6 | | | Refuses to answer the question | |
| 8 | 21 | F. | Stupid | 1 | 8 | No | A cheese | 8 |
| | | | | 2 | 6 | | Water | |
| | | | | 3 | 9 | | A piece of earth | |
| | | | | 4 | 4 | | I don't know | |
| | | | | 5 | 5 | | Maybe a flower | |
| | | | | 6 | 11 | | Something to eat | |
| 9 | 30 | M. | Emotional and apprehensive | 1 | 6 | No | A serpent | 8 |
| | | | | 2 | 9 | | An animal | |
| | | | | 3 | 9 | | A dead body | |
| | | | | 4 | 5 | | Nothing | |
| | | | | 5 | 7 | | Earth | |
| | | | | 6 | 10 | | I never saw it before | |
| 10 | 24 | F. | Excitable and high strung | 1 | 3 | Yes | I don't know | 7 |
| | | | | 2 | 2 | | I don't know | |
| | | | | 3 | 4 | | A terrible thing | |
| | | | | 4 | 5 | | I never saw it before | |
| | | | | 5 | 2 | | A place to live | |
| | | | | 6 | 7 | | A flower | |
| 11 | 16 | M. | Stupid, apathetic and different | 1 | 4 | Yes | Nothing | 6 |
| | | | | 2 | 4 | | Nothing | |
| | | | | 3 | 4 | | Negative tongue noise | |
| | | | | 4 | 6 | | Negative tongue noise | |
| | | | | 5 | 12 | | Maybe a cow | |
| | | | | 6 | 7 | | I don't know | |
| 12 | 15 | F. | Average | 1 | 5 | No | Smoke | 8 |
| | | | | 2 | 8 | | A fish | |
| | | | | 3 | 4 | | A cat | |
| | | | | 4 | 6 | | I don't know | |
| | | | | 5 | 6 | | A hat | |
| | | | | 6 | 7 | | I can't think of it | |
| 13 | 19 | M. | Bestial, dull, like a hunted animal | 1 | 9 | Yes | I don't know | 5 |
| | | | | 2 | 16 | | A ship | |
| | | | | 3 | 9 | | A dead thing | |
| | | | | 4 | 7 | | I don't know | |
| | | | | 5 | 7 | | I never saw it before | |
| | | | | 6 | 4 | | I don't know | |
| 14 | 17 | F. | Emotional and flighty | 1 | 4 | No | A snake | 9 |
| | | | | 2 | 7 | | I don't want to look at it | |
| | | | | 3 | 5 | | A terrible animal | |
| | | | | 4 | 6 | | Nothing | |
| | | | | 5 | 7 | | A grave stone | |
| | | | | 6 | 5 | | Don't ask me | |
| 15 | 22 | M. | Average | 1 | 6 | Yes | Rope | 9 |
| | | | | 2 | 7 | | Earth | |
| | | | | 3 | 7 | | An animal | |
| | | | | 4 | 8 | | A man | |
| | | | | 5 | 5 | | I don't know | |
| | | | | 6 | 8 | | I don't know | |

GROUP OF 25 AVERAGE "NORMALS"

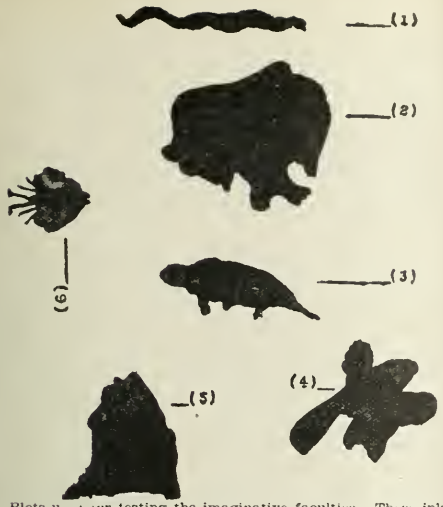
| Case No. | Age | Sex | Impression | Blot No. | Reaction, Time, Seconds | Head | Answer to Stock Question |
|---|---|---|---|---|---|---|---|
| 16 | 30 | M. | Average and alert | 1 | 5 | No | A snake |
| | | | | 2 | 3 | | Lion |
| | | | | 3 | 2 | | Camel |
| | | | | 4 | 4 | | Don't know |
| | | | | 5 | 4 | | Don't know |
| | | | | 6 | 3 | | Don't know |
| 17 | 23 | F. | Average | 1 | 5 | No | A braid of hair |
| | | | | 2 | 1 | | A large animal |
| | | | | 3 | 1 | | A slimy animal |
| | | | | 4 | 2 | | A leaf in the fall |
| | | | | 5 | 2 | | A little house |
| | | | | 6 | 3 | | I don't know |
| 18 | 17 | F. | Average, but quite bashful | 1 | 4 | No | A snake |
| | | | | 2 | 3 | | A lake |
| | | | | 3 | 3 | | A rat |
| | | | | 4 | 5 | | A flower |
| | | | | 5 | 2 | | A pile of black stuff |
| | | | | 6 | 2 | | A bunch of flowers |
| 19 | 19 | M. | Average | 1 | 5 | Yes | A river |
| | | | | 2 | 3 | | An animal |
| | | | | 3 | 3 | | A field animal |
| | | | | 4 | 4 | | Steam |
| | | | | 5 | 2 | | A wreck |
| | | | | 6 | 3 | | A cherry |
| 20 | 30 | M. | Apathetic and indifferent | 1 | 6 | No | Country |
| | | | | 2 | 4 | | Mountain |
| | | | | 3 | 4 | | Mouse |
| | | | | 4 | 3 | | Flower 'colena' |
| | | | | 5 | 3 | | A mountain |
| | | | | 6 | 3 | | Chandelier in a church |
| 21 | 26 | F. | Average, but frightened | 1 | 7 | No | A roadway |
| | | | | 2 | 5 | | Elephant |
| | | | | 3 | 4 | | Small animal |
| | | | | 4 | 4 | | A leaf |
| | | | | 5 | 3 | | A house |
| | | | | 6 | 2 | | An umbrella |
| 22 | 25 | M. | Indifferent and dull | 1 | 4 | No | A flag |
| | | | | 2 | 4 | | A country |
| | | | | 3 | 2 | | A small animal |
| | | | | 4 | 2 | | A flower (names it) |
| | | | | 5 | 3 | | A bottle |
| | | | | 6 | 5 | | A head |
| 23 | 18 | F. | Flighty and inclined to regard the questions as inconsequential | 1 | 2 | No | A brook |
| | | | | 2 | 5 | | A toad |
| | | | | 3 | 5 | | An alligator |
| | | | | 4 | 5 | | A star |
| | | | | 5 | 3 | | A place to live |
| | | | | 6 | 4 | | A bouquet |
| 24 | 23 | F. | Average | 1 | 6 | No | A serpent |
| | | | | 2 | 3 | | A horse |
| | | | | 3 | 3 | | A mouse |
| | | | | 4 | 2 | | A leaf |
| | | | | 5 | 3 | | A jug |
| | | | | 6 | 1 | | An umbrella |
| 25 | 28 | M. | Stupid and indifferent | 1 | 4 | Yes | Water from a mountain |
| | | | | 2 | 4 | | A large wild animal |
| | | | | 3 | 6 | | A rat |
| | | | | 4 | 7 | | Leaf |
| | | | | 5 | 2 | | A mud house |
| | | | | 6 | 2 | | A kind of fruit |

GROUP OF 25 MENTAL DEFECTIVES

| Case No. | Age | Sex | Impression | Blot No. | Reaction, Time, Seconds | Head | Answer to Stock Question | Mental Age Years |
|---|---|---|---|---|---|---|---|---|
| 16 | 27 | M. | Stupid and indifferent | 1 | 11 | No | A head | 8 |
| | | | | 2 | 7 | | I don't know | |
| | | | | 3 | 5 | | Does not answer, shrugs shoulder | |
| | | | | 4 | 6 | | Negative tongue noise | |
| | | | | 5 | 5 | | Negative tongue noise | |
| | | | | 6 | 5 | | Negative tongue noise | |
| 17 | 21 | F. | Dull and stupid, expressionless face | 1 | 8 | No | Paper | 9 |
| | | | | 2 | 7 | | Paper | |
| | | | | 3 | 5 | | An animal | |
| | | | | 4 | 7 | | Negative hand gesture | |
| | | | | 5 | . | | Fails to respond | |
| | | | | 6 | . | | Fails to respond | |
| 18 | 30 | M. | Average | 1 | 7 | Yes | A knife | 7 |
| | | | | 2 | 7 | | Something dead | |
| | | | | 3 | 6 | | A little animal | |
| | | | | 4 | 6 | | Something | |
| | | | | 5 | 5 | | A house | |
| | | | | 6 | 4 | | I don't know | |
| 19 | 16 | M. | Indifferent —stupid | 1 | 6 | No | Nothing | 7 |
| | | | | 2 | 6 | | Water | |
| | | | | 3 | 7 | | Nothing | |
| | | | | 4 | 5 | | A shell | |
| | | | | 5 | 5 | | I don't know | |
| | | | | 6 | 4 | | Fruit | |
| 20 | 17 | F. | Average | 1 | 8 | No | Clothes | 9 |
| | | | | 2 | 8 | | Nothing | |
| | | | | 3 | 5 | | Nothing | |
| | | | | 4 | 11 | | I don't know | |
| | | | | 5 | 5 | | A place | |
| | | | | 6 | 7 | | A rose | |
| 21 | 19 | M. | Stubborn and resistive | 1 | 9 | Yes | Wood | 8 |
| | | | | 2 | 5 | | I don't know | |
| | | | | 3 | 6 | | I am afraid of it | |
| | | | | 4 | 5 | | Nothing | |
| | | | | 5 | 6 | | I don't know | |
| | | | | 6 | 3 | | I don't know | |
| 22 | 25 | M. | Average | 1 | 6 | No | Something to eat | 8 |
| | | | | 2 | 6 | | A piece of water | |
| | | | | 3 | 7 | | An animal | |
| | | | | 4 | 6 | | A piece of wood | |
| | | | | 5 | 4 | | Nothing | |
| | | | | 6 | 7 | | Nothing | |
| 23 | 17 | F. | Emotional and flighty | 1 | 8 | Yes | I don't know | 8 |
| | | | | 2 | 6 | | Negative tongue noise | |
| | | | | 3 | 4 | | Negative tongue noise | |
| | | | | 4 | 6 | | Negative hand gesture | |
| | | | | 5 | . | | No response | |
| | | | | 6 | . | | No response | |
| 24 | 19 | F. | Stupid, emotional, high tempered and wilful | 1 | 5 | No | Grass | 9 |
| | | | | 2 | 7 | | Nothing | |
| | | | | 3 | 6 | | Nothing | |
| | | | | 4 | 5 | | I don't know | |
| | | | | 5 | . | | No response | |
| | | | | 6 | 4 | | Why ask me these things? | |
| 25 | 15 | F. | Stupid, but interested and willing to cooperate | 1 | 6 | No | A serpent | 8 |
| | | | | 2 | 5 | | I don't know | |
| | | | | 3 | 7 | | An animal | |
| | | | | 4 | 6 | | A fish | |
| | | | | 5 | 6 | | A place to stay | |
| | | | | 6 | 4 | | A flower | |

ability to generate new complexes from former percepts and to surmount simple new obstacles without systematic teaching. This contention has been conclusively proven by us in our work with performance tests, which require a small amount of native ability (case tables recorded and available), but, as a matter of interest and to add to our former studies, the following investigations were made: Twenty-five average Italians, from fifteen to thirty years of age, and twenty-five Italians of the same ages who were found to be mentally deficient by our measuring scale for illiterates, were tested with six ink blots, of somewhat indefinite outline, to determine whether logical associations could be formed and whether in the two groups there would be a difference in the degree of judgment shown. In all cases this question was asked: "What do these spots look like and what do they remind you of?" The answers obtained from the two groups will be recorded, as will the mental ages by our scale, of the members of the defective group. The exact answer given by each alien to the stock question asked about each of the six blots will be recorded in the tables so that one may draw a detailed comparison between the two groups. The blots were shown to the immigrants in the same position that they appear in the illustration. All are illiterate, and none have been away from Italy before. The heading "impression" in the tables denotes the impression made on the mind of the examiner by his inspection of the alien's face; "Blot No." indicates the number of the blot in the illustration. Notations made under the heading, "Reaction Time" (a point upon which much stress has been laid by psychologists), show time elapsing between the end of the question and the beginning of the reaction or answer. "Head" notations denote whether the alien possessed more than the ordinary amount of asymmetry of face and head.

During the course of the experiment, as a matter of satisfaction and interest, twelve American men, between the ages of twenty-five and thirty-five, with common school educations, were tested on the blots with the results recorded in the tables presented above. The reaction time in all cases was less than four seconds.




Blots used for testing the imaginative faculties. These ink blots were designed for the purposes of a comparative study of the associative and constructive imaginative powers of normals and defectives among aliens. Each was intended to resemble vaguely a number of common objects, for instance (1) might cause one to recall a snake, a pennant, a rope, or a river (depending on his experiences); (2) an animal or a map; (3) a lizard, a mouse, or a rat; (4) a leaf, a flower, or a cloud; (5) a house or a hay stack; (6) a strawberry, butterfly, or an umbrella.

| Case No. | Blot No. | Answer to Stock Question | Case No. | Blot No. | Answer to Stock Question |
|---|---|---|---|---|---|
| 1 | 1 | A snake | 7 | 1 | An eel |
| | 2 | A map or a lake | | 2 | Picture from "Alice in Wonderland" |
| | 3 | A lizard | | 3 | A gila monster |
| | 4 | A leaf | | 4 | A star fish |
| | 5 | A house | | 5 | Frame house |
| | 6 | An umbrella | | 6 | A fiddler crab |
| 2 | 1 | A snake | 8 | 1 | A snake |
| | 2 | An elephant | | 2 | An elephant |
| | 3 | A rat | | 3 | A lizard |
| | 4 | A flower | | 4 | A leaf |
| | 5 | A hay stack | | 5 | A house |
| | 6 | Cabbage | | 6 | A strawberry |
| 3 | 1 | A bull whip | 9 | 1 | A rattler |
| | 2 | A bear | | 2 | A donkey |
| | 3 | A wood chuck | | 3 | A rat |
| | 4 | An oak leaf | | 4 | A leaf |
| | 5 | A house | | 5 | A house |
| | 6 | A bug | | 6 | An umbrella inside out |
| 4 | 1 | A snake | 10 | 1 | A snake |
| | 2 | A large animal | | 2 | A lake |
| | 3 | A prehistoric animal | | 3 | A ground hog |
| | 4 | A flower | | 4 | A plant |
| | 5 | A house | | 5 | A shanty |
| | 6 | A butterfly | | 6 | A persimmon |
| 5 | 1 | A snake | 11 | 1 | A snake |
| | 2 | A guinea pig | | 2 | A toy animal |
| | 3 | A mole | | 3 | A musk rat |
| | 4 | An autumn leaf | | 4 | A leaf |
| | 5 | A pile of soft coal | | 5 | A stone tower |
| | 6 | A turnip | | 6 | A nut |
| 6 | 1 | A river | 12 | 1 | A streamer |
| | 2 | An elephant | | 2 | A big animal |
| | 3 | A rat | | 3 | A prairie dog |
| | 4 | A sea plant | | 4 | A leaf |
| | 5 | A shack | | 5 | A house |
| | 6 | A crab | | 6 | A bouquet |

It has been the policy of the writer in presenting this paper to avoid all complicated technical terminology in order that its contents may be of service to those outside of medicine and psychology who are interested in social or other work upon which this may have a bearing. The cases are perhaps not numerous enough to draw trustworthy conclusions from and no attempt at psychanalysis was made to determine why each individual gave the answer that he did. Keeping these factors in mind, therefore, these fifty cases seem to warrant the following conclusions:

1. It is apparent from a study of the tables that there are no Jules Vernes among the twenty-five defectives, at least, and, as compared to the twenty-five normals, there is very little ability to draw mental pictures from commonplace or amorphous objects.

2. The associations among the defectives are for the most part not logical; for instance, blot (1) would hardly recall a skull to a normal person.

3. Asymmetry of the face, head, or both, was present more often in the defectives than in the normals. This is our usual experience in the routine work at Ellis Island.

4. The reaction time averaged nearly twice as long in the defectives as in the normals, being 6.3 + seconds in the former and 3.7 + seconds in the latter.

5. Tests of the imagination and the average reaction time to questions may be valuable points to consider when dealing with mental defectives from a diagnostic standpoint.

I wish to thank the officers at Ellis Island for their kindness in furnishing me with the proper material for this experiment and for having tested out the twenty-five defectives to determine their mental ages.

## RECENT ADVANCES IN THE STUDY OF THE PATHOGENESIS OF CANCER.*

By M. J. SITTENFIELD, M.D.,
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From the study of the occurrence of spontaneous tumors in mice and rats, and their transplantability, clinical behavior, and pathology, a more intelligent understanding of the entire subject of malignancy has resulted. Some of the newer work which has appeared within the past two or three years seems quite important and may possibly throw some light upon the vague ideas of pathogenesis which now exist. Certain findings which may be accepted as reliable and which bear upon the etiology of cancer, seem by analogy with human cancer to be of great interest. There is very little doubt that cancer of the mouse or rat is entirely comparable with that of man, since it exhibits continuous infiltrative and invasive growth, also the power to metastasize, to cause cachexia, to recur after removal, and finally to result in death of the animal in about one-thirtieth the time of its entire life cycle. The relation between embryonal and cancer tissue has been studied by a great many. Fichera inoculated rats subcutaneously with a suspension of rat embryos, causing nodules which grew progressively until at the expiration of two or three months they had acquired twenty times their original size. By the end of six months, however, their epithelium had greatly diminished so that the nodule could not be considered in any sense a malignant growth.

The question whether pregnant animals may not perhaps offer a more favorable soil for the growth of embryonic tissue was investigated by Askanazy and his pupil Jentzer. They thought that pregnancy in the host exerted a favorable effect upon the growth of experimental teratoma in white rats. Rous afterwards established the fact that embryonic grafts grew better in rats, from which the embryos had been removed, than in non-pregnant or other pregnant rats; on the other hand, when an animal still bearing embryos was inoculated with embryonic tis-

*Read before the Eastern Medical Society, December 14, 1913.

sue from her own uterus, the grafts failed to grow or to differentiate in spite of the fact that they became vascularized; the graft, however, retained its vitality, and moreover after pregnancy was concluded continued to grow. Freund also noticed the stimulating effect of pregnancy upon the growth of rat embryo, although no difference could be discerned between the outcome of homoplastic and that of autoplastic transplantation.

The comparative growth rate of malignant cells has been studied very carefully by Bashford. He weighed mice embryos at different periods of gestation, comparing them with a corresponding weight of tumor. When he estimated the proliferating activity of the two tissues, it became evident that while some tumors attain the rate of growth possessed by the embryo, most of them fall far below it.

The relation of heredity has been studied lately in rats or mice by Bashford, Murray, Tyzzer, Levin, and myself. These animals lend themselves very readily to heredity experiments; they are short-lived and rarely live to be over two years old. Bashford and Murray crossed mice affected with spontaneous tumor, with the offspring of cancerous parents, and obtained strains of mice in which the cancerous heredity ranged from 75 to 90 per cent. Tyzzer arrived at similar conclusions; he observed the frequency of tumor development in the descendants from three female mice suffering from malignant tumor. Levin and myself crossed tumor resistant male and female rats and inoculated Ehrlich's rat sarcoma into 23 of their offspring and in only five (or 25 per cent.) did the tumor grow; in 20 other normal rats which were used as control 86 per cent. were positive to tumor inoculation; in other words, the results were in accord with Mendel's law of heredity.

Lathrop and Loeb have reported in a very recent publication observations upon the frequent occurrence of mammary tumor in mice. Animals raised in the same breeding establishment under the same condition of climate and feeding showed different percentages of cancer of the breast, depending upon the strains of their ancestors. The age at which the tumor developed differed also in the various strains; in some it appeared at the age of twelve months or below; in other strains the maximum was reached between fourteen and twenty months; the very youngest in which a tumor was first observed was five and a half months. In mating a strain rich in tumor with a strain very poor in tumor, they observed hybrids which were rich in tumor.

In Haaland's examination of 288 mice with spontaneous tumors, only six were males and of the 353 tumors detected 311 were mammary adenocarcinoma; this could not be attributed to vigorous physiological functional activity alone, as of 74 mice which developed mammary tumors and had been observed since birth, only 33 (or less than half) are recorded to have littered prior to the development of the tumor, while no litter is recorded for the other 41. In one of these animals Haaland reports that while the absorption of a spontaneous tumor was under way, another was growing progressively at the same time and producing large metastases in the lungs and liver.

The mechanism and formation of metastases of tumors was first investigated by Levin and myself. We injected tumor emulsion into blood vessels or joints, with a view of ascertaining the transportation and formation of metastastic growth in distant organs. In mice and rats metastases occurred through the blood vessels and rarely, if ever, by the lymphatics. After subcutaneous inoculation metastases are rarely encountered. We observed the following interesting result: A Flexner-Jobling rat carcinoma upon intravascular injection, found lodgment in the lungs; the mouse sarcoma when injected into the rat produced metastases only in the liver. Ehrlich's rat sarcoma failed to give metastases anywhere. In each instance normal animals were employed and the method of transportation was identical. It would seem therefore that there is a specific affinity or an interrelation between the different cancer cells on the one hand and the susceptibility of the cells of certain organs on the other. The cultivation of cells outside of the body has proven of great aid to the cancer workers. Harrison was the first to show that the nerve tissue of a frog embryo could be grown in lymph *in vitro;* plasma was substituted subsequently by Burrows and Carrel, and observation on connective tissue cells showed that they were able to keep them alive for 85 days, also that fragments of the chicken heart pulsated after three months. Lambert and Hanes conducted comparative studies on cancer and normal connective tissue cells and described a more rapid cell division, a greater activity, and a more marked ameboid movement of sarcoma cells when compared to normal cells.

In the experience of the majority of investigators, it is essential for the effective transmission of a tumor that living and intact cancer cells be introduced into an animal of the same species, or into one that is very closely related. The proliferation of a tumor after its introduction into another host is an example, not of infection, but of transplantation; the parenchymal cells of the resulting growth are derived from the elements of the implanted tissue, and not from the tissues of the new host. It is obvious that the malignant growth is caused by an unlimited proliferation of cells, but what is not definitely known is the factor which causes this power of unlimited growth. That mechanical stimulus (or reiz) as trauma causes cancer seems to be fairly well accepted by many. Alleged instances are cancer of the cheek in natives of India occurring frequently as the result of chewing of the betel nut. Cancer of the abdominal wall occurs in the natives of Kashmir from wearing a Kangry basket under their robes; other examples are cancer of the scrotum in chimneysweeps, and cancer of the skin in tar workers. An example of physical trauma is the *x*-ray cancer; the careful dosage of cathode rays retards superficial growth; in large doses, however, these same rays cause burns and skin ulceration, which may develop eventually into cancer. The latest statistics by Hesse report 64 *x*-ray cancers. In these *x*-ray cancers the relation of reiz (or stimulus) to cancer can be closely traced. The cancer develops from the skin ulceration, the epithelium being converted into cancer cells, and it is of interest to note here that once cancer has started it becomes independent of the original stimulus. If the cancer is excised and the *x*-ray influence removed, the cells in the adjacent and neighboring tissues which are evidently healthy turn into cancer cells. It is impossible to reconcile an *x*-ray cancer with our older notions of the so-called performed embryonal theory. The facts would point rather to Ribbert's notion, that every epithelial cell in the body may become a cancer cell, *i.e.* a simple inflammation of the subepithelial tissue may change the epithelial cell so that the original resistance against unlimited proliferation is dis-

turbed. Sunburns may in some cases cause cancer to develop as for instance xeroderma pigmentosum.

Considering these two kinds of cancer development, we must realize that they do not fit our previous theories of pathogenesis except perhaps the parasitic one. All sorts of parasites—bacteria, blastomycetes rhizopods, protozoa, sporozoa, and other kinds of vegetable and animal life—have been accused of being concerned in the etiology of cancer. The view that some parasites play an intermediate part, causing chronic irritation, has of late received strong support.

Borrel has consistently upheld the existence of a cancerous virus; he has always insisted that transplanted tumors represent the second stage in the development of cancer, because this was preceded by a transformation of normal cells into malignant elements. He succeeded in demonstrating cestodes and nematodes in the tissues adjoining young adenocarcinomata in mice. These worms were found in the groin or axilla of mice affected with cancer of the breast. Similar helminthes have been discovered in the lungs and lymph nodes, as well as in the circulation of mice suffering from generalized lymphomata. Four years ago Borrel reported a rat cancer which he propagated through three generations, the malignancy of which he attributed to the cysticercus of *Tenia crassicola;* in another case he found a small adenocarcinoma of the kidney enveloping a cysticercus. Similar cases have been reported by Regand, Saul Bidre, and Consi, etc., within the past two years. The acarus has been found in rats and in lymphosarcomata in dogs. Cysticerca are discovered frequently in the liver of mice, and so too sclerostomata in the cancer of horses. *Trichnodes crassicola* has been described in the bladder of the rat (Loewenstein).

The most painstaking and thorough work in this connection is that of Fibiger, which consumed almost seven years, and was published within the last six months. In three brown rats, which had previously been treated with a subcutaneous injection of tubercle bacilli and were kept in the same cage, he found very striking changes in the walls of the stomach at or near the cardiac end, presenting a growth of solid consistency resembling a papilloma. In this papillomatous growth which histologically appeared malignant, nematodes 16 centimeters by 0.25 millimeter were discovered, also the ova containing the embryos. Later he examined 1,144 rats and found a similar condition in 11 and in these he found the cockroach (*Periplaneta americana*) as the intermediate host. In another series of 61 rats from a sugar refinery, similar nematodes were present in the stomachs of 40 animals and in 18 of these morbid changes in the mucous membrane of the stomach were found. In nine the lesions were carcinomatous, whilst the other nine disclosed preliminary stages or precancerous conditions. His further studies convinced him beyond a doubt that these tumors were intimately associated with the presence of nematodes and their ova; that the ova of these parasites came from the *Periplaneta americana.* His efforts were directed towards producing these changes artificially and by feeding rats with these roaches he succeeded in reproducing cancer of the stomach. The development of these tumors was rather slow and in three of them metastases were encountered. In the metastases, however, nematodes could not be demonstrated. This would argue that the tumor of the stomach was able to develop a secondary growth without the presence of the parasite in other organs. From these experiments he concludes that the roach acted as the intermediate host which brought to the stomach of the rat a nematode (spiroptera). This gives off a virus, which in turn causes anatomical changes affecting the mucous membrane; the lesion is one of epithelial hyperplasia and inflammation and in some instances a papillomatous growth resulted which filled the entire stomach. In five rats, however, malignant epitheliomata were found with invasive and infiltrative growth.

The interesting experiments of Rous fit very closely with the subject which is now under consideration; he was able to transmit a chicken sarcoma after a tumor emulsion had been passed through a Berkfeld filter No. 5 medium, which is impermeable to the *Bacillus prodigiosus,* or by means of dried or powdered tissue. When the cell free filtrate or the dried powder diluted in Ringer's solution was injected, the sarcomata appeared at the site of inoculation growing more or less diffusely, but when a little dried washed earth was added to this filtrate, a larger number of growths developed, demonstrating the importance of cell derangement and trauma such as was induced by the needle prick and earth. Metastases occurred by way of the bloodstream and were encountered frequently in the liver, spleen, and heart. In a later communication Rous states that he could successfully transplant the tumor or cell free filtrate into the developing chick embryo in the Plymouth-rock egg.

The work of Fibiger and Rous is by far the most valuable contribution to the pathogenesis of cancer that has been brought forward within the past few years, although a great deal more work is necessary to corroborate these facts and to make them conclusive.

Local predisposition and local reaction are most potent factors in the development of cancer. This has been shown by I. Levin, when he inoculated a Flexner-Jobling tumor into the normal testicle of a rat; it failed to grow in spite of the fact that it grew subcutaneously and when inoculated in different internal organs. But when, previous to the inoculation of the tumor an inflammatory lesion was produced in the testicle, then the tumor inoculation was successful. The question of hyperemia and anemia in the development of cancer has been very much discussed by Theilhaber; he bases his view upon the anemia produced from laceration of the cervix during labor resulting in scarlike and atrophic processes and with these stenosis and atrophy of the blood vessels. He states that these circulatory disturbances of the cervix render it a favorable soil for the development of cancer; the hyperemia in the body of the uterus however during menstrual life, he argues, prevents the occurrence of cancer. This has been entirely discredited by the work of Greischer and Schminke, Fajani, Janowisz, and also myself. The first two induced anemia in one ear of the rabbit by ligating the carotid; in another series of animals they produced arterial hyperemia by cutting the sympathetic; in a third series they ligated the veins at the base of the ear and proved that these disturbances of the circulation played but a small rôle upon inoculation and growth af the tumor. In my experiments a tumor was inoculated into the leg of the rat and twenty-four hours after the inoculation, anemia was induced by ligating the femoral artery; in another set of experiments venous hyperemia by Bier's method was employed. The tumors in the anemic leg grew very poorly and in only 18

per cent. did the tumor develop, whilst the hyperemic leg yielded 90 per cent. and the tumors grew very rapidly. This is entirely in keeping with Moreschi's results, who noticed that the growth of the tumor was retarded in starving animals, and flourished in overfed animals.

If we now attempt to summarize the present status of pathogenesis the first question that confronts us is the following: Is the epithelial or connective tissue cell the main primary factor in the development of cancer? The majority of investigators are agreed, and even Ribbert has modified his opinion of late, that the epithelial cell undergoes biological and morphological changes and assumes cancerous activities, namely: an increased proliferative energy, the property of invasive and infiltrative growth, transplantability, and the power to metastasize.

The fact that in India from constant chewing of the betel nut cancer starts always in the same spot, and that in Europe and America such a form of cancer is hardly known would argue very strongly against the congenital theory. A mouse affected with a spontaneous tumor can be very readily inoculated with its own tumor; on the other hand, it would seem that cancer cells growing in an animal in which they are not native, are doing so under great stress or at least under a certain disadvantage.

(1) Tumor development in animals depends upon local and general conditions, just what these may be has not been fully elucidated.

(2) Exposing the cells for two hours to 50° C. or grinding them in a mortar with sand does not impair their transplantability, nor injure their proliferation or growth energy.

(3) Cancer cells differ from ordinary cells, through their increased energy of growth, and through their power to invade and infiltrate other tissue.

(4) The parasitic theory may be classified with that of chemical poisons; either they diminish or entirely destroy the resistance of the cell against parasitic invasion, or by means of their toxins they may exert this specific stimulus upon the infected cells and induce unlimited proliferation. Against this theory may be argued the ease with which the cancer tissue can be ingrafted into the animal within which it first acquired malignant properties.

Again, some gummata can hardly be differentiated microscopically from sarcoma; the same is true of some lymphomata and leucemic tumors, the etiology of which is not definite, but very probably parasitic.

(5) In addition to the studies of heredity in cancer experiments reported a month ago of Lathrop and Loeb confirm the hereditary factors in the incidence of cancer of mice. It would seem, therefore, that we cannot lay claim to any one particular cause in the pathogenesis of cancer, but that probably many factors collectively must be considered. First: factors which cause a local and a general predisposition or the precancerous stage. Secondly: the direct stimulus which may arise either from within or possibly from some foreign agent.

73 East Ninetieth Street.

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Medical Services—"Necessaries."—Medical services are necessaries of life which parents are required to furnish their children, and are therefore within the purview of California Civil Code, Sec. 171, as amended, making a wife's separate estate liable for necessaries furnished the family while she lived with her husband.—Evans vs. Noonan (Cal.) 128. Pac. 794.

## THE VALUE OF ACCURATE DIAGNOSIS IN DISEASE.

By BEVERLEY ROBINSON, M.D.,

NEW YORK.

To-day, more than ever, the importance of accurate diagnosis is recognized. Prognosis and treatment are not considered so essential, although formerly they were estimated of quite as much, or of more, value.

This was the day when there was not a little guesswork and when laboratory research was not advanced, even among the most distinguished professors and practitioners of medicine and surgery. Malaria was diagnosed without knowledge of the plasmodium. Diphtheria was affirmed to be present and yet the Klebs-Löffler bacillus had not been discovered. The tubercle organism was an unheard-of quantity, although pulmonary tuberculosis was declared to exist. In these diseases, diagnosis was frequently correct, although the scientific accuracy of our day was lacking.

In other instances, error of interpretation of signs, as symptoms, was established, sooner or later. Do such mistakes occur to-day? Assuredly they do, but not so often as when we seniors were juniors. Is the advance made an unmixed good, or is it allied with some things that are evil, or steps backward? I, for one, believe there are serious drawbacks to later acquisitions. I shall mention a few: We have been latterly, as is now acknowledged by some of our ablest practitioners, prone to be too dependent upon reports from the laboratory. Errors of fact, or interpretation, are discovered, and even among the best trained and most careful workers, in this special field. These errors are finally best controlled in my judgment by the broad and searching medical acumen, which is solely the product of long and large general practical experience at the bedside, as disease becomes manifest either within or without hospital wards. An intelligent and industrious physician, with ample opportunity to observe and to do, may become notably expert in any one special line of work. He cannot as a rule, become a *narrower* authority in more than one. In actual practice we may desire the help of more than one specialist in a given case. But ultimately the all-around family physician, if he has "mens sana in corpore sano," must rule or determine the issue to the great advantage of the health and well being of the patient—physical, moral, intellectual. What is most required to-day is to bring this fact clearly and forcibly to the minds of all men and women. Without this belief and resulting absolute confidence what is the outcome? Some men, alas, pretend to a knowledge they do not really possess; others think they know, but their knowledge is at best imperfect in certain directions, and the best available knowledge is what is most required for the amelioration or cure of disease.

Even with all the knowledge of the schools at our behest disease is happening and uncertain. Time alone, with continued, patient observation and care, will bring about the best results possible, in many such cases.

To me, so-called accurate diagnosis is a misnomer, simply because it deals almost exclusively with signs and symptoms that are judged almost solely with physical methods of research. The personal, individual equation is far too much ignored, or lost sight of completely. Nevertheless, it is this quantity in every man's, or woman's, ailment which is,

if not the primary factor to be considered in the management of disease, at all events one of very great importance in almost every instance. Auscultation, palpation, percussion, mensuration, etc., have been exploited to the uttermost, but they are by no means, combined with other best methods of research, laboratory or physical, all we need. It is high time to cry a halt to their overvaluation. No science, no single expert advice, no series of examinations by experts can take the place of the comprehensive appreciation and doing of the wise, beneficent general practitioner of medicine. He it is who can solace, console; sometimes cure when others cannot. I pray earnestly the day may come again, and very soon, when poor, misguided, ill men and women, may lay to heart the facts stated in a very brief and imperfect way. When that day comes, as it surely will, the family adviser will be duly selected and implicitly obeyed, despite all the specialists brought into the case, even among the wealthiest, most powerful, or important in the world.

42 West Thirty-seventh Street.

## "TANGO-FOOT."

By GUSTAV F. BOEHME, JR., B.S., M.D.,

NEW YORK.

NEUROLOGIST TO THE WEST SIDE GERMAN DISPENSARY AND HOSPITAL; ASSISTANT PHYSICIAN TO THE NEUROLOGICAL INSTITUTE; CLINICAL ASSISTANT, VANDERBILT CLINIC, DEPARTMENT OF NEUROLOGY.

Occupational diseases have been described for a long time, yet it is only recently that a new affliction, due entirely to our love of the esthetic and the joyous, has laid its hold on the pleasure-loving public. We have known of the bursitis, called "housemaid's knee"; we have sympathized with the miner with his "miner's elbow"; the weaver has suffered from that painful condition "weaver's bottom"—and now our feelings must be extended to the cabaret dancer, the little chorus girl—and to the devotees of Terpsichore in general.

I have recently been consulted by a number of dancers who came to me complaining of "pain in the front of the foot," and in every instance have found the same symptom-complex—and on investigation discovered the cause constant—the modern dance. I feel, therefore, that it will not be amiss to report my experiences with this condition.

*Symptomatology.*—The patient generally awakes in the morning with a slight dull pain in the outer anterior aspect of the leg in its lower third. At first it is regarded as a slight bruise or a "little rheumatism." During the next few days the pain becomes more marked and a stiffness in flexion and extension of the foot is noted. Going up and downstairs is painful, especially the latter. He, or she, now becomes worried and seeks medical advice.

The physician on examination notes the slight limp of the patient. He discovers that the patient finds standing on the toes, or passive and active extension of the ankle joint painful. There is no redness. Over the region of the tibialis anticus tendon pressure produces a slight degree of tenderness. With the hand over this painful area, extension and flexion of the ankle is made and the typical crackling feeling of a tenosynovitis is noticed.

*Pathogenesis and Pathology.*—The latter day dances, especially the tango and the maxixe, and to some extent the complicated figures of the hesitation waltz call for great flexibility of the ankle, with much movement at this point throughout the various intricate steps. The more common movements are those of extension, flexion, and adduction of the foot. The resultant is a constant strain on the extensor muscles of the foot, viz., the tibialis anticus, the extensor longus digitorum, and the extensor proprius hallucis, which in turn produces a tenosynovitis in this muscle group. The commonest tendon involved is that of the tibialis anticus.

*Treatment.*—I have to date seen seven cases of this condition, which I do not report in detail because the syndrome is always the same. One case, of the same clinical picture, I saw in a seamstress who worked the sewing machine with her foot—this is not included in this series—but the condition was the same.

Rest is the first requisite. By this I mean rest from the exciting cause. Immobilization with plaster of Paris or with adhesive plaster does no good; in fact the pressure irritates, limits walking, and causes needless stiffness. Simple cessation from dancing is all that is necessary, with a limitation in the amount of walking done.

For the simpler cases massage with alcohol or simple soap liniment is sufficient. If this does not effect the desired result I find that the following prescription painted over the affected tendon daily will quickly remove the pain:

℞ Tr. Aconiti,
Tr. Belladonnæ, āa, ʒii.
Tr. Iodi, ʒiv.
Sig.—Paint daily.

Finally, baking daily for two or three days will remove the effusion in the tendon sheath and restore the limb to its normal.

I call attention to this condition so that it may not be confused with rheumatism, periostitis, or any other local inflammation. It will pay in every instance when the pain is located as described to ask whether the patient be a disciple of one of the light-footed artists who have added so much joy to the world of late—and apparently have developed a minor pain. If so, look for this tenosynovitis of the tibialis anticus and its allied muscle group which I have called "Tango-Foot."

2131 Broadway.

**Psoriasis in a Very Young Infant.**—Haldin Davis reports the case of an infant 8 weeks old, in whom the eruption appeared at the age of 1 month. A very large proportion of its entire body surface is covered with a figured erythema with scarcely any induration, but with a scaly surface. Where the erythema is limited by healthy skin it shows a circinate outline, suggesting the coalescence of circular patches. The face is involved and so also is the scalp, which when the patient was first seen was covered with a thick adherent crust. Most of the surface of the body and limbs is covered, but the extensor aspect is more affected than the flexor, although the exact points of the elbows and knees are not especially attacked. On the buttocks the eruption is complicated by the presence of a certain amount of napkin erythema. The diagnosis in this case lies between psoriasis and syphilis, but the latter is excluded by the following considerations: (1) The baby is perfectly well although it has had no antisyphilitic treatment. (2) There are no other signs suggestive of syphilis. (3) It is the youngest of four children, the ages of the others being respectively 11, 7 and 4. All of them are healthy, and the mother has had no miscarriages. (4) The Wassermann reaction, both in the mother and child, is negative. It is interesting to note that there is no history, as far as can be ascertained, of psoriasis in the family. In most other cases of psoriasis in early infancy there has been strong evidence of heredity.—*Proceedings of the Royal Society of Medicine.*

# MEDICAL RECORD.

*A Weekly Journal of Medicine and Surgery.*

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## HYPOTENSION ASSOCIATED WITH A DEFINITE SYMPTOMATOLOGY.

THE subject of abnormally low blood pressure is not as well known as that of abnormally high blood pressure. It is generally recognized that in cases of acute poisoning by chloral and alcohol, and of chronic poisoning by nicotine, in cases of shock, and in cases of heart weakness, there may be a more or less pronounced diminution in vascular pressure. A series of cases of diminished blood pressure associated with a definite symptom complex was studied by Edward H. Goodman (*American Journal of the Medical Sciences*, April, 1914), who states that with the employment of the auscultatory method all pressures below 120 mm. Hg. should be regarded as low. He classifies the causes of hypotension as follows: "(1) Acute infections, excepting epidemic cerebrospinal meningitis. (2) Chronic wasting diseases: carcinoma, tuberculosis, cachexia from whatever cause, Addison's disease. (3) Hemorrhage, drugs, chloroform. (4) Nervous disease: general paralysis of the insane, neurasthenia, after epileptic seizures, sometimes in tabetic crises, after lumbar puncture, Graves' disease (at times), osteoarthritis, exhaustion, shock—surgical or anaphylactic. (5) Cardiovascular disease: tachycardia, dilatation of the heart, arteriosclerosis (at times), mitral stenosis, decompensatory cardiac lesions. (6) Blood dyscrasias: anemia, polycythemia with splenomegaly. (7) Renal conditions: cyclic albuminuria, nephritis (at times), amyloid disease. (8) Intoxications: alcohol, tobacco, acute adrenal insufficiency. (9) Terminal hypotension preceding death." It is pointed out that the clinical significance of low blood pressure has been clearly recognized in such conditions as surgical and anaphylactic shock and in acute fever. Münzer delineated groups of cases of hypotension associated with arteriosclerosis, with status thymolymphaticus, with orthostatic albuminuria, with chronic nephritis, with paroxysmal tachycardia, and with cachectic conditions.

Goodman describes a series of cases of low blood pressure in which there was no demonstrable organic lesion. These cases were observed mostly in patients in early adult life, in whom the chief symptoms were headache, vertigo, and mental and physical tire. In none of the five patients whose condition was studied by the author was there any evidence of tuberculosis. Autointoxication was ruled out as a possible factor. Neurasthenia was not held accountable for the symptom complex. The author can offer no explanation as to the cause of the hypotension. In the treatment of this condition he instituted a series of simple physical exercises which the patient was directed to employ for at least ten minutes every morning. These exercises were to be followed by a showerbath, at first hot, and then as cold as could be borne. Ascending doses of tincture of nux vomica, beginning with fifteen drops three times a day, were prescribed. This drug was to be continued until a physiological action was obtained. In one patient as much as seventy-five drops of the above preparation was given without the production of any apparent physiological effect. Of course such large doses would be extremely unsafe in the average case. Excessive indulgence in tobacco, alcohol, tea, or coffee was prohibited, and a coexisting constipation was corrected. Under this method of treatment all of the author's patients improved and at the same time there was a corresponding increase in their blood pressure to within the normal limits.

## TREATMENT OF TUMORS OF THE BRAIN.

IN no realm of surgery has more progress been made than in that of the brain. It is not long ago that this region was a terra incognita so far as operative measures were concerned. At the present time, operations are undertaken with the view to relieve certain conditions, and in many cases to save life, with a fair degree of success, which a few years ago would not have been thought of, much less attempted. The present condition of the surgery of brain tumors is well stated in a recent report by Howard H. Tooth. Some of the general conclusions set down in this report were as follows: A high general mortality exists for all operations on the brain, even in the hands of the most experienced surgeons, and unforeseen fatal results follow even the apparently simple trephining. The danger of operation is lowest in the central region and highest in the cerebellar, particularly if the tumor is in the lateral recess. The immediate dangers common to all growths, all situations, and apparently all operations are shock, collapse, respiratory and cardiac failure. These latter may occur any time within 14 days, and sudden cessation of respiration may occur in cerebellar cases which appear to be doing well as late as a month after the operation. This period being passed, the patient may still show no improvement, may develop added symptoms indicating unchecked growth of the tumor, increasing hernial protrusion, drowsiness or coma, and in some cases a progressive asthenia and emaciation. In favorable cases progressive improvement in all respects takes place immediately after operation, the further progress of the case depending upon the nature of the tumor. Practically the tumors are of three types, highly malignant from the first, or becoming so on recurrence after operation; a less malignant or intermediate type; an almost or quite innocent type. The group of the gliomata supplies instances of each of these types. Among the malignant or rapidly increasing growths are some gliomas, fibroglioma, papilloma, pituitary and perhaps pineal. The comparatively innocent

type includes most endotheliomas, not a few gliomas, most of the fibromas, and the simple cysts.

Success in operation depends upon the nature and seat of the growth. If malignant, that is, of rapid growth, with tendency to recurrence, how far is it justifiable to attempt radical treatment? Tooth points out that the greater number of these neoplasms are gliomas, and so insidious is their growth, and so differently do individual brains seem to bear their expansion that only a distant and very often totally erroneous idea can be formed of what may be found at operation. As a rule, when the growth has given unmistakable evidence of its situation its complete removal is practically impossible, and, if incomplete, recurrence is inevitable. A temporary relief no doubt follows, and a prolongation of life for some months. Growths of a lower degree of malignancy, but of large size and ill-defined margins, have been removed and microscopically have presented characters of quiescence and almost innocence, but they have recurred in a highly malignant form. The opinion thus forces itself upon the observer that if left alone such a growth might have remained of the quiescent type for a much longer period if no more than a large craniotomy, or at the most a decompression had been done. Comparatively innocent non-infiltrating growths, not gliomas, offer every inducement for complete removal, in spite of a high mortality as judged by ordinary surgical standards. In the case of endothelioma, recurrence is so unusual as to be almost negligible. The treatment of simple cysts is so satisfactory, the result so permanent, and the disappointment so great on finding it post mortem, that the suspicion of it leads to much searching. But simple cyst is rare, only 1.9 per cent. The last of the comparatively innocent growths are the fibroma and perhaps the fibroglioma. The diagnosis of tumors in the extracerebellar region is so comparatively easy and accurate, and the surgical treatment at first sight so straightforward that the results as recorded by Tooth are disappointing in the extreme. The postoperative mortality is very high. As regards decompression, too, of the class of tumor in the extracerebellar region, the results are even worse than by the operative measures just mentioned.

On the whole, then, it may be said that brain operations are more dangerous than operations in any other part of the body. This, however, is only what might be expected, and considering the rapid progress that has been made in brain surgery during the past few years, it may be anticipated with some confidence that in time the high mortality rate following brain operations will be lessened considerably.

## THE PREVENTION OF TUBERCULOSIS IN NEW YORK CITY.

GREAT strides have been made in recent years in the direction of preventing tuberculosis in New York City. The ninth report of the Committee on the Prevention of Tuberculosis of the Charity Organization Society of the City of New York for the years 1911, 1912, and 1913 makes this fact very evident. The most important and far-reaching work of the committee has been its campaign to secure additional hospitals for tuberculosis. New York at the present time has 2,721 hospital beds for this class of patients, which while a great improvement on former conditions still are wholly inadequate. The records of the Health Department show some 40,000 known consumptives of whom the large majority live in tenement houses where they have neither the means nor facilities for proper care. Other valuable work inaugurated and carried on under the auspices of the committee includes work among school children, lectures, tuberculosis clinics, prevention of tuberculosis among Italians, and traveling exhibitions.

In large crowded centers of population as New York the problem of preventing the spread of tuberculosis is manifestly most important. A person afflicted with the disease is a source of constant menace to those living in his or her proximity, and may unless isolated be the means of disseminating the malady on a wide scale. Hence, the crying need of adequate hospital accommodation. It goes without saying that work among school children is a phase of the tuberculosis problem which must not be neglected and the educational side of the question is of utmost value. An early diagnosis and prompt treatment generally signify a cure, and it is only by teaching people how to recognize the symptoms of incipient pulmonary tuberculosis that early diagnosis and treatment are possible. The members of the Committee on the Prevention of Tuberculosis of the Charity Organization Society of the city have deserved well of the community, and their efforts to prevent the spread of tuberculosis should receive the aid of every citizen.

## THE EXCHANGE OF HOSPITAL ATTENDING PHYSICIANS AND SURGEONS

RECENT years have beheld a vast development in the idea of travel study in medicine and surgery. Clinical congresses and travel tours have demonstrated the advantage of the exchange of ideas and the dissemination of new methods. This development has not been confined to the medical sciences. It has been conspicuous in other branches, particularly in chemistry, mathematics, law, and the social sciences. The frequent calls made by the universities of Germany and Austria for professors in other institutions and the consequently frequent transformations of the faculties in these universities exemplify the desire to infuse new blood into the bodies of learned institutions. Science rebels against routine. Its healthy existence demands constant renewal. The German idea has found a new development in the creation of exchange professorships so that there now exist a series of exchange professorships between America on the one hand and Germany and France on the other. Would it not be feasible to apply this idea in hospital administration? One of the greatest drawbacks of the modern hospital system is the blighting effect of routine and institutionalism. However great may be the desire on the part of members of the hospital attending staffs to escape from the evils of working in a rut, however eager they may be by their attendance at national and international congresses to acquire new ideas and methods, however assiduous they may be in their visits

to the clinics of their colleagues both in their own country and abroad, nevertheless they cannot altogether escape the deadening influence of routine. The idea of an exchange system could be easily applied in any of the larger cities. It should occasion no revolution in hospital efficiency if two institutions agreed to exchange, for instance, one of their attending surgeons for a period of from three to six months or even longer. This does not imply that the exchange surgeons would at once or at any time try to upset the system that had been established in the institution to which they were assigned. It does not imply that they would seek to make any startling change in operating-room methods and technique. One would, on the other hand, conceive of the visiting surgeons both imbibing and imparting new ideas in a manner that is not obtrusive, influencing both the assistants and the other individuals connected with the hospital by the force of their example and the power of their personality. Whether the surgeons would care to make the exchange is another question.

### Verruga in the Human Subject Directly Traceable to Phlebotomus Verrucarum.

A case of verruga in man directly traceable to a species of Phlebotomus, *P verrucarum*, was reported by Charles H. Townsend from Chosica, Peru, in the *Entomological News*, January, 1914. An assistant of the writer was engaged in collecting specimen phlebotomus for the inoculation of laboratory animals and was bitten no fewer than fifty-five times by these insects. This occurred on September 17, and on October 1, on examination of the assistant's blood, verruga *x*-bodies were found in the red cells. At the time of writing, November 10, 1914, the patient was in the hospital in Callao. It should be said that on October 25 a decided rise of temperature occurred and the *x*-bodies were much increased in number, but the latest report stated that the temperature was lower than at first, and the case promised to be of a benign rather than of a malignant type. No eruption had appeared. Salvarsan was administered intravenously for the purpose of determining whether it would prove a specific against the disease, but apparently was of no avail.

## News of the Week.

**Medical Legislation.**—Gov. Glynn of New York recently signed the bill passed at the last session of the Legislature and known as the Boylan bill, which restricts the sale of cocaine and similar drugs. The bill prohibits the sale of such drugs except on the prescription of a reputable physician and provides that each package containing the drugs must carry a label or certificate with the name and address of the physician under whose prescription it is sold and the name of the person for whom the prescription was filled. All drug dealers and physicians will be supplied by the health authorities with official order blanks which must be used in making purchases of these drugs. In this way, it is hoped, track can be kept of all quantities of the drugs on sale in the city. For many years past, particularly in New York City, a relentless campaign against the promiscuous sale of these drugs has been carried on, and the passage of this bill, which goes into effect on July 1, will greatly benefit the work, making it easier to trace purveyors of the drugs and to convict illegal sellers after their arrest.

More than two thousand Christian Scientists from all sections of the State and some from neighboring States crowded into the Assembly Chamber at Albany on April 13 to attend the hearing held by Gov. Glynn on the McClelland bill, which makes legal the work of any person "who ministers to or treats the sick and suffering by mental or spiritual means without the use of any drug or material remedy." A number of prominent and apparently sane men spoke in favor of the bill, while it was opposed by many members of the medical profession. The Governor has not as yet announced his decision in the matter.

In New Jersey Gov. Fielder after a hearing on April 13, vetoed the bill passed by the Legislature which would permit the Rockefeller Institute to establish a research department in that State for the study of diseases of animals. The bill, which was an amendment to the present law for the prevention of cruelty to animals, was passed following the recent announcement that Mr. Rockefeller had contributed $1,000,000 for research work along these lines. Opposition to the bill was strongly voiced by the New Jersey Anti-Vivisection Society, and Gov. Fielder took the position that the bill as drawn was too broad in its scope since it would permit any body incorporated for the purpose under the laws of any State or country to conduct animal experimentation without any supervision whatever, and that while this right might safely be given to the Rockefeller Institute it would be unwise to confer it upon irresponsible persons who could obtain it merely by incorporating themselves.

In New York, again, Gov. Glynn has signed the bill designed to simplify the procedure necessary to the detention of weak-minded persons in State institutions. The bill authorizes any judge of a court of record to determine the mental condition of a suspected person on the application of a relative, friend, or probation, parole, or school officer, the application to be accompanied by a certificate signed by two physicians. The Governor has also approved the bill appropriating $5,000 for the expenses of a commission to investigate the care, custody, treatment, and training of the mentally deficient and to report on remedial legislation next year.

**The Philadelphia Vivisection Trial.**—After three days spent in taking testimony and forty-eight hours in deliberation, the jury in the case of Dr. Joshua E. Sweet, professor of surgery in the Medical Department of the University of Pennsylvania, failed to agree on a verdict and were discharged by the presiding judge. Dr. Sweet was indicted last year with five other members of the medical faculty of the university, all being charged with cruelty to animals in that the animals were neglected after having undergone operations. The evidence furnished by the prosecution came from the former keeper of the animal house and from women whom he had surreptitiously admitted to the house to inspect their quarters. It was charged that dogs which had been used for experiment were improperly fed, improperly treated, and improperly housed, and it was stated in support of the charge that the food given to the dogs was gathered from the waste at the University Hospital, that the wounds from the operations were not properly bandaged, and that the dogs were given only sawdust as beds. That the animals suf-

fered intense pain was the sworn testimony of one of the women, her observations having been made with the aid of an electric pocket flash light on night visits to the animal house. The defense introduced testimony to show that table scraps were the best food for the dogs, as providing variety, that healing of the animals' wounds was promoted by absence of bandages, and that sawdust was perfectly sufficient bedding, but was not allowed to testify as to the reason for performing any of the operations, nor to describe the benefits accruing from observation of the animals. In charging the jury the judge said in part: "To indicate a view on the part of these physicians that these operations upon dogs were made for scientific purposes to obtain information for the alleviation of human suffering, I charge you that the law of Pennsylvania does not allow pain and suffering, torment or torture to be inflicted upon dogs for any purpose except for the relief of the suffering of the dog itself. They have no right to torture the dogs or violate the law, as I have read it to you, for the purpose of obtaining scientific information. The law says that any person who is guilty of wanton and cruel torture of an animal shall be guilty of a crime. The law does not say they shall not be guilty if they do it for a scientific purpose. Scientific purpose does not excuse cruelty."

The judge defined torture as that amounting to more than ordinary pain and inconvenience, agony in itself, and wanton torture as that which is purposely inflicted. A cruel act was defined as a hard-hearted act, committed without regard to any suffering that it might cause. His charge was construed by the prosecution as a declaration that vivisection in itself is illegal, thus opening the way, in the opinion of many of those present at the trial, for the prosecution of all scientific men in Pennsylvania. The jury was reported to stand eleven to one, each side claiming the majority.

After the case had gone to the jury the university made public a report of a special committee of the Board of Trustees and a resolution of the full board approving the teaching work involving animal experimentation. The committee reported that the charges against the members of the medical faculty "were, as far as could be ascertained, absolutely without foundation," and said further that "all the great discoveries which have revolutionized medicine and surgery during the last fifty years have resulted directly from experiments on living animals, and could not have been attained in any other way. There can be no doubt that this work should be continued and encouraged in every possible way."

**Against Fraudulent Advertising.**—The Board of Aldermen of New York City recently passed a bill providing that anyone who publishes an advertisement containing assertions, representations, or statements which are untrue, deceptive, or misleading, shall be subject to a fine of not less than $25, or imprisonment for not less than five days or more than six months, or to both. In Chicago a similar ordinance has proved effective in a campaign directed against the venereal quack advertisers, and steps are being taken by the New York Department of Health to make the same use of the new law here.

**Reporting Infectious Diseases.**—The Department of Health of New York City has recently undertaken studies to determine whether the physicians in any one borough are negligent about reporting infectious diseases. In a recent issue of the *Bulletin* there is given the results of a study of case fatalities, which is instructive since a high case fatality may be due either to an unusually virulent type of disease or to the fact that fewer cases of the diseases are being reported. The following figures taken from the records for the year 1913 give the case fatality of five reportable diseases in the Borough of Queens as compared with the figures for the entire city:

| | NEW YORK CITY | | QUEENS | | CASE FATALITY | |
|---|---|---|---|---|---|---|
| | Cases | Deaths | Cases | Deaths | New York City | Queens |
| Diphtheria | 14,535 | 1,333 | 1,003 | 88 | 9.17 | 8.77 |
| Scarlet | 10,719 | 507 | 839 | 46 | 4.73 | 5.48 |
| Measles | 29,163 | 628 | 1,718 | 29 | 2.15 | 1.68 |
| Typhoid | 2,643 | 362 | 163 | 24 | 13.70 | 14.72 |
| Pulmonary tuberculosis | 22,671 | 8,601 | 980 | 419 | 37.94 | 42.93 |

It will be noticed that while the case fatalities in diphtheria, scarlet fever, measles, and typhoid fever, do not differ markedly in the two columns, in pulmonary tuberculosis the calculated case fatality is noticeably higher in the Borough of Queens, and as there is no reason for believing that the disease is more fatal in Queens than in the city at large, it is probable that there is some negligence in reporting tuberculosis in that borough. During 1913, as a matter of fact, eleven per cent. of the cases of pulmonary tuberculosis in Queens came to the attention of the Bureau of Records only at the time of death, not having previously been reported as cases.

**Surgeons Go Sightseeing.**—Immediately after the close of the International Congress of Surgeons last week a party of one hundred surgeons left New York for a short sightseeing trip. They will visit Philadelphia, Baltimore, Washington, Chicago, Rochester, Minn., Niagara Falls, Montreal, and Boston, returning to New York on April 28.

**Mt. Sinai Hospital.**—The annual report of Mt. Sinai Hospital, New York, shows that during the past year, 7,537 patients were treated in the hospital, 4,037 surgical operations were performed, and the dispensary consultations numbered 231,092. The expenditure for the year was $469,892, an excess of $48,507 over the receipts.

**Civil Service Examinations.**—The New York State Civil Service Commission will hold an examination on May 9, 1914, for the purpose of providing eligibles for the position of assistant physician in the State Homeopathic Hospitals at Middletown and Gowanda, at a salary of $1,200 a year, increasing $100 each to $1,600, and maintenance, including quarters, board, and laundry. The examination is open to both men and women, who are licensed practitioners in the State, graduates of a registered medical school, with one year's hospital experience or three years' experience in the practice of medicine. Unmarried men are preferred.

On the same day an examination open to women only will be held for the purpose of providing eligibles for the position of bacteriologist in the State Department of Health, at a salary of $1,200 per year. Applicants should have a thorough knowledge of the principles of bacteriology and

considerable practical experience in the bacteriological diagnosis of infectious diseases. A good general knowledge of clinical microscopy and of gross and histological pathology is also desirable.

Requests for application blanks for either of these examinations should be made to the State Civil Service Commission, Albany, N. Y., before April 28, 1914.

**Smallpox Warning.**—The New York City Department of Health, determined to prevent the spread of smallpox in the city, has issued an appeal to all citizens to be vaccinated promptly, and has warned employers that they are expected to see that their employees are vaccinated and that in the event of smallpox developing in any place of employment, such place will be put under strict quarantine. The department calls attention to the conditions existing in Toledo, O., where two hundred cases of the disease developed during December, January, and February last. Of the entire number of patients only one had been vaccinated, and in that case vaccination had been done thirty years before. The story of the Toledo epidemic is the story of hundreds of localized epidemics the world over. In New York City an epidemic of equal severity would mean 7,500 cases of the disease in three months, and would be a calamity to the people and bring ruin to the trade of the city.

**Personals.**—Dr. Gustave F. Ruediger announces his resignation as director of the State Public Health Laboratories and professor of bacteriology and pathology in the University of North Dakota, to accept the position of director of the Hygienic Institute and health commissioner for La Salle, Peru, and Oglesby, Ill., under an endowment by F. W. Matthiessen. Dr. Ruediger's address will be La Salle, Ill.

**Complimentary Dinner to the Congress Visitors.**—On Monday evening, April 13, a dinner was given by Dr. William Seaman Bainbridge, at the Hotel Biltmore in honor of Dr. E. Hertoghe of Antwerp, an authority on diseases resulting from disorders of the thyroid gland, of Dr. Alfred Jordan of London, the eminent radiologist, of Dr. Merrill Ricketts of Cincinnati, and of other distinguished European and American surgeons attending the International Congress of Surgery. About one hundred and ninety representatives of European and American surgery and medicine were present. After the usual speeches, Dr. Hertoghe, Dr. Jordan, and Dr. Ricketts gave addresses, illustrated on the screen, dealing with the subjects to which they are at present devoting special attention.

**Germ-Laden Milk Products.**—The National Commission of Milk Standards, which met in New York last week, condemned the present methods of manufacturing ice cream and recommended a crusade for a pure product. Examinations of ice cream in some two hundred stores, restaurants, and hotels in New York showed, it was stated, that the percentage of bacteria present varied from 1,000 to 21,000,000 per cubic centimeter. The worst ice cream is that sold in small stores on the East Side, while that furnished at big soda water fountains in the drug stores is also usually of poor quality. The butter supplied to New York was said to be of better quality than the ice cream, but here also there was room for improvement. The pasteurization of all milk before it was used for either ice cream or butter was recommended.

**Antityphoid Vaccination Advised.**—The New York Health Department has just issued through the daily press a warning to vacationists regarding the danger of contracting typhoid fever while in the country. The Bulletin of the Department states that the preparation of the typhoid vaccine has been so perfected within recent years that the number of marked reactions is small and antityphoid inoculations no wneed cause no more disturbance than the average smallpox vaccination. The department, therefore, strongly urges all physicians to advise patients who are about to go to the country to submit to this simple and effective protective measure. Antityphoid vaccine, prepared after the formula of the United States Army, can be obtained free from the Department of Health.

**Special Lectures at the New York Polyclinic.**—During the week of the meeting of the International Society of Surgery special lectures and clinics were given at the New York Polyclinic Medical School and Hospital. The first of these on Tuesday, April 14, was on internal photography as an aid to diagnosis and was given by Dr. Alfred C. Jordan, Medical Radiographer, Guy's Hospital, London. On Wednesday, April 15, Dr. E. Hertoghe of Antwerp, gave a lecture on hypothyroidism. Dr. Hertoghe illustrated his points by excellent stereopticon pictures of patients he had treated, before and after treatment. On April 16, Dr. Benjamin Merrill Ricketts of Cincinnati, gave a clinic and demonstration on the effects of wounds of the heart and pericardium. Dr. Ricketts reviewed the history of wounds of the heart and its immediate vicinity and drew from his own experience many illustrations of the manner and effect of such wounds. His lecture was pictured by lantern slides. On Thursday, April 17, Dr. Wyeth gave a lecture on the treatment of burns, Dr. John A. Bodine operated for the radical cure of hernia, Dr. Alexander Lyle lectured on the treatment of fractures and Dr. William Seaman Bainbridge on cancer.

**Laboratory Demonstrations.**—Dr. A. L. Soresi has invited the members of the Medical Society of the State of New York to visit his laboratory at 320 West 70th street, on April 29 and 30 and May 1 and 2, to witness a number of demonstrations of tissue and organ transplantation, blood transfusion, etc. The laboratory will be open from 9-11 A. M. and 2-6 P. M. on each day.

**Obituary Notes.**—Dr. FREDERIC L. H. WILLIS of Rochester, N. Y., a graduate of the New York Homeopathic Medical College and Hospital in 1865, and said to have been the original of Laurie in the novel, "Little Women," died at his home on April 12, aged 84 years.

Dr. MILES W. PALMER of New York, a graduate of the New York University Medical College in 1847, died at his home on April 10, aged 92 years.

Dr. ABEL B. APPLEGATE of Kosmosdale, Ky., a graduate of the University of Louisville, Medical Department, in 1874, died at his home on April 2, aged 63 years.

Dr. WILLIAM H. HAWLEY of Penn Yan, N. Y., a graduate of the Eclectic Medical College of the City of New York in 1851, died at his home on March 29, aged 89 years.

Dr. EARL P. WEAKS of Silver City, N. M., a graduate of the University of Louisville, Medical Department, in 1909, died at Paducah, Ky., after a long illness, from tuberculosis, on March 20, aged 29 years.

Dr. FRANKLIN J. SLOUGH of Allentown, Penn., a

graduate of the Hahnemann Medical College and Hospital, Philadelphia, in 1862, and a trustee of the Homeopathic State Hospital for the Insane at Ritersville, died at his home on April 3, aged 72 years.

Dr. Morris Parker Boyle of Glenside, Penn., a graduate of the University of Pennsylvania, Department of Medicine, Philadelphia, in 1898, formerly resident physician at the Children's Hospital of Philadelphia, and a member of the Medical Society of the State of Pennsylvania, the Montgomery County Medical Society, and the Philadelphia Pediatric Society, died at his home from appendicitis, on April 10, aged 38 years.

Dr. Francis S. Wilson of Jenkintown, Penn., a graduate of the Jefferson Medical College, Philadelphia, in 1870, and a member of the American Medical Association, the Medical Society of the State of Pennsylvania, and the Montgomery County Medical Society, having been at one time president of the latter, and formerly lazaretto physician at the port of Philadelphia, died at his home on April 7, aged 70 years.

## Correspondence.

### OUR LONDON LETTER.

(From our Regular Correspondent.)

MEDICAL RESEARCH—TROPICAL DISEASES—RADIUM—X-RAYS—INSTITUTE OF HYGIENE—LEPROSY—OBITUARY.

London, April 3, 1914.

The Local Government Board has authorized the following medical researches to be paid for out of the annual grant: (1) An investigation into causes of still births, (2) continuation of the inquiry into the cellular contents of milk, (3) continuation of the inquiry into the causes of premature arterial degeneration, (4) an investigation into the etiology of epidemic diarrhea in children.

Announcement of further investigations will be made at a later date.

The report of committee on the research fund for tropical diseases has appeared. There is again excess of expenditure over income, met, as before, by drawing on the accumulated balance of the fund. The need of more money is urged to enable work to be carried on in a number of directions now open. Reports from some colonies and protectorates are appended in response to the secretary of state's request for information on mosquito-borne disease. There are also reports of the work at the London and Liverpool schools of tropical medicine, and at several colonial laboratories; a report by the professor of protozoology of the London University, and another by Professor Nuttall on the work in the Quick Laboratory.

Radium still fills a large place in medical conversation, and in society proceedings. In my letter of March 13 I gave you an account of the discussion at the Medical Society of London. I will now add a brief notice of a lecture at the North London Society by Dr. Lazarus Barlow. He said finality was far off on a number of points, *e.g.* dosage. Apart from injurious action on animal cells, which is undoubted if used in too great strength, all cells are not equally affected by the same dose. Perhaps this might account for the different effects on different growths. The question whether radium acted like a thermocautery, or a strong acid, was treated in this way. There was some evidence that cancer cells, if subjected to radiation, short of their death, might become immunized. The work of Morson, Wedd, and Russ was quoted on this point.

If immunity could thus be produced it would most likely only be strictly specific for the individual; so the production of an anticancerous serum, such as was obtained in diphtheria, seemed most improbable. The lecturer insisted on histological examination, particularly the search for Altmann's granules in sarcoma. Then again he said the radium tubes must be periodically examined by a physicist to make sure that the radium was present to the degree that the surgeon believed. He considered radium should be tried, not only in distinctly inoperable cases, but also in some in which operation, though not impossible, was notoriously unsatisfactory—*e.g.* malignant neoplasms of the tonsil. But, on the other hand, he held that in cases in which surgery could show a good percentage of success, radium should not displace the knife at the present time, whatever might be the case in the future. On experimental grounds radium is contraindicated immediately after removal of a growth. Not so *x*-rays. No explanation can at present be given of this difference between *x*-rays and the closely allied gamma rays in this respect. In concluding, the lecturer said that when a growth had been absorbed after radium treatment the products of its disintegration must have been taken into the system at large, and he suggested that as long as such products remained uneliminated the patient would not be in a proper condition for surgical treatment. The use of *x*-rays in uterine myomata has made considerable progress, as in cases where other treatment has given no result, and hysterectomy seems to be the last resource, the reports encourage a hope that the operation may be avoided. Dr. Delpratt Harris addressed the Devon and Exeter Society on March 13, reading notes of four cases which were greatly improved, artificial menopause being established, with climacteric flushings and shrinking of the tumor. One patient, aged thirty-nine, treated in August, 1912, was able in the following May to go about her household duties, and felt quite well. Another, first treated in October, 1912, had slight hemorrhage in December, but none since, having had altogether five courses or cycles of treatment. A third case, aged forty-three, was equally successful. The menopause became complete in July, after three courses or cycles of treatment, the first in the previous September. The fourth case was of a woman of forty-nine, with a large fibroma occupying the position of a seven months' fetus. The treatment followed seems to have been Bordier's—a sitting every day or every other day for nine sittings—constituting a cycle. Omit twenty-one days, then give a second cycle. Sometimes four or five may be needed; very rarely six, for the effect seems cumulative, shrinking going on after discontinuance. The dose at a sitting is 1 or 2 millampères. At the first both uterus and tumor are treated; at the second, one ovary (right); at the third, the left; at the fourth, uterus and tumor again. In all the cases hemorrhage, which was prominent, ceased during the first cycle, and did not return, the appearance of the patient gradually improving.

Dr. F. A. Roper reported at the same meeting a case, widow of forty-nine, with rapidly increasing fibromyoma larger than a cricket ball, and pain at the periods severe, treated on the Hamburg system—series of five radiations through five points (two behind, three on abdomen), on successive

days, a fortnight's rest between each series, a filler of aluminum being used. A sitting was five to ten minutes, with current 3 to 6 milliampères. This patient had seven series. After one normal and two scanty periods, there was six months' amenorrhea, with complete relief of pain, shrinkage of sclerosis of the tumor to size of a tangerine orange.

Mr. A. C. Roper, as a surgeon, welcomed the method of diminishing the responsibility of operating on blanched patients. A number of questions were asked, and suggestions made, at this interesting meeting. One member proposed women of forty suffering from myomata, and blanched, should be treated with the rays, and later on have their tumors removed as a precaution against malignancy.

Mr. John Jackson, who has visited the chief settlements of lepers, including Molokai, the scene of Father Damien's labors, on Tuesday addressed a sympathetic audience in the Chapel Royal Savoy. He was introduced by the chaplain, who expressed deep interest he had taken in Damien's work, and remarked that in the precincts of the Savoy once stood the lazar house. Mr. Jackson said the work in India and the East was being now carried on at eighty-five stations. The organization was supporting, medically relieving, and evangelizing some 12,000 lepers and their children. Describing the terrible fate of Hindu lepers, he said they were cast out by their own kith and kin, and left to perish on the wayside. In India it was estimated that there must be now at least 250,000 lepers. By degrees the mission had extended their operations to China and Japan. In the latter there were 38,000 families in which leprosy was known to be present. The government had made some slight attempt to cope with the disease, or, at any rate, to try and relieve some of the sufferers, but that effort was only made within the last five years.

At the Institute of Hygiene, on Monday, Dr. Strickland Goodall roused the attention, and in many cases the wonder, of his audience, by a paper on "Heart Strain," in which he dwelt on the enormous work done by the heart in ordinary life. Beating at rates varying from 70 to 150, or more, he said at each beat it was calculated to do work equal to lifting a two-pound weight through one foot. To bring that home, he said, just put a two-pound weight in your palm, resting the elbow, and raise and lower the weight between the levels of the elbow and shoulder. When the heart was strained it lost some working power, especially that of meeting an extra demand. Acute strain was not easily produced in young, healthy adults, but if the seat of degeneration, it might occur in actions of everyday life, such as running to catch a train. Emotions affected the heart. Anger might increase its work from 152 to 224 foot-pounds per minute. The extra work continued some time after exertion. In one experiment, after a run, the work was increased to 360 foot-pounds. He said he has seen cases of rupture of the heart—one in which an animal actually died in this way through emotion. But the heart could do an enormous amount of extra work, as shown in an experiment of riding a bicycle up hill. The work as calculated in the case would have raised one and one-eighth tons through one foot. The work could also be economized by avoiding sudden exertion, running upstairs, and giving way to temper. Going to bed at 10 instead of 12, would save 876,000 foot-pounds per annum, reposing one-half an hour daily, 219,000 foot-pounds, and other calculations of the kind amused or surprised listeners. If the data could be obtained Dr. Goodall should calculate the extra tons lifted by the hearts of the crews of the boat race. On Saturday last that race seemed to absorb almost everyone's attention, even to the exclusion of the most exciting political crisis of the century.

The death took place on Saturday last of Mr. Bruce Clarke, M.B., Oxon, aged sixty-four, late senior surgeon to St. Bartholomew's Hospital, member of the council of the Royal College of Surgeons, examiner at Oxford University, and holder of other honors. His education was at Harrow and Oxford, when he took first class honors in natural science and the University Burdett-Coutts scholarship. In 1886 he received the Jacksonian prize for his essay on "Diseases of the Kidney Amenable to Direct Surgical Interference." He graduated in arts as well as medicine at Oxford.

## OUR PARIS LETTER.

(From Our Regular Correspondent.)

CHARLES RICHET—FRACTURE OF NECK OF FEMUR WITHOUT LOSS OF FUNCTIONAL POWER—TOXICITY OF ADENOMA OF THE PROSTATE—EOSINOPHILIA IN ADENOMA OF THE PROSTATE.

PARIS, February 15, 1914.

DR. CHARLES RICHET has just been elected by a vote of 42 to 10 a member of the Academy of Sciences. Nothing could be more deserving than this distinction conferred upon the winner of the Nobel prize for 1913. It is owing to the labors of Richet that serum therapy has attained such brilliant results. As early as 1887 he showed the therapeutic value of the blood serum of vaccinated animals. Since then he has explained the phenomena of anaphylaxis and he has shown that serum sickness is a manifestation of anaphylaxis. The Academy of Sciences has honored itself in drawing Charles Richet to its bosom.

"Fractures of the Neck of the Femur without Loss of Functional Power" was the subject which was discussed at the Surgical Society on December 3, 1913. M. Auvray reported a case in which the patient had had for three years an intracapsular fracture of the neck of the femur, as evidenced both clinically and by means of the *x*-rays. There was neither immediate nor remote loss of functional power. The traumatism caused only certain pains about the hip and a slight limping. On December 10, 1913, Delbet after an examination of the radiographs doubted whether there was a fracture. He believed, moreover, that walking would be impossible after a fracture of the neck of the femur. This opinion was shared in by Broca, Demoulin, Savariaud, and Ombredanne. On the other hand Kirmisson declared that it was possible, at least in the child, to observe cases of fracture or cases of separation of the superior epiphysis of the femur, lesions verified by the *x*-rays, which did not prevent walking. Likewise, Chaput has observed a case of fracture in which walking was possible. On December 17, 1913, Savariaud contested the interpretation given by Kirmisson in the cases observed by the latter. These cases he believed were really instances of spontaneous coxa vara in which the traumatism had played only an insignificant rôle. Broca concurred in this opinion. The discussion on the same subject was resumed at the meeting of December 24. Kirmisson in support of his thesis reported the observation made by Moidret of Mans,

according to whom the standing posture was possible in spite of an epiphyseal separation which was clinically well marked and which was demonstrated by *x*-ray examination. Hartmann has observed in a boy 15 years old the same separation of the epiphysis and besides the boy was able to return home unaided on foot. Auvray alluded to a number of cases of the same nature which he has seen reported in the literature. From this long discussion one may conclude that the diagnosis of fracture of the neck of the femur was often unrecognized before the days of radiography. Many cases were regarded as instances of contusion of the hip joint. It is therefore of great importance in extraarticular traumatism of the hip to practise radiography, for otherwise a fracture may be overlooked and a chronic arthritis or a secondary deformity of the hip may result.

Recalling the experiments already made by Thaon upon the toxicity of the prostate, Leguieu and Gaillardot of the College of France have injected into dogs a maceration of an adenoma of the prostate. They have thereby produced a marked hypotension of the blood which appeared immediately. This hypotension caused the death of several animals when the dose employed was from 0.50 gram to 1 gram of the extract per kilogram of body weight. Leguieu concluded from his experiments that a number of so-called prostatic accidents are due to the toxic action of the adenomatous tissue and not to mechanical interference with micturition. The examination of the blood of prostatics has confirmed this opinion. Thus, Morel and Chabanier studied the blood of individuals suffering from prostatic adenoma and detected an eosinophilia varying from 4 to 10 per cent. or more. On the date following the removal of the adenoma this eosinophilia fell rapidly to the normal figure of 1 to 2 per cent. Moreover, the examination of the blood in the tumor also revealed a considerable degree of local eosinophilia. Adenoma therefore appears to be a focus of eosinophilia and toxicity. Although there is no ratio between the size of the adenoma and the degree of its toxicity, these laboratory studies enable one to draw the following practical conclusions: (1) The examination of the blood in doubtful cases provides a diagnostic aid of value in adenoma and cancer of the prostate, eosinophilia not being present in cancer. (2) The demonstration of eosinophilia associated with habitual prostatic symptoms without an increase in the size of the prostate enables one to conclude that a small adenoma is present and that it is at the same time markedly toxic. Guyon refers to those prostatics in whom there is no enlarged prostate. (3) In these cases and even in cases of the absence of a clinically demonstrable hypertrophy, Freyer's operation, in enabling one to enucleate at times an adenoma that is very small will cause the untoward symptoms to disappear.

## THE PLAGUE IN HAVANA

(From Our Regular Correspondent.)

HAVANA, April 14, 1914.

ALTHOUGH since the middle of March there had been a few cases of bubonic plague in this city, the outbreak had really no great importance, as the radical disinfections and other measures established by the health authorities appeared to be amply sufficient to cope with the disease. But in the past few days, more cases have appeared and although all the cases have occurred in the "infected zone" the outbreak has taken a more serious character. In all, seven cases have occurred, and of these two have died. All cases have occurred in Spaniards, living in large and insanitary warehouses. One patient has been discharged, two are on the road to recovery; the last three have been diagnosed only in the past three days and are being treated with Yersin's serum, like the others. Fortunately the pneumonic form of the disease has occurred only in one of the two fatal cases. The number of the cases and the fact that all have occurred in the business district of the city give some importance to the outbreak.

Repeated fumigations of the places where the patients came from are to be followed by the complete closing of seventeen city blocks, and over 9,000 inmates have been obliged to leave their household belongings as well as all personal effects in their houses. All persons in need will be provided for at the Government quarantine stations, after being bathed and thoroughly disinfected. The quarantined district includes seventeen city blocks and soldiers are patrolling the streets with strict orders not to allow anybody in that section.

The closed buildings are to be kept so for twenty days. Drs. Nuñez, Guiteras, and Lopez del Valle, chief sanitary officers, as well as the Board of Infectious Diseases, composed of Drs. Agramonte, Bango, Albertini, Martini, Guiteras, and Chaumont, are doing an immense amount of good work, instituting strong and necessary measures that are obeyed by many willingly, but by others only under the compulsion of the police.

## Progress of Medical Science.

**Boston Medical and Surgical Journal.**

*April* 9, 1914.

1. Gonorrheal Metastatic Arthritis. H. W. E. Walther.
2. Further Observations of Seasonal and Meteorological Influence upon Tubercular Patients. N. R. Burns.
3. An Apparatus for Use in Operations on the Open Thorax. C. A. Ewald.
4. Insanity in China. A. C. Reed.
5. Educational Standard for Nurses. State Registration and Training School Inspection. S. E. Parsons.

**1. Gonorrheal Metastatic Arthritis.**—H. W. E. Walther points out that Hahn of Breslau, who has made an exhaustive study of this disease, states that of the numerous metastases of gonorrhea which he has met with in his vast experience, gonorrheal rheumatism deserves first place. It has been reported from conservative workers that between two and three per cent. of all patients suffering from Neisserian urethritis become afflicted with this disease. The malady is more common in men than in women. It has been found that the condition may be due to constitutional invasion and localization in the synovial membranes of joints, tendons, and bursæ by the gonococcus alone, and sometimes apparently to mixed infection with pyogenic bacteria in addition. The types of this affection come under the following five headings: (1) Arthralgia without definite lesions in the joint. (2) Acute serous synovitis with much periarticular swelling. (3) Acute fibrinous or plastic synovitis with slight effusion. (4) Chronic serous or purulent synovitis. (5) Involvement of periarticular structures, such as bursæ and tendon sheaths.

**2. Seasonal and Meteorological Influence on Tuberculosis.**—N. R. Burns notes that barometer change seems to have very little effect upon the symptomatology of tuberculosis. In a few instances hemorrhages have occurred following a fall in the barometer, but in

an insufficient number of instances to indicate a constant relationship. This is probably a matter of coincidence only in so far as barometric changes are concerned. There are a larger number of patients having blood-streaked sputum in March, May, and especially in June, than in other months. Hemorrhage occurred more frequently in June than in any other month. A relative humidity of high degree coincides with increased cough and chest discomfort, an increased number of vesperal fevers, and an increased number of bed patients. Following weather relaxation and change from a protracted period of low glass reading wet and dry, together with high barometer, there seemed in several instances to be small epidemics of streaked sputum and occasional hemorrhages. For seven different days in June the number of vesperal fevers rose to sixty-five and over, which was in excessive amount. Some reactions are not accompanied by humid weather. A plausible explanation is suggested in the fact that on several of these days visitors in large numbers, frequently over one hundred a day, were visiting the patients, stirring them with family and other troubles.

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New York Medical Journal.

April 11, 1914.

1. Psychopathic Children. L. P. Clark.
2. Internal Pachymeningitis in Young Children. A. Gordon.
3. Hypertrophic Pyloric Stenosis in an Infant: Rammstedt's Operation. H. Lilienthal.
4. Toxemias in the Genesis of Hyperthyroidism and Their Treatment. C. E. de M. Sajous.
5. A Sixteenth Century Paranoiac. G. E. Price.
6. Plastic Operation for the Restoration of Severed Vocal Cords; Permanent Thyroid Fistula Following Attempted Suicide with a Razor. H. Smith.
7. The "Why" of Obesity. F. McKelvey Bell.
8. Dream Interpretation. H. Crenshaw.
9. Gum Camphor as a Preservative for Urine. J. Rosenbloom.

**2. Internal Pachymeningitis in Young Children.**—A. Gordon reports two cases of this condition which presented the following common symptoms: Convulsive seizures, elevated temperature, hypertonicity of the musculature, rigidity of the neck and dorsum, a profound mental hebetude, finally the absence of microorganisms in the cerebrospinal fluid, which at all times remained clear and transparent and which was under very high pressure. There was hemorrhage into the retina in the first case, but not in the second. In both cases internal pachymeningitis was present, but in the first case there was also a hemorrhage. Apart from the state of the cerebrospinal fluid, all the other symptoms may be also those of meningitis of all varieties. In an attempt to find some phenomenon which during life could be considered pathognomonic or at least indicative of internal pachymeningitis, hemorrhagic or non-hemorrhagic, one's attention must naturally be directed toward the condition of the cerebrospinal fluid. Blood may be found in this fluid, not only in the disease in question, but also in cases of hemorrhages occurring in the substance of the brain tissue. The peculiar persistence of transparency and clearness of the fluid, and particularly the total absence of microorganisms by direct examination and by culture methods, are the special phenomena on which a diagnosis of pachymeningitis perhaps can rest. The presence of blood alongside of the pachymeningitis may perhaps be determined from the retinal hemorrhages, which have been found by the majority of observers in adults and in children. It is evident that all the other symptoms must be taken into consideration, but if in addition the foregoing conditions of the cerebrospinal fluid are found, the presumption is in favor of internal pachymeningitis. The early detection of this form of meningitis will lead to early intervention, either by frequent lumbar punctures, which gave considerable relief to the author's first patient, or by more radical operations of which Haynes's drainage of the cisterna magna appeals most strongly.

**3. Rammstedt's Operation in Hypertrophic Pyloric Stenosis.**—H. Lilienthal states that Rammstedt has reported two cases operated upon by his method with recovery. He makes a longitudinal incision through the indurated tissue down to the mucosa, but not through it. There is an immediate separation of the divided structures and the pylorus at once becomes patent. Without visceral suture or plastic of any kind the abdomen is completely closed. The operation is short and easy. The wound of entrance through the abdominal wall need not be large. The handling of the viscera is minimal. The contrast to the delicate and difficult posterior gastroenterostomy, with its accompanying evisceration and handling of the parts is striking, and perhaps most important of all, Rammstedt's operation, preserves the normal relations of the gastrointestinal tract. This preservation is obviously impossible in gastroenterostomy.

**4. Toxemias in the Genesis of Hyperthyroidism and Their Treatment.**—C. E. de M. Sajous points out that a great variety of poisons are capable of causing goiter, or, in other words, of evoking a sufficiently violent and prolonged hyperthyroidism as to cause hyperplasia of the gland. This result coincides with the pathogenesis of exophthalmic goiter. Among its causes are: Infections, including tonsillitis, acute rheumatism, typhoid fever, tuberculosis, influenza, and syphilis; an excess of intermediate waste products such as those of autointoxication; the menopause, physiological or postoperative; pregnancy and parturition. Indeed, were one to trace back to their original source many cases of the disease, one would probably find that all toxic substances capable of causing goiter can also evoke exophthalmic goiter. This would account for the relative frequency of the latter disease in goitrous districts where water-borne toxic substances, organic or inorganic, are known to be the pathogenic agents. Beginning with measures that are capable of opposing the intoxication in goiter, it is known that when a patient is removed sufficiently early from a goitrous district, or supplied with water from a nongoitrous district recovery is apt to occur. Intestinal antiseptics will also prove effective where a pathogenic organism in the alimentary canal is the cause of the struma. McCarrison, for example, found that thymol, in 10-grain doses three times a day, is either curative or highly beneficial in sixty-eight out of the eighty-two cases the final result of which he was able to trace. Exophthalmic goiter shows a corresponding list of measures calculated to oppose autointoxication. Kocher found sodium phosphate effective, a result he ascribes to its action on the intestines. Epstein, in fact, has shown that coprostasis was a frequent accompaniment of the disease. W. H. Thomson banishes all meats and administers intestinal antiseptics. In addition to washing out the colon frequently or giving purgatives, Solomon Solis-Cohen administers the salicylic compounds, betanaphtol, benzonaphthol, hexamethylenamine or guaiacol carbonate. Menthol was found very beneficial. These and other intestinal antiseptics have been used by various authors. Here, again, the source of intoxication is controlled and the thyroid apparatus as a defensive mechanism is stimulated to a correspondingly less degree. The author urges: (1) that much light would be thrown on the pathogenesis of goiter and exophthalmic goiter if the antitoxic and bactericidal functions of the thyroparathyroid apparatus were taken into account; (2) that the best results are attained in the treatment of these two disorders when a toxemia due to any one or more of many endogenous or exogenous factors is regarded as the cause of goiter and also of exophthalmic goiter when this condition is not due to violent emotions, shock, and kindred agencies; (3) that inas-

much as any case of goiter may become one of exophthalmic goiter, the appearance of any enlargement of the thyroid not ascribable to an ephemeral cause, pregnancy, an acute febrile process, etc., should at once indicate that the patient be placed under a treatment having for its purpose the elimination of the toxemia and its cause. As to the relations of the question to pathology, the author believes (4) that while a goiter is the result of exaggerated functional activity of a defective gland, exophthalmic goiter is the result of a functional normal gland which, as such, is able to produce an excess of secretion sufficient to cause a thyrotoxicosis.

7. **The "Why" of Obesity.**—F. McKelvey Bell states that it is apparent that any disease, surgical operation, or natural decay which destroys the ovary or testicle disturbs the normal balance between fat and lean. In addition any excessive loss of ovarian or testicular secretion tends in a lesser degree to the same end. It follows as a natural inference that some secretion from these glands increases oxidation, stimulates cellular function, and thus has a powerful influence in preserving the normal body weight. In fact, the author suggests that, without being too iconoclastic, one may go a step farther. If it be remembered that azoospermia occurs commonly in the very obese, and that in pregnant women, who for the time being are deprived of the advantages of ovulation, the subcutaneous fat increases so markedly; it is not unreasonable to suppose that the normal body weight is not preserved so much by the glands proper as by their products, viz., the corpora lutea and the seminal fluid. According to W. E. Dixon the composition of orchitic extract of all animals is practically identical; this substance contains a toxic nucleoalbumin which causes cardiac inhibition, and an important part, spermin, found in the semen, which causes congestion of the abdominal viscera, ovaries, and testicles. The author suggests the name asexual obesity for this form.

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## Journal of the American Medical Association.

*April* 11, 1914.

1. Respiratory Experiments on Man. Y. Henderson.
2. Cardiac Effects of Immoderate College Athletics. L. Shumacker and W. S. Middleton.
3. Ischemic Pains. A. R. Mitchell.
4. Etiology of Arthritis Deformans Preliminary Note. E. C. Rosenow.
5. Free Transplantation of Bone into the Phalanges. S. L. Haas.
6. The Tongue and Upper Alimentary Tract in Pellagra. T. Frazer.
7. The *Bacillus Aerogenes Capsulatus* in Blood-Cultures, with Recoveries. A. H. Baugher.
8. Isolated Disease of the Scaphoid. F. J. Fassett.
9. Sporotrichosis of the Eye. W. H. Wilder and C. P. McCullough.
10. Clinical Report of Five Hundred and Seventy-One Cases of Pulmonary Tuberculosis Treated with Tuberculin. L. Shalet.
11. An Interesting Case of Chronic Lead-Poisoning with Relapse Following Fresh Exposure. J. M. Anders.
12. The Technique of the Intradural Injections of Neosalvarsan in Syphilis of the Nervous System. A Preliminary Report. U. J. Wile.
13. An Unusual Case of Vaccine Anaphylaxis. R. Wallace.
14. Exophthalmic Goiter as a Clinical Manifestation of Hereditary Syphilis. O. Clark.
15. A Case of Disseminated Carcinoma of the Breast and Axillæ Improved by Radium. S. Tousey.
16. The Favorite Formula or Pet Prescription. W. M. Barton.

1. **Respiratory Experiments on Man.**—Y. Henderson states that clinicians are beginning to realize that the alveolar carbon dioxide is a normal constant, equal in clinical importance to arterial pressure and its determination is almost as easy and as readily applicable to clinical conditions. Up to the present, however, respiratory experiments have been little employed on man in physiological laboratory courses. In cardiorenal and diabetic cases, as well as in normal patients at great altitudes, the alveolar carbon dioxide is the index of the degree of acidosis.

2. **Cardiac Effects of Immoderate College Athletics.**—L. Shumacker and W. S. Middleton conclude that athletic training leads at first to physiological hypertrophy of the heart; but when prolonged and marked by severer athletic contests it usually leads to hypertrophy plus dilatation of a variable degree frequently marked by valvular insufficiency. Functionally, the hypertrophied heart, even when dilated and giving distinct evidence of valvular insufficiency, may prove more fitted to carry the man through a severe athletic contest than a normal heart would be. On the other hand, acute cardiac dilatation occurs more frequently in athletes and men used to severe muscular strain than in normal men, and the ultimate effects are more prolonged and severe. There is reason to believe that for normal human activities an "athletic" heart is distinctly disadvantageous.

3. **Ischemic Pains.**—A. R. Mitchell states that this object may be considered from two viewpoints. Is the cause of the positive signs and symptoms dependent on some irritant which acts on some part of the sympathetic nervous system, causing a circumscribed spasticity of the vessels under its control, or is it due to some change in the part involved? To the author it appears most probable that both conditions may be and later on are present in all cases. In the most typical of all ischemic pains, angina pectoris, we have added a third condition which may also be present in all cases to a varying degree, namely a general rise in blood-pressure; whatever the cause, the objective and the subjective phenomena are the same: a lowering of the blood supply to the part, because of the reduction of the blood supply, and pain, which in this condition is the call for oxygen, either from the musculature or from the nerves themselves, or from both. The pain in an inflamed nerve is most likely due to want of oxidation under conditions of infection. It is more than probable that some of these circumscribed ischemias have their origin in the part affected, as in the leg cramps of overexertion from walking, and the pain in the chest from mountain climbing, in which the muscle hunger is made more noticeable by a lesser supply of oxygen. The cramps of the swimmer are probably a circumscribed ischemia, made more certain by the reduced surface temperature. But are these manifest symptoms due wholly to reflex impulses through the centers, to some special internal secretion of the cells involved, or to an altered hormone? Here one enters a field which, although much explored, has brought but little information.

4. **Etiology of Arthritis Deformans.**—E. C. Rosenow notes that the common presence of foci of infection, the history of previous infections, the occasional isolation of bacteria from the joints in chronic arthritis, and the fixation of complement by certain bacteria in arthritis deformans (Hastings) suggest strongly the infectious character of this disease. The similarity, on the other hand, of the articular changes with those found in the nervous arthropathies; the associated dystrophies of the muscles, skin and nails; the symmetrical onset, the frequent involvement of nerve-trunks; and the exacerbations following nervous shocks are commonly cited as indicating a neural origin. The chief objections to the infectious theory of arthritis deformans are that so many cases do not give a typical picture of infection and that no one thus far has isolated any organism from the tissues or joints in a considerable number of consecutive cases. Bacteriological examination of the blood and of the articular exudate, when obtainable, usually has given negative results. It occurred to the author that the lymph-glands draining the involved joints would be a good place to look for organisms, and

this has been done in a considerable number of cases. The glands are excised with strict aseptic precautions under local anesthesia, and cultures are made at once, a portion of the gland being reserved for microscopic study. The part used for cultures is dipped into boiling water or passed through a Bunsen flame so as to sterilize the surface rapidly; it is cooled in sterile salt solution, it is emulsified in a specially devised sterile air chamber, and inoculations made chiefly into tall columns of ascites-dextrose-agar. In this way organisms have been isolated from the glands in all but three of thirty-eight cases of arthritis deformans, the duration of the disease ranging from two to seventeen years. Streptococci have been obtained in fourteen cases; a peculiar streptococcus-like organism at first completely or partially anaerobic, in nine cases; the *Bacillus welchii* in nine cases; staphylococci in three; *B. mucosus* in one case; and the gonococcus in one case. In a number of glands several organisms have been found at the same time. In no instance have the streptococci been hemolytic for human blood. They resemble on isolation the usual *Streptococcus viridans* more than hemolytic streptococci, although only three strains produced green on blood-agar plates. There is often a marked difference between the type of organisms found in foci of infection such as the tonsil, and the type of those found in the glands (or joints). All the streptococcal forms isolated have shown a marked preference for anaerobic conditions of growth in the primary culture.

7. **Gas Bacillus Infection.**—A. H. Baugher recommends the use of blood-cultures as the method of diagnosis of this condition. Welch and Nuttall have observed and called attention to the fact that the gas bacillus is often present in the blood stream, as shown by necropsy. So far as Baugher has been able to find, no previous cases of recovery after its detection in the blood stream during life have been so far put on record. He reports here, however, a series of four cases with three recoveries and also briefly reviews the case reports in which positive cultures have been obtained. Each blood culture in these cases was made from about 10 c.c. of blood divided about equally into two flasks each containing about 50 c.c. of broth. Both plain and glucose broth were used and in two cases the growth occurred only in the latter. The cultures obtained were pure except in one case where the *B. mucosus capsulatus* was an associated organism. The bacillus was also identified by injecting the blood culture into rabbits and identifying it in their organs. The author calls attention to the wide distribution of this germ and the possibility of the diagnosis and cure of gas bacillus infection by proper surgical treatment.

9. **Sporotrichosis of the Eye.**—W. H. Wilder and C. P. McCullough report a case of this condition. They also review other cases reported in the literature and discuss the special points of diagnosis from syphilis, tuberculosis of the conjunctiva, and Parinaud's conjunctivitis. The presence of the organism or one closely resembling it should suggest sporotrichosis, though it is possible that cases of it have been mistaken for Parinaud's conjunctivitis.

13. **Vaccine Anaphylaxis.**—R. Wallace reports an unusual case of this condition in a woman aged 53, who had been treated for furunculosis three years before and effectively cured by four doses of antistreptococcic vaccine. The patient asked for a repetition of the treatment for boils from which she was suffering at the time seen, and an injection of fresh stock vaccine, containing 100,000,000 streptococci, 400,000,000 staphylococci, and 200,000,000 colon bacilli was given. There was only a slight local reaction and considerable improvement followed. On the eighth day a double dose of the same was administered and within a few hours a scarlatinal rash appeared which finally involved the entire body without, however, producing any constitutional disturbance. The condition was not an exanthematous disease nor was the eruption related o parenteral protein digestion. The condition was treated by catharsis and alkalies and the eruption gradually faded away, but was so intense and indurated that it left considerable fissuring of the skin in the flexures and a mild desquamation in many parts.

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## The Lancet.

*April 4, 1914.*

1. Medico-Social Problems from an Insurance Point of View Sir Thomas Oliver.
2. The Physiology and Pathology of Uterine Hemorrhage. H. B. Whitehouse.
3. Some Causes of Failure of Vaccine Therapy. W. M. Crofton.
4. The Operative Treatment of Pulmonary Tuberculosis. H. M. Davies.
5. Some Points in the Diagnosis of Pulmonary Tuberculosis by the X-Rays. A. C. Jordan.
6. A Case of Thoracic Aneurysm of Unusual Size. G. Cooper
7. Extrathoracic Aneurysm of the Transverse Arch of the Aorta. D. W. Keiller.

2. **Physiology and Pathology of Uterine Hemorrhage.**—H. B. Whitehouse states that the essential machinery involved in the production of uterine hemorrhage suggests that excessive bleeding may arise from: (1) factors in relation with the endometrium and (2) factors associated with the endocrinous glands, especially the ovary. To these two primary groups the author would add a third—viz., factors concerned in the abnormal production of pelvic venous stasis. It appears probable that under Group 1 are included many cases of so-called menarrhagia, while Groups 2 and 3 are more closely related to metrorrhagia or intermenstrual bleeding. At the same time these groups undoubtedly overlap with the production of irregular hemorrhage, so that it is not possible to draw any hard-and-fast line. The author in discussing the value of curettage in the therapeutics of uterine hemorrhage states that its use is principally for diagnostic purposes. If the examination of the curetted endometrium is taken in conjunction with an analysis of the menstrual discharge, and care is taken to correlate the appearances of the endometrium with the period of the sexual cycle, much valuable information may be gained as to the cause of a specific hemorrhage. Curettage at the two extremes of sexual life is a useless procedure except for diagnostic purposes. It is not possible to alter the character of the endometrium by any amount of curetting. This is proved by the examination of repeated curettings from the same uterus. In glandular hyperplasia of the endometrium curettage is only of temporary benefit. Treatment of uterine hemorrhage to be successful must be based upon a physiological basis. Thus, where hemorrhage is due to the absence of thrombokinase, such as occurs in menorrhagia due to the atrophy of old age, attempts may be made to replace the same. In the case of puberty natural cure usually takes place within a few months by development of the endometrium, and in the great majority of patients there is no necessity for local treatment. At the menopause, however, if hemorrhage is very profuse or prolonged, the application of thrombokinase in the form of an extract of the endometrium or an extract of testicle is useful in immediately controlling the same. Fibrin ferment directly applied to the endometrium is also of service in directly checking hemorrhages of this nature. If bleeding is due to excessive thrombolysis, the result of hyperplasia of the endometrium, temporary relief may be obtained by curetting. If bleeding recurs partial oophorectomy should

be performed. This procedure has answered admirably in those cases that have come under the author's notice in which profuse losses are associated with a high thrombolytic power and an extreme hypertrophy of the endometrium. If hemorrhage appears to be the result of venous stasis appropriate means must be taken to relieve the same, either by purgation in the case of portal congestion or by operation when the condition is severe and chronic inflammation is present. In those cases in which the uterus has lost its power of regulating the supply of blood to the endometrium, as in fibrosis or arteriosclerosis, hysterectomy appears to be the safest and best method of treatment.

3. Some Causes of Failure of Vaccine Therapy.—W. M. Crofton states that most cases of failure in this treatment are due to want of proper application of the method to the patient. There are several potential causes of failure to be taken into consideration: (1) Failure of patient to react; (2) failure to diagnose the infecting microbes; (3) incomplete immunization and (4) failure to give the doses at proper intervals. It is of course essential, in order that vaccine therapy should be successful, that the patient's tissues should be capable of responding to a further stimulus. One finds that old people react badly and so the initial dose must generally be smaller, and one cannot as a rule increase the dose to the extent that is generally possible in younger people. Diabetics are extremely sensitive, and the doses given must be small. Acidosis, chronic nephritis, and cachexia are conditions in which a poor response may be expected. One cannot tell in any given case the size of the dose that must be attained before success is achieved. The fourth and last cause of failure is the giving of the vaccine at fixed intervals without regard to any reaction the patient may have had.

5. Diagnosis of Pulmonary Tuberculosis by the X-Rays.—A. C. Jordan points out that the rational diagnosis of early pulmonary tuberculosis has been kept back many years by the teaching, founded on stethoscope observation, that the disease commences at the apex. *X*-ray observations have made the fact increasingly obvious that this is not the case; it is quite rare to find tuberculous mottling limited to an apex, and when there is apical mottling there is nearly always mottling in the lung between the root and the apex, and also mottling disposed radially from the root along the air tubes toward the periphery. The usual mode of invasion of the lungs is as follows: The first change is a catarrh of the large air tubes; the lumen of the tubes fills with epithelioid cells. The catarrh may extend to the small tubes, and there may be sputum in which a few tubercle bacilli may be found by studious search. Up to this stage there are no *x*-ray changes in the lungs; the disease is practically a bronchitis. The next stage, however, is the most important of all; tubercle bacilli, accompanied by other microbes, as a rule, pass through the walls of the air tubes, and lead to the appearance of groups of leucocytes in the connective tissue surrounding the bronchial cartilages. This peribronchial infiltration is readily visible with the *x*-rays, it gives rise to the fine mottling which is characteristic of early tuberculous disease of the lungs. The distribution of this mottling is always a radial one from the root, though from the first the mottling may radiate out to the periphery of the lung and up the level of the clavicle. The distinctive feature of the mottling is its peribronchial arrangement along the branching system of air tubes. While this mottling is appearing the glands at the root are fulfilling their normal function; the root shadows increase the size. This condition the author has named "peribronchial phthisis"; undoubtedly it is the usual mode of onset of pulmonary tuberculosis. Under suitable conditions a cure may occur, the leucocytes disappearing and their place being taken by new fibrous tissue. On *x*-ray examination there would then be no mottling but an increase in the thickness of the radiating lines around the air tubes. In unfavorable cases the leucocytic invasion of the tissues goes on, the individual mottles coalesce to form blotches, the disease reaches the apex (by way of the air tubes) and soon gets a firm hold in this, the most vulnerable region of the lungs. The physician relying on his stethoscope to inform him as to the extent of the disease, can detect no signs (except perhaps those due to bronchial catarrh) until the infiltration is approaching the apex; early peribronchial phthisis gives no physical sign of its presence. By this time the disease is well advanced, and the most favorable early stages have slipped by.

## British Medical Journal.

*April* 4, 1914.

1. Lister: The Laboratory and the Bedside. R. H. Russell.
2. Remarks on Infection by *B. coli* in the Puerperium, and on the Infective Condition of Pregnancy. H. J. F. Simson and J. M. Bernstein.
3. Plague in Ceylon. A. Castellani and M. Philip.
4. An Instrument for the Detection of Slight Degrees of Nasal Obstruction. H. A. Kisch.
5. A Case of Temporosphenoidal Abscess in the Course of Chronic Otitis Media. A. Ryland.
6. Two Cases of Ocular Disease Associated with Pyorrhœa Alveolaris. S. G. Tibbles.
7. The Milroy Lectures on the Hygienic Aspect of the Coal-mining Industry in the United Kingdom. F. Shufflebotham.

2. Infection by B. Coli in the Puerperium.—H. J. F. Simson and J. M. Bernstein state that the possibility of autogenous infection is now well recognized. Bacteria which normally inhabit certain parts of the body as saprophytes can, under favorable conditions of environment, acquire virulent characters, so that one finds the streptococcus or the *B. coli* or the *B. pyocyaneus* (a less frequent inhabitant of the alimentary tract) at times settling down on a diseased endocardium or kidney or other part of the urinary tract and initiating pathological processes. It may be granted that the organisms are constantly entering the blood stream in some numbers, but under ordinary conditions of health are easily overcome by the defensive agents. But sometimes these bacteria may settle down to a saprophytic existence in parts of the body usually free from them, so that it is possible for the *B. coli* to live in the female bladder for long periods without producing any disturbance. Where there exists disease of the bladder or the kidneys the manifestations are fever of indefinite duration, often rigors, and invariably the urine is of high acidity, containing pus and swarming with bacilli. The urine is so acid as to produce scalding in passage. Though the pyrexia may continue for some time, the patient does not manifest general symptoms of such severity as are met with in septicemia; nor can microorganisms be found in the blood stream by cultural methods. The condition is one of toxemia. There is but slight leucocytosis, though in more extensive disease of the kidneys, where abscess formation is advanced, this may be more marked. The results of treatment may be summarized under three groups: (1) Cure may result and the bacilli disappear from the urinary tract; (2) the symptoms may be relieved and the bacilli disappear so long as the patient is kept under treatment, but it will be necessary to give prophylactic doses of vaccines at increasing intervals of time; or (3) the condition may subside and the bacteria continue to inhabit the bladder as harmless saprophytes. The result of vaccine treatment is as a rule, rapid, and even after the first dose the temperature may even fall and the toxic symptoms be relieved, while the bacteria

may disappear from the urine. But even so, one must be guarded in giving a prognosis of rapid return to health or in discontinuing the treatment too soon; for, though it is easy to control the bacterial activity, in some cases it is difficult and occasionally impossible to entirely inhibit them. Consequently the vaccines should be continued in increasing doses at increasing intervals of time for several weeks and the further treatment should be controlled by periodical examinations of the urine.

**4. An Instrument for the Detection of Slight Degrees of Nasal Obstruction.**—H. A. Kisch has designed an instrument which he calls the rhinomanometer. The objects kept in view have been that the instrument should demonstrate both inspiratory and expiratory obstruction, should be easy to use both by the patient and surgeon, should not involve waste of time, and should not be expensive. It consists of a large straight glass tube of narrow bore, the distal end of which is finely constricted. To the proximal end is attached a rubber tube ending in a broad nose piece. The glass tube is about nine inches long, and graduated into arbitrary divisions. A cylindrical glass vessel is required in which water is placed. The tube is immersed until the water in the tube and outside are brought to the same level. The nosepiece is pressed close to one nostril; the other is closed by the thumb pressed upwards from below—not by pressing the ala against the septum. The patient then with his mouth wide open sees how much water he can breathe in and out of the tube in five seconds, breathing as hard as he can. The same procedure is followed with the other nostril. The result gives a comparison of the two nostrils with each other, and with an average person. The average individual can breathe in and out of the instrument five divisions, but from four to six are within the normal range. Anything below four indicates definite obstruction. The results do not indicate any scientific measurement but determine the presence of obstruction in a quick and easy way. Seeing that the nosepiece must alter the shape of the vestibule to a certain extent, it must be determined beforehand by inspection whether obstruction is present here. For example, collapsed alæ or a dislocated columnar cartilage might be the cause of the obstruction. If the instrument gives a normal reading, then the whole obstruction is due to the anterior condition, but if otherwise there must be some posterior obstruction as well. As far as the author can determine an obstruction showing lack of inspiratory power of more than three degrees is not curable by simple measures, but demands operative treatment.

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### Berliner klinische Wochenschrift.

*March* 23, 1914.

**Treatment of Syphilis.**—Blaschke, writing upon certain fundamental questions of the therapy of syphilis, states that his former sceptical attitude in regard to a special spirochete which attacks the nervous system has undergone a change. He now looks upon such a microorganism as a possibility. A potent reason is the great frequency of conjugal and familial tabes and paresis, as well as of group infections where a common virus has been active in producing these last-named diseases. It is said that the latter cases, like those of ordinary syphilis, respond to a vigorous initial treatment. This we are unable to discuss because we have had the Wassermann reaction but 6 years, while paresis usually appears between 11 and 15 years after infection, and tabes still later.

**The Breslau Epidemic of Erythema Infectiosum.**—Tobler states that last November a child appeared at the clinic with a peculiar exanthem, which bore some resemblance to several of the well-known forms. The dermatologists pronounced it an erythema toxicum. Not much was thought of the case until another exactly resembling it entered the clinic. It was then recalled that an "erythema infectiosum" had been described some years ago as a new disease. Descriptions can be found as far back as 1886. Some reporters mentioned the close resemblance to German measles. In 1899 Escherich and his pupil Schmidt gave the first description of the disease as an entity, while Sticker named it eryhema infectiosum. Some 300 cases are now upon record. Numerous attempts have been made to change its name, but none of these substitutes possess any advantage over that now in use. Evidently the English would term it "the fifth disease" with reference to Duke's "fourth disease." The condition is thoroughly harmless.

**Treatment of Pernicious Anemia by Splenectomy.**—Porr refers to the very brief history of this subject, all the literature dating from last year. Naturally the spleen has often been removed from anemic subjects when the anemia was directly dependent on a diseased spleen. This is the rule in Banti's disease. Cases mistakenly termed pernicious anemia have also been treated by splenomegaly. Only recently, however, has a typical case of pernicious anemia been thus dealt with, for the latter has always contraindicated operative intervention. The recent good operative results have led to the belief that pernicious anemia may originate in the spleen as a result of hemolysis. In these cases (the author cites a personal one) extirpation of the spleen was at once followed by an abundant entrance into the blood of the so-called Jolly's corpuscles.

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### Berliner klinische Wochenschrift.

*March* 30, 1914.

**Progress in Syphilis Therapy.**—Citron isolates a number of principles from his study of this subject which serve as a summary. He introduces the term *syphilis asymptomatica* in which the diagnosis is made through the presence of the positive Wassermann. Trypanosome infections are general in type and the spirochetoses which closely resemble the latter are also general—the mere absence of superficial lesions signifies nothing. We must cease to look at syphilis through the eye of the dermatologist. There is an early meningitis, an early aortitis, which make possible the late development of lesions in these localities. We treat the entire organism, not the surface. Fournier recognized this fact many years before the Wassermann, when he stated that superficial cleanness was no evidence of cure. To-day the Wassermann is the measure of the cleanliness of the entire organism (the author believes that the luetin reaction cannot be compared with the former). Treatment today includes not only destruction of the spirochete, but restoration of damaged viscera to a greater or less extent. These two aims are not necessarily conterminous. A drug which is not a spirocheticide may do much to remove the ravages of the parasite. Iodides demand first mention here, although we know that these substances never cure the disease outright, as can mercury. The latter can bring about a cure in the full sense of the word, as shown by the evidence of the Wassermann. But the few cures obtained by this means are but a drop in the bucket when compared with the failures and doubtful results. Salvarsan is also able to cure syphilis in a certain proportion of cases. It lies near, therefore, to combine these remedies, and this the author has done in all desperate lesions—cerebral syphilis, aortitis, tabes, taboparesis, asymptomatic lues and lues congenita in adults. No *restitutio ad integrum* can

be obtained in such cases. The author's treatment was not at all intensive, for he feared the risk of damage from the drugs. Mercury was given in inunctions, under strict personal hygiene. Unlike inunctions in early syphilis these were meant to be given over long intervals. In a few cases of mild stomatitis, the lesions subsided after a brief intermission of treatment. With salvarsan one fears mostly death. The patient who received the first injection of this substance in the author's clinic, died at once and in all there have been five deaths. The patients were all in the most desperate condition and the remedy was given in the sole hope of saving life. Whatever the part played by the injection not one death could be set down to salvarsan. In a number of other cases severe symptoms followed, without death. Some could be attributed to overdoses, or failure to use the remedy properly. The chief contraindications seem to be nephritis, and bronchial or laryngeal catarrh, and especially lesions of the bronchi after recovery from pneumonia, grip, and diphtheria. The author concludes with the aphorism "do not fear salvarsan; fear syphilis."

### Münchener medizinische Wochenschrift.

*March* 17, 1914.

**The Results of Joint Extension.**—Baeyer sums these up as follows: Diminution of the reciprocal pressure upon the articulating surfaces. Rest position of the joints. Changes in the points of contact of the joint surfaces. Reduction of pressure in joints not filled. The soft parts tend to project into the joint cavities. Prevention or removal of contractures. Compression of the contents of a joint by pathological distention of the latter. Mitigation of pain. The nocturnal twitchings which accompany diseased joints cease. The fever of joint diseases abates. Serum is secreted by the joints. The soft parts of the joint undergo hyperemia, as do also the joint surfaces and bones which enter into the formation of the articulations. After the tension of the muscles due to extension has been abated, these muscles also undergo hyperemia.

**Bacteriological Cause of Endocarditis Lenta.**—Kämmerer narrates the demonstration in 1910 by Schöttmüller that a mild, insidious form of endocarditis existed which was due to a special form of streptococcus. The author after extensive researches into this subject recognizes as the exciting cause a microorganism termed by him the *Micrococcus flavus*. The latter is practically unknown in human pathology, although a common saprophyte in the human pharynx. He believes that it may become virulent after repeated attacks of angina. He by no means disputes Schöttmüller's claim for the pathogenicity of the *Streptococcus mitior* in such cases, but denies any specificity on the part of the latter. Other ordinary harmless germs in the tonsils may also become pathogenic. The peculiar "valvotropic" action of such germs can be explained only by the assumption, often confirmed, that a previous lesion of the valves had existed. At present we are justified in speaking of a "flavus group" and a "mitior" group, rather than of individual strains of bacteria.

**Imitation and Induction Diseases of Children.**—Strauch of Chicago contributes a paper on this subject. After certain historical preliminaries, he considers mass affections which are not hysterical. These may occur in institutions, notably in girls' schools. Drowsiness, tremor, screaming, unconsciousness, convulsions, cough, hiccough, imitation of animal sounds, anomalies of writing, etc. An entire institution may suffer from these imitative affections, and this fact, together with the nonhysterical makeup of a large proportion of the scholars, prevents us from calling the epidemic hysteria in the narrower sense. As instances of the results of suggestibility may be mentioned enuresis nocturna, school headache, etc. Much more serious states are traced to imitation or suggestion, occurring as isolated phenomena. To enumerate them would avail nothing for diseases, and anomalies of function may thus appear without limit. They represent a special type of psychogenous affections due to so-called mental contagion and occurring in childhood.

### Deutsche medizinische Wochenschrift.

*March* 19, 1914.

**Bacteriology of the Nasal Diphtheria of Nurslings.**—Buttermilch discusses clinical cases of this condition, which are often mentioned as "diphtheroid," "atypical," etc., because true Loeffler bacilli are not found. Nothing is more difficult for a bacteriologist than to draw conclusions from study of nasal discharges; the more he knows the more reticent he is in regard to the nature of his finds. Various bacteria merit collectively the name "pseudodiphtheria bacilli," which differ from the Loeffler germ in one or another respect. The author sought first to test the noses of presumably healthy nurslings in asylums in respect incidentally to the carrier problem. In no less than 16 per cent. he found true Loeffler bacilli. Animal inoculations and the so-called antitoxic control (on guinea pigs) were added to the usual resources for identification. The total material of 65 nurslings is analyzed as follows: There were 3 cases of typical nasal diphtheria, while in 2 fully virulent genuine bacilli were present in healthy noses. In 5 cases a pseudodiphtheria germ was found. These could be termed diphtheroid, or atypic-avirulent Loeffler germs. Presumably the remaining 55 nuslings had normal nasal discharges.

**Changes in the Specific Warfare against Diphtheria.**—Ruppel concludes his article on this subject with the hope that future improvements in von Behring's technique will end by making him another Jenner. He will not only check the ravages of the disease but practically stamp it out. The new remedy, as is known, consists of a mixture of toxin and antitoxin, so that active-passive immunization results. A campaign against the combined carriers in a given locality is the greatest desideratum to-day; and to reach the bacilli which often vegetate in the tissues, a bactericidal serum must be employed.

**Diphtheritic Bacilli in the Viscera in Fatal Cases of the Disease.**—Liedtke and Völckel refer first to the dictum that diphtheria bacilli possess little or no ability to invade animal organs. Quite recently the opposite teaching has begun to assert itself. The bacilli do not all escape by the urine, for many may enter the viscera. This can only be determined by autopsy, so that we are unaware whether such entrance takes place in mild and recovered cases. In any case the discovery of germs in the viscera in the most virulent cases of the disease seem significant. It is therefore a question whether many "mixed septic cases" with invasion of the tissues by pyogenic cocci are not in reality severe uncomplicated diphtheria. The organs found to contain bacilli include heart, lungs, liver, spleen, and bone marrow. Failure of antitoxin in these cases is naturally explained by inability to reach these visceral organisms.

**Icterus in the Course of Puerperal Infection.**—Cyrille Jeannin classifies the causes of this condition as follows: (1) Toxic, including such agents as chloroform, phenol, lysol, etc. (2) Infectious agents, chiefly streptococci, colon bacilli, and the *Bacillus perfringens*.—*Journal des Sages-Femmes.*

# Insurance Medicine.

## SUGGESTIONS TO MEDICAL EXAMINERS.

BY THE INSURANCE EDITOR.

### MORTALITY AMONG NEGROES.

THE colored people of the United States have not shown much desire in the past to insure their lives, this disinclination depending chiefly upon a natural improvidence and a lack of means. As the opportunities for education and financial advancement are more commonly embraced by them, they will gradually realize the advantage of life insurance. There must be a material improvement in their social and physical conditions, however, before they can hope to secure life insurance at ordinary rates or with the lower price policies. The only reason for the reluctance of life insurance companies to issue policies to negroes is the high mortality experienced among them as a class. The following table issued by the Census Bureau in Bulletin No. 112, "Mortality Statistics, 1911," is very interesting, giving a comparison in the mortality among whites and negroes.

DEATH RATE PER 1,000 POPULATION, 1911

| | CORRECTED | | | CRUDE | | |
|---|---|---|---|---|---|---|
| | Both Sexes | Males | Females | Both Sexes | Males | Females |
| Washington, D. C. | 18.9 | 20.8 | 17.2 | 18.7 | 21.2 | 16.4 |
| White | 14.6 | 16.4 | 13.0 | 15.5 | 17.8 | 13.4 |
| Negro | 30.5 | 33.3 | 27.9 | 26.6 | 30.3 | 23.5 |
| New Orleans, La. | 21.8 | 24.6 | 19.1 | 20.4 | 23.1 | 17.9 |
| White | 17.5 | 19.9 | 15.3 | 16.6 | 18.7 | 14.5 |
| Negro | 34.0 | 38.8 | 29.6 | 31.2 | 36.2 | 26.9 |
| Baltimore, Md. | 19.4 | 21.1 | 17.7 | 18.4 | 20.3 | 16.7 |
| White | 16.7 | 18.4 | 15.1 | 16.2 | 17.9 | 14.6 |
| Negro | 35.4 | 38.4 | 32.6 | 30.9 | 34.3 | 27.9 |

The corrected death rates are the death rates at all ages that would have resulted from the rates prevailing at the various age groups if the sex and age constitution of the population in the several areas had been identical with that of the population of England and Wales as enumerated at the census of 1901.

The data in this table are strengthened by the experience of life insurance companies as exhibited in the following synopsis of the report of the Medico-Actuarial Investigating Committee.

MORTALITY AMONG NEGROES

| | Number Entering | Actual Deaths | Expected Deaths | Ratio of Actual to Expected Deaths, per Cent |
|---|---|---|---|---|
| Ministers, teachers and other professional men | 4,503 | 202 | 147.4 | 137 |
| All other colored men | 17,296 | 792 | 540.0 | 147 |

One company found a much heavier relative mortality in the later than in the earlier policy years; the statistics are summarized into (a) first to fifth policy years, and (b) sixth and succeeding policy years.

| Policy Years | MINISTERS, TEACHERS AND OTHER PROFESSIONAL MEN | ALL OTHER COLORED MEN |
|---|---|---|
| | Ratio of Actual to Expected Deaths, per Cent | Ratio of Actual to Expected Deaths, per Cent |
| 1- 5 | 141 | 142 |
| 6-24 | 131 | 154 |

The trend of the mortality by ages at entry may be seen from the following exhibit, in which the two classes of negroes have been combined:

| Ages at Entry | Actual Deaths | Expected Deaths | Ratio of Actual to Expected Deaths, per Cent |
|---|---|---|---|
| 15–29 | 160 | 94.1 | 170 |
| 30–39 | 334 | 222.6 | 150 |
| 40–49 | 342 | 226.6 | 151 |
| 50–59 | 149 | 134.3 | 111 |

The above exhibit indicates that the mortality among the negroes insured is relatively highest at ages at entry under thirty.

A recent report by another company which has issued a fairly large number of policies to colored people shows the following:

EXPERIENCE OVER PERIOD OF 60 YEARS, ACCORDING TO AGE AT ISSUE

MODIFIED HEALTHY ENGLISH TABLE

| | Whites, per Cent | Negroes, per Cent |
|---|---|---|
| First policy year | 122.3 | 199.7 |
| Second policy year | 102.2 | 122.1 |
| Third policy year | 94.5 | 116.1 |
| Fourth policy year | 87.6 | 221.6 |
| Fifth policy year | 80.2 | 112.9 |
| First to fifth policy year, inclusive | 97.5 | 158.1 |
| First to tenth policy year, inclusive | 93.3 | 151.7 |
| Grand total | 96.5 | 152.7 |

The figures given in the tables vary somewhat at some ages on account of the small number of entrants represented in a few of the reports at those ages. The exhibits are harmonious, however, in testifying to the excessive mortality among the negroes insured, and this showing is further emphasized by the fact that the deaths among them as reported by the life insurance companies occurred after the risks had been selected with great care.

It is quite evident that there must be a lack of vitality in the race, and that there are contributing causes such as lack of proper conditions and, often, of proper food, morals, and inability to cope with modern conditions. This lack of resisting power may be attributed largely to inherited disease, and is particularly indicated by the tendency to tuberculosis. The writer has been informed on several occasions while visiting the large hospitals in New Orleans, and by reliable physicians in the South, that the blacks are very much more liable than are the whites to succumb to attacks of pneumonia, and that tuberculosis and syphilis are very prevalent among them.

Under the circumstances a company cannot afford to accept negroes on a cheaper plan than a ten, fifteen, or twenty-year endowment, or a rated-up policy, and will even then experience losses unless the most rigid scrutiny is observed in the examination, inspection, and selection. It must always be borne in mind that there is usually more or less doubt as to the age, that the business becomes expensive through a large ratio of lapses, and that they are indifferent in their memory of the personal and family history. These misstatements are usually made through ignorance or carelessness, and are seldom inspired through wilful deceit.

The only individuals who should be considered are those who live with healthy surroundings, are far above the average in intelligence, and are prosperous in their business or follow some one of the professions.

# Book Reviews.

LECTURES ON TUBERCULOSIS TO NURSES. Based on a Course Delivered to the Queen Victoria Jubilee Nurses. By OLLIVER BRUCE, M.R.C.S., L.R.C.P.; Joint Tuberculosis Officer, County of Essex; late Medical Superintendent, Queen Alexandra Sanatorium, London, Canada; late H. P. and A. R. M. O., Brompton Hospital for Consumption and Diseases of Chest. With Illustrations; price $1.00 net. New York: Paul B. Hoeber, 1913.

THIS volume seems to us rather advanced for nurses. There is discussion on theory of immunity, opsonic index, signs and symptoms, diagnosis, prognosis, and treatment, as well as a little on nursing. The book has no index.

DISEASES OF CHILDREN—A Manual for Students and Practitioners. By JOHN MCCAW, M.D., R.U.I., L.R.C.P. (Edinburgh), etc.; Senior Physician, Belfast Hospital for Sick Children; Clinical Teacher of Diseases of Children, Queen's University, Belfast; Lecturer and Examiner in Queen's University, Belfast, 1913-14; Ex-President Ulster Medical Society; Ex-President, Belfast Division, British Medical Association; Author of "Aids to the Diagnosis and Treatment of Diseases of Children," "Aids to Infant Feeding and Hygiene." Price $3.50 net. New York: William Wood & Co., 1914.

VERY few of the recent works on diseases of children have been so ably written with special reference to the practical needs of the student and general practitioner as has this volume by Dr. McCaw. The book is not as large as the average single volume textbook, nevertheless it is complete as well as concise. The chapter on infant feeding deserves special commendation inasmuch as it contains a clear exposition of the many different methods of infant feeding in current use and points out the special indications and relative value of each method. Although an English writer, the author shows an unusual degree of familiarity with the American contributions to this vexed subject of infant feeding. Among the methods described are those of Ashby and Wright, Gaertner, Rotch, Meigs, and Parrot. The chapter on the specific fevers is a valuable one; the author shows in minute detail the differential diagnosis of the various acute infectious diseases in children, illustrating these differences by means of the familiar tables of parallel columns. It is interesting to note that the author adopts a reasonable attitude with respect to the prophylactic administration of antitoxin. He holds that on account of the dangers of anaphylaxis this preventive administration should be restricted or abandoned. At the end of this volume there is appended a chapter entitled "General Information." This chapter contains points of anatomical and physiological interest pertaining to the child and its growth and development; various tables on the teeth, incubation periods, eruptive periods, and quarantine; a description of the various diagnostic methods, dosage, etc. The book contains a series of excellent plates and other illustrations. It is well written, the style being clear and to the point. The subject of treatment is given a greater share of attention than is usual in the average textbook on pediatrics. The book may be recommended without reserve as a valuable guide to the student and general practitioner.

A TEXTBOOK OF THE PRACTICE OF MEDICINE. By JAMES M. ANDERS, M.D., Ph.D., LL.D., Professor of Medicine and Clinical Medicine, Medico-Chirurgical College, Philadelphia. Eleventh Edition. Thoroughly Revised. Illustrated. Price $5.50. Philadelphia and London: W. B. Saunders Company, 1913.

THE fact that it has been necessary to issue eleven editions of this textbook is sufficient evidence that it has found many appreciative readers. An examination of the present revision shows that it has been brought well up to date and that nothing of importance has been omitted. Among the new matter included one notes sections on the parathyroids, on the newer aspects of cardiac diagnosis such as auricular fibrillation, extra systoles, etc., status lymphaticus, and diseases of the thymus gland, antityphoid vaccination, and pellagra. The author still adheres to the view that the latter disease is due to contaminated cornmeal. Among other headings under which radical changes or additions have been made are syphilis, diabetes, gout, leukemia and pernicious anemia, gastric disorders, the treatment of drug addictions, and many more. In these as well as in other parts of the book more or less extensive changes will be found, and the volume is well adapted to the needs of those in search of an agreeably written, reliable, and comprehensive book on general medicine as it should be practiced to-day.

GUNSHOT INJURIES—How They Are Inflicted, Their Complications, and Treatment. By Colonel LOUIS A. LAGARDE, United States Army Medical Corps (Retired), Late Commandant and Professor of Military Surgery, U. S. Army Medical School; Professor of Military Surgery, Medical Department, N. Y. University, etc. Prepared under the Direction of the Surgeon. General United States Army and Published by Authority of the Secretary of War. Cloth; illustrated; 398 pages. Price $4.00 net. New York: William Wood & Company, 1914.

SINCE the character of the so-called hand weapons and the composition of the projectiles used has always been about the same in military and civil life, this subject under the old types of armament has been thoroughly covered by many writers, especially by Otis, whose work was a recognized standard throughout the world. In recent years, however, the universal adoption, in both military and civil life, of the high powered rifle of smaller caliber, employing steel mantled projectiles with an enormously increased initial velocity, and also the fact that the conditions and methods of treatment are far different now than in the preantiseptic days, when most of the standard literature on these subjects was written, has resulted in the demand for an up-to-date, authoritative work based upon practical experience under the changed conditions. Colonel La Garde's book fulfills this requirement and has an added value in that he has presented and compared the characteristic features of wounds under the old and new styles of armament. The first 150 pages of the book cover technical considerations, such as the descriptions of the various types of firearms, explosives, projectiles, etc., which have been used from early times to the present day; characteristic lesions produced by military rifles employing various types of bullets; the wounds from pistols, revolvers, shot-guns, target-rifles, etc.; the symptoms of gunshot wounds; infection; and treatment in general. The injuries of special regions and tissues of the body are then taken up and we find chapters on gunshot wounds of the head, face and neck; spine; chest; abdomen; injury to blood-vessels and nature of the lesions; gunshot wounds of the joints, and of the diaphyses of the long bones. The medico-legal aspects of gunshot wounds are briefly considered, and there is a final chapter on field $x$-ray apparatus. It will thus be seen that all phases of the subject have received attention, and the reader will soon find that the text is remarkably interesting. Illustrative cases are freely quoted and these, together with numerous illustrations, particularly $x$-ray photos, and frequent reference to the work of other surgeons, serve to call especial attention to the most important points.

The work unfortunately contains a number of typographical errors which we shall hope to see corrected in the next edition. They are unpleasant to encounter in the reading, though of course they do not detract from the teaching value of the text. The book will easily fall in the front rank of works devoted to this subject.

GERIATRICS—The Diseases of Old Age and Their Treatment, including Physiological Old Age, Home and Institutional Care, and Medicolegal relations. By J. L. NASCHER, M.D., New York. With an introduction by A. JACOBI. With 50 plates. Containing 81 illustrations. Price $5.00 net. Philadelphia: P. Blakiston's Son & Co., 1914.

DR. NASCHER has made an incursion into an almost virgin field of medical literature, that is so far as the literature of this country or, in fact, so far as English medical literature is concerned. The author is thoroughly competent to write on the subject of old age and its treatment, as he seems to have made a special study of it for a considerable period of time. How to ward off old age has been the goal at which physicians since the healing art was first practised have always aimed. The elixir of life was sought for when medicine was not a science, and now that it is based on scientific principles the object is to conquer disease and thus to prolong life. Pathological old age is discussed in its various forms and treatment suggested. The latter part of the book is taken up with a consideration of the hygiene of old age. The entire volume is interesting and suggestive.

THE PRACTICE OF MEDICINE. A Text-Book for Practitioners and Students with Special Reference to Diagnosis and Treatment. By JAMES TYSON, M.D., LL.D., Emeritus Professor of Medicine in the University of Pennsylvania and formerly Physician to the Hospital of the University, and M. HOWARD FUSSELL, M.D., Professor of Applied Therapeutics in the University of Pennsylvania and Physician to the Hospital of the University, etc. Sixth Edition, Revised and Rewritten. Philadelphia: P. Blakiston's Son & Co., 1914.

IT has been said that no text-book should go beyond the second, or, at the most, a third edition, and this book presents a fairly good illustration of the reasons for such a dictum. The first edition represented an almost purely personal work with all its merits, and was deservedly popular. The present edition demonstrates to what a condition such a work may come after several revisions. The increasing size of the book has forced the exclusion of the historical portion of the work and the homogeneous character of the first edition has been sadly disturbed. In addition, many of the newer advances in medical science have escaped consideration. This is perhaps most marked in the department of therapeutics. No mention is made, for instance, of the use of emetin in the treatment of amebic dysentery or of the intravenous use of salicylates in articular rheumatism, but what is more surprising is that the gastric disturbances following digitalis administration are still regarded as due to the local action of the drug. The sections on Morbid Anatomy are as a rule rather unsatisfactory, in pertussis, for instance, the lesions in the tracheal mucosa are not described. The article on diabetes insipidus has been inadequately revised and no mention is made of the part played by tuberculosis in the causation of pleurisy with effusion, certainly a matter of great importance and general knowledge. On the other hand, there have been introduced entirely new sections on acute anterior poliomyelitis, pellagra, and caisson disease, and there has been a great enlargement of the space devoted to a large number of conditions, especially the infectious diseases. Unfortunately there has apparently been little proofreading, for the text contains almost innumerable typographical errors.

STUDIES CONCERNING GLYCOSURIA AND DIABETES. By FREDERICK M. ALLEN, A.B., M.D. Price $9.00. Boston: Harvard University Press, 1913.

THE twelve hundred pages of this book represent the results of three years' research in the Laboratory of Preventive Medicine and Hygiene of the Harvard Medical School, and no one who examines the volume can help feeling that they were three unusually diligent and fruitful years. In addition to presenting the author's own views, together with an account of the experimental work which led up to them, the book contains a remarkably complete and voluminous review of the literature of diabetes. This alone represents an enormous amount of work, and it has been done so well as to impart real literary value to the result, while from the standpoint of completeness it leaves nothing to be desired. The research work comprised two chief lines of investigation. First, the behavior of sugars in the body; and, second, the production and modification of diabetes. This involved the performance of an extremely large number of experiments on animals which are reported in detail in admirably arranged protocols. In regard to the outlook for the cure of diabetes, the author is very optimistic, for he considers the disease as a functional disorder of the pancreas, which is susceptible of relief by therapeutic measures. His view is that in general, excepting a certain number of distinctly organic cases, the sequence of events in the etiology of human diabetes is as follows: Nervous disorder leading to impaired function of the islands of Langerhans, which in turn entails deficiency in the pancreatic amboceptor resulting in glycosuria with its attending symptoms. In developing this theory he upholds the conception that diabetes is fundamentally a disorder of the sympathetic system and that the pancreas of the average diabetic is functionally still efficient if relieved from the abnormal influence to which it is subjected. Accordingly, the disturbance of the pancreas is regarded as being, at least at the outset, purely functional, while the organ itself is largely or entirely sound. The amboceptor hypothesis is founded on the idea that the sugar of the body is normally in a state of colloid combination. The substance with which glucose combines, or some link in the combination, is contained in the internal secretion of the pancreas. Without the pancreas, this combination cannot be effected and without combination utilization is impossible. The polyglandular conception of the disease does not meet the author's approval, and he characterizes it as arbitrary, confusing, and self-contradictory, preferring to adopt the doctrine of pancreatic insufficiency as the sole and invariable cause of diabetes. Among the procedures proposed as offering a possibility of cure are nerve operations, having as the object the securing for the pancreas of a new nerve supply, or ligation of the pancreatic duct. The latter suggestion is made because it has been found that the occurrence of diabetes after reduction of the pancreas to a remnant of definite size when the ducts are left patent, can regularly be prevented by ligating the ducts. It is stated that under favorable conditions by this means a diabetes already under way may be stopped in experiment animals. The procedure, however, will hardly appeal to those who have seen the effects of pancreatic duct obstruction in cases of fat necrosis. Under the designation of "the dextrose paradox," Allen discusses the fact that in normal animals the more sugar is given the more is utilized, and that there is no limit of the power of utilization of sugar except death This "paradoxical law" makes it possible to distinguish sharply between diabetic animals of every type and non-diabetic animals; for in the former there is a real limit of tolerance. If diabetic animals are given injections of dextrose the resulting increase in glycosuria may not only equal but even exceed the dose administered. The diuretic and antidiuretic effect of sugar given in different ways is also described as affording a test by which diabetes can be distinguished from the alimentary, hunger, toxic, phlorhizin, thyroid and nervous glycosuria. Exceedingly interesting matter is also included in the sections on the therapeutic use of dextrose injections. The book embodies the results of much original work and also provides a valuable compendium of the literature, so that it may be regarded as one of the most important and stimulating contributions to the subject that has yet appeared.

HYGIENE AND PUBLIC HEALTH. By LOUIS C. PARKES, M.D., D.P.H., Univ. of Lond. Consulting Sanitary Advisor to H.M. Office of Works; late Civilian Sanitary Member of the Advisory Board for Army Medical Services; Medical Officer of Health of the Metropolitan Borough of Chelsea; Examiner in Public Health to the Royal College of Physicians and Surgeons, London; Fellow of the Royal Sanitary Institute; and HENRY B. KENWOOD, M.D., F.R.S. Edin., D.P.H. Lond. Chadwick Professor of Hygiene in the University of London; Medical Officer of Health and Public Analyst of the Metropolitan Borough of Stoke Newington and Medical Officer of Health for the County of Bedfordshire; Examiner in Public Health to the Royal College of Physicians and Surgeons, London; Fellow of the Royal Sanitary Institute. Fifth Edition, with illustrations. Price $3.50. Philadelphia: P. Blakiston's Son & Co., 1913.

THIS is one of the best known books on hygiene and public health in existence and the fact that it has attained its fifth edition shows its popularity. The work has been brought up to date in every particular. One chapter on the contagia, communicable diseases and their prevention, and hospitals has been carefully rewritten, and much of it is new. No one interested in hygiene and public health can afford to be without this work.

DIE AUGEN-SYMPTOME DER RAYNAUDSCHEN KRANKHEIT. Von ophthalmologischer Seite literarisch-kritisch bearbeitet von Dr. E. E. BLAAUW, Buffalo, N. Y. Price Mks. 1. Halle a S.: Carl Marhold Verlagsbuchhandlung, 1913.

IN this brochure of 26 pages the author mentions the symptoms of Raynaud's disease, gives a short sketch of Raynaud's career, and describes a case occurring in his practice which presented the symptoms of Raynaud's disease without necrosis, but with ocular symptoms, consisting of irritation of the conjunctiva and lids with diminution of vision, but without the narrowing of retinal arteries as described by Raynaud. This is followed by an extensive review of the literature on Raynaud's disease. The brochure is an interesting contribution to the subject.

# Society Reports.

## INTERNATIONAL SURGICAL ASSOCIATION.

*Fourth Congress, Held in New York City, April 13-16, 1914.*

(Special Report to the MEDICAL RECORD.)

*Monday, April 13—First Day.*

THE PRESIDENT, PROFESSOR A. DEPAGE OF BRUSSELS, IN THE CHAIR.

**Addresses of Welcome.**—Dr. WILLIAM C. GORGAS, Surgeon-General, U. S. A., said that he had been sent by the President as a representative of the Government to welcome the congress to the United States and to express his regrets that he could not be present in person. Both the President and the United States Government considered it the greatest honor to have this International Congress in America. It was a stimulus along surgical lines in every direction, and it was not only a great honor but would be of great benefit to all.

Dr. WILLIAM J. MAYO of Rochester, Minn., said that as President of the American Surgical Association it was his privilege to express to the members of the Congress in the name of that organization a welcome to America. They were pleased that for the first meeting of the International Surgical Association outside of Brussels they should choose a typical American city for their meeting place. They owed Europe a great debt as she had laid the foundation of medical and surgical science upon which they had built. It gave him great pleasure to express their gratitude and to acknowledge this debt. He had often been asked if they had a typical American surgery, and he replied "No," for they were dependent on European and English surgeons for so much and had brought back such great inspiration from the clinics of Europe that they had not an American but a cosmopolitan surgery in this country. They welcomed them as their Alma Mater come to see what they had accomplished, not only in New York but in Philadelphia, Baltimore, Montreal, Chicago, Rochester, Minn., and even in New Orleans, and if they found merit, that merit was a compliment to Europe.

Professor CHARLES WILLEMS, Chairman of the International Committee, being absent, his address was read by Dr. J. P. Hoguet, American Secretary of the Congress. He expressed the hope that at the next meeting, which would be held in Europe, they might have the pleasure of meeting many Americans. The remainder of Professor Willems' paper was a memorial to the members of the Association who had passed away during the past three years and an account of the achievement of each.

Dr. LEWIS J. MCARTHUR, Chairman of the American Committee, said that it was fitting that a society born in Brussels should be greeted with the following cablegram: "I send hearty congratulations and best wishes for the Congress. (Signed) The King of Belgium." He said that they had just listened to a long list of losses that they had incurred since the last congress. His duties had fallen upon him through the death of Dr. Roswell Park and it was fitting that they should recall the memory of a man who had done so much to inaugurate this group. There had been international surgical congresses before but none with the scope of this one. It was a pity that after having worked so hard to gather together these master minds, he could not have lived a few more days in order to have participated in this his fondest hope. There were differences in the boundaries of countries but the science of surgery knew no bounds; the world was its field. There was sometimes some discussion in the pursuit of knowledge, but in certainty there would be unity.

**President's Address.**—Professor A. DEPAGE said that the first meeting of the International Surgical Congress took place in Brussels; they gave it preference to a neutral country so as to clearly define the scientific, and at the same time fraternal, character of their Association. It was not necessary for him to tell that it was the privilege of their little Belgium to offer a meeting place for the learned men of all nationalities, covered by Europe itself with the shield of peace and liberty. How did they accept without hesitation the cordial invitation to America? Such an important decision was not justified by merely the deep esteem they felt for their surgeons or by the most legitimate curiosity; it was influenced chiefly by the certainty that they would receive a welcome prompted by the most noble sentiments of scientific fellowship. Belgium asserted pacific tendencies by her political neutrality; America favored treaties by arbitration which were the triumph of right over might. She organized her scientific institutions and her universities which assured more and more the victory of intellect over force and chance. The surgeons necessarily represented a mute and constant protest against the evils of war. They impressed upon all that war was the greatest of scourges. The surgery of war owed much to America. In 1861 the Sanitary Commission appointed by Lincoln played an important part in the course of events; it was the great artery which carried the love of the American people to the army. Since fifty years new duties had arisen with which it was of importance that the surgeons of all countries should reckon. They should be employed in perfecting their sanitary organizations. With them rested the task of developing the organization of their war surgery so that it might remain on a level with the sad needs of their times. American surgery here again had furnished them with important illustrations. The international understanding should be reinforced more and more by the organization of help for the victims of war; this was a thing greatly to be desired. Without doubt such an understanding already existed; the Red Cross was the most striking illustration of this. At the time of the last Balkan war they saw ambulances which came from all countries. This international fraternization was without doubt an encouraging sight. The Balkan war had only just emphasized the lesson taught by the Manchurian war; the fate of the wounds depended more upon the side which was given in the front of the battle, for as long as the engagement lasted, the exposed ground was inaccessible for the ambulance men of whom more than one had sacrificed his life in spite of all precautions taken; thus hours passed during which the men remained without help. The following was without doubt the solution of the problem: Eeach of the combatants must carry with him side by side with his cartridges the articles necessary for the first dressing. This solution had already been accepted and taken into use in different countries. The experience of late wars had proved only too clearly that before all the sanitary education of the soldier must be improved. He must realize the dangers of infection by earth, dust and water; he must know that it case of a wound in the abdomen it was better to remain motionless, even for hours, than to walk as far as the station. The military structure of a soldier in the future would not be complete unless it comprised an acquaintance of the necessary measures to take for his personal safety and especially the elementary rules of asepsis and antisepsis. The making general of these instructions would result in a great saving of human life. One should not leave the giving of first aid to the injured to the ambulance men, for often they arrive too late. During the Balkan war the Turkish army doctors and others tried to extract the bullets and amputate in the ambulance at the front and they were able to certify that on the arrival of the wounded at the hospitals of the town the greater part of these interventions had produced deep-seated suppuration. In the hospitals of the second line, which never changed place whatever happened, the operations could be performed that were judged indispensable. There experienced surgeons should be placed who should decide the serious questions and pressing interventions, should they be carried out in these hospitals of the second line. Civil consultant surgeons should also be attached on regular duty who would insure the utmost caution at the critical moment. These tried surgeons should oppose the performance of all operations of which they did not clearly see the urgency. The man surprised by traumatism could oppose less resistance to a general shock than another who had had time to prepare and arm his organism. During the last war a fact which had filled all surgeons with astonishment was the comparative harmlessness of the modern gun. He said that he had seen bullets which had pierced the arm or leg sometimes throughout their whole length, and others the abdomen or the breast or even the back of the brain, without producing infection of any serious consequence. At the same time the effects of the cannon had become more deadly than ever. As surgeons they would not reproach the modern gun for not killing

his man with every shot; what they desired was to reduce the so-called "efficiency of the shrapnel." At a meeting of the Imperial Surgical Congress at Constantinople in December, 1912, the fervent wish was expressed that the use of shrapnel might be abolished on the same grounds as the explosive bullet. Those who had been brought in close contact with the dreadful miseries of this poor human race, found it more and more difficult to understand why men did not employ their reasoning powers to a good end by ceasing this destruction of one another. They hoped to see the "United States of Europe" in friendly intercourse with the "United States of America," and they reserved their deepest admiration for those who were working to assure universal peace.

Amputation of the Arm and Forearm.—Professor Oskar Witzel, Düsseldorf, said that the indication for an amputation could only be fixed if one was in touch with all the modern resources capable of assuring the preservation of wounded, diseased, and deformed limbs. The introduction into surgery of the antiseptic treatment of open wounds, contusions and fractures by von Bergmann allowed the postponement of amputation in time of war as well as in ordinary practice. The processes of suture resection, anastomosis, and transplantation of the blood vessels enabled the preservation of parts of limbs wounded or affected by arteriosclerosis. In cases of infected wounds Bier's method of prophylactic hyperemia and his method of hyperemia together with small carefully made incisions in the suppurating parts, preserved limbs in which septicemia and pyemia would otherwise have demanded amputation. Modern operative orthopedy restored the power of useless limbs by means of osteotomy and musculo-tendinous transplantation. In cases of simple tumors and even in myeloid sarcoma, excision followed by transplantation was more than justified. Even in malignant tumors the adjunction of radiotherapy and chemotherapy allowed the hope of a less radial position than formerly. Amputation of itself could never endanger life and should procure for the patient a useful and painless stump. The danger of the actual operation was decreased by increasing the resisting powers of the patient, whether the case was one of emergency or not, by complete arrest of hemorrhage in cases of accident, by strengthening the heart by the use of camphorated oil, saline infusions, inhalations of oxygen, application of heat, respiratory exercises, etc. The choice of an anesthetic, the preservation of warmth during the operation, and Esmarch's tourniquet were also important factors. General anesthesia was preferable on account of the psychic effect resulting from amputation. Hackenbruch's process was suitable for minor operations and Fraun's endoneural anesthesia for bigger removals, always with the addition of discipline in the working of the operating theater. Bier's rachi-anesthesia would rarely be indicated. After the operation life would be saved by simple and thorough asepsis. The section of tissues should be clean; in order not to injure their vitality it was necessary to work with gentleness, heat, and moisture. For this end the use of antiseptics must be rejected, and there must be strict hemostasia. Cardiac tonics and respiratory exercise judiciously applied prevented thromboembolism. To obtain a painless and serviceable stump clean section should be made above the nerve stumps; in disarticulation and epiphyseal amputation, avoiding the opening of the marrow canal prevented the formation of neuritis by fixation of the nerve roots on the surface of the sectioned bone; sealing the marrow canal by the process of Bier, Wilms, Ritter, or Bung also prevented this accident. Massage of the soft tissues and early utilization of the stump in temporary prostheses served the same purpose. For a good utilization of the stump as a lever for prosthetical apparatus, regard should be taken of the unequal retraction of the muscles and tendons. The suture of neighboring muscles and those of opposing ones between themselves, helped to maintain the functional equilibrium. Certain tendinous groups, particularly in the forearm, might be transferred into rings covered anew with skin giving a most life-like prostheses. The creation of levers possessing active movements, and digital autoplasty, gave hope of remarkable success.

Amputation of the Leg.—Dr. J. F. Binnie of Kansas City, Mo., said that the level at which amputation of the leg was performed below the knee had no influence on the vital dangers of the operation; hence the choice as to the method and site of such an amputation depended upon the lesion for which the operation was required and on the use that was to be made of the resulting stump. No particular improvement had been made in the methods of amputating below the ankle joint. If gangrene was the occasion for the amputation, the site of operation would depend largely on the extent of the vascular disturbance and this was determined by the use of Moschowicz's method of examination or by Sandrock's method, which was much simpler. The use which was to be made of the stump was a factor of prime importance in the choice of a site of amputation. If the financial condition of the patient was such that he could not indulge in a more or less expensive artificial limb, then it was of vast moment to save as much of the limb as possible and to provide him with a good stump, one that would withstand abuse and on which the weight of the body could be supported without harm resulting. The types of these operations were Symes' and Pirogoff's. If the patient could afford a good artificial limb it was better to amputate at a higher level so that there might be room between the stump and the ground for such an apparatus. The improvements attained in amputations of the leg were all in the attainment of better weight-bearing stumps and the designs of artificial limbs must in the future adapt themselves to these improvements. Hirsch and Bunge's periosteal treatment of the bony stump in any amputation, and osteoplastic amputations under particularly favorable circumstances, were very valuable means toward obtaining ideal weight bearing stumps. All the advantages of Bier's operation could be easily and safely obtained by covering the cut end of the tibia with a free transplant of bone. One proceeded with this operation in the following way: By any of the customary methods (preferably a flap method) reflect the soft parts and so expose the tibia covered by its periosteum for a few inches below the proposed line of bone section. Transversely divide the periosteum of the tibia along two lines separated from each other by a space of about one-half inch greater than the diameter of the bone. From the upper incision separate the periosteum downward for about one-half inch. From the lower incision separate the periosteum upward for about one-half inch. Cut through the cortical bone of the tibia transversely at the base of the periosteal flaps. With an osteotome or Gigli's saw cut free the plate of bone between the transverse incisions. This plate of bone is covered by periosteum which hung from its upper and lower edges like a tablecloth. Preserve this in warm salt solution. Complete the amputation by sawing through the bones after forming a periosteal cuff on the tibia. Place the plate of bone over the cut surface of the tibia and fix it there by periosteal sutures. The tibia and the plate might be united by chromicized catgut sutures introduced through drill holes instead of by periosteal sutures. If desired the bone plate might be made long enough to cover the cut surfaces of both tibia and fibula, extending between them like a bridge. As had been already stated, such an operation as the above was entirely out of place unless asepsis could be assured and the resisting power of the patient was satisfactory.

Amputation of the Leg and Foot.—Dr. M. Durand of Lyons, France, read this paper. He said that any one of the three middle toes might be amputated by disarticulation of the second phalanx, by metatarsophalangeal disarticulation, or by amputation in continuity of the first phalanx. These operations did not alter the function of the foot. No other operation was recommended. These conditions also applied to the small toe. The great toes were amenable to all operations in continuity and contiguity. Total disarticulation, especially if carried out by the subperiosteal method, gave excellent results. The walk was but slightly affected by the simultaneous disarticulation of the five toes. As to the metatarsal bones, amputation of one of the last metatarsal bones in continuity or by disarticulation left but small difficulty. The disarticulation of the first metatarsus was a little more serious from the functional point of view. It had not, however, the disadvantages ascribed to it. The subperiosteal method was particularly favorable in this case. More than two of the metatarsal bones must not be amputated. Transmetatarsal and tarsometatarsal amputations, according to Lisfranc, gave generally excellent functional results. Amputations and disarticulations which affected the anterior tarsus without suppressing it entirely must be recommended. Chopart's disarticulation was an excellent operation; it risked a reversion of the stump and it could, if not

entirely proscribed, at least be reserved only for very exceptional conditions. Ricord's operation and subastragaloid disarticulation were both excellent and had practically the same value. The osteoplastic operation on the posterior tarsus (Sebiliot, Pirogoff, Pasquier-Lefort) preserved the normal bearing upon the plantar tissues and furnished also very good results. The tibiatarsal disarticulation carried out according to Ollier's subperiosteal method gave supple and enduring stumps. It left such good functional results that it might be considered equal to the greater part of the more conservative operations of the posterior tarsus. Of supramalleolar amputations and amputations of the lower third of the leg, it might be said that they were of slight mutilation rendering means of provision of solid skin tissues obtained from the heel; they sometimes permitted the direct bearing of the stump extremity on the prosthetical apparatus. They had a usefulness very similar to the tibiotarsal disarticulation because of the length of the leg lever and the power of the muscles which they preserved. Amputations of the middle third of the leg did not admit of the terminal weight bearing if performed according to classical methods. There was some hope that the former osteoplastics would improve in their results. Amputations of the leg above the middle part had ceased to deserve the name of "amputation at the seat of election" and should be performed only when the extent of the injuries did not permit of a lesser sacrifice. Larry's intracondylar amputation was preferable to the disarticulation of the knee. Amputations of the leg and foot owed their gravity to the affection which necessitated their performance and to the general condition of the patient. The progress of surgical technique and of asepsis had enabled a more correct adaptation of the stumps to the prosthetical apparatus and considerable increase of the utilization of these stumps. Prosthetic apparatus in their technical realization had considerably improved the utilization of stumps in amputations of the foot and especially of the leg. Owing to this progress they could now usefully perform amputations of the middle and lower third of the leg.

**Amputations of the Leg and Foot.**—Dr. E. RANZI of Vienna read this paper and concluded as follows: (1) The most important condition for the portability of the stump was formed by the removal of the excessive formation of callus on the surface of the stump. Bier and Wilms avoided the same by closing the marrow hole, the former using a flap of periosteum and bone, the latter with sinew; Bunge accomplished the same result by the removal of the periosteum and endosteum on the lower stump. (2) The removal of the cut outside portable surface and the prevention of adhesions between the soft parts and the stump were of less importance for the portability of the stump. (3) Of the methods that were most sought after for portability, that of Bunge seemed to be the best for war surgery as in times of peace, because on the one hand it was the simplest and on the other the results were the best if no "*prima intentio*" occurred. (4) In every method of operation it was of the greatest importance for the results that the patient take walking exercises and had massage, as well as to put his weight on the wooden leg as soon as possible.

Dr. DEPAGE of Brussels said that without question one of the greatest advances of modern surgery in time of war was the substitution of a more conservative surgery for the brutal amputation formerly in use. During the Crimean War on the French side in 22,521 wounds of the extremities 6,577 amputations were done. On the side of the English in the same war there were 777 amputations in 4,764 wounds. During the war of the Secession there were more than 30,000 amputations done, and in the Franco-Prussian War the percentage was higher still. Since this time surgical operations on the field of battle had become more and more rare and since their danger was understood amputations had become exceptional. The conditions of the surgery of war were of a special nature in that the ambulance service was often controlled by young practitioners impatient for action and eager to perfect themselves in the art of operating, while in the civil hospitals the surgeons were experienced men who had the time necessary to apply the appropriate methods of treatment, being able to operate on a chosen day and according to that method which appeared best for each individual case. During the Russo-Japanese War the surgeons in chief, Vreden and Haga, interdicted all operations on the field which were not absolutely necessary, and it was not otherwise in the last war at Constantinople; the central committee of the Red Cross Society took severe measures to moderate the zeal of some young surgeons. It should be repeated on every occasion that the wounded man in times of war had more right than any other man to their protection. The field of battle should not be a field of experience for the surgeon. The practice of amputation in times of war might be divided into three categories: 1. Primary amputations. 2. Intermediate operations. 3. Secondary or tertiary operations. The primary operations were necessitated by the extent of the lesion and the imminent peril to life; these were the only amputations that should be performed on the field of battle. They were formerly numerous and their results were nearly always fatal. The immediate treatment of wounds should be limited to the prevention of infection and hemorrhage. Applications of iodine dressings and tamponing with a solution of zinc chloride (10 per cent.) had been found useful for this purpose. Intermediate operations were those practiced between the second and ninth day, when the chance of infection had passed. At this time one should be very careful before deciding to sacrifice a limb on the first manifestation of fever. In the ambulance service which they had directed not a single amputation was done because of suppuration following a wound by a projectile. Most of the amputations were done because of grave infection following gangrene of the foot. These gangrenes were not caused, as was formerly thought, by coagulation, but by compression or by the infiltration produced by the edema consecutive to the long marches across wet and marshy ground. At first sight it would seem that amputation was urgent in these cases, but this was not always so; sometimes continuous lavage, friction with alcohol, and some days' rest in bed would result in the disappearance of the edema. When in the presence of a gaseous gangrene amputation became urgent. In doing an amputation for gangrene the concern of the surgeon was not so much whether to do an osteoplastic or a periosteal operation, but rather how he might secure the best nutrition possible. Often one did not suture, or the flaps were but closely approximated so as to assure perfect drainage. Chloride of zinc dressing was useful after operations for gaseous gangrene. Secondary and tertiary amputations were practiced when the primary wounds were healed, and were necessitated especially by deformities, retracted cicattrices, nuerites, etc. Here one found the patient in a better condition of resistance and the choice of method might be left to the judgment of the surgeon, who need not here follow the rules of war surgery, but could be guided by general hospital practice.

Dr. A. LAMBOTTE of Brussels said he did not use an Esmarch's bandage for amputations as was formerly done in all operations of this nature. In operations on the thigh it rendered hemostasis long and difficult. In place of this bandage he used three or four ligatures to keep the field dry. After making the primary incision he went directly to the femoral vessels and clamped both the femoral artery and the femoral vein. In addition to these vessels it was necessary to ligate two or three of the muscular arteries. When operated on in this way there was no bleeding after the operation. In amputations of the foot the best method was by the subastragalian disarticulation of Roux. This method had given him success in twenty cases. The cicatrix was well placed and the amount of shortening was minimized. He had had recourse on one occasion to a dermoplastic operation after the method of Keetley for an incurable ulcer of the leg and had secured a perfect result.

Dr. ZAHRADNICKY of Nemecky Brod said that in all they had had 255 cases of amputations of the larger joints with 23 deaths or a mortality of 9 per cent. They had done the following amputations on the upper extremity: transmetacarpal, four with no mortality; Metacarpal, five with no mortality; hand, three with no mortality; antibrachial, 24 with two deaths; brachial, 25 with two deaths; interscapular, four without mortality, making in all 65 cases with four deaths. The amputations done on the lower extremity were as follows: femoral, 60 with 10 deaths or a mortality of 16.6 per cent.; crural, 70, with five deaths, or a mortality of 7.1 per cent.; femoral, according to Gritti, 46 with three deaths; foot, according to Pirogoff, 10 without a death; according to Syme, one without death; according to Chopart, one with one death; according to Lisfranc, one without a death, and

one metatarsal without death, making 190 cases with 19 deaths or a mortality of 10 per cent. The highest mortality was from gangrene, there being 12 deaths in 31 cases operated upon, or a mortality of 38.7 per cent.

Dr. W. H. HUTCHINGS of Detroit laid stress on the desirability of saving as much of the limb as possible and called attention to a method which had given him marked success. In infected cases they opened freely and made an autogenous vaccine which was administered as soon as possible. For a dressing they used six per cent. salt and one per cent. citrate of sodium in distilled water and kept the dressing soaked. This, together with the increased bactericidal power of the blood produced by the vaccines, he believed had saved many patients. His experience had covered 500 hand injuries, of which 100 were treated by ordinary methods and the remainder by this method, and he had found that by this method the end results were better and the convalescence shorter.

Dr. WILLY MEYER of New York called attention to the possibility of avoiding amputation, especially in endarteritis in young people, by means of hyperdermoclysis of Ringer's solution according to the Ito-Kobar method. Dr. Meyer cited several instances in which this method had proved effective. The dose was 400 to 500 c.c. at each injection and the injections were given in various locations. In the juvenile forms of gangrene one should first try hyperdermoclysis with Ringer's solution; if this failed, then one might attempt an arteriovenous anastomosis, and only after both of these had failed should one resort to amputation.

Dr. M. L. HARRIS of Chicago said there were two classes of cases in which the mortality was high. These were operations on the aged for gangrene and in severe crushing injuries involving the thigh. In such cases amputation should be done under nerve blocking rather than under general ether anesthesia. With the nerve blocking the operation could be done without the slightest shock.

Dr. WILLIAM L. ESTES of South Bethlehem, Pa., said that in considering the advisability of operation one should take into consideration the blood pressure. When the blood pressure was 80 mm. or lower it was useless to operate; when it was above that figure operation might be attempted. This was an important index to the advisability of operation, especially in crushing injuries. The two other points were asepsis and the securing of a field as bloodless as possible. To obtain the latter he no longer used constriction but the gradual dissection method, beginning at Poupart's ligament in operations on the thigh, dissecting carefully and tying the vessels as he proceeded. With the gradual dissection method there was no oozing afterward. Out of 724 amputations he had done few by the subperiosteal method, and nearly always used a periosteal flap. Of this number only 18 cases came to a second operation, either from ulcer, pain, or inability to use apparatus. The nerve should be cut four, five, or six cm. above the section of the bone. He had found Chopart's operation useful. Out of 42 transtarsal amputations, he had used Chopart's operation 36 times, and all the patients did well.

Dr. STEINTHAL of Stuttgart gave a lantern slide exhibition of *x*-ray pictures showing the varieties of bone stumps secured by different methods of operation.

*Tuesday, April 14—Second Day.*

PROFESSOR SONNENBURG IN THE CHAIR.

The day was devoted to discussion of gastric and duodenal ulcers.

**The Diagnosis of Gastric and Duodenal Ulcers.**—Dr. F. DE QUERVAIN of Basel presented this paper, which was read by Dr. Henschen of Zurich. The writer reviewed the present status of the clinical and radiological diagnosis of gastric and duodenal ulcer. All who were concerned with gastric surgery were familiar with the well established facts and with the modern advances in the radiological diagnosis of ulcers of the stomach, so he passed over these and stated the questions which were still under discussion and upon which it was hoped the present discussion would throw some light. The following were some of the questions: (1) What was the frequency of spasm in the superficial ulcer of the lesser curvature? Under what conditions did this spasm occur in the absence of any ulcer? (2) What influence had ulcers removed from the pylorus on the latter? (3) What were the surest and most practical distinguishing signs between pyloric spasm and pyloric stenosis in the beginning? (4) What was the diagnostic meaning of the persistent repletion of the duodenal bulb? (5) What was the semiological value of the duodenal movement of the stomach? (6) What differentiation was there between duodenal ulcers encroaching upon the pylorus, true pyloric ulcers, and duodenal ulcers of low situation from the point of view of their action on the pyloric reflex and on the gastric chemism? (7) What were the surest radiological signs of the adhesions from the stomach and the duodenum?

**Ulcer of the Stomach and Duodenum.**—Drs. H. HARTMANN and P. LECENE of Paris presented this paper, which was read by Dr. Hartmann. They stated that duodenal ulcer was certainly more frequent than was thought some years ago; nevertheless its frequency had been exaggerated, and in France at the very least they noticed on an average one ulcer of the duodenum for eight or ten ulcers of the stomach. They thought that the clinical criterions, the symptomatology described by Moynihan and the anatomical signs (pyloric vein) were far from being above criticism. Moynihan's symptomatology was that of pyloric spasm, and the pyloric vein was very unreliable both as regarded situation and disposition. At the base of the callous ulcers of the stomach, which were situated especially on the lesser curvature, lesions of neuritis were frequently found, accounting for the persistent pains which were one of the principal elements in the symptomatology of these ulcers. The cancerous evolution on the borders of callous ulcers of the stomach did not appear to them as frequently as certain writers had upheld. They agreed with Hayem that the carcinomatous evolution on the borders of the ulcer were noticed in about one-fifth of the cases of callous ulcer. This frequency was still great enough to justify the treatment of these ulcers by resection when it was possible. The examination in a certain number of cases of fragments of the gastric wall taken at a distance from the ulcer had very often shown (twenty-five times out of thirty) the existence of lesions of gastritis, either parenchymatous, hyperplastic or mixed, both parenchymatous and interstitial. This proved that in ulcerous cases one had most often to deal with gastric tissues wholly diseased, and in this lay the great importance of postoperative medical treatment in these cases. The importance of radiography and radioscopy in the diagnosis of gastric ulcer was universally recognized. With a good technique, avoiding the causes of mistake, a great part of the radioscopy could be printed especially for the diagnosis of penetrating callous ulcers, such as Haudeck's recesses, stomachs bilocular from ulcer, ulcerous pyloric stenosis, and perigastritis. The value of the *x*-ray in the diagnosis of ulcer of the duodenum appeared to them to render less service. The surgical treatment of gastric or duodenal ulcer must not be opposed to the medical treatment; the first was only the frequently necessary complement to the second. The real results of the medical treatment, observed after a lapse of time, were far from being as good as was formerly supposed. All gastric or duodenal ulcers showing resistance to medical treatment belonged to the surgeon. Posterior gastroenterostomy with a short jejunal handle, performed on the pyloric cavern itself at its most sloping point, seemed to them to be the operation of choice in all cases of juxtapyloric ulcers of the stomach or duodenum. The objection to this operation, namely, the nonfunction of the passage if the pylorus was pervious, appeared unfounded. Experimentally and clinically it had been shown that the gastrointestinal passage functioned perfectly if care was taken to make it exactly on the pyloric cavern. The indications for the exclusion of the pylorus needed still to be more clearly shown; the simple blockage of the pylorus was generally sufficient, the absolute exclusion being limited for certain cases. In cases of pyloric callous ulcers, when a cancerous degeneracy was suspected, it was preferable to have recourse to pylorectomy when anatomically possible, closing the two edges and finishing by a gastroenterostomy. In cases of callous ulcers of the small curvature simple gastroenterotomy was often shown to be inefficacious; it was better in these cases to have recourse to excision of the ulcerous zone, either by excision limited to the ulcer of the small curvature or by segmentary resection of the stomach with suture end to end of the two gastric edges. The still fairly high mortality of these gastric resections would certainly decrease in proportion as their indication and technique became more clearly defined.

**Chronic Ulcers of the Stomach and Duodenum.**—Dr. WILLIAM J. MAYO of Rochester, Minn., gave an historical review of his subject, dividing it into three periods.

The first period from 1893 to 1900 only those cases showing marked pyloric obstruction were operated upon. During the second period from 1900 to 1906 their knowledge grew rapidly as the result of surgical observation. In the third period from 1906 to 1914 there had been a marked development and improvement in diagnosis. In considering the present status of their knowledge Dr. Mayo stated that up to December 31, 1913, 1,841 cases of acute and chronic ulcers of the stomach and duodenum had been operated on in St. Mary's Hospital. Of this number 457 were females and 1,384 were males. The early clinical view of a preponderance of females over males was thus shown to be an error. In 636 of the 1,841 cases the ulcers were situated in the stomachs and in 1,205 in the duodenum. The percentage in the last 1,000 cases accurately observed showed 73.8 per cent. duodenal and 25.2 per cent. gastric. Of the gastric 29 per cent. were females and 71 per cent. males. Of the duodenal 21 per cent. were females and 79 per cent. males. In differentiating between an ulcer in the pyloric end of the stomach and one in the first part of the duodenum the situation of the pyloric veins was the factor. The terminal three-fourths inch of the pyloric end of the stomach was not often involved in the ulcer. The more common seat of gastric ulcer was along the lesser curvature, more often in the posterior than on the anterior wall. Multiple ulcers were not frequently found at operation. Multiple ulcers of the stomach and duodenum or separate ulcers of the stomach and duodenum existed in the same case in about 5 per cent. of the cases. The character of ulcers of the duodenum differed in many respects from those of the stomach. A large number of acute, subacute and chronic ulcers were cured permanently by medical treatment, but if the cures failed to show permanency after a reasonable attempt at cure under ordinary conditions of life the patients should be treated surgically. The patient with ulcer treated medically was in far greater danger of death from hemorrhage, perforation, obstruction, or cancerous degeneration than he was from an operation. Gastrojejunostomy was the most generally useful operation for gastric ulcer and had a wide field of application. Especially was this true when the ulcer was in the vicinity of the pylorus. It might be said that the greater the obstruction within limits the more immediate and permanent the results of gastrojejunostomy. This operation changed the physiology of the stomach and brought a greater measure of relief than could be achieved without it. Posterior jejunostomy was the operation of choice, but adhesions might prevent its use in certain cases. For those ulcers which were in the body of the stomach and in which gastrojejunostomy must be made beyond the point of ulceration the results were less favorable. Local excision of the ulcer without gastrojejunostomy had in their experience failed sometimes to effect a cure and therefore, as a rule, gastrojejunostomy should be done in addition to excision. When a resection in a continuity of the stomach with end to end union had been made for chronic ulcer the results had been excellent without gastrojejunostomy. The results of their operations in duodenal ulcer were extraordinarily good, 98 per cent. of the patients being either cured or greatly relieved by the operation. In these operations they had used the Heineke-Mikulicz pyloroplasty, or what they had found still better the gastroduodenostomy of Finney. They had abandoned continuous silk sutures in gastrojejunostomy and were now using interrupted musculoperitoneal sutures of fine silk with continuous chromic catgut for the inner rows. In cases where fixation of the pyloric end of the stomach about an ulcer had continued to give rise to much pain after operation the unilateral pyloric exclusion of von Eiselberg as a secondary operation had given permanent relief.

**Etiology, Pathology, and Operative Technique of Gastric and Duodenal Ulcers.**—Dr. E. PAYR of Leipzig presented this communication, which was read by Dr. Juarez of Leipzig. He stated that there were two principal theories in regard to the etiology of these ulcers: (a) that of a gastric or duodenal vascular lesion, such as thrombosis, embolism, or sclerosis, and (b) a nervous origin by vasomotor spasm leading to a localized ischemism of the mucus. Neither of these theories was sufficient to explain every case and many points in gastroduodenal biological chemistry were still unexplained. Some mechanical causes played a part in the localization and the form of the ulcers. The bacteriotoxic lesions had also a certain part. There were two types of duodenal ulcers, according to their position on the posterior or anterior wall. The first presented a tendency to perforation and the second to hemorrhage. Between the ulcer of the duodenum and that of the stomach there existed very appreciable anatomical chemical differences. It was actually impossible to establish the frequency of the cancerous transformation of a gastric ulcer, or to establish before the operation a decided distinguishing diagnosis between callous ulcer and gastric cancer. Ulcer of the duodenum very rarely showed carcinomatous degeneration. The callous ulcer of the stomach should be resected every time that the general condition of the patient allowed it, especially when it was a question of small ulcers situated at a distance from the pylorus at the lesser curvature and on the posterior surface. In all other cases posterior gastroenterostomy constituted the operation of choice. The excision of gastric ulcers generally gave unsatisfactory results unless accompanied by gastroenterostomy. The excision or the resection of duodenal ulcers should be exceptional except in the presence of persistent hemorrhage, imminent perforation, or suspected cancer. For duodenal ulcer the best intervention consisted of a gastroenterostomy combined with a unilateral pyloric exclusion after von Eiselberg's method. If this operation was not feasible the best way was to shorten the pylorus by means of an aponeurotic band or a suspensory ligament. It was necessary to bury the band under a seroserous continuous suture. The exclusion of the pylorus might be combined with a suspension of the stomach. If a neighboring ulcer of the pylorus was resected at the same time as the latter the stomach should be sutured after the method of Billroth. For ulcers of the lesser curvature and those of the posterior surface total segmentary resection with axial suture of the stump gave the best results. For certain cases of ulcers near the pylorus, especially with the rate of acidity increased, after the resection there should be a wide implantation of the gastric stump in the first jejunal handle after the technique of Reichel. This process perhaps guarded against peptic ulcer. If the latter occurred resection was advisable. Very wide anastomosis between the stomach and the duodenum after the technique of Finney also perhaps guarded against this accident. Clinical confirmation of this relied upon a too restricted number of cases. Gastroenterostomy for simple callous ulcers necessitated a consecutive treatment of atropine and alkalines for at least a year. Gastroenterostomy gave excellent results in cicatricial stenosis of the pylorus. In active ulcers distant from the pylorus the results were less reliable. Only in from 50 to 60 per cent. of these cases was the result satisfactory. The mortality in resection of ulcers, especially by the total segmentary technique of Reidel, was 10 per cent. or less. It remained, however, higher than that of gastroenterostomy, but to this must be added the later deaths from perforation, hemorrhage, etc. The clinical results of resection were good.

Dr. A. LAMBOTTE of Brussels said that it was clearly established that pyloric exclusion constituted an important supplementary procedure to gastroenterostomy. Of all the methods devised to effect this exclusion the simplest was by ligature of the pylorus. In his work he had had recourse to this procedure for several years. It had been objected that the occlusion thus obtained did not remain, but that the ligature fell into the intestinal cavity. The ligature could be applied so that this would not happen. If the thread was drawn to the point of arresting the circulation of the blood it could not fail to produce a section of the tissues and with the aid of peristalsis there would not be much delay in expelling the ligature into the intestinal cavity. When the ligature was loosely drawn, just sufficiently to bring the mucous membranes into contact, the thread would not be drawn into the intestine. He had not had occasion to verify by sight the permanence of the occlusion thus effected, but he had been able to prove its efficiency by using it in intestinal surgery. Each time he made an enteroanastomosis he closed the excluded end by a simple ligature placed in such instances some centimeters below the artificial anus. In the latter case he had been able to verify the permanence of the closure several months later. He applied the ligature after the gastroenterostomy was completed. The ligature was drawn very slightly, as it was necessary that the thread should have some play on the tissues. Linen thread was employed and the ligature placed habitually over the sphincter, which was located by palpation. The great advantage of this method was its extreme simplicity, the entire procedure taking only a few seconds. After this method of pyloric exclusion there need be no fear of hemorrhage, and furthermore it could be used in the

weakest patients. As to peptic ulcers Dr. Lambotte believed that it was necessary to seek their origin in the operative technique that had been followed rather than in the pathological disposition of the patient. He had encountered only one case in more than six hundred operations on the stomach. He was convinced that traumatism of the mucous membrane produced by instruments or by the fingers of the operator were responsible for peptic ulcers, and this would also explain the variation in the observations of certain surgeons, some having a variable percentage of peptic ulcers and others never observing any.

Dr. Charles L. Gibson of New York cited statistics which Dr. P. R. Turnure had collected from the Hudson Street, Roosevelt, and St. Luke's hospitals during the past eighteen months. During this period there were seventy-four cases of perforating gastric and duodenal ulcer operated upon. Of these forty-seven were gastric and twenty-seven duodenal ulcers. There were sixty-six males and eight females, showing that contrary to the former belief the condition was more frequent in men than in women. The ages ranged from eighteen to sixty-two years. The average age of the fatal case was forty years. The number of days spent in the hospital averaged nineteen. There were twenty-six cases that came to operation within twelve hours after the perforation; of these sixteen were cured and ten died. There were seven cases that came to operation from twelve to twenty-four hours after perforation, and of these one was cured and six died. Three cases came to operation in from twenty-four to forty-eight hours after perforation; of these two were cured and one died. Twelve cases came to operation after forty-eight hours; of these four were cured and eight died. The complications in the order of frequency were subphrenic abscess, pneumonia, gastric hemorrhage, secondary adhesions, and empyema. Out of forty-eight cases sixteen broke down between the seventh and twelfth days. Gastroenterostomy was done in seventeen instances; of these fifteen were cured and two died.

Dr. Sonnenburg of Berlin considered the frequency with which duodenal ulcer occurred and the results of operation. They had had eighty cases in their clinic. The diagnosis of gastric or duodenal ulcer was by no means a very simple matter. In cases of recently perforated duodenal or gastric ulcer the history was rarely characteristic. In chronic cases pain was frequently absent. In ten cases of perforated duodenal ulcer there were five who gave no history of gastric disturbance whatever, and in three the gastric disturbance was noted for only a few days or a week. Moynihan called attention to the characteristic history of periodic attacks of hunger pain with intervals of apparent well-being. This had been absent in many of their cases. On the whole the history was more characteristic in the chronic cases. The pain in the right side of the abdomen near the umbilicus which had been mentioned as characteristic was frequently absent or found in other abdominal regions. Similarly there were other symptoms which had been considered characteristic of ulcer which were found in other conditions. Increasingly good results from operative treatment would accrue as operative technique improved and diagnosis became more accurate through radioscopy. After reviewing the opinions of different authorities on the value of radioscopy the speaker said that Max Cohn had stated that stiffening of the ventricle and too rapid emptying of the stomach were in no sense pathognomonic but only accompanying symptoms of gastric and duodenal ulcer, but that retention of bismuth in the duodenum was of great importance. Abnormal gas formation in the duodenum was of special import, especially gas bubbles in the first portion of the duodenum. In his personal experience the bismuth test had not been absolutely reliable. The majority of physicians in Berlin agreed that the diagnosis of duodenal ulcer remained a probable rather than an absolute diagnosis. In regard to the relative frequency of gastric and duodenal ulcer their experience was at variance with that of American surgeons. In his series of cases there were thirteen duodenal ulcers and sixty-seven gastric. The information given by Moynihan and American surgeons had helped him to make a diagnosis in many instances. A low leucocyte count was of grave diagnostic import, indicating a virulent infection. Arneth's method of blood examination was of special value as determining the reserve power of the organism in its fight against infection. Although the blood examination in these ulcers was not of as great value as in peritonitis and appendicitis, it should not be neglected. In his experience the mononuclear leucocytes fell rapidly to normal limits in the favorable cases, while in the lethal cases they remained high to the end. The leucocyte count was of value in the differential diagnosis as it was inconstant and fluctuated more in cases of ulcer than in appendicitis. Peritonitis following perforating ulcers often ran a benign course with encapsulation of the abscess. In the later course of the disease the leucocyte count indicated the treatment to be followed.

Dr. Arthur Dean Bevan of Chicago spoke of the work that Dr. Rosenow had been doing in relation to the etiology of ulcers. This work showed the selective activity of certain microorganisms or strains of microorganisms for certain anatomical localities. With certain strains of microorganisms Dr. Rosenow had produced endocardial lesions in animals; by others he had produced arthritis in the joints, and by other strains lesions in other parts of the body. In ten or twelve instances cultures from duodenal ulcers had been introduced intravenously into animals and had produced typical gastric and duodenal ulcers. This selective action of certain microorganisms was not the only factor in the production of gastric and duodenal ulcers; in addition, the lowered resisting power of the individual and the local condition due to the corrosive action of the hydrochloric acid played a part in the etiology of these ulcers. Dr. Bevan emphasized the enormous possibilities of proper medical management in gastric and duodenal ulcer, and thought that by absolute attention during every hour of the twenty-four for weeks many of the cases could be cured by medical treatment that had hitherto been referred to the surgeon. He also called attention to the importance of proper medical care after the surgical operation. The patient who received proper medical management after operation had an earlier and smoother convalescence. The unfortunate results after operation for gastrojejunal ulcer might be largely prevented by proper medical management.

Dr. John B. Murphy of Chicago said he wished to supplement Dr. Bevan's report. The points presented had long been observed from the clinical standpoint. Primary acute attacks of gastric and duodenal ulcer bore a definite relation to other conditions in the body. Dr. Rosenow had taken the *Streptococcus viridans* and cultivated it in six different media and thus had changed it rapidly in its physical conditions and relations and its results in the production of pathological lesions. From clinical observations alone it seemed evident that gastric and duodenal ulcers were practically metastatic lesions. This was illustrated by their occurrence at that season of the year when infections of the upper air passages were most frequent and they also ran the classical course of such infections. In regard to operative technique, Dr. Murphy said that after employing the round button in former years he then practised the suture method for a time but had returned to the button; not the round button formerly used but an oblong one. By using this button in making the approximation hemorrhage was an impossibility. He first placed in a running row of sutures, then inserted the oblong button, and then continued the sutures.

Dr. Howard Lilienthal of New York emphasized strongly the necessity of removing the entire ulcer-bearing portion of the stomach when it was located near the pylorus. He had been led to take this stand by his experience with three cases operated on by the Finney method in which a careful inspection at the time of the operation revealed nothing abnormal but in which a cancer developed three years after the operation. The added risk of removing the entire danger zone was less than leaving it for future operation when cancer should have developed. When the patient was in good condition the entire ulcer area could be excised at one operation but where there was an indurated mass and one could not see where it began, the best procedure was to do a gastroenterostomy with the minimum amount of manipulation. Then after about three weeks the tumor could be removed and a pylorectomy performed. This was the best method in selected cases with indurated ulcers and gave a lessened mortality.

Dr. A. G. Gerster of New York said that with gastroenterostomy and a pyloric exclusion they sometimes had recurrences, and that even in resection of the pylorus the cure was not always permanent. There seemed to be no sure way of interrupting permanently the passage of the food through the digestive canal.

Pyloric exclusion, no matter how established, did not secure against the reestablishment of communication. He cited one case in which after a posterior gastro-enterostomy fluoroscopic examination showed the food passing from the stomach into the duodenum. Repeated fluoroscopic observations had been made and there was no question as to the correctness of their observations. After operation the patients experienced relief but they were not cured as the ulcer was due to a condition that they did not understand and unless operation was reinforced by proper dietetic and hygienic measures the relief was only temporary.

Dr. Willy Meyer of New York pointed out the uncertainty of reliance on a pathological examination at the time of operation and urged the necessity of excising the entire ulcerous area. He also cited an instance in which he did a gastroenterostomy in a man of sixty years. The man was now seventy-one years of age but had had several hemorrhages at intervals during the period since operation and these might have been avoided if pyloric exclusion had been practised. The two-stage operation might be a good thing in some cases, but when every minute counted and the patient had all the signs of hemorrhage they should exclude the pylorus entirely. A modified Jianu operation and the use of Hultl's instrument which provided a firm compression of the tissues to be divided with rapid, easy, and safe placing of a double row of wire staples between which division was made might be applicable in certain operations on gastric and duodenal ulcers.

Dr. A. J. Ochsner of Chicago said that experiments on animals had shown that it was very difficult to establish gastric or duodenal ulcers unless the animal was first rendered anemic, or unless certain strains of microorganisms were introduced according to the method of Rosenow, or unless the circulation was very much interfered with. When they found in normal persons and in animals a condition in which it was so difficult to establish ulcers, this should be accepted as absolute proof that in the development of their methods of treatment provision should be made for restoration from a very severe condition. This was also confirmed by the histories of these cases. That they have habitually abused normal feeding was confirmed by the history in all of these cases. There had been long continued irritation due to hyperacidity in the peptic ulcers. Such a combination of conditions rendered the alimentary canal more or less septic. The patient had swallowed septic material perhaps from the teeth, the pharynx, or the tonsils, for years. These were some of the factors which had kept up conditions favorable for the establishment of ulcers, and they corresponded with the conditions in which it was possible to establish experimental ulcer. Consequently in the preliminary treatment they had found many cases seemingly incurable in which if alkalinity was established and maintained, and anemia and faulty feeding overcome, a cure had been effected and maintained. When the patient was in a depraved physical condition the two-stage operation was of the greatest importance.

Dr. William L. Rodman of Philadelphia said that everyone had believed for many years that gastro-enterostomy had its limitations; while patients made operative recoveries clinically they were not cured. Six or twelve months, or two years later, they would develop subphrenic abscess, hemorrhage, or cancerous degeneration, and it therefore seemed that if there was any more radical treatment, and if it could be employed without increasing the operative risk, it ought to be considered. An additional reason for this statement was found in the fact that the most experienced operators confessed their inability to differentiate between ulcer and cancer at the operating table. In the majority of instances in which a condition was pronounced ulcer it proved later to be cancer. They had been kept from removing the entire ulcerous area by an exaggerated idea of the operative mortality. Recently he had communicated with one hundred surgeons asking for statistics on this subject and about fifty had answered. Altogether 378 radical operations had been done; in 204 cases pylorectomy had been done and in 174 excision in the large part of the stomach. The mortality in all was a little more than 5 per cent. (5.4 per cent.). The mortality of the pylorectomies was about 8 per cent., and that of excisions in the large part of the stomach less than 2 per cent. He felt that if they took Dr. Lilienthal's advice and performed the two-stage operation in cases that were poor risks the mortality could be kept down to 5 per cent., because a careful analysis of the mortality tables had convinced him that many deaths were due to the bad judgment used in subjecting patients to pylorectomy when they should have had a preliminary gastro-enterostomy and then a pylorectomy later would have given satisfactory results. Ulcers did not so often become malignant in the cardiac portion of the stomach.

Dr. Mayo referred to the splendid work of Dr. Rosenow but stated that there were some things that required further experimental work. It had been shown that if they fed colon material to animals they got acute lesions. Strains of streptococci had produced acute ulcers but they had not produced chronic ulcers. Some ulcers seemed to be chronic from the beginning. They had been making some experiments to find out if obstruction was a factor in causing ulcers to become chronic. If cancer developed on an ulcer it was never in the base but always in the overhanging margin, and where the cancer was found in the base it could be assumed to have been cancerous from the beginning. If ulcers were within one to one and one-half inches from the pylorus they were essentially duodenal. If a one-stage operation could be done, it should be done; the two-stage operation was not for every case, but only for the poor risks.

Dr. Brüning of Giessen said that the symptom-complex described by Monyihan occurred in many cases of ulcer of the stomach but was absent in others. There was no way in which one could be absolutely certain as to the location of the ulcer. It was very important that the field of operation should not be subjected to much manipulation or traumatism. The von Eiselberge Ausscholtung method of operation was undoubtedly the best. It was a method that he had often used, and that had given him good results. It was his practice to cut around the entire stomach musculature down to the mucous membrane a little above the ulcer. About this was laid a fascial strip which was pulled firmly and sewed in a ring. Over this the muscular serosa was again joined. A gastroenterostomy on the anterior pylorus ended the operation. By ligating the pylorus according to the method of Wilms no food could irritate the ulcer. Furthermore all peristaltic waves were retarded. The automatic peristalsis, acting as in experiments in animals, showed itself first lower down and did not become more marked and irritation from the food was obviated. It was important to keep the stomach contents alkaline as acid increased the peristaltic action. Only small amounts of food should be given as large amounts caused an expansion of the stomach which in turn caused a response in the form of a contraction wave. In this way he endeavored to keep the entire field in the vicinity of the ulcer at rest.

*Wednesday, April 15—Third Day.*

Dr. Hartmann in the Chair.

The day was devoted to papers and discussion on grafts and transplantations.

**Grafts in Plastic Surgery.**—Dr. H. Morestin of Paris read this paper. He stated that grafts and transplantations had enabled them to remedy many grave deformities, had led to restorations that had hitherto seemed impossible, and held out hope for a future of marvelous progress. In proof of this the author reviewed the actual treatment of the principal injuries and deformities for which plastic operations were employed and noted the changes that had been made in the results by cutaneous, cartilaginous, and fatty grafts. Free cutaneous grafting succeeded fairly well when a small fragment taken from a soft thin skin and deprived of its pannicule was applied on a strictly aseptic living surface. These indications remained very limited, especially in reparatory surgery of the face on account of the trophic disturbances of the graft and the yellowish or whitish coloration which the graft preserved indefinitely. The Italian method was applicable in cases in which it was absolutely impossible to find at hand the materials for a restoration which allowed the use of all the thickness of the skin and not only of its superficial layers. However, it must remain an exceptional method even for rhinoplasty and blepharoplasty. Its triumph was in the reconstruction of the lobule and the partition of the nose by the help of the skin from the palmar surface of the hand. Dermo-epidermic grafting had innumerable indications in the treatment of superficial wounds, and especially of those which by their extent prevented true methods of autoplasty, as great loss of substance following burns, traumatism, removal of tumors, etc. They alone

enabled the healing of wounds caused by the tearing and complete destruction of the scalp. They were particularly recommended after the excrescences of cancers of the skin in old people. In the surgery of lupus they constituted a last resource, and they promised but mediocre results in the cure of deformities by scar. Dermo-epidermic grafting combined with other methods of autoplasty might be advantageous. The grafting of hairy parts was attainable either by free transplantation or by means of a fragment, this last method being much more preferable, and the only one to be recommended for an important grafting. By this means the eyebrow, and even the moustache, might be restored. The transplantation of cartilage constituted one of the most remarkable innovations in reparatory surgery. By its means the problem of total rhinoplasty had been solved. The difficulty of establishing a framework had been solved. Cartilage constituted a trustworthy material. It was constantly adopted provided it was entirely included. It showed great power of absorption, preserved its life during an indefinite period, and was the only one of its kind among transplanted tissues. This stability rendered it valuable for the construction of the nasal framework. Doubtless other restorations would be benefited by cartilaginous grafting in serious destruction of the facial structure. In incorporating fragments of catilage with cutaneous pieces, gaps in the jaw and in the soft parts surrounding could be filled up. Adipose graftings were excellent for filling up empty spaces, bony hollows, depressions of soft parts, and therefore rendered great service in the repair of cranial gaps and facial deformities. Fatty tissue with few blood vessels and almost inert was one of those most easily transplanted from one place to another. The transplant was almost always made use of, not that it continued to live, for after a more or less short struggle it succumbed, but it was replaced progressively by tissues of new formation to which it served as a protection. The power of procuring fat, and the great ease with which it could be used in all deformities caused by depression, the beauty of the results obtained by operations destitute of all gravity, made this form of grafting a very valuable acquisition to esthetic and reparatory surgery.

Vascular Grafts.—Dr. E. VILLARD of Lyon stated that there were two kinds of vascular graftings, extemporaneous grafting and the grafting of preserved vessels. A grafting was autoplastic, homoplastic, or heteroplastic according as it was taken from the subject under treatment himself, from a subject of the same sort, or from a subject of a different sort. The result of a graft was to be appreciated from both the macroscopic and the microscopic point of view. It was possible to have an excellent functional result allowing nothing to be seen from the anatomical side of the graft and yet the microscope might reveal profound lesions on a segment macroscopically healthy. From the point of view of the technique to be followed Carrel's process gave the maximum of guarantees. Arteries transplanted on the same animal healed without modification, the segment grafted acquiring new life in its new surroundings with the histological structure which characterized it. Arterial homoplastic grafts gave good results macroscopically, but the histological lesions remarked after the lapse of some time placed reservations on the vitality of the vascular graft transplanted from one animal to another of the same sort. Arterial heteroplastic grafts were possible, but it appeared that the graft served only as a protection to a process of reparation on the part of the animal undergoing the grafting. Venous grafts were possible but more difficult to realize with success than arterial graftings. The grafted venous segment became hypertrophied, and underwent histological changes which seemed a step toward the arterial structure. The best process of preserving vessels for grafting was in a physiological and aseptic environment maintained at a temperature of zero Centigrade. Some vascular fragments thus preserved might be grafted with success, but only their elastic frame was grafted which was susceptible of being absorbed by the cellular elements rising from the grafted subject. Vascular grafting might be applied to human surgery in the course of vascular traumatism, in the extirpation of a tumor adherent to the large vessels, and in the cure of aneurysms. If the indications existed to perform a vascular grafting in a man, one would have recourse by preference to an autoplastic grafting, more particularly to a venous grafting, the organism more easily supplying a venous than an arterial graft.

Grafts and Transplantations.—Dr. ULMANN of Vienna presented this paper which he summarized by saying that the hopes raised fifteen years ago on the future of transplantation of tissue and organs had only been partially realized. Heteroplasty seemed to meet with anaphylaxis as its principal obstacle, whilst homoplasty encountered the biochemical properties of the individual. Autoplastic transplantations alone gave good results, while heteroplastic transplantations with the exception of bony tissue always gave bad results. Besides the bone itself did not remain but was replaced by the bony tissue of the grafted material. The results of homoplastic transplantations were variable; given an identical quantity of sanguinous serum from the cellular protoplasm of two subjects in the same condition, homoplasty might probably give as satisfactory results as autoplasty. Further research was needed on this subject.

Grafts and Transplantations.—Dr. E. LEXER of Jèna presented this paper and gave a lantern slide demonstration of preparations from his clinic. He declared that the various tissues employed in grafting were differently appreciated by practitioners and by pathologists. An excellent clinical result might be preserved not only if the graft took, preserving its entire structure but also if it disappeared, giving place to tissues of substitution, and sometimes if completely surrounded by adhesions. The graft might be expelled in cases of failure, by a violent reaction, or disappear in a slowly progressive suppuration, or it might disappear before the process of substitution had taken place, or the substitution might confine itself to the formation of scar tissue. The cause of failure apart from suppuration rested principally in the existence of small blood clots which prevented the transplanted part from becoming normally established. Some of the conditions necessary for a good implantation were vitality, nutrition, powers of acclimatization, and the strength of the transplant for sufficient regeneration, as well as the condition of the wound on which the transplant was made. From a technical point of view scrupulous asepsis, a watch against hemorrhage, a careful manipulation of the grafts, and the absence of lines of suture on their surface must be exacted. The speaker considered epidermic and cutaneous transplantations and pointed out as new the simple transplantation of the skin without epidermis. The value of epidermic and cutaneous homoplasty was very slight and its results doubtful; most frequently it was a question probably of cicatricial substitution or subcrustaceous healing. The speaker also considered the clinical results of the transplantation of mucous membranes, muscular, nerve, and vascular tissues, tendons, aponeurosis periosteum, bone, cartilage, and joints.

Transplantations of Organs.—Dr. ALEXIS CARREL of New York read this communication. He stated that it had been definitely established during the last few years that autoplastic transplantations of organs were practically always successful, that homoplastic transplantations were nearly always ultimately unsuccessful, and that heteroplastic transplantations were always unsuccessful. Autoplastic transplantations of the kidney had been performed with complete success in dogs. It was found that in most instances the animal remained in excellent health. A female dog that underwent a double nephrectomy and the reimplantation of one kidney remained in perfect health, had a number of pups and died of an intercurrent disease almost two and one-half years after the operation. Miscroscopical examination of the kidney showed that it was entirely normal. By this and similar experiments it was definitely proved that the extirpation of the kidney, its perfusion with Lock's solution, the complete interruption of its circulation, for fifty or sixty minutes and the suture of its vessels and ureter did not interfere with its function. In homoplastic transplantations of the kidney the results were different. After six or seven days albumin appeared in the urine and the kidney became congested. After twenty-five or thirty days there was a great deal of albumin and even hematuria in one case. After seven or eight months the albumin disappeared but the kidneys were found to be in a sclerotic condition. When the animals underwent a bilateral instead of a unilateral nephrectomy they always died within a few weeks. It was probable that by using animals closely related, such as mother and son, better results could be obtained. The present aspect of the problem was to find out the causes of the reaction of an organism against a new organ and to discover by what means this reaction

could be prevented and the organ become adapted to its new owner. Some of their experiments indicated that general infection in animals seemed to prevent the reaction of the organism against the new organ, and it was thought that the factors which were instrumental in the reaction of the organism against foreign tissues were the same as those used to fight a general infection, and that when this mechanism was engaged in fighting a general infection the transplanted organs were able to become adapted to the new organism. A very important study of this question had recently been made by Dr. James B. Murphy of the Rockefeller Institute. Dr. Carrel outlined these experiments which had seemed to make it probable that it was the action of the spleen and of the bone marrow which allowed the organism to fight efficiently the foreign tissue which had been transplanted on to it, and that when the action of these organs was less active a foreign tissue could develop rapidly after it had been grafted. It was not possible as yet to foresee whether or not these experiments would lead to the practical solution of the problem presented by homoplastic transplantations. The surgical side of the transplantation of organs was now completed, as they were now able to perform transplantations of organs with perfect ease and with excellent results from an anatomical standpoint. But as yet these methods could not be applied to human surgery, for the reason that homoplastic transplantations were almost always unsuccessful from the standpoint of the functioning of the organs. All their efforts must be directed towards the biological methods which would prevent the reaction of the organism against foreign tissue and allow of the adtptation of homoplastic grafts to their host.

Dr. John B. Murphy was particularly interested in Dr. Lexer's paper and especially with that part which concerned the reconstruction of joints. For the restoration of a joint it was necessary that there should not only be non-union, but a sliding joint and functional restoration. In the reconstruction of the knee and hip it was necessary in addition that the joint should be able to support pressure. These requirements were met by reconstructing the bones on their original conformation by the means of transplants and by the interposition of fascia covered with fat. He had succeeded in reconstructing an ankylosed knee by the detached fat fascia but he had not used it in the hip.

Dr. Depage communicated the results of some experiments made by his assistant, Dr. Danis, on the restoration of the biliary canal in dogs by means of a segment of the jugular vein. In the first series of experiments M. Danis sought to restore the wall of the gallbladder by the application and suture of a graft taken from the wall of the jugular vein. In a second series of experiments he had substituted a segment of the jugular vein for a portion resected from the choledochus. The restoration of the vesical wall by the application of the venous graft succeeded in most instances and the operation was relatively easy, the cicatrization being operative in assuring the vitality of the graft. From the histological point of view the external surface of the transplanted vein recovered a new endothelium. On the internal surface the mucous membrane developed little by little on the graft and finally entirely covered it again. The substitution of a segment of vein for a portion of the hepatic duct was more difficult to effect. After making a number of unsuccessful attempts Dr. Danis succeeded in establishing communication between the hepatic canal and the ampoule of Vater by the interposition of a segment of the jugular vein. The anatomicopathological examination of specimens several months after the operation proved the vitality of the venous grafts and their perfect transformation into a biliary canal. Evidently one could not conclude absolutely that the results obtained in dogs would be identical in human beings, but it seemed without dubt that these attempts could be extended in a sense to the surgical point of view.

**Treatment of Scars.**—Dr. Leonard Freeman of Denver related his experience in dealing with reddened and hypertrophied scars which were especially disfiguring when they occurred about the neck. It had occurred to him that these scars were frequently aggravated by the tension exerted on them and as one could not permanently eliminate them by excision, he had, after excising the scar, introduced a strip of fascia lata from the thigh, fastening it with catgut sutures. When the patient turned the head to the opposite side the strip of fascia lata did away with the tension and when the head was in the normal position the scar became a mere line.

Dr. Porter of Boston said he had had an unusually large experience in dealing with $x$-ray burns, especially among $x$-ray workers, and that transplantations in these cases offered many difficulties. He had found the following method especially suitable to that senile condition of the skin, due to exposure to the $x$-ray, which preceded more serious degeneration. Under gas oxygen he excised the graft area and applied a fine mesh cheesecloth with pressure. This he left in place for two or three days. He then removed the gauze and irrigated the part with normal salt solution and the bleeding stopped in a few minutes. He then cut the graft and allowed the patient to come out of the anesthetic. The graft did best if it did not overlap. When the graft was in place he again applied pressure for twenty-four hours and then dressed the part witb benzoate of lard and some antiseptic. He did not advise this method in the precancerous stage.

**Arterial Anastomosis.**—Dr. Alexis Carrel said he did not think that Dr. Villard had given an accurate idea of the results in the suture of arteries and veins. Venous anastomosis was comparatively easier than arterial anastomosis, especially when the vessels were not of equal caliber. As to the condition of vessels in cold storage, Dr. Villard believed that they lost their vitality and acted only as a scaffold for new vessels. On the contrary, with proper technique the vitality of the vessels could be retained in cold storage. The period of storage could even be of long duration under proper conditions. They now had for the first time a laboratory for the storage of human tissue for grafting purposes under the charge of Dr. Markoe. There the tissues were stored under proper conditions and the storage could be prolonged.

**Nerve Transplantation.**—Dr. K. A. Mackenzie of Portland, Ore., said there had not been much reference made to the value of nerve transplantation. He had had an unusual opportunity five or six years ago to test the value of neuroplasty when there was a large defect in the peripheral nerves. He had a patient who had von Rechlinghausen's disease and developed a tumor on the sciatic nerve as a metastasis. A resection of the nerve below the gluteus maximus resulted in pronounced trophic disturbance of the extremity. Something had to be done so he made an anastomosis between the internal and external popliteal nerves which had a striking effect on the trophic disturbance, changing the whose aspect of the limb. He later split the external portion of the popliteal nerve and buried it in the muscle. After three or four months there was some sensation and after eighteen months the man could walk with unaided locomotion. He thought attention should be called to the value of an operation of this kind.

## NEW YORK ACADEMY OF MEDICINE.

*Stated Meeting, Held March* 19, 1914.

The Second Vice-President, Dr. L. Emmett Holt, in the Chair.

This meeting was held under the auspices of the Committee of Public Health, Hospitals, and the Budget.

**The Nutritive Significance of Different Types of Foodstuffs.**—Professor Lafayette B. Mendel of Yale University presented this communication. (See page 737.)

**Nutrition from the Energy Standpoint.**—Dr. Graham Lusk read this paper. (See page 740.)

**The Changes in Food Caused by Canning.**—Dr. W. D. Bigelow of the National Canners' Association, formerly of Bureau of Chemistry, U. S. Dept. of Agriculture, said that the modern method of manufacturing did away with spoiled foods and told of the changes in composition caused by canning. A canned food was a cooked food, and was preserved in nearly as fresh a state as when cooked as was possible. Manufacturers of food or other commodity were usually well satisfied with their wares; if you attempted to criticize a manufacturer you received scant courtesy. Because of constructive work he had come much in contact with the canning industry. He called attention to certain fundamental principles in canning which must be followed, if they were varied even to the slightest extent difficulty would result. The cooking or sterilizing would kill the yeast and the majority of the ordinary bacteria, but there were certain

forms that were not killed. Under some circumstances the enzymes still remained as was shown by three or four illustrations. The food should be gathered at the right degree of maturity and taken to the cannery which should be sanitary. The whole operation should be sanitary. The can should be well filled and heated before capped and all should be sterilized before being cooled. The can was heated to expell the air before canning. The ends of the cans sometimes swelled for other causes than decomposition. The contents of the can bulged but did so without the presence of decomposition. As cold weather came on the ends of the can became concave and showed no decomposition. There was a certain action on the metal by the fruit and as a rule hydrogen was generated. The canners had studied this problem very carefully and had learned the reasons for this swelling and there were at least a dozen. However, the can with the "swelled head" was always open to suspicion.

Dr. MARSHALL CARLETON PEASE said that he regretted very much the absence of Dr. May E. Pennington, Chief of Food Research Division, Bureau of Chemistry, U. S. Department of Agriculture, Washington, D. C., who was now in Texas, because she could have given them an interesting paper on the effect of refrigeration and cold storage on food. He said that next to heat refrigeration or so-called cold storage was the best preservative of foodstuffs. In the preservation of food by refrigeration there were applied the same principles which were employed in the preservation of food by canning. Before refrigeration the food must be normal, must be sound. Dr. Pease referred to two general types in the refrigeration of foods. First, the one that was old and of long usage, the application of low temperatures by means of ice or ice and salt; second, the more recent type, the artificial temperature which could be obtained by mechanical refrigerating processes. Such temperatures brought the food to the criohydric or dessication point and foods could be kept at this point for a considerable length of time, even for years, and come out practically in the same condition as they went in. If one could correlate the temperature, the length of time and the character of the food at the time of storage, one might predict how long food could be kept in a sound condition. Dr. Pease said that his interest was more in a series of fish, especially flukes and flounders, and in the bacteriological examination of the same. This work he had done was with the aid of Prof. Geist. The latter found no change whatever that could be determined by chemical or physical examinations of the fish that had been in cold storage five, nine, or sixteen months. There were practically the same number of bacteria present in the fish at different times during these periods. He thought it better that housewives should obtain their fish in the frozen state and allow them to thaw after purchasing.

Professor SHERMAN of Teachers' College agreed thoroughly with what Dr. Lusk had said regarding the desirability of placing on the label of every package, can, glass, or jar, containing food a statement as follows: "This contains 'x' thousand calories of which 'y' per cent. are proteins of grade A, B, C or D." He spoke of the results of laboratory experiments to determine the amount of the different food elements necessary for proper nutrition of the amounts of the different elements in different proprietary foods, and the results of their administration. There was no greater danger in a deficiency of nitrogen and sulphur than there was in a deficiency of phosphorus, calcium, or iron. Statements made regarding this point had been misleading. The speaker emphasized the importance not only of having the proper constituents in our food but of having them in the proper proportion.

Dr. HAVEN EMERSON spoke of the educational methods, carrying the information which the laboratory workers had gathered to those who greatly needed it. The most important function in the country at large was the understanding of the value of foods, the value of food based on its caloric good. He hoped the speakers of the evening would prepare leaflets telling of certain foods; these should be for publication and would save many from the effects of their ignorance.

**To Abolish the Office of Coroner.**—The Council recommended to the Academy for favorable action, Assembly Bill, introductory No. 905—"An Act to Amend the Greater New York Charter, to create the office of Chief Medical Examiner, and abolish the office of Coroner."

## Miscellany.

**Suggestions for Medical Bookkeeping.**—Sir John Collie believes that every one who has any private income, however small, should keep two banking accounts at the same bank. The first, No. 1, is his ordinary current account, into which he should pay all the money he receives, whether he has been paid in cash or checks. It is an excellent rule never to spend a penny which has not come to one through his banking account. The physician should never get checks which have been paid to him cashed by the local tradesman. He should never pay his chauffeur with his midwifery fees. Every single item received from the physician's practice from one year's end to another should go through his banking account No. 1. If the physician has been tempted to use a five dollar bill which someone has paid him unexpectedly on a round, or if he has bought stamps with the money which some patient left at the office, then he should draw a check for the amount, cash it, and pay the money into his bank. Thus, and thus only, can he make his banker his bookkeeper.

If the physician should die suddenly or wish to sell his practice, then, and then only, whether his other business books are kept well or not, the lawyer or the medical agency, or the purchaser who wades through his effects, will rejoice to find one method of knowing the gross receipts and getting some idea of the real intrinsic value of the business, and will from the physician's bank book alone tell the total cash receipts from the practice upon which to found the purchase price.

At the end of every year the books should be balanced and if the doctor cannot balance them himself, or has not the time, the comparatively small sum which a professional accountant will charge, say five or ten dollars, will be well repaid. If the physician is to keep the end ever in view before him, he must know definitely in black and white if his car, garden, or domestic expenses are increasing. If they are, then he will at least stop and think why this is so and whether he is getting the *quid pro quo*, whether indeed he can afford it, and above all, whether this increase in expenditure is preventing provision for a rainy day. In short, proper bookkeeping teaches one to live within one's means. It has also incidentally the advantage of helping one to render a proper return to the Income Tax Commissioners. The physician's annual balance will of necessity show the charges properly made against his business. He will thus protect himself against over-assessment by the Income Tax Commissioners. Surveyors of taxes are very apt to form extravagant opinions of professional men's incomes, and assess accordingly. It is very difficult to upset such assessment without proper books of account.

The author assumes that the doctor under consideration is a successful man, but it is equally, if not more, important for the struggling practitioner, who, do what he can, is unable to make both ends meet, that he should be in a position to know positively and without any chance for self-deception whether it is worth his while to struggle on in the endeavor to make success of a failure that is absolutely certain to come sooner or later.—*British Medical Journal.*

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## Original Articles.

### THE DEVELOPMENT OF COMPLEMENT-FIXATION TESTS *

By CHARLES CLYDE SUTTER, M.D.,

ROCHESTER, N. Y.

For complete understanding of the principles of the Wassermann, and allied reactions, it is necessary to know what is meant by deviation of the complement. We must also have a general knowledge of antibodies and their relation to immunity, agglutination, precipitation, cytolysis, bacteriolysis and other phenomena.

Very early in the history of bacteriology the bactericidal properties of the blood attracted attention. In the presence of infection certain reaction products are developed in the infected individual. These reaction products may also be produced by the injection of bacteria into the body of an individual. The presence of these substances determines the defense or reaction of the individual. This immunizing process may be due to the action of the cells or of the fluids, or of both. If the process affects the cells we describe the result, cellular-immunity; if it affects the fluids, humoral-immunity. The substances formed in humoral-immunity may be divided into: (1) agglutinins, (2) precipitins, (3) complement-binding substances and (4) opsonins. This paper will only discuss the humoral-immunity as it directly leads to an understanding of the complement-fixation tests.

These reaction bodies due to the presence of infection or by the parenteral introduction of bacteria, cells and other substances have been called by Ehrlich, antibodies. Some of them are protective to the individual; others have but little apparent protective influence; and still others sensitize the subject.

The current explanation of the formation and mode of action of these antibodies is that given by Ehrlich and is known as the lateral-chain or side-chain theory. His theory, although purely empirical, has proved so adaptable that it has been greatly amplified and extended to other related problems. Its remarkable usefulness in this field places it among the great theories of science. His theory accounts for the development of antibodies by supposing that the receptors which combine with the specific antigens are, under certain circumstances, provided in excess and are cast off into the surrounding fluid. These free antibodies have the power of combining with antigen.

Antibodies then are the reaction substances which are formed in the body as the result of the presence of certain substances. They may be produced by the injection of antigen, i.e., bacteria, various microbic derivatives, red corpuscles, and other cells, as well as serum. Antibodies include antitoxins, antiferments, agglutinins, precipitins, and amboceptors or immune-bodies, opsonins, and other substances. Specific antibodies, produced by the parenteral introduction of foreign cells, bacteria or their derivatives, are called antibodies of amboceptor type or amboceptor. They are of the nature of the bacteriolysins and require the help of alexin or complement to complete the solvent action on these substances. "Amboceptor" means that this element possesses an affinity both for corpuscles and for complement. The term "complement" is so named because it completes the action of the amboceptor. R. Pfeiffer was the first to show that when cholera germs are placed in the peritoneal cavity of a guinea-pig immunized to cholera, or into that of a normal animal, if immune serum be also injected, there was globular transformation, loss of staining reaction, and finally complete disappearance of the cholera vibrios. This is the so-called *Pfeiffer's phenomenon*. Here was produced in the body of the guinea-pig a substance—antibody—which reacted specifically to its antigen—cholera vibrios—with the result of the destruction of the antigen. Before long similar observations were made with respect to typhoid fever, pest, and other bacteria, under similar conditions, which resulted in bacteriolysis in general.

Bordet showed that the laws which govern bacteriolysis by means of immune sera were apparently identical with those governing Pfeiffer's phenomenon. He also showed that the essential facts could be reproduced exactly if red corpuscles were substituted for bacteria. He showed that guinea-pig serum has normally no action on the red corpuscles of the rabbit, but it becomes hemolytic to the latter after a few injections of rabbit's blood, just as an animal which was formerly destitute of that power became able to dissolve the cholera vibrios (in Pfeiffer's phenomenon) after a few injections of that organism. This discovery of acquired hemolytic powers, arising from the injection of foreign red corpuscles, proved the starting-point of a most interesting series of researches, for it was soon shown that the phenomenon was not an isolated one, but that it might be produced when almost any animal cell took the place of the red corpuscles. Collectively we now term all these antibodies of amboceptor type which are specifically directed against animal or vegetable cells, cytolysins or cytotoxins, and we designate the individual members of this order according to the cell against which their action is directed (according to the type of the corresponding antigen) and thus distinguish between erythrocytolysin (hemolysin), leucocytolysin (leucolysin), neurolysin, nephrolysin, etc. The bacteriolysin would thus merely represent a species of cytolysin.

*Read in the Symposium on the Wassermann Reaction at the meeting of the Rochester Academy of Medicine, December 10, 1913.

The discovery of a third substance, alexin or complement, by Buchner, Nuttall and others occurred as a result of the controversy between Metchnikoff and the humoralistic school, in the interpretation of many phenomena concerned in im-

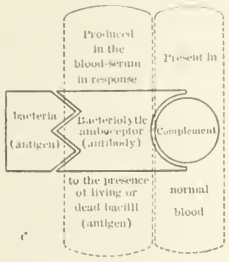


Fig. 1.—Bacteriolysis system; result, bacteriolysis.

munity. The result of this controversy proved that the circulating blood had the power of killing certain bacteria and that this property was even more marked in the serum. By injecting an antigen consisting of bacteria, cells, etc., there is produced in the blood serum of that animal, antibodies which cause their antigens, for which they are specific, to collect into clumps or masses. These antibodies are called agglutinins and the process agglutination. This effect is best seen after the addition of the serum of a convalescent typhoid fever patient (or of an animal which has been injected with typhoid bacilli) to a living culture of the organism. The bacilli soon lose their motility and gradually move nearer and nearer to one another, until they come into close contact. This process is well known as the Widal reaction and attained its greatest importance in the diagnosis of infections caused by typhoid, paratyphoid and colon bacilli. This same effect can be seen with the naked eye when emulsions are made with the serum and bacilli. In a few minutes this turbid fluid becomes clear and all the organisms will be found to have collected into a single mass or a few masses at the bottom of the test-tube. Microscopic examination will show that these organisms do not lie horizontally side by side, as one might expect in ordinary sedimentation, but point indifferently in all directions as if forcibly drawn together. Agglutination will occur almost equally as well when dead bacilli are used instead of living ones. The clinical diagnosis of cholera by means of cultures from the stools is carried out in the same way.

Now, if red corpuscles be used instead of the bacteria they will also clump at the bottom of the test-tube, the fluid portion of the tube becoming clear. An examination of the masses will show that (as in the case of the typhoid agglutination) the cells do not lie in the ordinary rouleux of shed blood, but lie without any trace of definite arrangement. Sometimes when the reaction is strong the cells actually fuse into a solid mass.

A phenomenon closely allied to the phenomenon of agglutination is that of precipitation. In exactly the same way as in agglutination proteids in solution, when injected into suitable animals, bring about the formation of another class of antibodies, which possess the power of clumping the molecules of the proteid in the solution similar to that proteid which was injected. After the addition of the clear anti-serum to the clear proteid solution, the mixture becomes opalescent, and then opaque, and after a time a precipitate is cast down. Hence these substances are called precipitins (a specific type of antibody). The substances with which they form a precipitate, and which call them into existence, when injected into a suitable animal, are the antigen. Bacterio-precipitins may be prepared by the injection of cultures of the bacteria, or the filtrates from old cultures. It is evident that they are antibodies to the substance in solution.

By injecting an antigen consisting of bacteria into the body of an animal, there also develops in the blood serum of that animal a bacteriolytic antibody of the amboceptor type. This amboceptor, in the presence of complement, has the power of destroying the bacteria used as antigen. As an illustration we may use as antigen a culture of *B. typhosus;* the serum of a convalescent typhoid fever patient (or of an animal which has been previously injected with *B. typhosus*), in which has been formed a bacteriolytic amboceptor; and for complement fresh guinea-pig serum. If these three substances are mixed in a test-tube at a proper temperature they will unite, and the bacilli will be dissolved. The combination of all three substances is necessary and together constitutes the "bacteriolysis system." This system is identical with the "hemolysis system" except that in the latter system there is present an indicator (hemoglobin) which shows by color changes whether or not the corpuscles are dissolved. The following diagram represents in an elemental way the combination of the three substances in the "bacteriolysis system."

Hemolysis means the ability of the serum of one species of animal to dissolve the blood corpuscles of another species. This power can be greatly increased by injecting several times the corpuscles of a sheep into a rabbit. As a result of introducing the sheep's corpuscles (antigen) there forms in the rabbit's blood a hemolytic amboceptor (antibody). To complete the action of amboceptor a third substances is needed and this is present in all normal fresh blood-sera. Occasionally a serum is found that contains amboceptors for a certain kind of cell, but not any suitable complement. The complement necessary to complete the action of the amboceptor may then be found in some other animal. If the fresh serum of a rabbit thus immunized against sheep is placed in a test-tube and sheep's corpuscles added, the amboceptor which has

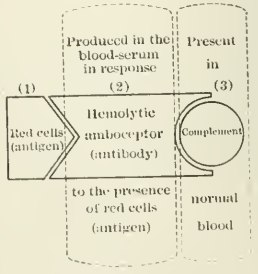


Fig. 2.—Hemolysis system; result, hemolysis.

formed in the rabbit's blood unites with the complement already present and with sheep's corpuscles, dissolving the latter. Hemolysis is indicated by the change from an opaque or cloudy, to a clear or transparent red color. All three sub-

stances—a hemolytic system—(1) corpuscles, (2) hemolytic amboceptor, and (3) complement must be present or hemolysis does not occur. A similar diagram may be used to represent this system.

A practical application of hemolysis has been its use in the medicolegal identification of blood-stain. As the legal question at issue is usually whether or not a certain blood-stain is of human origin, it is ordinarily only necessary to examine the material in question in reference to its behavior toward an antihuman serum. If, on the other hand, the antihuman investigation has shown that the material was not of human origin and it is desired to ascertain from what animal species the blood was derived, corresponding sera must, of course, also be available.

Lytic sera owe their power to the conjoint action of complement and amboceptor. Under certain circumstances when amboceptors are present in excess the complementophile groups of the amboceptors may unite with the complement to such an extent that lysis is markedly diminished, if not suspended entirely, because of lack of complement for the amboceptors that have become attached to the cells. The disappearance of free complement in a mixture of antigen and antibody (Bordet-Gengou phenomenon) is often spoken of as "fixation of complement." It was at first thought that the amboceptor modifies in some way the cells, so that they are rendered susceptible to the action of the complement, which was thought not to unite with the amboceptor. This does not harmonize with the later discoveries that complement could be deviated. The discovery that complement could be bound led to the use of an excess of amboceptor and to the combination of this system with the hemolytic system. If in the first system the complement has been bound, then there is no complement present to complete the action of the hemolytic amboceptor and hemolysis cannot occur. This indirect way of determining the presence of antibody or antigen has been applied to infectious diseases, cancer and especially to syphilis. It has found its widest field of practical application in the diagnosis of syphilis, in the form of the Wassermann reaction, but there is reason for thinking that this same principle of complement-fixation may reach an equal degree of usefulness in the diagnosis of latent gonococcus infection. At present excellent results have been reported from different sources. This discovery, then, of complement-fixation has opened up a great field for investigation into the presence of antibodies in the body fluids by this method. Researches with regard to the opsonic and bacteriolytic action of the serum of syphilitics have been rendered very difficult because of the great difficulty in obtaining pure cultures of the *Treponema pallidum*. This fact has led Wassermann and others to study the serum of syphilitics in this indirect way by means of the deviation of complement.

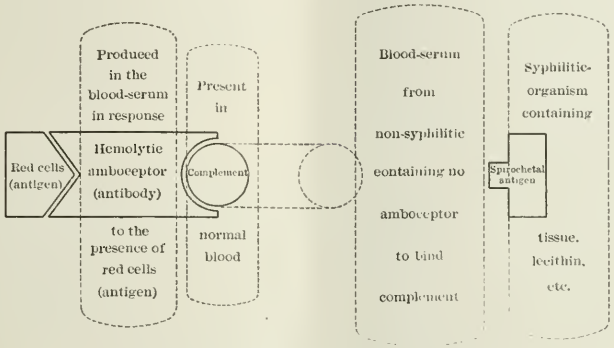


FIG. 3.—Hemolysis: negative Wassermann reaction.

When reaction products of amboceptor character are brought together with their corresponding antigens in the presence of complement, an interaction takes place between the first two mentioned bodies, in consequence of which complement is bound. Wassermann had this idea in mind when first he applied the complement-fixation to the study of syphilitic patients. His idea was that antibodies of amboceptor character might be present in the blood-serum of such individuals, in which case it should be possible to demonstrate them to-

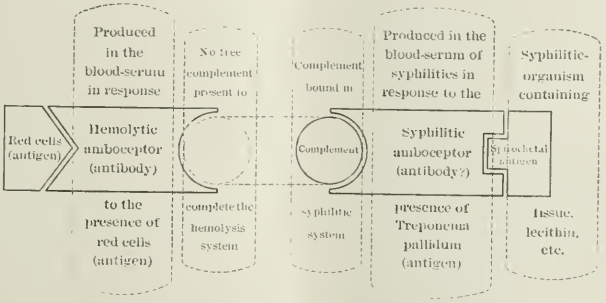


FIG. 4.—No hemolysis; positive Wassermann reaction.

gether with spirochetal antigen on the one hand and complement on the other. The complement would be bound to a greater or less extent as the result of the interaction between the other two factors. Then, by adding washed red corpuscles and a corresponding hemolytic amboceptor, hemolysis would, either not occur at all, or do so only to a limited extent, according to the degree to which the available quantity of complement had been bound. The exact outcome of this reaction depends, of course, upon the quantitative conditions.

Since the cultivation of the syphilitic spirochete had at that time not been accomplished, Wassermann was obliged to make use of extracts of organs which were rich in the organisms in question. Later work showed that a lipoid (fat-resembling) substance, lecithin, was able to combine with the syphilitic antibodies, and is now used instead of an extract of syphilitic organism-containing tissue. The most recent investigations appear to prove that the Wassermann reaction is not necessarily a true antigen-antibody reaction, according to the ordinary Bordet-Gengou phenomenon, but may be produced by certain lipotrophic substances formed in the tissues of syphilitics during the progress of the disease. The exact method is still unknown, we know merely this: that complement in the presence of syphilitic antigen may be rendered inactive by one or more substances in the body fluids of a syphilitic or parasyphilitic patient. Numerous modifications of the Wassermann method have been proposed, but the original method still remains the most reliable.

The Wassermann reaction is now generally accepted as the most valuable aid we have in the diagnosis of syphilis and in the control of treatment. It must rank as one of the most important discoveries in the history of medicine, and in its absence the triumphs of Ehrlich's salvarsan could never have been achieved. Its employment forms the basis of the modern treatment of syphilis, and serves as the most delicate indicator of the resultant changes which lead to the recovery of the patient, besides being the most delicate method that we possess for the diagnosis of latent syphilitic lesions.

Since its introduction no biological test has been so universally abused as the Wassermann, especially when the laboratory worker failed to confirm the clinician's diagnosis. This is more manifest since we know that the reaction is lipoidal in nature, and not a true antibody test. More especially since the advent of salvarsan, as a positive reaction may change to a negative and reverse in a relatively short time. Positive results have been reported from time to time in diseases other than syphilis but with improved technic the number is growing smaller.

The Wassermann reaction is dependent for its results on the skill and knowledge of the serologist. The results of the test depend, in a great measure, on the absolutely perfect standardization of the reagents used; these are subject to variations in the hands of different serologists. As a result of these differences, diversity in results is not infrequent. The test should be made only in properly equipped laboratories by those who have received special instruction and who devote a large part of their time to this work. Under such conditions results will be satisfactory, but the interpretation of the test must always remain with the clinician. The laboratory report deals only with the result of the test—that there was complement-fixation with the serum used in the test—and it should rest with the clinician to correlate this result with the clinical condition present.

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## THE INTENSIVE TREATMENT OF SYPHILIS OF THE NERVOUS SYSTEM BY NEO-SALVARSAN, INTRAVENOUSLY, AND MERCURY BY INUNCTION.*

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The therapy of salvarsan and neosalvarsan may yet be said to be in an experimental stage, and in no branch of medicine is this statement truer than syphilis of the nervous system. Much has been written relative to the efficacy of the two preparations, but as yet the workers do not agree as to which preparation or method of administration yields the best results.

Good results may be said to have accrued from all the various methods, etc., but as yet none of us can claim the goal we seek—that of ultimate results. We can only live in expectancy, basing our optimism upon the concomitant, clinical, and serological results following the individual methods adopted. Of these results but one can be considered a criterion, viz., serology, and the one factor in this which we must primarily combat is the manifestation of living *Treponema pallidum*, represented, serologically, by the positive Wassermann reaction. Pleocytosis, *per se*, is but the exudative manifestation of the active Treponema. The living Treponema remaining, in dormant or active state, must be eliminated; otherwise, though the pleocytosis be overcome and our patient clinically well, the presence of the living Treponema, represented by the positive Wassermann reaction, keeps our patient in imminent danger—active manifestations of which may come upon him as the thief in the night. It is because of the gratifying results following the intensive method of treatment, as adopted on the Second Division of the Neurological Institute, that I ask your indulgence while giving a report covering fifteen cases.

Time will not permit of a full discussion of the theory of the method, but I might mention the assumed principle is the cumulative effect of the drug, *i.e.* before the activity of the drug is lessened by excretion, more is administered, and in this way the patient, by a process of gradual establishment of tolerance, becomes saturated with the drug in such a manner that the usual untoward effects of same are avoided.

The method adopted is as follows: 0.45 grains neosalvarsan is administered intravenously every third day (*i.e.* given a Monday, repeated the following Thursday, two days intervening) for five injections. In paresis, taboparesis, and other actively severe infections, this is supplemented by inunctions of mercury (40 to 60 grains) the days the patient does not receive the injection.

Many, and in fact the majority of unfortunate sequelæ of neosalvarsan administration are attributable, in the writer's opinion, to faulty preparation or administration of the drug. We consider 75 c.c too concentrated a solution of 0.45 grains and invariably use from 90 to 100 c.c. Freshly distilled

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water is boiled at least five minutes and then cooled to room temperature by running water. The apparatus used is the ordinary gravity one. The method of administration is as follows: 30 c.c. of lukewarm, previously sterilized, decinormal saline is introduced and as this escapes from the container the neosalvarsan solution is poured in, and as the last portion leaves the container 30 c.c. of lukewarm decinormal saline is again introduced. Especial care is taken that as small amount as possible of the neosalvarsan solution comes in contact with the warm saline, lest the warmth of the saline increase the toxicity of the drug.

Between thirty-five and forty cases have been treated after this method. We have had no alarming sequelæ of the first series. Of the five patients given further injections, one, to whom the second series of injections was given at irregular intervals, died twenty-nine days after the last injection, details of which will follow.

The immediate effect, or so-called reaction, following the series of five have been as follows: It is the usual course with tabetics that the pains are much worse from 24 to 36 hours after the first injection. After the second there may be a slight exaggeration, after the third none. In a very small number chill and slight rise of temperature have followed the first injection only. As yet there has been no case of diarrhea.

In the large majority of cases a slight conjunctival icterus has appeared after the third injection, but has been only of a few days duration. In those cases supplemented by mercury the patient usually expresses himself as feeling "very weak" after the fourth injection, but this I attribute to the mercury, as the patients who receive no mercury never so express themselves.

One case developed a skin Herxheimer after each injection. One case developed a mild arsenical dermatitis. One case developed a herpes zoster two weeks after last injection. In paresis the mental condition is usually more pronounced following the first injection, but not so affected by subsequent ones.

Case I.—Mr. T., single, age 49 years, entered institute April 13, 1913. Patient himself unable to give any account of illness. A friend stated it began eight months previous with difficulty in walking which progressed rapidly until he was bedridden. Soon thereafter speech became affected and this also progressed rapidly. He is unable to stand alone, speech unintelligible, marked mental confusion. Examination reveals Argyle-Robertson pupils, absent knee and ankle jerks, gross pedal ataxia; distended bladder, necessitating catheterizations. Serology: serum Wassermann, positive; spinal fluid Wassermann, positive, 89 cells per c.m., globulin excess, Fehling reduced. Diagnosis, taboparesis. April 30, 1913, series with mercury, 60 grains. Patient began to improve after the third injection and progressed rapidly until within three weeks after beginning of series; he was walking without assistance, speech fairly clear, no urinary difficulties, slight confusion only. Serology: May 13, 1913: Serum Wassermann, negative; spinal fluid Wassermann, negative, 26 cells per c.mm., no excess of globulin, Fehling reduced. Discharged May 13, 1913; has reported regularly since and to the casual observer a normal man. This patient developed a herpes zoster two weeks after last injection.

Case II.—Mr. K., age 40 years, married, denies specific infection. One child died at four weeks; wife one miscarriage. Entered institute March 20, 1913, complaining of shooting pains in head for one week, disturbing sleep. Shooting pains in legs ten years; weakness of legs on walking long distances. Examination revealed Argyle-Robertson pupils, absent knee and ankle jerks, slight pedal ataxia, Romberg. Diagnosis: Tabes. Serology: Serum Wassermann, positive; spinal fluid Wassermann, positive, 77 cells per c.mm., excess globulin, Fehling reduced. Patient was given a series of three injections with mercury, 40 grains. His pain in head was immediately relieved. Within three weeks he began to have shooting pains in legs and on April 16 returned for serological investigation, which showed a negative serology *in toto*. However, he was given three more injections without mercury; reports three months later pains much relieved.

Case III.—Mr. F., single, aged 28 years, specific infection 1902; treated actively with mercury and iodides. For the past six months he has had attacks of severe urethral and rectal pain with occasional vomiting. Pain described as boring, burning pain, beginning in rectum and gradually extending over perineum to penis, occurring daily many times and requiring opium suppositories to relieve. He had been given three injections of salvarsan at intervals of two to three weeks with mercury with no relief; entered institute December 30, 1912; examination negative, except for Argyle-Robertson pupils and segmental anesthesia. Diagnosis: Tabes. Serology: Negative except serum Wassermann, positive (most probably his previous treatment had rendered negative the spinal fluid). He was given the series without mercury. He had a bad crisis after the first injection, a slight one after the second and third, but since the fourth he has had none. He has reported regularly during the past four months; no crisis. The Wassermann remained positive after the series. He was given a second series of four; Wassermann still remained positive. This patient developed a skin Herxheimer after each injection.

Case IV.—This patient, a woman, age 35, was a case of tabes of eight years' duration, having severe intercostal crises, never passing through a menstruation without agonizing pains. She had been given three doses of salvarsan and other antispecific treatment with no relief. Entered institute March 25, 1913, for possible root section. Owoing to inability to locate definite segmental distribution this was abandoned and a series of three injections as given in the five (no mercury) were administered. Serology befores series: Serum Wassermann, positive; spinal fluid Wassermann, positive, 15 cells per c.mm., globulin negative, Fehling reduced. Serum Wassermann persisted after the three and a series of four injections were given. We have been unable to get a serological status since. However, she was known to pass through four menstruations without pain and as she stated she would return if she had any pain we assume she is now eight months free of crises.

Cases three and four are cited to show clinical results obtained with neosalvarsan, where salvarsan failed.

Case V.—Mr. S., age 40 years, single, contracted syphilis September, 1912; treated by mercury and iodides. In January, 1913, began to have headaches, which persisted in frequency and intensity. During March of the same year began to have spells of temporary speech defect, nature of which from history suggests sensory aphasia. Still later, that is, about one month, before entering institute, he would have "visions" appearing before him. His friends began to notice that he was getting "stupid." Three days before entering institute it was noticed he had some difficulty in walking—would wabble. He had had an occasional vomiting spell. Entered institute August 4, 1913. He was in a state of marked mental confusion, walked only with assistance, complained of severe pain in head and back of neck. His mental condition was such that he made a poor witness. Physical examination revealed sluggish pupils, equal in size. A questionable intention tremor of right upper extremity and also questionable increased flexes on the right. The plantar responses were flexor—the left active, the right slow; no Oppenheim nor Gordon. There was slight neck rigidity. Fundus examination disclosed swelling of disc, approximately 3½ diopters left, 2½ diopters right. Serology: Serum Wassermann, positive; spinal fluids Wassermann, positive; 93 cells per c.mm., excess of globulin, Fehling reduced. Diagnosis: Luetic meningitis with left frontal gumma encroaching upon left temperosphenoidal. He was given the series with mercury. Patient was kept constantly under observation for probable operative interference. During the first week he was a very ill man, but improvement began the second and he progressed rapidly until within three weeks after last injection he was clinically well; no headache or confusion and walking well. Serology

five weeks after beginning of series: Serum Wassermann, negative; spinal fluid Wassermann, negative; 48 cells per c.mm., no excess of globulin, Fehling reduced. On account of the pleocytosis he was given three more injections at the same intervals. This man has continued to do well and is now in active duty in the fire department of one of our large cities, being recently advanced to captain. Eye report on leaving hospital: "Practically no elevation of disc."—Dr. Holden.

Case VI.—Mr. M., age 41 years, married; one child born dead; admits syphilis when "quite young" and received the "usual treatment." Entered institute July 26, 1913. Story given by wife was that during the latter part of the previous May he began to have "cramps with vomiting," which persisted in frequency and intensity. He had changed in disposition, being now very irritable and "hard to manage." He was in a state of marked mental confusion, irritable, talking incessantly, complaining of "cramps." These "cramps" occurred quite frequently, disturbing sleep, and requiring opiates to relieve. His speech was slurring and difficult to comprehend. Physical examination revealed Romberg, absent knee and ankle jerks; small irregular pupils, no light response, sluggish accommodation response; distinct tremor of facial muscles and tongue. Diagnosis: Tabo paresis. Serology: Serum Wassermann, positive; spinal fluid Wassermann, positive; 170 cells, per c.mm., globulin excess, Fehling reduced. He was given the series with mercury. Owing to his mental condition he had to be sent out of hospital, but returned the following day, so there was no break in the therapy. After the fourth injection he began to improve, his gastric crises becoming less frequent and severe until several days before he left hospital he had none. He became rather docile, though he had an occasional spell of irritability. His speech became readily intelligible, but distinctly slurring. Serology four weeks after entering: Serum Wassermann, negative; spinal fluid Wassermann, negative; 16 cells per c.mm., no excess of globulin, Fehling reduced. Report three months after leaving hospital, no pain, but continues to have spells of irritability and incessant talking.

Case VII.—This was a case of tabes having, for the past eight months, daily crises of severe intercostal pain. He had been operated upon for gallstones, appendicitis, and gastric ulcer within the past two years; denied specific infection; wife never pregnant. Serology: Serum Wassermann, positive; spinal fluid Wassermann, positive; 34 cells per c.mm., globulin excess, Fehling reduced. He was given the series with mercury. Five weeks after beginning of series serology was serum Wasserman, negative; spinal fluid Wasserman, negative; 10 cells per c.mm., globulin negative. Lancinating character of pain was relieved for three months, but he had an occasional dull ache. The shooting pains then returned and he was given another series of three without mercury, which has afforded some relief, though he is not yet free.

Case VIII.—Mr. H., age 36 years, denies specific infection; no children. Entered institute September 2, 1913. Story by wife was that February prior he had been in one of the State hospitals on account of his mental condition. Had had two generalized convulsions. He was very restless, talking incessantly, memory poor. Complained of pedal paresthesiæ. Examination revealed absent knee and ankle jerks; slight tremor of tongue; pupils irregular, no light response, slow accommodation; test words fairly well performed. Diag-

A CONCISE SUMMARY OF RESULTS.

| | BEFORE TREATMENT | | | | | | | AFTER TREATMENT | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | SEROLOGICAL | | | | | | SEROLOGICAL | | | | | |
| | | | SPINAL FLUID | | | | | | SPINAL FLUID | | | | |
| Diagnosis | Clinical | Ser. Was. | Was. | Pl. | Gl. | Feh. | Interval, Days | Ser. Was. | Was. | Pl. | Gl. | Feh | Clinical |
| 1 Tabo Paresis | Unable to walk. Speech unintelligible. Mental confusion. | | + | 89 | + | + | 18 | – | – | 26 | – | + | Can walk without assistance. Mind clear. Speech much improved. |
| 2 Tabes | Severe headaches and confusion. | + | + | 77 | | + | 26 | – | | 0 | – | + | No headache. No confusion. |
| 3 Tabes | Daily genital crises. | + | – | 0 | | + | 21 | + | No | Exam. | | | No crises. |
| 4 Tabes | Intercostal crises. | + | + | 11 | – | + | 28 | + | No | Exam | | | No crises. |
| 5. Gumma Meningit | Headache, marked confusion, walks only with assistance. | + | + | 93 | + | + | 35 | – | – | 48 | – | + | No headache. No confusion. Walks well. |
| 6 Tabo Paresis | Daily gastric crises. Very irritable, speech defect. | + | + | 170 | + | + | 28 | – | | 16 | – | + | No crisis. Docile, temporary irritability; speaks clearly. |
| 7 Tabes | Intercostal crises. | + | – | 34 | + | + | 35 | – | – | 10 | | – | No sharp pain, but occasional dull headache. |
| 8 Tabo Paresis | Confusion. Restless. Distinct tongue tremor. | + | + | 27 | + | – | 28 | – | | 0 | | – | No confusion. Less restless. No tongue tremor. |
| 9. Tabes | Shooting pains. | – | | 127 | sl + | + | 21 | – | – | 40 | – | | No shooting pains. |
| 10 Tabo Paresis | Severe headaches. Marked confusion. Speech slurring. | + | + | 40 | + | + | 27 | w + | w + | 11 | sl + | + | No headache. Confusion much less. Talks clearly. |
| | | | | (Second Series | | | | – | – | 13 | – | + | |
| 11. G. P. | Mild Euphoria. Incessant talking. Marked tongue tremor. | – | + | 34 | + | + | 22 | + | + | 16 | sl + | + | Less exhilarated. No tongue tremor. Less talkative. |
| 12 G. P | Headache. Mild confusion. Depressed and irritable. | + | + | 32 | + | + | 24 | + | + | 32 | + | + | No headache. Otherwise condition stationary. |
| | | | | (Second series | s onos. | later) | | – | – | 31 | – | + | |
| 13. G. P | Marked deterioration. Grandiose ideas. Marked speech defect. | + | + | 63 | + | + | 22 | + | + | 16 | + | + | No improvemeot |
| | | | | (Second serie | s) | | | + | + | S | – | + | Died 29 days after last injection. |
| 14 C. S. Lues | Attacks of moist before the eyes followed by severe headaches. Daily | | + | 124 | + | + | 42 | – | – | 11 | – | – | Only one attack of dizziness and this not followed by headache. |
| 15. Tabes | Shooting pains. Gross pedal ataxia. Urinary precipitancy. | + | + | 34 | + | + | 14 | – | – | ? | – | – | No shooting pains. Walks without assistaoce. |

nosis: Tabo paresis. Serology: Serum Wassermann, positive; 27 cells per c.mm., globulin excess, Fehling reduced. He was given the series with mercury. Four weeks after beginning of series serology negative *in toto*. His condition slowly improved and four weeks after leaving hospital he returned to his former vocation—reporter for one of the leading city papers. He has been at work now five weeks.

Case IX.—This was a case of tabes in a man 45 years old, with shooting pains and gross pedal ataxia. Serology: Serum Wassermann, positive; spinal fluid Wassermann, negative; 127 cells per c.mm., globulin slight excess, Fehling reduced. He was given the series without mercury. Serology twenty-one days after entrance: Serum Wassermann, negative; spinal fluid Wassermann, negative; 40 cells per c.mm., globulin negative, Fehling reduced. No shooting pains since third injection, but an occasional dull ache in right heel; now three months.

Case X.—Mr. S., age 42 years, married; admits syphilis; complained of severe headaches and insomnia of nine months' duration. Recently, memory failing and speech defect noticeable; had had seven intramuscular injections of salvarsan. Entered institute September 17, 1913, in a state of mild mental confusion and somewhat irritable, very uncommunicative. Speech distinctly slurring and test phrases poorly performed. Absent knee and ankle jerks. Pupils irregular and no light response; feeble accommodation response; tremor of tongue. Serology: Serum Wassermann, positive; spinal fluid Wassermann, positive; 40 cells, globulin excess, Fehling reduced. Diagnosis: Tabo paresis. Series with mercury. Serology twenty-seven days from admission: Serum Wasserman, weakly positive; spinal fluid Wassermann, weakly positive; 11 cells per c.mm., globulin slight excess, Fehling reduced; his headaches relieved. Ten days later he was given another series of four without mercury and serology one week after last of the four showed negative serum and spinal fluid Wassermann, no globulin. Patient was very much improved; headaches relieved, no confusion. He is now doing slight duties around his store. This case is now two months standing.

Case XI.—Mr. B., age 39 years, married; admits syphilis ten years ago; actively treated. Entered institute September 30, 1913. Story by relatives was that for the past eight months he had been "nervous" and that there had been a "change in his speech." Patient was in a state of mild euphoria, talking with a decided slurring accent, and at times irrational. Examination revealed fixed pupils, knee and ankle jerks present, but difficulty to elicit; marked tremor of tongue; slight tremor of facial muscles; test phrases very poorly performed. Diagnosis: General paresis. Serology: Serum Wassermann, positive; spinal fluid Wassermann, positive; 34 cells per c.mm., excess of globulin, Fehling reduced. He was given the series with mercury and twenty-seven days after beginning of series serology was unaffected except pleocytosis reduced to 16 cells per c.mm. One week later he was given a second series of five. We have been unable to get a subsequent serology. He was discharged October 30, 1913; very quiet; talked rationally; no tremor.

Case XII.—Mr. F., age 34 years, married; no children; denies specific infection; periodic headaches of one year's standing. Since beginning of illness had given up society, previously being very fond of same; depressed with periods of irritability. Wife states his disposition had entirely changed. For five months a change in speech had been noticed; made unnecessary purchases. Entered institute January 11, 1913. Examination revealed marked tremor of tongue and facial muscles, marked speech defect, knee and ankle jerks active, plantars flexor; pupils small, irregular, and fixed. Diagnosis: General paresis. Serology: Serum Wassermann, positive; spinal fluid Wassermann, positive; 34 cells per c.mm., marked excess of globulin, Fehling reduced. January 15, 1913, a series without mercury was begun. Serology twenty-four days later unaffected except cell count 32 per c.mm. Patient was sent up the State and internal medication of tonic character, probably containing iodides, was instituted. For the first two weeks condition was reported worse, inasmuch as he was more depressed and irritable. Reports were then more favorable until in October the report was "he has, mentally, infinitely improved." During October he returned to New York. Serum Wassermann, still positive, but less so. Physical examination was as when first seen, but he was of a decidedly more cheerful disposition and his speech, except when excited, was fairly good. He was again entering into society, taking an active interest in the new dances. He was given another series of five with hypodermics of bichloride of mercury, grains 1/6, between the injections. Serology seven days after last injection: Serum Wassermann, negative; spinal fluid Wassermann, negative; 36 cells per c.mm., no excess of globulin, Fehling reduced.

Case XIII.—Mr. K., age 35 years, married; wife no pregnancies. Entered institute September 29, 1913; state of marked mental deterioration, grandiose ideas, unintelligible speech, filthy; no history obtainable from patient, but wife dated illness sixteen months, with gradual progression; examination revealed fixed and irregular pupils; active jerks; marked tremor of tongue and facial muscles. Diagnosis: General paresis. Serology: Serum Wassermann, positive; spinal fluid Wassermann, positive; 63 cells per c.mm., marked excess of globulin, Fehling reduced. He was given the series with mercury. Serology seven days after last injection unaffected except cell count reduced to 16. His mental condition was unaffected. If anything there was a slow progression. Ten days after last injection a second series was begun. After the second a slight rash appeared on the extensor surfaces of the arms, which disappeared within thirty-six hours. One week later he was given 0.25 grams and this repeated in five days. Within thirty-six hours he developed a pronounced rash over the entire body and four days after appearance of rash general edema appeared and progressed rapidly, causing closure of the eyes; blood and uranalysis reported negative. He was seen by an eminent dermatologist who pronounced it arsenical dermatitis. The temperature varied between 99.5° and 101° F. Under hot packs and other eliminative measures the edema disappeared within five days, leaving the skin scarlet red and of a "fish-scale" feel. Desquamation soon set in. Intense itching set in and, owing to mental condition, patient was hard to handle, and in spite of best efforts he got up a mixed infection as a result of his scratching and filthy habits. However, for a week he slowly improved and we felt encouraged only to be discouraged by a second appearance of the rash over the desquamated areas. His general condition soon began to show the effects of the drain; he began to refuse nourishment and have periodic attacks of vomiting of a projectile nature, and two days after onset of vomiting died. Daily uranalysis in this patient up to two days before his death were negative, when a trace of albumin was demonstrated. Nor was there any evidence of hepatic involvement. His condition was a skin one, and in my opinion had his mental condition been otherwise he would have survived, inasmuch as we would have had his cooperation. To the contrary, it was with force that the therapy was carried out. I do not think this death should be attributed solely to the neosalvarsan. It, of course, was contributory. Serology after last injections unaffected except cell count reduced to 8 cells per c.mm. and there was no excess of globulin.

Case XIV.—Mr. U., married, age 45 years; six children; denies specific infection. For ten years has been having spells of "mist before the eyes followed by intense headaches." These first appeared every two or three months, but progressed in frequency until they were recurring daily. In August, 1913, had an attack of numbness and deadness affecting the entire left side, which incapacitated him for twenty-four hours. Since then there has been a constant numbness in the side. Entered institute October 10, 1913. Examination revealed pupils little irregular and slow to light; knee-jerks lively; plantar responses flexor; no Romberg; no speech defect. There was a slight pallor of the temporal half of disk. Diagnosis: Cerebrospinal syphilis. Serology: Serum Wassermann, negative; spinal fluid Wassermann, positive; 124 cells per c.mm., excess of globulin, Fehling reduced. He was given the series with mercury. Six weeks after beginning of series patient had had only one attack of "mist before the eyes," and, unlike the previous attacks, was not followed by headache. The numbness persisted. Serology: Serum Wassermann, negative; spinal fluid Wassermann, negative; 11 cells per c.mm., no globulin, Fehling reduced.

Case XV.—This was a case of tabes of eight years' duration, having gross pedal ataxia and severe shooting pains, diplopia, and urinary precipitancy. Serology on admission: Serum Wassermann, positive; spinal fluid Wassermann, positive; 34 cells per c.mm., globulin excess, Fehling reduced. She was given a series of four (refused to take more). Serology five days after last

injection: Serum Wassermann, negative; spinal fluid Wassermann, negative; no globulin, Fehling reduced. Owing to an oversight the fluid was disposed of before counting. Reports three months after leaving institute no pain; walking quite well without assistance; no urinary precipitancy.

Summary of Results, Serological and Clinical, Following the Series.—The serological examinations were made from three to twenty-seven days following the last injection. It is this rapidity with which the serology is influenced and the concomitant clinical improvement to which I desire to call your special attention. And I might add the results herein reported are but examples of those obtained in the total number of cases treated by this method. Time required for the series, fifteen days.

Serological.—Of the fifteen cases the Wassermann was positive in the serum only in two cases. One remained positive. One rendered negative. The Wassermann was positive in the spinal fluid only in two cases. Both rendered negative. The Wassermann was positive in the serum and spinal fluid in eleven cases. One not subsequently examined. Of the ten examined six were rendered negative, one weakly positive, three unaffected. These four given a second series, the weakly positive became negative, one of the three unaffected became negative, one remained positive, one unable to get a subsequent serology.

Pleocytosis was present in thirteen. There was, with one exception, considerable reduction in all cases.

The protein test showed excess of globulin in twelve, one slight excess. Of the twelve showing excess, nine were rendered negative, three slight excess. The one slight excess was rendered negative. The presence of arsenic in the spinal fluid was demonstrated.

Clinical.—Of the fifteen cases, illness was such that thirteen could not pursue their usual vocations. Of the thirteen, improvement following the first series was such that eight returned to their work within six weeks to two months after beginning of therapy. Four showed slight improvement, one no improvement. The two remaining cases were considerably improved, one being relieved of shooting pains, the other dizzy spells much less frequent and not followed by headache.

*Conclusions.*—Serological: In exudative tabes and other active syphilitic involvement of the combined cerebrospinal system the serology is markedly influenced, if not rendered negative. In a small minority of the cases of tabes the Wassermann has remained positive. (Wassermann fast tabes, Kaplan.)

In general paresis we can only say the pleocytosis can be influenced. We have not had a sufficient number of cases to draw any definite conclusions. However, in the one case, recognized in its incipiency and treated personally by me, the results were such that I am of the opinion that even this scourge, recognized early, is not impregnable.

Clinical: In exudative tabes and other active syphilitic involvement of the combined cerebrospinal system we can give a decidedly hopeful prognosis.

In general paresis we must bear in mind the remissions occurring so frequently in these cases, therefore though we have reported two of the cases showing slight improvement, we must reserve definite conclusions until further time has elapsed. The one early case above referred to and not reported in this number has been for the past thirteen months a normal man. I wish to express my gratitude to Dr. Frederick Peterson for the privilege of instituting the therapy on the wards of the Institute, to Dr. Chas. L. Dana for the privilege of reporting two of his cases, and to Dr. D. M. Kaplan for the serological studies.

149 East Sixty-seventh Street.

## THE VALUE OF SMALL CLASSES.*

By EDWIN W. DWIGHT, M.D.,

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When our President suggested that I should prepare a short paper for this meeting I chose as my subject "The Value of Small Classes" for the reasons that the subject interested me, and that I believe at the present time such a paper might be of value when we are all interested in the work of the Medico-Actuarial Committee.

In each volume a number of classes are treated with slight consideration on account of the small number of exposures. Actuaries believe in large figures. Their science is an exact one. Medical Directors of large companies are disposed, I think, to overestimate the necessity for large groups, possibly because such large groups are only available to the Medical Directors of large companies. Under these conditions it would not be surprising if some of the smaller companies were led to believe that as their classes are small, they are valueless; for even in the larger groups they can only furnish an experience, which in the minds of the Medico-Actuarial Committee, is not sufficient to develop facts. It would, I think be very unfortunate if as a result of our great investigation the smaller companies were impressed with the idea that individual investigations of their own experiences were not worth the doing.

Actuarial science is an exact science. Medical science is far from exact. Unquestionably the actuaries, working with definite and homogeneous groups, into which the element of personality does not enter, are right in assuming that the value of a group is in direct proportion to the numbers included in it. I think, however, that for our purposes there are few statements which are less true.

Medicine is not an exact science. Every medical problem is influenced or controlled by the personal element and there are no groups which are absolutely homogeneous.

There is no man among you who believes more thoroughly in investigations and statistics than I. There is no one who relies more in his daily work upon the results of such investigations and yet I feel that if we take statistics too seriously, and do not use ordinary human and medical intelligence in their interpretation, the use of statistics is associated with a good deal of danger and has very little value.

Facts are of the greatest possible importance. The best medical department is that which is controlled to the greatest extent by facts, but all statements are not facts even if supported by large groups of cases, and all of such statements, whether or not they are facts, must be interpreted intelligently.

A large number of small groups is of greater

*Read at the twenty-fourth annual meeting of the Association of Life Insurance Medical Directors, Philadelphia, October 29 and 30, 1913.

value than a single large one. You will learn more by subdividing your groups than you will by combining them. Homogeneity is more important than numbers, and with varying methods of selection homogeneity is impossible.

I was recently asked as to whether for my purpose I should prefer the individual experiences of ten companies or their experiences combined in one group. I was asked this question by a man thoroughly familiar with statistics and investigations and who is disposed to believe, as are all actuaries, that the larger the group the greater its value. I answered that there was no comparison, that to my mind the individual experiences were worth many times the collective experience. There are many reasons for this. One of them is that, in every collective experience the element of varying selection is introduced just as often as we introduce a new company, a new force or a new method.

In 1903 our company, appreciating to some extent the value of facts, took up an investigation of its own experience. There were very few to whom we could go for advice and we did the best we could with the ideas which we had and the material at our command. We felt that the first investigation should be as complete as it was possible to make it, that we should subdivide our classes to such an extent that we should, in so far as was practicable, find an answer to the problems which presented themselves to us or which might confront our successors.

The expense of such an investigation was of necessity great and we did not wish to do our work over again. Within a year we had some facts upon which we could base decisions. This investigation has never been completed and I hope never will be for new questions or modifications of old questions are constantly arising and the necessity for still further subdividing our classes is becoming more and more apparent.

So far we have investigated about 800 classes, being practically all of the single groups which were covered by our code. We have never had reason to regret examining any class. We have regretted a good many times that our code did not include other symbols and still further subdivisions. Some of these classes were absurdly small, so small that even I can see in them very little present value, but we have the code, we have the cards, and the material is constantly growing, so that, simply by the writing up of our new business, we shall be able to complete an investigation of these groups.

In the beginning we were cautious in basing our decisions on these small classes, but as our experience increased we became more and more impressed by their value and the remarkably slight variation between our results and the results of other investigations made on larger numbers by other men and on different material.

Sometimes our gross or general mortality differs considerably from the findings of other companies: part of this may be explained by selection and part in other ways, but almost without exception the general trend of mortalities and the general lesson to be learned is the same.

I have in mind two most admirable investigations carried on by Dr. Brandreth Symonds and reported at our meetings, one on Renal Colic and the other on Family Histories. In his paper on Renal Colic he bases his conclusions on 1,453 cases and shows a general mortality of 99 per cent., the results being rather worse in early life and again in late life. Our investigation of the same general subject was divided into two classes, one of 151 cases, the other of 336. Our mortality on the first group was 98.8: on the second 100.2. We also showed the same early and same late life mortality. Our general findings on family history agreed without exception with his; although our numbers were much smaller and our classifications quite different.

In comparing the results of our Company's investigations with those of the Medico-Actuarial Committee, so far as they have been published, I find that there are forty classes which are sufficiently near alike to justify comparison.

In these forty classes I do not find that the numbers involved have any relation to the variation in the findings, that variation is as great where we had 10,000 exposures as where there was less than 2,000. In several groups where our numbers are extremely small the variation is almost nothing, while in others where the groups are quite large the variation is a wide one. In almost all of these classes it is easy to explain the wide variation by differences in selection.

In the personal history of sugar, we had but 783 exposures to the M. A. of 17,454, the variation was but .02; with officers of steam vessels we had 1,992 and the M. A. 10,297 with a variation of .05; of painters we had over 6,000, M. A. 17,349, and a variation of 1.34. In these three classes the methods of selection were obviously about the same. We were all afraid of a history of sugar and during the period covered by this investigation we all selected them in about the same way. We all treated painters about alike as we did the masters and officers of steam vessels.

Our colored policy holders gave us 3,331 exposures with the M. A. 93,262 and a variation of but 4.41.

There were certain groups in which the New England contribution was very large in proportion to the amount of its business. It is, I think, undoubtedly a fact that we accepted these classes more freely than did the average company and our results show that we paid for that freedom.

We furnished 22 per cent. of the exposures with a history of blood spitting; our mortality was 16.8 above the M. A. Of acute articular rheumatism we had 42 per cent. with an increase of 18.65. With a history of asthma we had 35 per cent. and our mortality was 16.15 above the M. A.

In certain other classes the reasons for the variation are not so apparent. Why we should have had but 3 per cent. of the theatrical profession and had a mortality nearly three times that of the M. A., or why we should have suffered an increased mortality with druggists of 20.12 per cent., when we had but 3 per cent. of the total, I do not know.

I have made a number of tables in an attempt to satisfy myself as to whether the actual or relative size of a class had any relation to the variation in our findings, but I have not been able to demonstrate any such relation.

Having established the general mortality of any class we have but begun. The next step is to establish the general character or general trend of that mortality, and in this work our small and subdivided classes are of special value.

If the general mortality is very low it may not be worth while to spend much time in further investigation, but if it be high, or moderately high, further study is required. Refinements in general mortalities are not very serious matters, that is,

whether it be 90 or 110 per cent. of the American table may or may not be important, but the trend of that mortality and its character becomes worthy of serious study. Having found that a general mortality is high we must necessarily establish as to whether, like syphilis, tuberculosis, and certain occupations, it is high at all ages and in all insurance years, or as with light weights, a family history of tuberculosis and some Southern risks, it is high in early life and becomes good later, or like heavy weights, toxemia, and New York City business the high mortality is largely limited to late life.

For use in this connection our small, minute subdivisions and homogeneous classes become of the greatest possible value and from them we are able to learn many facts that are not apparent in a study of large undivided groups. While the variation in general mortalities may be very marked between small and large groups, dependent upon methods of selection, size of the classes and other factors, it is a fact that even with extremely small groups, no matter by whom and in what way they may have been selected, the general trend will be the same. This is to my mind a very much more important matter than is the simple question of average mortalities, and it is along these lines that the most helpful statistical work can be done. In this class of work I believe the smaller companies are in as good a position as are the larger and here is where the greatest development in medical selection will take place.

For the purpose of demonstrating that even very small classes may show accurately the character and trend of mortality, I have included charts showing the experience of our company with normal and heavy weights. These classes were subdivided by five percentages, but, in order to reduce the number of charts, only one-half of those are here shown, representing the experience of the New England Mutual Life between 1844 and 1905 with those of normal weight by Shepard's table and at 10, 20, 30, 40, 50, and 60 per cent. overweight. Those with normal weights, 19,096 cards with an exposure of 136,957, give an almost level curve showing the characteristics of both the light and heavy weight groups; that is, the slight increase in early life of the light weights and the increase in later life of the heavy weights. At 10 per cent., with 9,437 cards and 69,733 exposures, the light weight characteristic has disappeared and the chart is one typical of heavy weights, better than the average in early life, worse in late life, although the average mortality still remains good. With 20 per cent. overweight, cards 4,461, exposures 33,477, the curve is a little more erratic but still good in early life and bad in late life, the curve crossing that of the American experience somewhat earlier than with 10 per cent. overweight. With 30 per cent., a general mortality of 113.9, cards 1,521, exposures 11,164, we have a somewhat more erratic curve with the typical heavy weight characteristics. With 40 per cent. overweight, a mortality rapidly increasing, cards 356, exposures 2,762, a still more erratic but characteristic curve. Fifty per cent., still higher mortality, 85 cards, 743 exposures, an erratic curve but characteristic. With 60 per cent., an average mortality of 269.8, 56 cards, 415 exposures, the curve still erratic but the whole outline absolutely characteristic.

It would, of course, be absurd for us to accept these mortalities at each separate age as being absolutely accurate. At 20 per cent. and 30 per cent. it will be noted that we have at age 28 a higher mortality than at 23 or 33. I am not disposed to believe that there is at that definite age a serious danger which is not present five years before or five years after. A similar condition will be found in the 50 per cent. and 60 per cent. classes at ages 48 and 53. These are refinements which we cannot, of course, accept at their apparent or face value. It simply happens that in these groups there were more deaths at those particular ages and that the average of the three groups of five years would give us a much more accurate mortality curve.

The fact that a mortality curve is erratic does not mean that it is valueless, and if a little study be made of these seven charts I believe that the general mortality, its character and its trend, will be as well established from these small classes as it could be from others which might be many times as large. Each class should be studied with its predecessor and its successor and they will, I think, give us much more information than as if they had been less thoroughly subdivided.

It has been impossible for me to devote sufficient time to the preparation of this brief paper to demonstrate clearly to your minds the actual value of small classes. It would require weeks or months of time and many columns of figures. We have investigated about 800 classes varying in size from many thousands to a very few units, and the material with which these figures should be compared is almost without limit.

If you are each to be personally satisfied, as I am, with the value of these small classes, you must each be furnished with all of the facts and all of the experience which has come to us during this investigation. This it is obviously impossible for me to give. The best I can hope to do is to impress upon you that small classes have a value and that small homogeneous classes, properly interpreted and used, are of greater value than large ones of unknown or heterogeneous origin. I believe, in fact I know, that every company represented in this body has at its hand material, which, if properly handled, would enable it to control its mortality.

The best medical department is not that with the lowest mortality any more than it is that with the highest. The mortality which a company should have or should strive for is a purely executive and business question. To my mind, the best medical department is that which makes it possible for the company to control its mortality at a reasonable expense and with the smallest percentages of declinations.

I would not have you understand me as implying that a knowledge of facts by itself will control mortalities, but I know that without such a knowledge of facts it is impossible either to have or exercise such a control.

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## A CASE OF ENDOPHLEBITIS OBLITERANS OF THE CENTRAL RETINAL VEIN WITH RESULTING ACUTE GLAUCOMA.

By DAVID WEBSTER, M.D.,

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THE history of the following case presents several points of interest and seems worthy of being placed on record:

C. N. M., age 63, married, lawyer, came to me to be fitted with glasses on August 24, 1905. His eyes were normal with the exception of a low degree of hypermetropia with stigmatism. November 17, 1911.—His

eyes have bothered him lately. His vision has been blurred and his eyes have pained on use. He discovered this morning that he could see very little with his left eye. Ophthalmosopic examination showed that the loss of vision was caused by retinal hemorrhages of various sizes and shapes scattered throughout the left fundus, a typical picture of retinitis apoplectica. Dr. W. Van Valzah Hayes, to whom I referred the patient for examination as to his general condition, furnishes me with the following notes:

"November 18, 1911.—Mr. M, age 70, of a long-lived family, smokes ten or fifteen cigarettes and a pipe or cigar in the 24 hours, has been a free liver, drinks half a pint of whisky and a bottle and a half of claret or beer a day. At times slightly gouty, no indigestion worthy of mention, bowels regular, takes congress water or bicarbonate of soda occasionally. Has had frontal headache at intervals all his life. Passes water two or three times during the night. Mentally alert as ever. Ten or fifteen years ago was unconscious for two hours; found himself walking where he had not expected to go.

"Physical examination: Knee jerk present; no Romberg swaying; lungs clear; heart regular, good force, accentuated second sound. Stomach and bowels are distended with gas. There is very slight hepatoptosis. Systolic blood pressure 210 (Janeway's instrument), diastolic blood pressure 175. Blood 90 per cent. normal. Urine 1012, 1020, small amount of albumin. Indican moderate amount; sugar, a marked trace; phosphates, few hyaline casts, fragments of white blood cells, and trace of mucus." Dr. Hayes prescribed for him and regulated his diet and habits.

December 16.—Numerous hemorrhages and exudations in left retina. L. V. = 20/200 in lower part of field.

January 24, 1912.—One week ago the patient caught cold in his head and four days later he noticed a grayish haziness of vision of left eye. Last night he had a good deal of pain in the eyeball and temple; sees halos about lights. There is some conjunctival injection. The pupil is moderately dilated. There is tenderness on pressure and the tension is + 2. Opacity of the media makes it impossible to see the fundus. Dr. J. B. Emerson examined the eye in consultation. Eserine was instilled and half an hour later the pupil was contracted, but the vision was not improved. Eserine and hot water applications were prescribed.

January 25, 1912.—Pain more severe, sight worse, eyeball very red, and tension higher.

January 26.—Eyeball remains red, tension + 3. Vision, fingers at two feet; visual field contracted. Blood-pressure, which has been 225, is now 195. Chloroform was now administered and an iridectomy performed. The coloboma was of good size and no iris was left in angles of wound.

January 28.—Anterior chamber full of blood. The pain is relieved. Dr. Hayes finds the blood pressure higher than ever.

February 8.—Allowed to go home with tension still considerably plus. Sees shadows, but cannot count fingers.

February 11.—Pain and tension greater. Stopped eserine and gave morphine to relieve the pain.

February 12.—Readmitted to hospital. Tension + 3; hemorrhage in anterior chamber apparently coming through pupil; dionin in eye *ter in die;* pilocarpine sweats.

February 19.—The eye has got steadily worse; no perception of light. Pain only partly relieved by injections of morphine. Upon consultation it was decided to remove the eyeball, and an Allport's enucleation was done the same afternoon. The orbital cavity healed quickly and the patient returned home a few days after the operation. In about a couple of weeks he was wearing an artificial eye and doing business. About the first of June he went to his summer home at Lake Placid. I did not hear from him again until I heard of his death, which occurred on June 15, 1912. His physician writes: "Mr. M. came under my care June 3 and was then suffering from an attack of aphasia, due in my opinion to an embolus from the heart. This organ was acutely dilated, Mr. M. having been exercising too much, and showed decided evidences of an old endocarditis, the mitral and aortic valves being both evidently affected. I found a general arteriosclerosis and evidences of interstitial nephritis also. Mr. M. rallied for a few days, the cerebral symptoms clearing entirely and the heart responding to treatment. On or about the 8th he overdid again (he was a most difficult patient to handle) and the heart utterly broke in compensation. Coma developed gradually, partly of uremic origin and partly, I think, from cerebral blocking. He rallied under vigorous treatment aimed at the kidneys. His heart continued to dilate, however, and acute pulmonary edema terminated the scene. The case, as I saw it, was primarily one of general arteriosclerosis with chronic endocarditis and, of course, some kidney changes."

The eyeball was examined by the late Dr. E. L. Oatman, who reported as follows: "April 11, 1912.—Microscopic diagnosis. The central vein at the lamina cribrosa is nearly occluded by endophlebitis proliferans. The retinal vessels are degenerated and the retina contains extravasation of blood. The anterior chamber presents the changes of acute glaucoma."

24 East Forty-eighth Street.

## TREATMENT OF PULMONARY TUBERCULOSIS BY THE INDUCTION OF ARTIFICIAL PNEUMOTHORAX.

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THE treatment of pulmonary tuberculosis by means of artificial pneumothorax, although of recent date, has obtained a well-defined foothold as a therapeutic measure among those who are making the treatment of this disease their lifework. It is true that this mode of therapy is limited to carefully selected cases but the results in such instances have been nothing short of brilliant.

The idea of the production of an artificial pneumothorax did not arise in recent times, though the first report of cases so treated was made only twenty years ago. The first reference found in the literature to this mode of treatment is in 1825, when Carson of Edinburgh suggested that air be introduced into the pleural cavity for the collapse of tuberculous lungs containing cavities. The idea was denounced as impractical, and it is not likely that such treatment was made use of at that time. In 1885 Cayley reported a case which had been treated along the lines laid down by Carson, but the method was hardly successful, though in this case it controlled an intractable hemoptysis. As this was an open pneumothorax the pleural cavity soon became infected, with the subsequent death of the patient. Not until 1882 was there any progress made in this form of therapy and in that year Forlanini, an Italian clinician working at Pavia, suggested the filling of the pleural cavity with the innocuous nitrogen gas and in this way obtaining a compression of the lung. The suggestion, however, was not acted upon until six years later when Forlanini compressed the diseased lung in a case of unilateral phthisis. Nothing was heard of this until 1894, when he made his first reports which were particularly favorable ones. These, however, did not cause any excitement in the medical world and it is unlikely that any one save Forlanini and his pupils were making use of this method.

In 1898, independent of Forlanini's work, John B. Murphy of Chicago, in an address before the American Medical Association, advocated the compression of the diseased lung in certain cases of pulmonary tuberculosis. The idea was not looked upon at all with favor and in fact was severely criticized by the medical profession of this country. In 1899 Lemke, Murphy's associate, before the same association, gave a favorable report on 53 cases so treated but no further interest was aroused in the measure. Shortly after this Lemke died and the

method of treatment for the time being seemed to have fallen into disuse in this country. Brauer of Germany, in 1907, seeing the results that Forlanini was obtaining, decided to try artificial pneumothorax on his patients and in 1911, along with Spengler, reported upon 102 cases, in which they said a great many of these were favorably influenced though otherwise they would have been hopelessly doomed. In 1908 the treatment seemed to grow slowly but steadily in popularity and from that time on its use has become more and more widespread. At first the cases selected were only far advanced ones and the treatment was given simply as a matter of last resort. The field, however, has broadened somewhat, and now early acute cases and cases of persistent and intractable hemoptysis are receiving the benefit of this form of therapy.

*Apparatus.*—There are a number of different apparatuses used for the administration of the nitrogen gas, but it is my purpose to describe the one most commonly used in this country, namely the Robinson apparatus. This can be purchased for about $35 or be made for about $8 or $10. The apparatus consists of two 2,000 c.c. bottles graduated for each 25 or 50 c.c. One of these bottles, A, contains the gas, while B contains the displacing fluid. This may be any antiseptic solution, but the one frequently used is a 2 per cent. solution of pyrogallic acid. A long glass tube inserted through a rubber cork passes down to the bottom of bottle B for the siphonage of the displacing fluid and is connected to a similar tube in bottle A by means of rubber tubing in the middle of which is placed a stopcock that is turned off to prevent leakage when the apparatus is not in use. The gas flows from bottle A through a rubber tube connected with a metal one. (The latter is not absolutely essential, but if used is about 8 to 10 inches in length.) Attached to this metal feed pipe is a piece of rubber tubing 4 to 6 feet in length, the end of which slips over a collar on the injecting needle. At a distance of about six inches from bottle A is a stopcock which regulates the flow of gas. Just below this is a glass or metal T which connects the water manometer with the feeding pipe, while between the manometer and the feed pipe is a stopcock which regulates the oscillations of the water. The manometer, which is a U-shape glass tube, is really the most important part of the apparatus for the operator to understand. The oscillations of the fluid will show whether or not one has been able to get into the pleural cavity, success in this way being evidenced by the recording of a marked negative pressure. Failure to get into an open pleural space, or the fact that one has penetrated the needle into the lung or into a blood vessel will be shown by an absence of the movements of the fluid. No gas should be turned on until a definite negative pressure has been obtained. The pressure is obtained from the readings of a scale which is marked up in cubic centimeters. A neutral point has been determined on this scale and all movements of the water above this are recorded as positive and those below as negative. The scale may be made of metal or a paper strip on a background as described by Lawrason Brown. It must be understood that these readings are relative rather than absolute. A bulbous enlargement put before the termination of the feed pipe may be recommended in order to catch any water that may come over from the manometer. For the first injection a specially designed blunt needle of the Robinson and Floyd type should be used, but later on for the refills an ordinary aspirating needle will answer the purpose.

For the refilling of bottle A the gas is obtained from a cylinder and passed through three wash bottles, one containing a solution of bichloride of mercury, the second sulphuric acid, and the last a 2 per cent. solution of pyrogallic acid. This removes whatever impurities may have been present in the gas.

*Mode of Procedure and Dosage.*—Having determined the most resonant area over the diseased lung, this site is selected for the injection. It is best at the beginning to administer ¼ grain of morphine and 1/150 grain of atropine to quiet the nervousness and fears that may be present in the invalid. The patient is placed on his good side in bed with a piliow so placed under him as to widen the intercostal spaces. The area chosen is then painted with tincture of iodine following which the skin is anesthetized with a ½ to 2 per cent. solution of cocaine or with novocaine and adrenalin solution. After the skin has been so treated, the needle is withdrawn and introduced at right angles to the body. It is slowly pushed inward, each layer of the chest wall being anesthetized, down to and including the pleura. The skin is then pinched up between the thumb and forefinger, incised with a tenotome and the blunt needle is pushed slowly through into the pleural space. This is known as Forlanini's method and if carefully followed no accidents should result. Brauer of Germany advocates dissecting down to the pleura and thus observe the condition of it and the underlying lung. If the latter is seen to move freely and the pleura is glistening a blunt trocar is inserted into the chest cavity. The method necessitates the sewing up of the different layers later and the risk of infection is great. Having learned from the negative pressure reading of the manometer that the needle has found a free pleural space, the gas is allowed to run in slowly. The flow of gas should be shut off frequently so that manometer readings may be taken and as the readings approach the neutral point great care must be taken as one can now easily get into danger.

For the initial dose 200 to 500 c.c. should be sufficient, but this cannot be made an absolute rule. As the gas is being given to overcome some symptom the accomplishment of this must be the guiding factor for the determination of the amount. The chest should be refilled in three to ten days, for if allowed to go much longer, all the gas from the initial injection will have been absorbed and such dense adhesions will have formed as to entirely obliterate the former free space. There are many who advocate the giving of small amounts and refilling frequently, and this seems to be the most rational method of procedure. Some observers declare against having a positive pressure or at least only a slight one, while others favor a positive pressure of 5 to 10 c.m. or even more at the end of the treatment. Here, as in the amount of gas to be injected, the relief of the symptoms must determine the amount of the pressure.

*Indications.*—The ideal case for the induction of artificial pneumothorax is a patient having one side diseased and progressive, febrile or afebrile, with or without cavity formation and an opposite healthy side. It is fair to say that this condition but rarely appears. (1) The cases that usually come for this form of treatment are those with a badly diseased one side and with the other involved to a great or

less extent. Some claim that an involvement of less than one-third of the good side should not be a contraindication. It frequently follows after the compression of the badly diseased lung that the other one, if not too extensively involved, will show a marked improvement, though it is now doing the work for both. The explanation for this is that the liberation of toxins into the circulation has now been checked and consequently the other side, no longer bathed in these, receives a chance to repair itself. (2) Intractable and persistent hemoptysis yields at once to compression treatment. Certainty must be had at first as to which side the bleeding is coming from or the result, as is obvious, will be disastrous. One who has seen the results of such treatment for this symptom can never doubt the efficacy of it. One patient who had bled copiously and often for more than 48 hours and lost over sixty ounces of blood, had no further trouble after the first treatment. Another patient who had bled at freqnently recurring intervals and in whom the periods between the hemorrhages were becoming lessened and the amount of blood lost each time greater, was up and around one month after receiving the pneumothorax, and had no further trouble from the compressed side. (3) Persistent fever from one side involvement that resists all other methods of treatment. There may be a marked rise of temperature following an injection, but this is due to the introduction of a large amount of tuberculin into the blood stream. This temperature drops to normal within twelve to twenty-four hours. (4) Artificial pneumothorax may be used in acute cases which seemed to be doomed to a speedy end within a short time. Even a partial compression in some of these cases seems to have a beneficial effect upon the morbid process. (5) Progressive afebrile cases may also be thus handled.

*Contraindications.*—(1) Cases with bilateral involvement and which are progressive, especially when the disease on the better side includes more than one-third of lung. (2) With firm adhesions of the diseased side. It is possible in some few of these cases to get into the pleural space and the pressure exerted by the gas may be great enough to break up these adhesions. It is possible when they are the cause of an incomplete compression that they may be broken up after a third or fourth injection due to the stretching and consequent weakening of these fibrous bands and a complete compression occur. (3) Uncompensated heart lesions. (4) Severe organic disease in other organs, as diabetes, nephritis, etc. Tuberculous enteritis as a complication to the pulmonary type does not strictly speaking constitute a contraindication, but no beneficial results have been seen in cases treated with gas where both have coexisted. Laryngeal tuberculosis is not a contraindication, for though the gas has no direct effect upon the laryngeal process, it indirectly produces benefit by diminishing the amount of irritating sputum that would pass over the lesion.

*Complications.*—(1) Pain. Patients in whom adhesions exist in the pleural cavity of the side compressed, may complain of sharp pain following the injection of the gas. This is due to the stretching of these adhesions and as the gas is absorbed with the consequent lessening of the traction the pain disappears. It is in such cases that the pressure exerted by the gas may frequently break up these fibrous bands. Provided too much gas has been introduced the patient will complain of a feeling of tightness but this disappears quickly with the absorption of the gas. It may, however, in some cases be necessary to suck out some of the nitrogen. (2) Emphysema: This is a more annoying than a dangerous complication. It may happen that due to the breaking of adhesions, gas may get into the mediastinum and work its way up along the trachea into the cellular tissues of the neck and face. No treatment as a rule is necessary as the gas is quickly absorbed. Another cause for this condition may be the gas escaping into the tissues along the tract of the needle. (3) Gas Embolism: Cases are on record where this has occurred and with a fatal termination. Careful attention to the readings of the manometer should remove practically all danger of this. If the operator will be sure not to inject gas until he has a marked negative pressure recorded he should be able to avoid this accident. One case is reported in which the embolism occurred at the third injection but the manometer showed a marked positive pressure. The autopsy findings in these cases are as a rule negative.

*Effusion.*—From the literature available on this subject, this occurs in from 45 to 75 per cent. of cases treated by the compression method. It may occur immediately following the first injection, or come on months after the treatment has been discontinued. It differs from the ordinary pleural effusion in that there is no tendency to be absorbed by the pleura. It must be aspirated and the longer it persists the thicker it becomes. The cause of this effusion has given rise at the present time to a great deal of discussion, but no view has as yet been put forth that is wholly satisfactory. Some of the reasons given are as follows: (1) Irritation of the pleura by the gas which at the time of injection is cold and the final pressure in the pleural space being too great. Even when the gas has been injected warm and a negative pressure has persisted, effusion has followed. (2) Cold weather causing a chilling of the chest with consequent inflammatory reaction on the part of the pleura. The effusion has occurred just as well in the heat of the summer as in the cold of winter. (3) A break in technique with resulting infection. In attempts to culture the fluid, no organisms save the tubercle bacilli have been found. Furthermore it seems unlikely that a fault in technique could occur in 50 to 75 per cent. of cases of many different workers. (4) It seems to occur frequently in patients who are in a much weakened condition following hemorrhage or a long siege of fever. (5) Normally the lung is full of hot flowing blood and tends to keep up the temperature of the pleura by its intimate relation with it. The compression of course destroys this relation and the pleura becomes chilled with a resulting inflammatory condition, thus giving rise to the effusion. Where effusion has occurred, it is necessary to draw off the fluid before the gas can again be given.

*Empyema.*—A secondary infecting organism as a streptococcus, pneumococcus, or influenza bacillus may become engrafted upon the effusion through the blood stream and this serves as an excellent culture medium with a resulting empyema. In this case surgical treatment must be availed of.

*"Pleural Eclampsia."*—It has frequently happened that some of the treated have suffered from marked syncope and this has come on just at the time the injecting needle pierced the pleura. Saugman has reported a case with a fatal termination. If the pleura has been anesthetized before the insertion of the needle into the free pleura space the

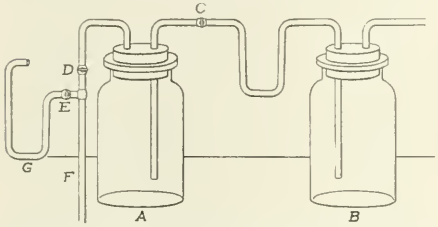
chances of this accident will be reduced to a minimum.

*Process lighting up in opposite lung.*—In cases with so-called deep or concealed lesions in the better lung it is possible that the compression treatment may light this up and cause a rapid extension of the tuberculosis on this side. The same may even occur, when there are signs of an arrested process in the good lung. Röntgenograms made of the case before treatment with a careful interpretation of the plate should go a great ways in helping to obviate the danger.

*Pneumonia in good lung.*—This has occurred a few times and is a very dangerous complication to treat. It usually results fatally for the patient and calls for the withdrawing of the gas.

*Infection of the pleural cavity due to faulty technique.*—Any violation of the rules governing asepsis may result in the introduction of pyogenic organisms into the pleural space with a consequent pyopneumothorax. The indications here of course are for surgical treatment, but the result is generally a fatal one.

One case of transient blindness has been reported, which was probably of reflex origin. Gas at the time was under high positive pressure.




Apparatus for the administration of nitrogen gas. A, bottle containing nitrogen; B, bottle containing displacing fluid; C, D, E, stopcocks; F, feed-pipe; G, water manometer.

*Incomplete compression.*—Adhesions in the pleural cavity may be the cause of an incomplete compression, the lung in some place being held to the chest wall. This often occurs at the base. Adhesions may be so scattered through the chest as to permit an hour glass contraction. Such cases are followed by a rise of temperature which persists, due to the locking up of the sputum below the neck of the contraction and with consequent greater absorption on the part of the patient. As soon as enough gas is absorbed to allow for the expansion of the contracted portion of the lung and a consequent release of the sputum the temperature at once falls to normal. Another condition to be met with is that due to marked adhesions throughout the chest, and though the gas may find its way in little or no compression results, but little gas pockets form themselves throughout the chest cavity. The only sure way to get knowledge of these results is by means of a Röntgenogram, and it is the opinion of the most capable men engaged in this work that such a procedure should always take place before and after the first injection. Information obtainable in no other way will be given by a careful study of these plates. Hemorrhage and indeed a fatal one has occurred from a partially collapsed lung.

*Results.*—As said above, the results of this form of treatment in carefully selected cases have been brilliant. It must, however, be recognized that the field at best is limited and it will never be much broader than at present. There is almost an instantaneous dimunition in the amount of expectoration, a rapid drop in the number of tubercle bacilli from the sputum, a quick fall of the temperature to normal or nearly so, and hemorrhage is at once arrested. Symptomatic cures are obtained in about 20 to 30 per cent. of the cases, though some writers have reported 40 to 45 per cent. of cases. When it is remembered that nearly all the cases reported on have been far advanced ones and were hopelessly doomed under the recognized form of treatment, the saving of 20 to 30 per cent. should be considered nothing short of marvelous. The percentage of cures from now on will undoubtedly be greater as the treatment will be given to earlier and more favorable cases. The age of the patient need hardly be considered in giving this form of therapy, as Pielsticker and Vogt have used it in young children and report marked success. They obtained excellent results in eight of ten cases, the children showing a wonderful improvement and a great tolerance to get along on one lung. Some of the cases so treated were regarded as utterly hopeless, but took a decided turn for the better following compression. The youngest case treated was ten months and the oldest fourteen years. It can now be safely said that after the compression treatment has ceased, the lung so treated does resume its normal functions to a greater or less extent, depending wholly upon the amount of disease present at the beginning of treatment. In a lung with cavity formation and a great deal of disease scattered through it, very little in the way of function can be expected from it when allowed to expand again. Some observers claim to have heard vesicular murmurs over the lung that had been compressed.

From an economic point of view the treatment is also a great success. Many of these patients are able to go back to work, so supporting themselves and family, having their refills done at the dispensary or physician's office. In this way, beds in hospitals and sanatori are provided for those cases who are in need of such treatment, and the cost to the community for the care of consumptives is reduced.

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## ARTERIOSCLEROSIS AS THE ORTHOPEDIST VIEWS IT.

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In writing on such a hackneyed subject as arteriosclerosis, I am not unmindful of the fact that laboratory research has advanced our knowledge of the pathology of the blood vessels to a greater extent than bedside observation. New instruments of great precision have shed light on phases of cardiac and vascular degeneration hitherto most perplexing. To these I can add a little in the way of clinical items that have been impressed upon me in the routine of orthopedic practice. The manner in which such impressions are received is apt to be different from the way in which the subject is approached by the internist, who regards the local manifestations of arteriosclerosis as the results of a generalized disease. The orthopedist's assistance is sought for the relief of symptoms localized in the extremities. These may be of a more or less disabling nature, and deserve your attention from a new viewpoint.

In the upper extremity the *neurologist* is more frequently consulted for painful conditions of a chronic nature, possibly on account of the greater number of nerve lesions underlying intractable arm and shoulder aches. In the lower extremity any painful condition soon leads to interference with locomotion, and the orthopedist is called in. A good percentage of the aching, halting adults brought to our attention seem to be afflicted with processes directly or indirectly traceable to arterial changes. The obscurity of the symptoms presented, and the solving of a differential diagnosis, have stimulated us to a careful survey of the circulation of legs and feet; for these are the cases brought to us with the phrase "there is nothing to be seen"—by him who has senses, but uses them not.

Arteriosclerosis is a condition of the flesh that we are all heir to, thanks to the rapid pace of city life, to keen competition, and to the American habit of overeating. It is striking to note, however, the prevalence of early cases of the disease in some of our newly made citizens from the Continent. At the Mount Sinai Dispensary we have ample opportunity for observing many men and women, between the ages of thirty and fifty, complaining of painful extremities. They declare that the arms are aching and sore, that there is numbness and tingling, in the arms and forearms, legs and feet. Although teetotallers and free from syphilitic taint, as a rule, the men are heavy smokers of paper cigarettes. A few showed evidences of lead-poisoning, while a small series occurred in furriers, accustomed to the handling of pelts dyed with some arsenical preparation. Careful questioning brought out the fact that most of the remainder work 12 hours a day, in poorly ventilated workshops, they eat inadequate amounts of food for lunch, while two hours or more are spent in the street-cars to and from their homes. Some find time to attend night school. The nervous system is not affected in our cases. The only physical signs are the early arcus senilis, and tenderness over the femoral and brachial vessels. The treatment that does most good seems to be rest, forbidding the tobacco, change of occupation in some cases, and cold spinal douches. Cathartics and the iodides are to be recommended. The social service worker who can furnish vacation trips at little or no cost to these patients is a veritable Good Samaritan. When older persons are considered—a type more common in private practice—the advanced disease with high tension is the rule—and we are called upon to treat cramp-like pains in the ball of the foot, especially under the metatarsal arch. There are attacks, resembling intermittent claudication, that alternate with attacks of angina pectoris. There is severe, burning pain in the toes, sometimes with blushing or blanching. A shoe with an "anterior heel," described by A. G. Cook, has benefited some of my cases, others derive comfort from a soft, felt pad, strapped under the middle of the ball of the foot. In case of severe, recurring attacks, and especially where there is much complaint of cramps in the calf, a two weeks' rest-cure has done wonders for some of my patients. Osler speaks of terrific attacks of knotting of the vessels of the calf, in old persons, requiring opium for relief. An *x*-ray picture demonstrates such vessels, as well defined, bony tubes. After the heart or kidneys have become insufficient, we are apt to be consulted for swelling of the legs, or for weakness; the orthopedist can be of little service, except to refer the patient to a general medical consultant, and to provide for bandage support such as the crepe bandage, and to order massage of the extremities.

At this period of life, arteriosclerosis is an important but little recognized factor in the production of ankylosis. For instance, on removing the dressings immobilizing a Colles' fracture, you find that the shoulder or the fingers, and perhaps, too, the wrist, are stiffened from a form of traumatic arthritis. This condition is little understood, and might form the text of a sermon on the evils of prolonged fixation in old people. The rôle that arterial degeneration plays in the senile atrophic form of arthritis deformans is to be noted. How many cases of deforming of the fingers and hands, by deposits like Heberden's nodes, are associated with hardening of the arteries? A number of my cases have been relieved of joint symptoms of disabling

nature, by rest, proper support, etc.—only to be overtaken within a year by grave symptoms of arterial or cardiac disease.

*Aneurysm.*—We have long been on the lookout for cases of aneurysm, and only encountered one. This was a popliteal sacculated mass that had recurred many years after ligation, in a syphilitic subject. The blood-vessels of the sole of the foot, exposed to the effects of much trauma, seem to be comparatively free from aneurysmal disease.

*Obliterating endarteritis.*—By far the most interesting group of arterial diseases in orthopedic clinics is the one most familiar under the caption of endarteritis obliterans. This type of vascular affection is notorious for the frequency with which it is misdiagnosed. I have seen about seventy cases, and at least one-half had been under treatment for totally different conditions. One patient sued his family physician for heavy damages when gangrene occurred. Endangitis can be considered of economic importance, when an early diagnosis of a mild case may be the means of delaying, perhaps for years, unfortunate permanent disability. Some authors reject the division into Raynaud's disease, erythromelalgia, thromboangiitis obliterans, senile arteritis, and scleroderma. It is possible that these are all manifestations of the same process. A study of their occurrence in the orthopedic room, however, seems to indicate that they are etiologically, widely separate.

*Raynaud's disease.* — Well-marked Raynaud's disease, with true symmetrical local syncope, followed by asphyxia and gangrene, I have seen twice in children's surgical wards, but it is rarely encountered in orthopedic clinics. A mild form is quite common in which there is either ischemia or evanescent passive hyperemia. There is an apparent family predisposition to this vaso-motor disturbance in the feet, hands, and nose; Raynaud mentioned fright and the menstrual period as contributing factors. Persons quite healthy in other respects suffer from tingling in the feet and toes, and throbbing, aching, pain in the ankles. Immersion of the feet in very cold or very hot water causes them to swell and become very blue. For the faulty mechanism of the vaso-motor centers we refer the patients to the general practitioner for appropriate dietetic, climatic and drug treatment. Locally, alcohol sponging, avoidance of hot foot baths are advised. Stockings should be woollen and shoes that are comfortable and soft should be worn. The prognosis is good.

*Thromboangiitis obliterans.*—Buerger defines this condition as a clinical and pathological entity characterized by thrombotic occlusion of arteries alone or arteries and veins, giving subjective manifestations, chief among which are pain and the peculiar symptoms of intermittent claudication, and presenting objective phenomena, the most important among which are redness in the dependent position of the limb, marked blanching in the elevated position, evidence of arterial occlusion in the form of pulseless vessels, trophic disturbances of moderate extent and of even grave consequences, often terminating in gangrene of one or both lower extremities. Other careful observers declare that the same condition is caused by a proliferation of the intima of the smaller vessels, with progressive occlusion. The probability is that both kinds of lesions from amputated legs in presenile gangrene —in which all the vessels, even to the smallest vasa vasorum and vasa nervorum—are enormously thickened as to the *intima*, can occur. Etiology of thromboangiitis—Sex: The affection seems to occur in males only. Typical forms of the disease in females I have never seen, and there is no mention of such in recent literature. Age: The obliterative process probably begins between 20 and 35. Most of my patients, however, were about 35 when first seen. Condition: Most of the patients were poor, and of the type that seek dispensary relief, but several well-marked cases were observed in private practice, in people of means. Habits: Very few were moderate smokers —the greater part used tobacco to excess. This fact has been remarked by most writers on the subject, as the one good clue to the pathogenesis. There is abundant experimental evidence to prove that nicotine produces aortic degeneration in animals, still, conclusive evidence that tobacco causes arterial thickening and thrombosis is wanting. None of my patients took much alcohol. Nationality: Nearly all of my cases were Russian or Hungarian Hebrews, from no particular climatic zone. Buerger, Walter Stern and Bloomfield report the same. The latter describes one case in an Irishman. (MED. REC., Nov. 8, 1913.) Careful questioning did not furnish any light on the possibility of chronic ergot poisoning from poorly prepared bread in the "old country." Mental state: The patients were all neurotic, perhaps from their suffering; perhaps from heredity. Syphilitic taint: None of my patients admitted syphilitic infection. Before the days of the Wassermann reaction, men of large experience with endangitis declared that this was not a syphilitic manifestation. Buerger and Kaliski report forty cases with negative Wassermann reactions. Mercury and salvarsan have proven of no benefit in the men I have observed.

The earliest symptom is pain, grinding, tearing, aching in the back of the calf, the tarsus, ball of the foot and toes. The dorsalis hallucis, the dorsalis pedis, and the posterior tibial vessels are most liable to obliteration. The dorsalis hallucis gives off a metatarsal branch that descends to the sole, joins the plantar artery, to form the plantar arch. This anastomosis is formed at quite an angle: is thus subjected to an unusual amount of trauma, and has been the site of a thrombosis in two cases that puzzled colleagues of much wider experience than mine. The early symptoms give more trouble as time goes on, pain becomes more severe, all sorts of paresthesia, tingling, burning, are more or less constant. There is swelling, puffiness of the toes and dorsum of the foot, and at first, relief from elevating the foot. Patients complain that they cannot walk further than three or four blocks without pausing for several minutes for rest from the cramping, grinding pain. As matters progress pain is torturing, constant, ulcerations appear at the bases of the toes, or behind the edges of the toenails, and there is no relief from the elevated position. After a varying length of time, sometimes several years, gangrene of the toes or the large toe may appear. Physical signs: One is apt to be consulted when the foot is in a state of congestion; the dorsum of the foot is of a purplish blue, or a mottled magenta color. This may extend as far up as the knee. The foot may be cold, or the patient may complain of inability to keep it warm. There is not much edema, but the chronic obstruction to the circulation induces some thickening of the subcutaneous tissues. The reddened condition of the limb, called erythromelia by Buerger, disappears

rapidly or slowly by raising the foot well above the level of the hips. The earliest palpatory sign, even before the occlusion of the dorsal vessel of the foot, has been, in some of my cases, a marked tenderness of the posterior vessels, deep in the tissues of the calf. A periarteritis, which is quite characteristic, marks this line with distinctness and can be palpated when the knee is flexed and the foot relaxed. To feel the dorsalis pedis pulse both feet should be examined; look for a short vessel a finger's breadth to the outer side of the tendon of the extensor of the great toe as it passes in front of the ankle.

As the thrombus formation is localized to the smaller vessels at first the popliteal and posterior tibial arteries pulsate until the lesion has become more advanced. However, there have been cases in which the femoral had shrunk in size, and the lower ones were not detectable at the end of the first year of the illness. In about one-third of the cases the complication of venous thrombosis occurs. A short length of some saphenous branch is affected, a favorite site being at the inner side of the leg or foot. There is a red, indurated line of tender, thickened vein, adherent to the skin—cordlike—and not attended with much edema. This thrombophlebitis shows a great tendency to migrate, may be rarely found in the upper extremity, and indicates the wide-spread nature of the process. The following history seems to include a goodly number of the incidents of a well-defined presenile obliterating angitis, interesting because I have watched his progress for ten years: A Russian tailor, now about 53 years old. Smokes 20 cigarettes a day, in spite of the havoc that the habit has caused. He suffered for 18 months when he was 33, from neuralgic pain and coldness in the right hand, with red and blue swelling; this affection was the explanation of a pulseless right radial, at his first visit, when 43 years of age. During this year he suffered for three months from a frank thrombosis, from the base of the first metatarsal to the internal malleolus, on the right foot. Cyanosis of the toes and dorsum of the foot were visible; no dorsalis pedis pulse. Had lost 15 pounds in weight. He was examined by Dr. H. S. Patterson, who found the first sound of the heart of poor quality; general emphysema; abdomen negative; urine negative; all nerve tests negative. Carbolic acid applications were used regularly, and salicylates were administered internally for a time. This right foot troubled him less and less, but two years later he noticed a slight soreness in the *left* foot, which became gangrenous during his 47th year, and was amputated at the Mount Sinai Hospital. One year later he suffered considerably from obstruction of the circulation in the left hand, and at the end of this year a well-marked phlebitis appeared on the ulnar side. The left radial current seemed to course through the superficial volar artery. During the past three years he has been rendered miserable from periodic attacks of spasm or partial obliteration of the branches coming off from the abdominal aorta—a phase of this condition that has been described by G. A. Friedmann.

Treatment: The palliative treatment of well-marked endarteritis obliterans interests orthopedists because surgical treatment has offered so little hope, excepting when amputation was performed. Palliative measures that are of value are, first, posture. Patients are kept in bed for a period of six weeks, with the feet elevated above the level of the hips. In case of fissures or ulcers, dry antiseptics of a bland nature are used as dusting powders. Reports of successful *x*-ray treatment have been received. For the painful feet of ambulatory cases, 10 per cent. guaiacol-glycerin has proven of value. Daily baking of the limb should be tried. Fifty per cent. ichthyol ointment seems to relieve the painful thrombosis. For a number of years, when there has been no evidence of ulceration and where the patients can be kept under control, I have applied carbolic acid. The dorsum of the foot, soles, and both surfaces of the toes, are wiped with pure phenol on a wad of cotton, and, a minute later, carefully flushed with alcohol. The vasoconstrictor fibers in the skin are powerfully stimulated, for the part quickly blanches, and the current is driven into the deeper vessels, whose circulation is stimulated. This is the only explanation that has occurred to me for the noteworthy improvement that followed soon afterward. The applications can be repeated at weekly intervals—many patients asked for it. Encouraging reports are seen from the side-tracking of the arterial stream. I have seen four cases operated upon that seemed to have derived decided benefit. I have seen a larger number of total failures and believe that there is hope for the suitable early case, whose femoral has shrunk but little. Bernheim's work in this connection deserves praise—his operation is a side-to-side anastomosis between the femoral artery and the femoral vein. He allows a portion of the circulation to proceed through the diseased arterial trunk. Without anastomosis, a gangrenous toe can be amputated without the use of hemostatic forceps—the vessels do not gape, the operation is bloodless. After a successful side-tracking, the veins spurt in a fashion as lively as in a normal foot. Out of seven operations for thromboangitis obliterans, Bernheim reports four successes. He warns "against operating when the patient is too debilitated to stand any operative procedure," and advises ruling out "those in which artery and vein are evidently obstructed, or markedly sclerosed." An exploratory operation is suggested, in cases of doubt as to the suitability of the vessels for anastomosis, and amputation is advised at that time if the vessels are found too badly thickened. He insists that the operator be a man of experience and good judgment in vascular surgery. This new field, opened by the masterly work of Carrel, is widening every day, and bids fair to be very fruitful of benefit to the sufferer from vascular disease of the extremities.

Scleroderma is allied to the foregoing because of the almost constant finding of thickened arteries. An advanced case of scleroderma was brought to my office to attempt to mobilize his joints. He was an emaciated individual, with the skin tightly drawn over the bones, and the joints were stiffened by the binding of muscles, fasciæ, and tendons, to a greater degree than an ossified man. The spinal muscles had not escaped, and he could neither stand nor sit, without discomfort. A slight amount of benefit was derived from the painstaking use of Zander machines, stretching, and massage. Several years later he died from a generalized tuberculosis. Another patient complained of stiffness of the finger joints and carpus, as well as the ankles and feet. There was an advanced chronic parenchymatous nephritis, from which the patient, a married woman of 38, died six weeks later. This patient derived some comfort from judicious massage treatment.

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## A SIMPLE EFFICIENT EXTERNAL NASAL SPLINT.

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ASSISTANT SURGEON, THROAT, NOSE, AND EAR DEPT. OF THE THROAT, NOSE, AND LUNG HOSPITAL, NEW YORK

In reducing fractures of the nasal bones, or in the surgical correction of external nasal deformities it is often desirable to have an external nasal splint.

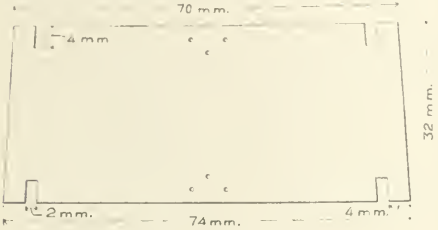


Fig. 1.—Pattern

The functions to be desired in an external nasal splint are, first, protection to the nose, especially during recovery from the anesthetic, and during sleep when the ununited bones are easily displaced; and second, support to the bones of the nose. The writer has been unable to obtain a splint in the market which combines the desired protection, with an adjustable support for the nose.

The following splint was devised, and has been found very satisfactory in the writer's hands. The splint should be made of a malleable metal which

Fig. 2.—Rubber tube slit to fit splint

will be sufficiently rigid to afford ample protection, and yet to be easily moulded to conform to any shaped nose. Thin sheet brass answers the purpose very well and this can be plated to prevent corroding.

The plate may be made as in the above plan. The notches in each of the four corners are to receive the rubber tubes and the perforations for retention stitches. The plate should be rolled in the middle so that the perforations are at either extremity of the rounded bridge, and the two edges forming the base are each parallel with the bridge but

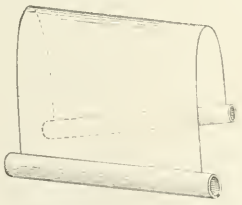

Fig. 3.—Semidiagrammatic view of splint.

form an angle with each other, which may be varied to conform to the angle of the two sides of the patient's nose.

Two thick-walled rubber tubes, each about 6 mm. longer than the sides of the splint, and with a 4 mm. bore may be slit lengthwise, leaving about 8 mm. intact at each end. These tubes can be easily stretched over the sides of the splint and they are held in place by the notches. Thus the tubes form a soft cushion for both edges and for all four corners.

The only point of contact with the nose should be through the rubber tubes along the posterior border of the nasal bones and on the nasal processes of the superior maxillary bones. The pressure should be moderate and directed from before backward. This

Fig. 4.—Splint in position

may be maintained by one stitch through the periosteum of the glabella, and another through the cartilaginous portion of the nose, thereby supporting the nasal bridge.

Adhesive plaster strips extending over the forehead and malar bones in such a way as to cross over the nasal splint are very convenient and serviceable to hold this splint in place. When in place this splint forms a perfect fracture box for the nasal bones, and cotton can be placed within the splint to make gentle pressure where desired, and to serve as a dressing in case a compound fracture exists.

The writer has found a gauze pack to be the best intranasal support to use in conjunction with the external splint.

6 South Arlington Avenue.

## LACERATED CERVIX UTERI AND REFLEX IRRITATION.

By I. WILLIS BALLARD, M.D.,

OPELIKA, ALA.

How many women there are who date the beginning of their ill health from the birth of their children? What a large percentage of gynecology is the direct result of childbirth. Much earnest endeavor is given by physicians to the prevention of those conditions which otherwise would result in deterioration of the mother's health. Proper antepartum attention, painstaking asepsis, the timely assistance of nature's efforts during labor, and proper care of a lacerated perineum after delivery constitute those measures which should always be employed as a means of insuring to the mother a return to normal health.

Despite our best efforts, however, we realize that there are a large number of women who never seem to recover from their confinement. The determination of the reason of such failure is sometimes most difficult and it is the consideration of certain almost universally overlooked causes in this condition that we shall undertake.

As a rule a history of their confinement will not reveal anything out of the ordinary. The first few weeks postpartum they did well enough; then their improvement came to a standstill. They did not regain their usual strength; they would pass entire days in a nervous, irritable state. The physician called to see them realizes they are not improving as they should, and furthermore, that the tonics, change of air and what-not prescribed for them are apparently of but little, if any, benefit. They are not sick enough to be confined to their bed, yet they are by no means well. An increasing weakness, a total incapacity for any prolonged, physical effort is the basis of their complaint. They become more nervous, at times unreasonably cross and irritable, or greatly depressed and morose. Commonly their symptoms show exacerbations at intervals, when in addition they are tormented by a greatly increased frequency of urination, accompanied with most urgent desire and followed by an uneasy, unsatisfied feeling afterwards.

These patients nearly always complain of digestive disturbances. Pain, fullness, and oppression after eating, and in some cases attacks of so-called pseudo-angina, with severe pain in the region of the heart are usually their complaint. Their voluntary limitation of diet at times results in its reduction to such an extent as to be insufficient to maintain nutrition, and the consequent pallor and loss of weight may at first cause one to suspect severe organic disease. They frequently are firmly convinced that they have heart disease or cancer of the stomach. Call these patients neurasthenics, hypochondriacs, or what-not, the fact remains that treatment based upon the statement of the patient and the asking of a few questions will not relieve them. I am firmly convinced that the principal reason why we do not have better results in the treatment of these patients is because we do not examine them carefully enough, or because when examining them we do not appreciate the importance of our findings.

Other than a determination of the presence of a secondary anemia and an abdomen rigid and generally sensitive, our examination will frequently proceed as far as the pelvis before we find appreciable pathology and this is all too often overlooked. I do not refer here to pelvic infections with gross pathology. These should certainly be readily diagnosed. I have reference rather to the less gross pathology of the cervix uteri, which, I repeat, frequently escapes detection during the ordinary vaginal examination.

In all cases included within the class under consideration, careful examination has revealed a pathological condition of the cervix uteri, either as an irritable, exceedingly sensitive laceration or as a hard contracting scar tissue formation. In the latter instance no actual solution of continuity of the cervical tissues may be found upon vaginal examination because during the course of months the laceration has become filled with scar tissue. Yet this incarcerated scar tissue, wedged into the hard unyielding body of the cervix, is, I believe, of far greater importance as a source of reflex irritation than is a cervix, perhaps widely lacerated, but the edges of which laceration have healed without becoming united with the enclosure of a mass of hard contracting tissue.

The determination of the presence of such a partly healed laceration may be difficult and requires a speculum and the careful use of the probe. Frequently there is a dimpling at the lower edge of the cervix at what was the base of the laceration and the smooth outline of the cervix is altered at this point; it gives one the impression of being contracted. Application of the probe to this point will reveal the fact that it is very sensitive and the use of the probe in the cervical canal will demonstrate a linear area of marked tenderness extending upward in the line of the old tear. There is usually but one such area because the cervix usually tears in but one place. I recall a patient in whom pressure with the probe upon this scar tissue would greatly increase the severity of a pain in her back, from which she constantly suffered. Pressure nowhere else about the cervix had any effect upon this pain and it was relieved entirely and immediately upon the operation of excision of this mass of scar tissue.

A second source of marked reflex irritation in this class of patients is the rectum. An irritated, tightly contracted sphincter muscle is an almost invariable finding, the introduction through which of the plain gloved finger becomes most painful, this in the absence of fissure of the anus. Hemorrhoids are so nearly invariably present, small, red, and irritable, that their presence may be assumed without a speculum examination. The treatment of these patients is to a high degree satisfactory and the results of conscientious effort are all that could be desired.

One of the first essentials preliminary to the requisite operative treatment is to relieve the intestinal stasis which frequently has developed coincidentally with the general condition. This is best accomplished by using colon irrigations with large quantities of warm normal salt solution over several days. Second, by means of daily boroglycerin tampons, one should draw off as much of the serous congestion of the cervix as possible. If a retrodisplacement is present one should use a tampon of sterile wool placed in front of the cervix. To support a retroverted uterus the usual tampon placed in the posterior vaginal fornix is practically worthless. By thus holding the uterus forward, the torsion of the broad ligaments and their contained blood vessels is overcome, facilitating the relief of the congested uterine body.

When we have obtained a soft cervix and a clean intestinal canal, we are ready for the necessary operative procedure. Dilate and curette the uterus and if it is large, soft, and freely bleeding, there should be inserted a packing of narrow sterile gauze to be removed after twenty-four to thirty-six hours. Next and most important, the cervix should be amputated. This is usually preferable to attempting to remove all the scar tissue and obtain primary union without the development of more scar tissue. A torn or relaxed perineum should be repaired, and finally the anal sphincter should be thoroughly dilated and all hemorrhoids, crypts, and papillæ removed. Citations of a number of recent cases will prove conclusively that after the above procedure these patients will then be in condition to realize the benefits of proper dietetic and tonic treatment.

Farmers National Bank Building.

# SALVARSAN IN NONSYPHILITIC DISEASES;

## A PRELIMINARY REPORT.

By WM. H. BEST, M.D.,

BROOKLYN, N. Y.

ASSISTANT VISITING PHYSICIAN, DEPARTMENT OF SYPHILIS AND CUTANEOUS DISEASES, KINGS COUNTY HOSPITAL.

AFTER the furor following the introduction of salvarsan abated, and the drug assumed its rightful place in the therapy of syphilis, investigators the world over began the use of this drug in other than syphilitic diseases, for the purpose of enlarging its sphere of usefulness.

Shortly after we started the routine use of salvarsan at Kings County Hospital in the treatment of syphilis, we noted the coincident improvement of the tuberculosis in several cases of syphilis complicated by this disease. Thinking at first that the apparent response might be explained by a mistaken diagnosis (the pulmonary lesions being specific instead of tuberculous), in subsequent cases such measures were taken as to establish conclusively the existence of a tuberculous condition. Lessened cough, lessened expectoration, disappearance of night sweats, increase in weight, improvement of appetite, were noted in different patients. It was this rather unthought-of and unlooked-for result that first stimulated our attention to the possibilities of salvarsan in non-syphilitic diseases.

For the past three years, on the service of Dr. J. M. Winfield at Kings County Hospital, we have taken advantage of such opportunities as presented to treat a number of non-specific conditions with salvarsan. The diseases treated by us include cases of anemia, chancroid, filariasis, epithelioma, leprosy, lupus vulgaris, pityriasis rubra, psoriasis, tuberculosis, and trichinosis.

From our work and the work reported by other investigators it can be seen that some diseases respond as readily to salvarsan as does syphilis, that some act indifferently toward it, and still others are absolutely uninfluenced. The diseases in which the most brilliant results have been obtained are filariasis, frambesia, relapsing fever, Vincent's angina, amebic dysentery, malaria, and chorea. In fact, salvarsan here seems to be as specific as it is in syphilis. It will be noted that the etiological factor in the first four of these diseases is a spirillum of some variety, and it is as a spirillicide that salvarsan has reached its highest efficiency. In Vincent's angina the local application of salvarsan, either in the form of a dusting powder or suspended in glycerine, has given the same good results as the intravenous or intramuscular mode of administration. In scurvy, dermatitis herpetiformis, variola, and ulcus tropicum, salvarsan has shown a very definite influence on the disease, cutting short the course in some and modifying the severity in others.

A number of diseases have been treated in which the results have been very diverse, some cases of the disease showing improvement and even apparent cure, while in other cases of the same disease the results were negative. Some of the diseases showed immediate improvement after the injection only to relapse and pursue their regular course. In this group are included such diseases as anemia, keratosis follicularis, lichen planus, pemphigus, pityriasis rubra, Aleppoboil, leprosy, tuberculosis, and some of the tuberculides. In anemia, keratosis follicularis, lichen planus, pemphigus, and pityriasis rubra, arsenic has always been recommended and extensively used—with no constant results, however; and we find that salvarsan affects them with the same irregularity. In Aleppoboil, leprosy, and tuberculosis, the invading organisms occupy a protected position in the tissues, and hence the results obtained are in proportion to the number of organisms that can be reached by the salvarsan and destroyed.

A host of other diseases, among which are carcinoma, chancroid, erythema multiforme, Hodgkin's disease, psoriasis, rhinoscleroma, sarcoma, scarlet fever, trichinosis, and trypanosomiasis, have been treated with salvarsan, but with uniformly negative results.

It is with those diseases in which indifferent results were obtained that we are most concerned, and it is against these diseases that the efforts of the future should be directed. Our investigations are still being pursued with the idea of discovering the underlying factors that govern the success or failure of salvarsan in the treatment of nonsyphilitic diseases. It is also hoped that by a modification in the mode of administering salvarsan, or by the judicious combination of salvarsan with some other drug or drugs, more uniform and more permanent results may be obtained in those diseases which up to the present time have responded indifferently or sporadically to it.

44 PALMETTO STREET.

# Medicolegal Notes.

**Hypothetical Question—Basis of Opinion.**—In an action for personal injuries the plaintiff claimed to have sustained a fracture of the skull, a lesion of the brain which resulted in a partial or complete paralysis, and anesthesia of the right side. One witness testified that the plaintiff had been hit with a piece of plaster about 11 x 16 inches in size, another that it was only about 9 x 4 inches. One witness testified that after the plaintiff was struck by the plaster about a tumberful of blood flowed from his right ear, while another testified that only a small quantity of blood flowed; that it merely trickled out and coagulated. The attending physician testified that on seeing the blood flow from the ear, he diagnosed the plaintiff's injury as a lesion of the brain, while another physician testified that a few weeks after the injuries he concluded from the increasing paralysis that the plaintiff had sustained a fracture of the skull. To prove that the paralysis and anesthesia resulted from the injuries, the plaintiff's counsel called two medical experts, to whom he propounded a hypothetical question, which instead of containing a statement of the facts which the plaintiff claimed to have proved, contained a recital of the conflicting testimony and the opinions of the physicians who had attended the plaintiff. This was held to be error.

A hypothetical question put to an expert witness requires him to give his opinion based entirely upon an assumed state of facts. This question did not ask for an opinion of that kind. The experts, instead of being asked to assume that a tumblerful of blood had flowed from the plaintiff's ear, or that only a small quantity had done so, were permitted to decide for themselves just what the fact was; so, in regard to the size of the piece of plaster which struck the plaintiff, and the diagnoses of the two attending physicians. The result was that when the experts answered the question that in their opinion the injuries received by the plaintiff were the cause of his then condition, the jury was unable to say upon what facts that opinion was based. In other words, the experts might have assumed the existence of one state of facts, the jury have found such facts had not been proved, and yet it would be unable to say that the experts' opinions had been rendered upon facts not proved. The question should have been so formed that the answer when given would have enabled the jury to find whether or not it was predicated upon facts established.—Causa v. Kenney, 156 N. Y. App. Div. 134. 141 N. Y. Supp. 98.

# MEDICAL RECORD.

*A Weekly Journal of Medicine and Surgery.*

THOMAS L. STEDMAN, A.M., M.D., EDITOR

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New York, May 2, 1914.


## GUNSHOT WOUNDS UNDER RECENT TYPES OF ARMAMENT.

THE civil as well as the military surgeon should be interested in this subject, since the same types of weapons are used in civil life as in the majority of the armies of the world. Furthermore, in time of war many civil surgeons are called to the aid of the regular staff. The recent books on gunshot injuries by La Garde* and by Makins† are of unusual interest and have been freely quoted in the preparation of this résumé of some of the characteristic features of wounds under the old and new armaments.

In 1892 the War Department made a series of experiments at real or simulated ranges in order to determine the nature of the injuries which would result from the use of the reduced caliber, high-speed, jacketed bullet. La Garde states that the conclusions were: "(1) The shock impressed upon a member increases with the velocity whether a bone is traversed or not. It is always greater with the larger caliber leaden projectile. (2) The explosive effects at very short ranges are about the same for the two projectiles and they continue so up to about 350 yards. (3) The smaller frontage of the jacketed bullets causes them to inflict injuries resembling subcutaneous wounds when the soft parts alone are traversed, and the small wounds of entrance and exit and the narrow track of the missiles are favorable circumstances to rapid healing. (4) The blood vessels are seldom torn by the small jacketed bullet and when wounded they are not closed so easily by coagulation as those severed by leaden projectiles. (5) Injuries inflicted outside the zone of explosive effects upon the shafts of the long bones always show less comminution with the small bullet of hard exterior. The fissures are often subperiosteal and the fragments are larger. (6) Beyond the zone of explosive effects the projectiles of hard exterior almost invariably perforate or gutter the joint ends of bone and the lesions of the articulations are never so grave. (7) The projectiles of hard exterior lodge less frequently in the tissues than the old leaden bullet. (8) The old leaden bullet more often leaves fragments of lead in the foyer of fracture. (9) As the projectiles of smaller caliber are less apt to lodge or to carry foreign substances into the wounds, we will expect to find fewer cases of suffering due to the remote effects of unextracted foreign bodies. (10) The frontage of the jacketed bullet being much less and the fact that it does not lodge as often as the larger leaden bullet will serve to increase the percentage of recoveries in gunshot wounds of the lungs. (11) Owing to diminished frontage the new bullet will cause less disfigurement in wounds of the face. (12) The projectiles of hard exterior are more humane than the old, resections and amputations will not be so often required hereafter, soldiers will be more often restored to the State useful members of the community instead of cripples and pensioners, and in point of economy the new projectile will confer a great advantage." In general, we may say that these conclusions have been verified by actual experience; but space permits the consideration of only a few of the many interesting facts brought out by the recent wars.

According to Fischer, 22 per cent. of all gunshot wounds in war involve fractures of the long bones. While injuries to the shafts of the long bones at the short and very long ranges are similar to those which were observed with larger bullets of relatively low speed, those inflicted at other ranges are far less severe as to the laceration of soft tissues and splintering of bone, there is less fissuring, the fragments are larger and more apt to remain attached to the periosteum. According to La Garde, these differences are especially noticeable from the 500 to the 1,500-yard ranges. At 2,000 yards the small bullet again shows extensive comminution.

Formerly wounds of the larger joints ranked next in severity to those of the body cavities, while now in but one other location is the comparatively beneficent effect of the new armament more clearly shown. That at practically all ranges there is almost uniform clean cut perforation of the epiphyses with little or no fracture has been shown in all recent wars. In former times the bone was fragmented and extensively fissured and these cases were almost always septic. In the Civil War the mortality from wounds of the hip was 84.7 per cent.; of the knee, 53.7; ankle, 26.7; shoulder, 31.1; elbow, 9.4, and wrist, 12.9 per cent.; while in the Spanish-American War the mortality in wounds of the hip was 33 per cent.; of the knee, 5.5 per cent., and there was no mortality for wounds of the other joints. In the Manchurian campaign Follenfant found 1,382 injuries of joints with but 7 deaths and 72 resections. La Garde states that "as far as is known no amputation resulted either in the Spanish-American or Boer wars for gunshot of a large joint by a small jacketed bullet. Primary excision for gunshot of the larger joints is correspondingly rare. * * * We do not recall a formal excision of a joint (at Santiago ) for the mechanical effects of the Mauser bullet. There were 17 cases of gunshot injury to the knee. These were immobilized and shipped North, and 82 per cent. of them were restored to duty in a few months."

*"Gunshot Injuries," by Colonel Louis A. La Garde, U. S. A. Medical Corps (Retired). New York: Wm. Wood & Co., 1914.

†"Surgical Experience in South Africa," by George Henry Makins, C.B., F.R.C.S. New York: The Oxford Press, 1913.

In wounds of the spine, on the other hand, the mortality is higher than formerly. In the Civil War Otis found the average for all regions to be 55.5 per cent., while in the Spanish-American War the mortality was about 75 per cent. This increase is due to the fact that the small jacketed bullet is not stopped very much by the soft parts, passes directly through the vertebræ and shatters the processes, the flying splinters of bone acting as still further instruments of destruction to the cord and membranes. The cord may also be indirectly injured and suffer concussion, contusion, intra- and extramedullary hemorrhage. According to Makins, these injuries may come from "vibratory force communicated to the cord by its enveloping bony canal."

Injuries of the head at proximal ranges are of the explosive type. La Garde says: "Extensive fissures radiate toward each other from the points of entrance and exit. Fractures of the base through the sphenoids and temporal bones are not uncommon and instances are described in which the skull cap and the skin covering it have been literally torn away." In the Civil War the mortality for all types of cranial injuries was 59.2 per cent. The British surgeons in the Boer War "carried out the policy of early, thorough, and careful exploratory work in all head cases" with an average mortality of only 29.1 per cent. In injuries of the face there was much less disfigurement than under the old armament. Wounds of the neck are not nearly so fatal as formerly. Secondary hemorrhage was a very important factor in the death rate in these cases in the Civil War, and this has been almost entirely eliminated. Aneurysm of the great vessels of the neck is, however, much more frequent than formerly, and the same is true of the incidence of aneurysms in other parts of the body, especially the extremities. In the Franco-German War aneurysm occurred once in 2,000 cases, while in the Boer War Graf found 4 per cent. of the wounded had some form of traumatic aneurysm. Arteriovenous aneurysms are being reported in increasing numbers from the recent wars. The injuries to blood-vessels appear to be one of the chief characteristic lesions of the new bullet. It cuts the side of a vessel or scoops out a hole in a large vessel like a cutting instrument, leaving a band on each side of the openings. The cut edges are not lacerated and external or, more frequently, internal hemorrhage takes place at once. In the body cavities this hemorrhage is very fatal.

Under former conditions chest wounds comprised 8 per cent. of all those treated in war hospitals. With present day field tactics the percentage is greater. The comparative beneficence of the new bullet is most strikingly shown by the reduction in mortality in penetrating wounds of the chest. Under the old armament Otis records 8,715 cases with a mortality of 62.5 per cent. In the Crimea the French army had a mortality in these cases of 91.6 and the English 79.2 per cent. "Generally speaking, 60 per cent. of the penetrating gunshot wounds in former wars killed. In campaigns which entailed privations * * * the mortality was rated above 90 per cent. * * * Out of 283 cases reported from the Spanish-American War and Philippine insurrection our mortality was 27.5 per cent." Out of 214 cases treated in the Boer War 30 died, a mortality of 14 per cent. "Oettingen, from the Manchurian campaign, says that when injuries of the lungs were simple they were among the most harmless of those met in war. Follenfant collected the results in 945 gunshot wounds of the lungs and pleura in the hospitals at Mukden with a mortality of 3.67 per cent." The reason for the higher percentage in the American report is that the field stations were near the line of battle and thus many fatal cases were included in the reports which would never have lived to reach the hospitals and be included in hospital statistics. Hemoptysis is present in about 75 per cent. of the cases, lasts 3 or 4 days as a rule, and calls for no treatment. Makins found pneumothorax in less than 3 per cent. of perforating chest wounds by the reduced caliber bullet. Many of the soldiers shot through the lung at Santiago had no dyspnea, pain, or hemoptysis, so that the surgeons found it difficult to enforce proper rest.

It is hard to say just what difference in mortality from abdominal wounds has followed the use of the new armament. Undoubtedly a much larger number are killed outright because of the increased liability to internal hemorrhage and the increased shock from the laceration of intraabdominal organs. When the abdomen has been penetrated visceral perforations are present in 97 per cent. of the cases. The gravity of this class of wounds ranks with that of wounds of the head and spine. According to La Garde, "Penetrating and perforating wounds of the abdomen, regardless of the viscera involved, gave a mortality of 92.5 per cent. in the Crimean War, 90 in the Civil, 69 in the Franco-German, 67.1 in the Spanish-American and Philippine wars, and approximately 56 per cent. for the Russian wounded in Manchuria." The reduced caliber bullet proves deadly at the proximal ranges, especially when the stomach and intestines are filled with solid or fluid material. At mid and more remote ranges these wounds are far less deadly, and there have been many apparently miraculous escapes from death in soldiers wounded in the abdomen at these ranges.

The treatment of these cases should be entirely different in the field from that in civil practice. On the field the best results have followed non-intervention and that is advised except in cases of internal hemorrhage. Under the rule of non-operation, morphine, ice-bag, and no food for days, De Sarlo reported 55 per cent. of cures in the Italo-Turkish War.

It will thus be seen that the principal advantages over the old armament, from the humane point of view, accrue to those receiving wounds in the epiphyseal ends of the long bones or directly through the joints; to those receiving fractures of the long bones at mid ranges; and to those who receive penetrating wounds of the chest without injury to any of the large vessels or nerves; while it is also to be noted that there is less danger of see-

ondary hemorrhage from the laceration of blood vessels, less laceration of soft parts and hence less sepsis. On the other hand, the mortality is increased in wounds of the spine and in wounds of the head at proximal ranges, there is a great increase in the number of aneurysms, and the percentage of deaths on the battlefield to the total number of wounded is greater because of the increased frequency of severe internal hemorrhage and shock from more extensive injury to the thoracic and abdominal viscera. Unless vitally wounded and dying within a few hours, most of those injured under the conditions existing in the recent wars have a much better chance of surviving, and that too without serious permanent functional disability. The future, however, promises a return to inhumanity, for the so-called spitz bullet, which has its center of gravity placed well back and turns sideways upon meeting much resistance, has been adopted by the War Departments of several nations. This bullet, delivered at very high initial velocity, causes even more comminution of bone, epiphyses as well as shafts, and more extensive laceration of soft tissues than the old leaden bullets, for after entering the tissues it turns on itself and passes through the tissues sidewise, tearing and lacerating them fearfully. Hence the mortality and percentage of permanent disability are likely to be increased in future wars when this type of bullet is used.

## THE CARE OF CRIPPLES IN THE UNITED STATES.

To care for cripples properly is now recognized as the bounden duty of every civilized community. Such care is to a great extent an index of the degree of civilization to which a nation has attained and unfortunately also the number of physically deformed is more or less a criterion of civilization. The more a country is engaged in industrial pursuits, the larger is its number of cripples likely to be. Regarded from this standpoint the United States is certainly a very highly civilized country for in the number of its cripples it takes a foremost position. However, with regard to its care of those maimed by disease, by accident, or congenitally, the United States is also in the front rank, and, as in European countries, the right of such persons to be educated so as to be self supporting, if possible, and in any event to have their way made comparatively smooth, is being more and more appreciated. A practical illustration of the concern manifested in the welfare of cripples has been afforded recently by the appearance of the first number of the *American Journal of Care for Cripples*, edited by Douglas C. McMurtie, assisted by an editorial board of medical men, and published by the Federation of Association of Cripples. The publication committee consists of four lady members of the Federation, the president of the Federation being Mrs. George F. Shrady. The opening number is excellent and includes articles by Dr. Gwilym G. Davis of Philadelphia on the "Education of Crippled Children," by Dr. Augustus Thorndike of Boston on "Industrial Training for Crippled Children about Boston," by Katherine W. A. Shrady on the "History of the Federation of Associations for Cripples," by Mr. Douglas C. McMurtie on the "Early History of Care for Cripples," by Dr. H. Winnett Orr of Lincoln, Neb., on "A Statistical Estimate Relative to the Number of Cripples in the United States," and by Grace F. Hardy of Boston on "A Course in Basketry and Cane-seating." The article by Dr. Davis, which was read before the Orthopedic Section of the New York Academy of Medicine, December 4, 1913, describes clearly the character of education suitable to crippled children of different kinds and the wonderful results often obtained. Dr. Davis points out that crippled children constitute a sort of middle class; they should not be driven as totally well children would be driven, nor should they be nursed as sick ones would be nursed. In other words, they should have a distinct, separate, special method of treatment of their own adapted to their peculiar needs. Katherine W. A. Shrady gives an interesting account of the history of the Federation and states that its general object is to coordinate the work of the various societies interested in cripples by the establishment of a central bureau, where a complete registry is kept of all homes, schools, hospitals, aid societies, fresh air agencies, etc., so that cripples may be referred there for information. The statistical estimate by Dr. Orr regarding the number of cripples in the United States places it at 259,754. The article by Grace F. Hardy is an outline of the course of basketry in the Industrial School for Crippled and Deformed Children in Boston. The journal is most commendable in its intention and if it lives up to the high standard of its first number will be from the purely literary point of view of importance. It has a wide field of usefulness, for the lack of such a publication hampers considerably the work of societies endeavoring to improve the lot of the crippled. The journal should and doubtless will be the means of disseminating information among the many rich and charitably disposed persons who are desirous of assisting those who in the battle of life have to contend with physical disabilities brought about by disease or accident.

## MEDICINE AND MATHEMATICS.

The time may be not far distant when it will no longer be said that medicine is not an exact science. Recent developments in medical knowledge have been dependent largely upon the application of mathematical principles to some of its fundamental problems. A lucid thesis on the application of calculus to the medical sciences is presented by I. J. Schwatt in the *American Journal of the Medical Sciences*, March, 1914. He shows how the methods of differential and integral calculus have been instrumental in the discovery of mechanical and chemical laws and processes. But the natural sciences have likewise profited by the application to them of the methods of higher mathematics. It is pointed out that calculus is the very language of nature, all of whose operations proceed by infinite-

ly small degrees. The growth of a living thing is made up of an infinitely large number of infinitely small increments. These are definite quantities that can be handled by the methods of calculus. The laws of optics and acoustics, the principles of electrophysiology, the science and technique of roentgenology, the new methods of sphygmography and electrocardiography, all these make large demands upon mathematical science. René Descartes, the inventor of analytical geometry, is said to have written the first book on physiology published. Borelli, the famous mathematician and physicist of Pisa, wrote a treatise on animal motion. One of the most important of the modern applications of mathematics to physiological research was the work of Wolff of Berlin, who elaborated the "law of the transformation of bone." This law correlates the shape and inner structure of bone with the mechanical stresses acting upon it. "Just as a pathological stress will cause abnormal changes in a bone, so, on the other hand, a deformed bone may be made to return to its normal state by well-directed changes in the stress acting upon it." Upon this law Wolff based his method of treating clubfoot and other bony deformities. Abbot's treatment of lateral curvature is another application of the principle.

Traube's recent work on surface-tension in relation to osmosis, digestion, narcosis, hemolysis, serodiagnosis, etc., is largely based upon physical and mathematical studies. It would appear as if the medical student of to-day must have a good fundamental knowledge of mathematics in order to comprehend many problems and methods in physiology and clinical medicine.

### An American Posture League.

Sir Arbuthnot Lane by his dictums concerning the ill effects on the human system of incorrect posture has recently attracted wide attention to the matter. The manner in which a person lives has much to do with the state of health, and correct physical posture will go some way towards warding off several diseases and disorders. The American Posture League has been formed with the view of educating the people as to proper posture and is concerned with the sitting and standing position of children in schools and of adults in shops, offices, factories, and elsewhere. There is no doubt that education with regard to a healthy mode of sitting and standing, especially of sitting, should be taught and practised in schools. If children were thoroughly trained in this direction at school, not only would physical and constitutional benefits accrue to them at the time, but the lessons learned would never be forgotten. In no country of the world, except it be in Great Britain, could be found a wider field for work of this kind. Whatever may be urged against a universal military service, the fact remains, that it teaches discipline of the mind and body and tends to produce a healthy race. As an example of the truth of this statement, the boy scouts may be pointed to. Since the boy scout movement has gained popularity in America and Great Britain, the physical appearance of the youth of these countries has considerably improved. The American Posture League is working along rational lines and deserves the support of the medical profession.

### Varieties of Nanism.

The number of recognized varieties of nanism has been increased in late years as a result of the study of anomalies of the ductless glands. Woygandt, at a recent session of the Aerztlicher Verein of Hamburg (*Berliner klinische Wochenschrift*, No. 13, 1914), has differentiated numerous types of dwarfs. The first is characterized by normal ossification, good intelligence, and normal genitals and is known as "true dwarfism." Next in order comes the "infantile type," which on the whole is very doubtfully characterized. Third comes the rachitic dwarf, and fourth the well-known chondrodystrophic dwarf. These constitute a special study. Next in order come the already mentioned types of dwarfism due to anomalies of internal secretion, as brought out by various causes—thyreogenic, dyspituitary, etc. These have a marked psychic component and our knowledge of them is in its infancy, aside from myxedema and cretinism.

## News of the Week.

**Tuberculosis Clinics.**—Some interesting figures are contained in the annual report for 1913 of the Association of Tuberculosis Clinics of New York. At the twenty-nine clinics maintained by the Association there were recorded 16,016 new cases during the year, the attendance at the clinics being 34,816. The figures of the Department of Health show a more or less constant total of 30,000 registered cases, while its report for last year gave the number of new cases as 22,671, including 6,000 "not found," which emphasizes the importance of the clinics in the tuberculosis work of the city. The number of children reported as under clinic care increased from 1,780 in 1909 to 8,392 in 1913. In 1909 the visits made by nurses numbered 41,870, while in 1913 they reached a total of 84,305. The number of cases discharged as nontuberculous was 2,679 in 1909 and 7,593 in 1913. The Association believes that the gains in clinic work show a more complete and efficient working of the district system, a greater recognition of the value of preventive work among children, and a more careful and intensive follow-up work in individual families. The educational propaganda being carried on has had definite good results, and the cordial cooperation between the Department of Health and the private clinics has been an important factor in the carrying out of the ideals for which the association has always stood.

**Medal for Gorgas.**—Surgeon-General William C. Gorgas, United States Army, has been awarded by the American Museum of Safety a gold medal in recognition of his achievement in cleaning up the Canal Zone and freeing the country of the fever and pestilences which had previously made engineering work almost impossible.

**Dr. William Hallock Park** has been appointed Dean of the University and Bellevue Hospital Medical College to fill the vacancy caused by the death of Dr. Egbert Le Fevre.

**Bronx Hospital.**—The erection of a hospital for contagious diseases in the Borough of the Bronx seems at last to be assured. Following the protests of neighboring residents as to the use of the tract purchased for the purpose some ten years ago, a committee of the Board of Estimate was appointed early in the year to reconsider the matter, and this committee recommended the purchase of a tract of thirty-three acres in the upper part of the

borough, known as Seton Falls Park, which is very suitably situated for the purpose. The committee's recommendation having been approved by the Board of Estimate, the purchase was finally sanctioned by the Board of Aldermen on April 14. An appropriation of $125,000 of corporate stock which was voted in 1911 for the erection of a hospital on the site then under consideration remains available, and will be used for the construction of the first hospital building at Seton Falls Park.

**Memorial to Dr. Musser.**—In the social service room at the Hospital of the University of Pennsylvania, Philadelphia, there was unveiled on April 15 a bronze tablet erected in memory of Dr. John H. Musser, the founder of the service.

**Smallpox in Hospital and Lodging House.**—Dr. Charles Tidd, an interne at the Philadelphia General Hospital, developed smallpox recently and was removed to the Municipal Hospital for Contagious Diseases. All the employees of the former institution were at once vaccinated, with the exception of those who had only recently been so protected, and as it has long been the practice at the hospital to vaccinate all new patients on admission no apprehension as to the spread of the disease is felt.

The discovery of a case of smallpox in the Municipal Lodging House in New York on April 22 caused a wholesale vaccination of the lodgers and employees—600 in all. The patient was removed to an isolation hospital in Brooklyn, and the house was thoroughly fumigated.

**Fire at Sea View.**—A small fire in the sleeping quarters of the staff of the new Sea View Hospital on Staten Island, N. Y., on April 19, caused considerable commotion and alarm for a time. The members of the staff were forced to leave in their night clothes, but the flames were controlled by the fire brigade of the institution and the damage did not amount to more than $500.

**City Death Rates.**—For the week ending April 18 the death rate for New York City was 14.63 per 1,000, representing a total of 1,566 deaths. This was a decrease of 1 in the total number of deaths as compared with the same week of 1913, when the rate was 15.22. For the first sixteen weeks of this year the death rate was 15.26, as against a rate of 15.42 for the same period of last year.

**Infant Death Rate.**—Figures recently compiled from the statistics of the Department of Health of New York City by the Registrar show a steady decrease in the infant mortality of the city during recent years. During 1913 the number of deaths was 12,442, giving an infant death rate of 37.3 per 1,000, as compared with a death rate of 96.5 per 1,000 in 1891, the year preceding the opening of the Straus milk depots. For the summer months of June, July, and August, 1913, the death rate among children was 38.8 per 1,000, or only 1.5 per 1,000 greater than the rate for the entire year, while in 1891 the summer death rate was 125.1 per 1,000. In 1910 the yearly death rate was 48, in 1911, 43, and in 1912 39.6 per 1,000, and the summer death rate for the same years was 57.4, 46.3, and 41.7, respectively.

**Nurses Graduate.**—At the graduation exercises of the Bellevue Hospital Training School for Nurses on April 20 forty-eight young women received diplomas, and 104 others who had completed a post-graduate course received certificates. Dr. John Winters Brannan, president of the Board of Trustees, addressed the graduates.

**Coffin Seals.**—In order to insure a proper enforcement of Section 141 of the Sanitary Code of New York City, which requires that coffins containing the bodies of persons dying from certain infectious diseases be "properly sealed" or "immediately and permanently sealed," the Department of Health has provided a seal, printed on adhesive paper, to be placed upon the coffin by the undertaker as soon as the body is inclosed therein. The seals will be distributed among the undertakers in the city and the nurses and inspectors of the Bureau of Infectious Diseases have been instructed to make sure that all coffins containing the bodies of persons dying from diphtheria, scarlet fever, measles, and other infectious diseases, are closed with one of these seals. In one or two instances during the past year the Department of Health has obtained evidence that coffins containing such bodies have been opened by the family after being closed by the undertaker, and in one case, under the care of a Christian Scientist, and not reported to the Board of Health until too late to insure a private funeral, the coffin was open throughout the church services.

**Science Healing Bill Vetoed.**—After due consideration, Gov. Glynn of New York on April 23 placed his veto upon the bill passed at the last session of the Legislature, which was intended to legalize the practice of Christian Science healing in the State. The Governor stated that the bill which permitted "any person who ministers to or treats the sick or suffering by mental or spiritual means without the use of any drug or material remedy" to practise in this State without interference, would "open the gates to all kinds of medical pretenders, who would swarm across our borders and pretend to practise medicine upon our citizens." "Under this phrasing of the proposed law," he added, "I am precluded from passing upon the claim of the sincere believers in Christian Science." The Governor also refused to sign Senator Herrick's bill which gave to osteopaths in New York City the right to sign death certificates. The bill exempting drug store employees from certain provisions on the labor law, and fixing a separate schedule of hours for drug store employees was signed by the Governor, who considered the exceptions proposed entirely reasonable.

**Dr. Janeway Called to Johns Hopkins.**—Dr. Theodore C. Janeway has accepted the offer of the professorship of medicine at Johns Hopkins University. Under the new plan adopted at the University this will necessitate the giving of full time to teaching to the exclusion of private practice.

**Cross of the Legion of Honor for Dr. Flexner.**—The President of the French Republic has conferred the Cross of Chevalier of the Legion of Honor on Dr. Simon Flexner of the Rockefeller Institute in recognition of the services rendered by him to science.

**Experimentation to Continue.**—After a conference with the Trustees of the University of Pennsylvania following the close of the trial of Prof. J. E. Sweet for cruelty to animals and the disagreement of the jury, Dean William Pepper of the Department of Medicine announced that the continuation of the experimental work in the medical school was authorized. It was agreed by all that the university owes it to humanity to continue the work without interruption.

**Revision of the Pharmacopœia.**—Under the auspices of the New York Branch of the American Pharmaceutical Association a joint meeting of physicians and pharmacists will be held on the

evening of May 18 at 8 o'clock at the College of Pharmacy Building, 115 West 68th street, New York City. The subject will be "Pharmacopœial Revision." Professor Remington of Philadelphia, chairman of the Committee of Revision, will lead the discussion. It is earnestly hoped that the medical profession will be largely represented.

**Gifts to Charities.**—The Presbyterian Hospital, New York, is one of two residuary legatees named in the will of Mrs. Nellie M. Noe, and it is expected that the hospital's interest will amount to at least $100,000. In addition to this bequest Mrs. Noe left $5,000 to the New York Society for the Relief of the Ruptured and Crippled and $10,000 to the Home for Crippled Children at Rye, N. Y.

The Wesley Hospital, Chicago, has received from Mr. James Deering, the son of its founder, a gift of $1,000,000 as an endowment fund, the income to be expended exclusively for the care of free patients. In accepting the gift the Trustees of the institution voted to change its name to the Wesley Memorial Hospital.

The Hospital of the Holy Family and St. Mary's Hospital, Brooklyn, receive $2,000 each by the will of the late John McNamee of that city.

A number of New York institutions have benefited by the will of the late Mr. Emil Levy of this city; Mount Sinai Hospital receives $2,500; the Montefiore Home, Lebanon Hospital, the Hospital for Deformities and Joint Diseases, and the Jewish National Hospital receive $1,000 each; and the Beth Israel Hospital and the German Hospital Dispensary $500 each.

The Milford Hospital, Milford, Mass., receives a bequest of $100,000, to be used as an endowment fund, by the will of ex-Governor Eben S. Draper of Massachusetts, who died recently.

The New York Skin and Cancer Hospital receives a bequest of $1,000 by the will of Mr. H. B. Thacker of this city, and an equal amount is left to the society for the Relief of Destitute Blind and to the Home for Destitute and Crippled Children.

The sum of $3,000 each is left to the Jersey City Home for Aged Women and Christ Hospital, Jersey City, N. J., by the will of the late Mr. Dudley Fleming of that city.

**Medical Society Elections.**—TENNESSEE STATE MEDICAL ASSOCIATION: Annual meeting at Memphis on April 7 to 9. Officers elected: *President*, Dr. Samuel M. Miller, Knoxville; *Vice-Presidents*, for Middle Tennessee, Dr. Hilliard Wood, Nashville; for East Tennessee, Dr. John Morgan Clack, Rockwood; for West Tennessee, Dr. Samuel T. Parker, Lexington; *Secretary*, Dr. Olin West, Nashville; *Treasurer*, Dr. Charles N. Cowden, Nashville.

HARTFORD COUNTY (CONN.) MEDICAL SOCIETY: Annual meeting at Hartford on April 7. Officers elected: *President*, Dr. William R. Miller, Southington; *Vice-President*, Dr. Frederick T. Simpson, Hartford; *Secretary-Treasurer*, Dr. Albert R. Keith, Hartford.

**The Late Dr. Le Fevre.**—The following minute was adopted at a recent meeting of the Bellevue Alumni Society: "The Society of the Alumni of Bellevue Hospital has learned with the deepest sorrow of the death of Egbert Le Fevre, M.D., Sc.D., LL.D., one of its founders and former presidents, and for twenty-eight years a loyal and active member. The peculiar friendship existing between the members of the society renders his loss an especially personal one. He was held in high esteem because of his wide range of knowledge and unusual ability as a diagnostician and therapeutist. He gave liberally of his time and talents to the uplifting of the profession and to the advancement of medical education and was universally respected because of his inflexible integrity and high professional ideals. The society mourns deeply its loss and extends to his family sincere sympathy in their bereavement."

**Obituary Notes.**—Dr. JULIUS CAESAR LAUER of Long Island City, N. Y., a graduate of the University of Berlin, Germany, in 1893, died in the German Hospital, Brooklyn, from blood poisoning following a bite from a child to whom he was administering diphtheria antitoxin, on April 20, aged 56 years.

Dr. ALLEN F. BARNES of Cambridge, Mass., a graduate of the Harvard Medical School, Boston, in 1902, visiting surgeon to the Cambridge Hospital, bacteriologist to the city health board, and a member of the American Medical Association, the Massachusetts and Middlesex County Medical Societies, the Cambridge Society for Medical Improvement, the Boston Society of Medical Sciences, and the Alumni Association of the Massachusetts General Hospital, died at the hospital, after a short illness from bronchitis, on April 12, aged 38 years.

Dr. CHARLES HUNT PORTER of Springfield, Mass., a graduate of the College of Physicians and Surgeons, New York, in 1908, died at his home on April 16, aged 43 years.

Dr. WILLIAM D. MACQUISTEN of Detroit, Mich., a graduate of the Michigan College of Medicine and Surgery, Detroit, in 1891, died at St. Mary's Hospital, after a short illness, on April 6.

Dr. WILLIAM T. KIRBY of Chicago, Ill., a graduate of the Northwestern University Medical School, Chicago, in 1897, and a member of the American Medical Association and the Illinois State and Chicago Medical Societies, died at the Wesley Hospital, on April 16, aged 40 years.

Dr. SAMUEL C. THOMAS of Milroy, Ind., a graduate of the Eclectic Medical College, Cincinnati, O., in 1858, and a member of the Indiana State Medical Association, and the Rush County Medical Society, died at his home, from paralysis, on April 10, aged 82 years.

Dr. WARREN H. HORTON of Florence, Neb., a graduate of the Kansas City, Mo., Homeopathic Medical College in 1891, died suddenly while in his automobile responding to a call on April 4, aged 70 years.

Dr. DUKE C. DARNELL of Vernon, Texas, a graduate of the Medical Department, University of Louisville, Ky., in 1888, died at his home on April 4, aged 54 years.

Dr. HENRY H. LEE of Wells River, Vt., a graduate of the University of Vermont College of Medicine, Burlington, in 1881, a surgeon in the United States Army during the Spanish-American War, attending surgeon to the Cottage Hospital, Woodsville, and a member of the Vermont Tuberculosis Commission, the American Medical Association, and the Vermont State and Caledonia County Medical Societies, died at his home after a long illness on April 4, aged 56 years.

Dr. ADOLPH A. MARGOLIES of Brooklyn, N. Y., a graduate of the University of Konigsberg, Germany, in 1879, died at the German Hospital on April 20, aged 65 years.

Dr. HERMAN FRITSCH of Philadelphia, a graduate of the Jefferson Medical College, Philadelphia, in 1870, died at his home on April 16.

# Correspondence.

## OUR LONDON LETTER.

(From Our Regular Correspondent.)

CAMPAIGN AGAINST FLIES—PERSONALITY DISTURBANCES IN MENTAL DISORDERS—BIOLOGICAL SIGNIFICANCE OF DELUSIONS—MARRIAGE OF WOMEN IN PUBLIC POSITIONS.

LONDON, April 10, 1914.

We are waging war against flies. The campaign was opened on Monday by an appeal in the press, signed by 123 Medical Officers of Health, for the cooperation of the public in an attempt to get rid of the breeding places of flies and thereby reduce the diseases they spread. Foremost of these, infantile enteritis is terribly fatal to child life and the appeal instances the example of Cairo, where there was a plague of flies in 1909 and 3,000 children under five years old died in two months. The recent visit of Surgeon-General Gorgas, noticed in my letter of the 27th ult., seems to have once more drawn the attention of the public to the success of the war on mosquitos and some are asking the authorities why they do not adopt the same measures to eliminate the nuisance of flies. The appeal of the M. O. H., to which additional signatures are being sent in, may therefore lead to new efforts, but it is the cooperation of the individual householder that is the most important point and it is that which is sought by urging the saving of infant life which could with certainty be obtained. Many deaths, it is shown, could be prevented by reducing the number of houseflies and this can best be accomplished by each householder taking the responsibility of looking after his own premises. In the country farmers are told to dig in the manure at once or if a heap is made to cover it with a layer of earth. In London the serious problem is the dustbin which too many ignorant or careless people do not insist on being what its name implies. Only coal ashes and dry dust ought to be put in it—never refuse of organic matter, whether vegetable or animal. All such should be burned. The futility of attempting to meet the plague by killing the full-fledged insect is shown by an epitome of its life history as follows: The female in spring emerges from her hibernating nook and sets out to lay her eggs, choosing a heap of refuse or filth and lays about 120 eggs at each sitting, of which there are several. In a few hours, if the surroundings are warm, the maggot is born, it eats and grows on the filth around it; in five days it is a chrysalis and in five more is a fly in search of food. Mouth, legs, and body get smeared with its food, so not only does it spread disease by swallowing germs, but furnishes them with a suitable breeding place on its own outside, and, of course, on its wanderings where it can on human food, especially milk, it leaves poison thereon to spread disease. The appeal suggests that this should be taught in the schools and the children told that the fly thus carries about diarrhea, enteritis, fevers, cholera, and other diseases. The boy scouts would be extremely useful by tracking the breeding places and notifying them to the health authorities. The cinematograph might show the life history and the damage caused by interesting films. Many correspondents are contributing to the newspapers suggestions on different points but there is a general consensus of opinion that the M. O. H. appeal to householders hits the mark and that they, if once aroused, will do their part and see that the public health authorities do theirs. The one thing is to overcome the apathy of the public by bringing home to everyone the danger which surrounds their families.

The British Psychological Society met the Section of Psychiatry of the R. S. M. on the 24th ult. to discuss two papers—the first read by Dr. R. G. Rows two months ago on "Disturbance of Personality in Mental Disorders"; the other at the meeting for the discussion, entitled the "Biological Significance of Delusions." Sir George Savage presided at both meetings. At the first Dr. Rows had insisted that the psychogenic and pathogenic etiology were both important—the latter often being, in fact, a sign of some change in the function of an organ outside the brain. His paper was based on the cases of two women whose morbid mentality originated in grave shock from the loss of an intimate friend. The loss of mental balance was shown in strong alternations between sensations. There were also times of apparent detachment of personality, one declaring part of her own self was reposing beside her. The author agreed with those who think that perversion of instinct may be at the bottom of anomalies of mental development. He thought, too, that primary lesions of the sympathetic system might disturb organ sensations and play an important rôle in causing those mental disorders in which change of personality is a prominent symptom.

In Dr. Devine's paper delusions were regarded as the outcome of reactions to experience and day dreams had the same psychological structure. The highest psychic operation was the adaptation of the individual to reality—the coordination between desires and circumstances; but as so high a level of conduct could not always be reached there was a tendency to satisfy desires in inferior mental operations. A tired man went to the theater and was for a time in the realm of romance or childhood. The less he could gratify his impulses the more he fell back on psychoses and in some cases there was antagonism between desires and circumstances. The victim of dementia præcox, whose delusions seemed to be chaotic and meaningless did not succumb to situations of difficulty but defects in his personality hindered him from adjusting himself to ordinary situations. The author related a case in which the defect prevented a patient responding to situations as they presented themselves so that he could not get into real conduct with his surroundings. The resulting delusional formation was an attempt at adjustment, each delusional expression indicating a definite purpose. The patient was keenly sensitive of his incapacity and Dr. Devine regard his phantasy as compensatory—a substitute for efficient action. One result was the patient erected a defensive philosophy for himself which provided food for his internal psychosis.

The president said that in former days one heard much about the "ego" but he was not aware that we knew much more about it. He spoke of changes in feeling which might follow the cutting off of some channel of communication or to visceral and organic disorders.

Dr. Ernest Jones supported the author on the point that delusions were not part of the disease process. He looked on them more as healing influences or like a scar, as evidence of disease—not part of it. He knew that was opposed to the more common view, which estimated the severity of a

case by the delusional intensity Some thought it proper to try to break down delusions by arguments but he thought it unwise for if such a method could succeed it would destroy the biological defence of the patient against the world with which he could not battle.

Professor W. Brown said that in Dr. Rows' paper there was much assumption as to physiological processes explaining psychological disturbances. But if organic sensations might be part of emotion they were not the whole. Sensations might be instances of changes of personality but not part of them. It was not easy to see how toxins could influence changes in personality. Dr. Devine's paper seemed to him more satisfactory—supporting the Freudian view of an early rift in the tests entailing, later on, abnormal changes.

Dr. T. W. Mitchell said Dr. Rows was in touch with the best psychological thought and his paper very useful to those engaged in psychotherapy and so continually meeting cases of disintegration of personality which had not crossed the line into insanity.

Dr. Rows, replying on the discussion, said the two papers were mutually helpful. The cases on which both were founded showed some psychosexual maldevelopment, but what drove these patients across the boundary line he did not know—possibly some toxic influence acting on the brain cells to interfere with nerve processes. He closed with a reminder of the work D. David Orr had done with himself on the effect of toxins on the sympathetic system.

The London County Council discussed on Tuesday the question whether medical women appointed to posts should be debarred marriage. On one side it was said motherhood would interfere with the duties and if these ladies were allowed to marry the same privilege should be given to men doctors in the Council's asylums. On the other side it was urged that thousands of married women rendered public services of value in many capacities. A lady member declared a woman could not, while filling a public office, do her duty by a husband and family which was the most important part of a woman's life. The restriction was not removed.

## OUR LETTER FROM THE PHILIPPINES.

(From Our Regular Correspondent.)

### LEGISLATIVE MEDDLING WITH THE HEALTH LAWS—REPORT OF THE COMMITTEE ON INFANT MORTALITY—CONFERENCE OF DISTRICT HEALTH OFFICERS.

MANILA, P. I., February 27, 1914.

THERE is much public interest, particularly in local medical circles, with regard to the large number of bills which have been introduced into the Legislature which have for their object a change in many of the health laws as they exist at the present time. There is a bill to create a Council of Hygiene and abolish the position of Director of Health. The enactment of this measure would make the present Director of Health the subordinate of a number of Filipinos who have had no experience in modern sanitation or health administration. This bill has been passed by the Lower House of the Legislature and is now pending in the Upper House. There is another bill for the transfer of the Philippine General Hospital from the Bureau of Health to the College of Medicine and Surgery. A petition has been prepared by local practitioners objecting to this transfer on the ground that it would give the doctors connected with the Medical School a practical monopoly of government hospital facilities. This bill has also been passed by the Lower House of the Legislature and is now pending before the upper branch. A bill providing for the publishing of the formulas of all the patent medicines in ordinary language upon the label of the bottle and in newspaper advertisements has passed the upper House of the Legislature and is now pending in the Assembly. There are also bills pending for the punishment of persons who publish false advertisements or claims with regard to any medicine, share, stock, etc. There is another bill for more central control of the municipal health service. The Legislature adjourns on the night of February 28 and just what the fate of these various measures is going to be will, of course, not be known until then.

The committee appointed in March, 1912, to investigate the causes of the excessive infant mortality in the Philippine Islands and the measures which should be adopted to decrease it, has finally made its report to the Legislature and has submitted the following recommendations:

"(1) The infant mortality problem, like poverty, ignorance, or any other sociologic problem, is eternal. The study of methods for its relief should be continuous and the application of remedies is a fundamental duty of the State.

"(2) The present excessive infant mortality rate by which 135,000 of the 210,000 potential citizens of the country are sacrificed before they are five years old, and less than one-third of the children conceived live to be one year of age, is a serious menace to progress, a disgrace to our civilization, a criticism of our government, a shame to our Christianity, and a sociologic crime.

"(3) Apologies and excuses will not correct the conditions nor will they much longer be accepted by an advancing civilization. All other countries worth the name are awake and active in the campaign of saving the lives of their citizens with at least the same effort that is devoted to securing police protection, collection of taxes, conservation of forests, or in animal husbandry. This country must apply remedies to this, its most important sociologic and economic problem, or disaster is certain.

"(4) Insufficient funds—lack of money—is the excuse or apology that has been offered for not curing this gruesome canker which is eating at the vital centers of the body politic. The excuse is not valid. A captain who failed to answer a call of distress at sea because he was short of coal would be punished; a police officer who failed in his duty because the odds were against him would be dismissed in disgrace; a fire department that failed short of almost superhuman efforts to save a burning building containing helpless children would be censured and its directors punished; and yet a Christian civilization with a modern form of government will allow more than 100 helpless babies to die a day in the Philippine Islands of easily preventable causes. How long will the excuse of insufficient funds be accepted as a satisfactory explanation of such a state of affairs?

"(5) That *health is a purchasable commodity* is accepted as a fact and bears the stamp of approval of every society organization and student of public welfare work. If the Philippine Islands spent as much for health purposes as it does for police

protection, the lives of at least twenty-five of the infants daily sacrificed could be saved and a vast improvement in the health conditions of others secured. If we spent as much for health purposes as is appropriated for the prosecution of crime and the protection of society from criminals we could save the lives of 10,000 babies a year and improve the health and social conditions of thousands of others who, under present conditions, are destined to join the class of criminals and deficients. An additional one centavo stamp placed upon every letter mailed in the Philippine Islands would furnish money enough to save the lives of 25,000 babies a year and increase the health efficiency and earning capacity of this country enormously. *The cry of 'insufficient funds' is not a valid excuse for a continuation of the criminal waste of human life which constitutes the excessive infant mortality in this or in any other civilized country.*

"(6) More infants die out of every hundred births in the Philippine Islands than die out of every thousand born in Australia. The adoption of the Australian Government methods by this country would decrease our present infant mortality 25 per cent. in two years.

"(7) The authority, responsibilities, organization, personnel, and appropriations of the Public Health Department should be extended so as to provide at least the most elementary sanitary and health protection for 100 per cent. of the population of the country. The department should be an insular organization with greater authority which should be centralized. Provincial and municipal autonomy in health matters is a mistake. The organization of the department should be modified to include divisions of child hygiene, public welfare, public charities, and other important branches of public health and social betterment work which now are being neglected. The personnel should be made up of permanent positions filled by persons selected by a merit system with definite lines of promotion and subject to the orders of the central executive office. The 20 centavo per capita health fund must be increased if the requirements of civilization are to be met in the discharge of generally accepted governmental obligations to its citizens.

"(8) Charity, philanthropic, social betterment, and other public welfare societies and movements should be coordinated and combined as closely as possible with appropriate divisions in the public health service. Government funds for such purposes should be appropriated only to organizations with governmental affiliation.

"(9) Manila and some of the other cities should have a number of combined baby clinics, 'milk stations' or 'gota de leche' units, day nurseries, mothers' consultations, 'welcomes,' etc., where suitable instruction and nourishment may be supplied to the deserving poor. The work of such units should be followed up by visiting nurses.

"(10) In their importance as mortality and morbidity influences upon adults and children, the following diseases and disease conditions take rank in the order mentioned: Beriberi, tuberculosis, diseases of the respiratory system, gastrointestinal diseases, diseases of the nervous system, social diseases.

"(11) The redistribution of wealth and alterations in financial balance are parts of the social, political, and economic evolution through which this country is passing. The question should be studied by competent students and an effort made to counteract the ever-increasing phases of poverty which are developing. Most countries and most large corporations are meeting these requirements by some form of industrial and health insurance. The subject should be very carefully studied with a view to establishing appropriate methods of relief in this country.

"(12) The earnings of unskilled labor must be increased; the cost of living decreased, or material advancement of this people is impossible. The average monthly earnings of unskilled labor in this country does not exceed 18 pesos ($9). The average number of persons dependent upon the earning unit will average four. The money available per person therefore will not buy sufficient good food to maintain the body in health, to say nothing of the other expenses necessary to life and a reasonable amount of comfort.

"(13) It is necessary to have guards at the doors of hospitals in Manila to prevent the entrance of the homeless, the blind, the hopelessly incurable, the aged and the infirm, and others ill and deficient from many causes. According to the official reports of the Director of Health there are more than 2,000 insane persons in the Philippine Islands who should have institutional treatment. These persons are a charge upon poverty stricken relatives and go on propagating their kind without restriction.

There are towns in the country where 10 per cent. of the inhabitants have active tuberculosis and these diseased persons eat and sleep with healthy persons and infants. They go on propagating their kind without any knowledge even that they are causing the death of their own children and without any municipal effort to control the disease. In the same towns, if rinderpest breaks out among the small herd of carabao, the resources of a bureau are called into service and very properly so.

In many places the spleen index shows from 20 per cent. to 60 per cent. of the children to have malaria, and mosquitos breed unrestrictedly about the streets and around the houses. Dysentery and other gastrointestinal diseases continue to be of wide distribution because the sewage and waste is scattered at convenient places about the villages, and even in larger towns but little effort is made to destroy or bury these poisonous wastes and breeding places for flies. A dozen babies in the city of Manila and a hundred elsewhere will die today and every day this year because the mothers have not enough food to sustain their own lives and those of their children. Seventy-five thousand babies are today nursing poor quality milk from the breasts of undernourished and sick mothers, and another 50,000 are eating dangerous and poisonous mixtures given in the name of food. Many of these babies even in the city of Manila are being fed mixtures so badly contaminated that 10 drops of the food injected into a guinea pig causes the death of the animal from blood poisoning within forty-eight hours.

"(14) Nearly 400 public prostitutes ply their trade in the city of Manila under an unofficial system of governmental supervision. Most of these women are infected with gonorrhea or syphilis. More than 75 per cent. of the hundreds of public dance hall girls around Manila are infected with venereal diseases and these diseases are spreading rapidly through all phases of society.

"(15) Your committee has finished its work.

The rather vigorous style used in discussing certain phases of the subject under investigation has been employed advisedly. The problem is a vital one for this country and it is felt that its solution will be possible only with the cooperation of an enlightened and aroused public opinion. The committee disclaims all intention of criticising unduly existing organizations but rather our aim has been to present the facts in such a manner that the responsibilities of our advancing civilization may be realized and so that the governmental machinery charged with improvement in public health and public welfare movements may receive the organization and support necessary for the proper discharge of its duties."

The report of the committee contains over a thousand pages, a large part of which is devoted to a reorganization of the health service and many other matters not bearing directly on the question of infant mortality. It appears to be the general opinion that if the committee had devoted its attention more to its subject instead of criticising existing organizations and other matters of which it could have only an imperfect knowledge and at best could only be of minor importance in view of the other conclusions, the report would have had very much more weight.

A Conference of the District Health Officers of the Philippine Islands was held at the central office of the Bureau of Health in Manila on February 9 and February 16 and many matters for the improvement of the health service of the Islands received attention. The program was as follows:

*First Day.*—Chairman's address, Victor G. Heiser, M.D. "The Disposal of Human Wastes in the Provinces," Vincente de Jesús, M.D. Discussion opened by José Mascuñana, M.D. "Beriberi," Rafael Villafranca, M.D. "Malaria, Etiology, Symptomatology, and Differential Diagnosis," Andrés Catanjal, M.D. "Malaria, Prophylaxis and Treatment," Florentino Ampil, M.D. Discussion opened by Zach Laughlin, M.D.

*Second Day.*—"Necessity for Bureau of Health Approval of Building and Plumbing Permits in the Provinces—House Sanitation," Arlington Pond, M.D. Discussion opened by José Bantug, M.D. "Typhoid Fever and Its Important Features in Relation to Sanitation," Gabriel Intengan, M.D. Discussion opened by Vincente Rivera Sayo, M.D. "General, Uniform Sanitary Improvements Needed in the Provinces—Recommendations," G. I. Cullen, M.D. Discussion opened by Francisco Lopez y Lubelza, M.D. "Act 2156 from a Practical Standpoint—Advantages and Disadvantages," Jacobo Fajardo, M.D. Discussion opened by Andrés Bautista, M.D.

According to the published program, "The meeting of the District Health Officers is held in order that a better acquaintanceship may be established and in order that the vital, every day, practical subjects may be discussed by those most interested with a view of working out more satisfactory means to the end to be accomplished. It is very much desired that every one present will discuss the various subjects freely as it is by sifting the opinions of all concerned that the most desirable methods may be arrived at. Those having other questions to discuss before the meeting will be afforded ample opportunity to do so; in fact, it is earnestly hoped that many of the annoying questions of every day work may be taken up and a satisfactory solution presented."

# Progress of Medical Science.

## Boston Medical and Surgical Journal.

*April* 16, 1914.

1. Some Problems in Nephritis. H. D. Arnold.
2. The Importance of Diagnosis and Treatment of Primary Syphilis. C. M. Smith.
3. Bone Cyst of the Os Calcis. W. P. Coues.

**1. Some Problems in Nephritis.**—H. D. Arnold states that cases of nephritis do better on a low protein diet which requires less functional activity on the part of the kidneys. The degree to which the protein should be cut down depends on the degree of impairment of the renal functions. A rough estimate can be made on the basis of allowing 90 grams of protein in the lightest cases and about 40 grams in the severe or advanced cases. Intermediate grades should have an amount of protein between these extremes, varying according to the severity of the disease. If the symptoms improve and the blood pressure falls, the functional tests are not essential; otherwise valuable information may be obtained from them, even in the present stage of one's knowledge. With the accumulation of more data, the inferences that may be drawn from these functional tests will be more and more valuable. In cases with edema, and also in the cases in which the blood pressure remains high, although the protein in the food is reduced, the amount of salt should be reduced. As a result of further study one should undoubtedly divide the cases of chronic interstitial nephritis into at least two or three clinical types. A better understanding of these cases and a more careful study of the problems of nephritis will lead to more intelligent treatment and resulting benefit to the patient. A proper regulation of the diet—not forgetting to provide a sufficient amount of nutrition—will enable many of these patients to live in comfort for years longer than formerly.

**2. Importance of Diagnosis and Treatment of Primary Syphilis.**—C. M. Smith notes that by early diagnosis and active treatment one can hope to accomplish the following: (1) Abort the disease in a large number of case. (2) Protect the family and community. (3) Prevent the probability of transmission of syphilis to the offspring, some of whom may become a burden to the state. (4) Lessen the possibility of the so-called neuro-recurrences. (5) Probably safeguard the individual against late nerve syphilis. (6) Thus diminishing the likelihood of their becoming useless members of society, if not state charges.

**3. Bone Cyst of the Os Calcis.**—W. P. Coues reports a case of this condition in a boy of 14 years of age who fell directly on the right foot while doing gymnasium work. This foot bothered him off and on since, with considerable aching at times. The pain was especially noted after walking or running. There were absolutely no symptoms from the left heel, the seat of the bone cyst. Examination showed a well-nourished boy. The right heel was painful to pressure over the epiphysis of the os calcis. There was no abnormal thickening made out. *X*-ray of this foot showed an old separation of the epiphysis of the os calcis. An *x*-ray of the left foot was taken for comparison. This showed a bone cyst of the body of the os calcis. The whole of the central portion of the body of the os calcis was involved, the thinning extended down apparently quite close to the plantar surface of the bone. Immediate intervention was not advised, but observation at short intervals with radiographs for comparison with the first picture, and operation should the slightest symptoms arise, were urged. Some two months after this the patient was heard from. The trouble had given no symptoms up to that time.

## New York Medical Journal.

*April 18, 1914.*

1. Operative and Postoperative Treatment of Appendicitis. P. Syms.
2. The Operative Mortality in Appendicitis. M. S. Kakels.
3. The Association of Systemic Disease with Metastatic Ophthalmia. C. O. Ring.
4. Pursestringing of the Small Intestines into a Distance of Fifty Centimeters. I. O. Palefski.
5. Cardiospasm with Dilatation of the Esophagus. M. E. Smukler.
6. Lymphosarcoma. H. Smith.
7. Two of the Present Day Fads. A. M. MacWhinnie.
8. Marked Improvement in Tabes. V. Kenerson.
9. Ventilation. J. B. Todd.

**1. Operative and Postoperative Treatment of Appendicitis.**—P. Syms states that surgeons are all agreed that operating in the chronic or interval cases is thoroughly safe; in this class of cases death should not occur except when due to an unavoidable surgical accident. The surgeons are all agreed that operation in the early hours of acute cases is a thoroughly safe procedure. In the hands of a skilled surgeon these cases will show almost no mortality. Surgeons are all agreed that operating in the very late stages is a very safe procedure; by this time the patient's powers of resistance have been fully established and Nature's means of defence have played their part; the processes have resolved themselves into localized peritonitis or localized collections of pus; often the pus has but little virulence, sometimes it is sterile. Surgeons are not all agreed on the method and manner of operating. There are two or three factions; one, which the author says is ever increasing in size, believes in quick, definite procedure—removing the appendix and stopping the leak, thus removing the cause, making provision for drainage, inflicting as little shock and traumatism as possible, and depending on Nature to work out a cure, the cause of the trouble having been removed, every effort being made to avoid disseminating, or rendering general a localized process. The other factions, however, attempt to supplant Nature by art, and they inflict an undue amount of traumatism. They endeavor to cleanse the entire peritoneal cavity by washing, flushing, scrubbing sponging, etc. Surgeons are not agreed as to the best time for operating in acute cases. The author believes in immediate operation. He would like to operate in all acute cases in the first twenty-four hours, but unfortunately one does not see these cases at that time, as a rule. Most of the acute cases come too late. The author does not agree with Oschner and Stanton that all cases of appendicitis are localized first. Many of our cases of fulminating appendicitis had spreading peritonitis from the beginning, which became progressively more and more generalized. The author does agree with Ochsner that one should withhold from these patients drugs, cathartics, and food; but he also believes that one should remove from these patients a gangrenous, perforated, leaking appendix at the earliest possible moment.

**2. Operative Mortality in Appendicitis.**—M. S. Kakels states that the greatest factor for safety to life exists in the early surgical treatment of a diseased appendix. In the preparation of the patient, the ideas and methods have changed. There is less elaborate preparation by scrubbing and use of antiseptics, and the patient is not weakened by previous purging. In operating one endeavors to minimize as much as possible injuries to the viscera by less handling, thereby avoiding destruction of delicate tissues and inhibiting exudates and adhesion of opposing surfaces, which so frequently lead to postoperative paralysis and obstruction. The less handling and injury done at operation the greater are the chances that no adhesions will be formed. All unnecessary wounds of the visceral and parietal peritoneum are avoided, and prolonged exposure of the intestines to cold air is guarded against. If there is simply a serous exudate after the appendix is removed the wound is entirely closed, leaving the peritoneum to take care of the fluid. If there is a purulent exudate, a cigarette drain is inserted down to the stump and so placed that it does not lie between contiguous coils of intestine, but rather along the abdominal wall. Another cigarette drain is inserted into the pelvis, also along the pelvic wall, after as much of the pus as possible has been removed. This method of placing the drain obviates in a great measure stasis or ileus. The drains are left only until a channel is formed through which the septic material may escape. The position of a patient after an operation is also an important factor in a successful outcome. The patient is therefore placed in a position which will most favor drainage of the discharge, that is, the ventral and Fowler position. In every instance the author makes it a rule to remove the appendix unless great technical difficulties are encountered, or the patient's condition is such that further manipulations endanger life. The author has no fear of inviting peritonitis by the free separation of contiguous adhesions in attempting to liberate the appendix, for by its removal absorption of toxic products from the appendix ceases, and the tendency to postoperative complications, such ae subphrenic abscess, pylephlebitis, empyema, and liver abscess is avoided, because the offending member, the source of infection, has been eradicated. In the hands of skillful operators, familiar with acute suppurative conditions within the abdomen, there need be no fear. The author points out that the various factors, in order of their importance, which are most essential in reducing the mortality from appendicitis are: First, certain diagnosis and early operation; second, as little manipulation as possible in the removal of the offending organ, the source of infection; third, Fowler's position; fourth, the Murphy drip.

**3. Association of Systemic Disease with Metastatic Ophthalmia.**—C. O. Ring notes that there are certain systemic conditions which by reason of the transference of disease processes by way of the blood or lymph channels are capable of producing violent and widespread inflammation of the eye tunics. The lodgment of a septic embolus carried through the blood stream to the capillaries of the retina or chorioid, with the induction of minute hemorrhages, an inflammatory reaction, the formation of pus, and necrotic degeneration rapidly extending to the anterior tunics of the eyeball; this constitutes the usually recognized tragic picture which is probably best called metastatic ophthalmia. The systemic condition which induces it frequently marks it as one of the most fatal but fortunately one of the rarest of ocular diseases. To quote Alter, the triad of factors necessary for its production are pyemia, embolus, and stoppage. The condition under discussion manifests itself as a sequel of many systemic diseases, in addition to surgical or postpartum infection, such as septic endocarditis, influenza, nasal sinusitis with pus formation, parotiditis, cystitis, otitis media, synovitis, scarlatina, measles, diphtheria, scorbutus, variola, erysipelas, typhoid fever, pneumonia, anthrax, cerebrospinal meningitis, gonorrhea, so called Weil's disease, mixed infections, and suppurating glands. At times ophthalmia results from more trivial conditions, such as furuncles and the suppuration attendant upon the extraction of a tooth. In children suppuration of the umbilical cord, or vaccination may, according to Alter, give rise to pyemia with metastatic ophthalmia. Unfortunately many reported cases give no account of the associated systemic infection. In rare cases of exanthemata the vision is preserved, and

not infrequently in cerebrospinal meningitis; although, as regards the latter condition, one is apt to have an involvement of the eye as an extension by continuity rather than a true metastasis.

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**Journal of the American Medical Association.**

*April* 18, 1914.

1. Constrictions of the Duodenum Due to Abnormal Folds of the Anterior Mesogastrium. M. L. Harris.
2. The Treatment of Acute Osteomyelitis of the Long Bones by Means of the Dental Engine and a Large Burr Preliminary Report. F. G. Dyas.
3. Three Cases of Wiring with Electrolysis for Aortic Aneurysm. One Heretofore in Part Reported. H. A. Hare.
4. Some Notes on Hay-Fever. H. L. Ulrich.
5. Recent Work on the Physiologic Pathology of Glycosuria. J. J. R. Macleod.
6. Possibilities in the Use of the Auscultatory Method of Determining Blood Pressure in Pneumonia. A. A. Howell.
7. Variations in the Strength of the Wassermann Reaction in Untreated Syphilis Infections. C. F. Craig.
8. The Luetin Cutaneous Reaction for Syphilis. A. R. Kilgore.
9. Retro-Aortic Left Renal Veins. F. Nuzum.
10. A New Method of Preparing Museum Specimens. H. K Craig.
11. Hemothorax Caused by Rupture of a Dissecting Aneurysm. Recovery. E. H. Goodman.
12. The Disappearance of Sugar in Diabetics after Certain Pelvic Operations. E. H. Eising.
13. The Responsibility for the Failure to Diagnose Tuberculosis in Its Early Stages. R. S. Lavenson.
14. The Protection of Granulations. A New Dressing Material. V. A. Dodd.
15. Distinction between the Corpus Luteum of Ovulation and the True Corpus Luteum of Pregnancy. Preliminary Report. F. Fenger.
16. The Frequency of Pregnancy in Slaughter-House Cattle in Relation to the Supply of Corpus Luteum. C. P. McCord.
17. A Simplification of the Gram Stain. L. D. Smith.

**1. Constrictions of the Duodenum.**—M. L. Harris calls attention to a condition which hitherto has not been described. This condition is a constriction of the duodenum of the second portion, giving rise to quite distinct, if not characteristic symptoms, and due to the remains of a definite embryological structure. Strictures of the duodenum due to cicatricial contraction, inflammatory adhesions, etc., are well recognized conditions, but the condition to which reference is here made is of an entirely different origin. In the first case of constriction of the duodenum of this kind which came under the author's observation the condition was thought to be of inflammatory origin, but more careful study of subsequent cases has shown that the condition is due to the abnormal remains of a perfectly normal embryological structure. The author has operated on six of these cases. In studying these cases one finds not only a great similarity of symptoms, but also a similarity of findings at the operation. In all of them one finds a disturbance of digestion, as evidenced by more or less distress in the epigastric region, coming on some time after eating, usually from two to three hours. The distress as a rule does not amount to a pain, although some of the patients did have at times attacks of quite sharp pain in the right epigastric or hypochondriac region. Sometimes the distress was described as a sensation of pressure in the stomach. The information was usually volunteered that the distress was relieved by the taking of food. Nausea was occasionally mentioned, but vomiting seldom occurred. Tenderness in the epigastric region was present to some degree in all of the cases. Chronicity was a distinct characteristic, the trouble often dating from early life. While the symptoms showed more or less defined intermissions during the early history, they became practically continuous after they were well established. Hyperchlorhydria was always present whenever examined for and in Case V was of a very high degree. No occult blood was found in the stools. The symptoms suggest very strongly duodenal ulcer, yet in none of the cases were any evidences found at the operation of present or past ulcers, either in the stomach or in the duodenum. The sharp attacks of pain in the right hypochondriac region, with slight jaundice in two cases, suggested the possibility of gallstones. Whether or not it will be possible to differentiate constrictions of the duodenum of this variety from ulcers of the duodenum by the clinical history alone remains for a wider experience to determine, but an analysis of these cases seems to show that there is an absence of the marked intermissions with bad relapses which are so common in ulcer cases. This might be expected from the permanency of the condition causing the trouble. The absence of the occult blood in the stools would indicate this condition rather than ulcer. The use of the Röntgen ray with the bismuth meal is a very valuable aid in the diagnosis. The long, large caput, showing a dilated first, and perhaps a part of the second portion of the duodenum, with a fixed point at the right of the constriction, in connection with the symptoms above mentioned, should lead one to at least strongly suspect the condition described. The difficulty in differentiating from gall-bladder trouble is shown by the symptoms which were present in two of the cases. When the constriction is well established, the distinct continuity of the symptoms would be an important factor in the diagnosis.

**12. The Disappearance of Sugar in Diabetics after Certain Pelvic Operations.**—E. H. Eising states that there is no doubt that there has been a deviation from the older and more orthodox views in regard to surgical intervention in cases of urgency in the presence of diabetes. Particularly in prostatic disease it has been shown that operation is well borne and that diabetes, if not too far advanced, is no contraindication. That prostatectomy or hysterectomy in diabetes of long duration is occasionally followed by a subsidence or total disappearance of the sugar output is a new theme for which there is no plausible explanation at hand. The author reports two cases of advanced prostatic disease with pronounced diabetes in which all traces of sugar disappeared from the urine soon after operation. Spontaneous cure in diabetes is known, according to Naunyn, although very rarely, and then only after traumatic or syphilitic diabetes of short duration. The instances cited are all cases of advanced and pronounced diabetes. Whether hyperglycemia was present in any of the cases, or whether it persisted after the disappearance of the sugar in the urine is unknown. Von Noorden refers to the marked improvement or cure of diabetes in cases which develop chronic granular nephritis, and are marked by hypertension and cardiac hypertrophy. So far as is known, neither Manges' cases nor the author's were accompanied by granular nephritis. In one of Manges' cases the disappearance of the sugar was incomplete, in all the others it was complete. In the author's first case it is noteworthy that the operation of cystotomy had no effect on the sugar output, although all symptoms of irritation were removed thereby. The wide anatomical distribution of the organs that are known to cause glycosuria in their pathological conditions—that is, the medulla, the pituitary body, the pancreas, the liver, and the adrenals—might suggest that also in the pelvis there exist organs which by their internal secretion in pathological states, disturb the glycogenetic function.

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**The Lancet.**

*April* 11, 1914.

1. The Morphology of the External Genitalia of the Mammals. F. W. Jones.
2. An Analysis of the Problem of the Minimal Lethal Dose and Its Relationship to the Time Factor. G. Dreyer and E. W. A. Walker.

3. Improved Methods of Standardizing Bacterial Vaccines in Hemocytometer Chambers. E. E. Glynn and A. A. Rees.
4. A Method of Increasing the Accuracy and Delicacy of the Wassermann Reaction. F. H. Thiele and D. Embleton.
5. Notes on Diabetic Retinitis. S. West.
6. The Therapeutic Value of the Potato. H. C. Howard.
7. The Mortality on the Rand. Some of Its Causes. B. G. Brock.

**2. The Minimal Lethal Dose.**—G. Dreyer and E. W. A. Walker conclude that (1) in warm-blooded animals dosage (D) must be calculated in relation to the body surface according to the expression $D = \frac{d}{W^{0.72}}$ where D is the "surface dose" of the drug, toxin, or antitoxic substance used, d represents the actual quantity administered, and W is the weight of the animal in grams. (2) No method, however, at present exists by which a true comparison of the relative toxicity of different substances (or of different samples of the same substance) can be instituted. The methods hitherto employed depend on the selection of an arbitrarily fixed weight of animal and lethal time, and do not afford a rational basis for the accurate measurement and standardization of drugs, toxins, and antitoxins. (3) The formula here proposed

$$\frac{1}{Do - a} - \frac{1}{Dl - a} = k\,(To - Tl)$$

offers a simple means of making such measurements. In this formula Do and Dl are the concentrations of the drug or "surface doses," corresponding to the times To and Tl in which the death of the animal (or other desired effect) occurs; a is a figure representing the "non-effective dose" of the substance employed, and k is a constant to be determined for the particular substance and species of animal under investigation. (4) The formula states that to every equal increment in time there corresponds a definite decrease in the active dose (D — a). (5) This formula is here shown to afford a satisfactory expression for all the varied and diverse experimental data to which it has been applied. (6) The use of the formula renders it possible not only to carry out the comparison desired but also to make use of animals of every size over a wide range of weight within a species and all observed death times, in the standardization of toxic substances, antitoxins, and the like. (7) By this means a great saving both of time and animal material is introduced since an equal value independent of the actual lethal time and weight of individual animal, can now be attached to all the experimental data. (8) The results obtained will also possess a greater validity and a wider application than it has hitherto been possible to attain by the use of an arbitrary death time and a fixed standard weight of experimental animals.

**3. Improved Methods of Standardizing Bacterial Vaccines in Hemocytometer Chambers.**—E. E. Glynn and A. A. Rees reach the following conclusions: (1) The most scientific method of enumerating the bacteria for vaccines is in some form of hemocytometer chamber. (2) An optically plane and rigid coverslip must be used with such apparatus, for this is recognized as essential when counting blood, and is still more essential when counting bacteria, where accuracy is of greater importance. Owing to the small free working distance of oil-immersion lenses most optically plane coverslips are too thick. (3) Two types of hemocytometer chamber may be employed: (a) The ordinary chamber 0.1 mm. deep, with an optically plane coverslip 0.13 mm. thick. This is suitable for all oil-immersion lenses with a free working distance of 0.17 mm. and some of 0.15 mm. (b) A chamber 0.02 mm. deep, with a special safety trench 2.5 mm. wide and optically plane coverslip 0.18 mm. thick. This is suitable for all achromatic oil-immersion lenses, even if the free working distance is as low as 0.09. (4) The 0.02 mm. chamber is much superior for the following reasons: (a) Almost all the bacteria settle at the bottom in 15 minutes when accurate counts can be made, whereas in the 0.1 mm. chamber, a considerable number are still moving after half an hour. (b) Bacteria adhering to the under surface of the coverslip or still floating in the chamber are more easily enumerated. (c) The optical definition of the bacteria is better owing to the smaller quantity of fluid. (d) The free working distance is greater and the coverslip being 0.18 mm. thick is more durable. (e) Counting is quicker owing to the much smaller number of moving bacteria and the greater ease in focusing the top and bottom of the chamber. (5) A weak solution of carbol thionin is the best diluting and staining fluid; unlike a weak solution of Giemsa it is quite free from precipitate and stains more intensely. (6) Enumeration of stained bacteria in a hemocytometer chamber, particularly in one of 0.02 mm. deep, is more accurate and much more rapid than by Wright's method. (7) The hemocytometer method does not underestimate the strength of bacterial emulsion as usually happens with Wright's method, sometimes to a very serious extent. (8) This research has been undertaken because we believe it is the duty of the bacteriologist to standardize and dispense his vaccines with the same accuracy and care as that exercised by the pharmacist in standardizing and dispensing his drugs. Scientific vaccine therapy will be advanced by scientific exactness.

**5. Diabetic Retinitis.**—S. West notes that there is much difference of opinion on the subject of diabetic retinitis. Some maintain that there is no such a thing, others that the retinitis which occurs is albuminuric and due to the association of diabetes with granular kidney, while others hold that there is a form which is perfectly characteristic and pathognomonic. The author has seen many cases of retinitis in diabetes and states that he has failed to observe anything characteristic in it, that is to say, anything by which from the change of the retina diabetes can be diagnosed as granular kidney can. He has had cases shown him more than once which were said to be typical, but they did not convince him, and so far as his own experience goes, he says that it was impossible to diagnose diabetes from anything that can be seen in the retina. He also agrees with the statement that many cases of so-called diabetic retinitis are typically albuminuric, and are due to the association of diabetes with granular kidney, an association which is by no means rare. But this does not exhaust the subject. There are two forms of albuminuric retinitis, which the author has called the degenerative and the exudative, respectively. The exudative form is in all cases of toxic origin, and might therefore arise in the course of diabetes, just as it does in the course of acute nephritis, and this is the fact, for the author has certainly seen cases of this kind in which there was no evidence of granular kidney. The view he is expressing would reconcile and explain the different opinions held. The degenerative form would be characteristic of granular kidney, whether associated with diabetes or not. The exudative form would be of toxic origin and indistinguishable from that which is seen in other toxic states and be due to some poison produced in diabetes which attacks the optic nerve and retina just as it sometimes does the peripheral nerves. What the poison is one knows no more in diabetes than one does in nephritis.

**6. Therapeutic Value of the Potato.**—H. C. Howard states that there are two facts which stand out most prominently and which emphasize in a marked degree the peculiar properties of the raw potato juice. The first is the prompt relief from pain, acute or subacute, which is shown to have occurred and the second the rapid absorption of the fluid in cases of synovitis. It seems on investigation of the juice of the potato that there is no alkaloid in it and that the chief ingredient is potassium salts which are present in large quantity. The basis of all the preparations is the liquid extract. It is made as follows: The raw potatoes are put into a hydraulic press and the liquid is squeezed out. About half the weight of the potato comes away as juice. The starch and nitrogenous matter are removed, leaving the juice with the salts only in it. It is then concentrated down by heat and by glycerine added in order to preserve it, until it is made five times the strength of the juice, therefore ten times the strength of the potato itself. The ointment is made the same strength as the extract, and is prepared chiefly with lard. A liniment is made by taking equal parts of the extract and compound soap or two of extract and one of soap liniment. The plaster is made as ordinary plaster and is of the strength 10 to 1. Ampullæ are prepared containing the pure extract, which is five times the strength of the juice and properly sterilized. The author has yet not had much experience with the hypodermic use of the remedy. The action of the liquid extract on acute synovitis of the knee joint, whether traumatic or gouty, is speedily to relieve the pain, which does not occur, and to cause absorption of the fluid, in four, five, or six days. It is applied as a fomentation or poultice, one part of extract to three or four parts of water on three or four layers of lint, covered with protective, then cotton wool and a bandage, to be renewed every two, three, or four hours, according to the severity of the case, until the fluid is absorbed. No splint is required, but the patient must be kept in bed with the knee in a comfortable position. In gout the local treatment relieves the pain more quickly than any other treatment at present used, either external or internal. One part of the extract to three or four parts of hot water is applied as for synovitis every three or four hours until the pain is relieved. In complaints such as lumbago, subacute rheumatism, muscular rheumatism or fibrositis, and bruises, considerable relief is given by the application of the abstract as shown below. In the various forms of subacute, chronic, muscular rheumatism or fibrositis a liniment made of two parts of ext. solani to 1 part of lin. saponis rubbed on the part will in most cases give relief after the first or second application.

## Deutsche medizinische Wochenschrift.

*March 26, 1914.*

**Rare Disturbance of Potency.**—Flatau relates the following: A man aged 24 had repeatedly had intercourse, but never an emission. The erections and immissio penis were physiological as were the coitus movements. There was no real pleasure, increasing to an acme, but the libido was normal. Occasional masturbation before his first coitus, had caused emissions, and he had also experienced ordinary nocturnal pollutions. He was a robust, healthy man with normal genitals; blushed readily, was irritable and impressionable, and his patella reflex was heightened. There was no aspermatism. The author cites a case reported last year by Lissmann which much resembles his own. Such cases may be classed as examples of "ejaculatory impotence." The nature of the affection is quite obscure and no successful treatment is at present available.

**Pernicious Anemia and Pregnancy.**—Wolff discusses this association thoroughly. The diagnosis of essential anemia is made by the Naegeli-Ehrlich blood count, which indicates abortive attempts to restore the diseased blood picture to the normal count. But in the author's case—in a pregnant woman—a remission of the disease seems documented, which would take it out of the domain of pernicious anemia. In regard to prognosis, the so-called Biermer's anemia almost never undergoes recovery, although remissions of all degrees occur. The etiology of the anemia in the author's case was also obscure, and must naturally be placed temporarily under the toxemia of pregnancy. If the latter term is too vague, we can only advance the view that pregnancy brings out some deep-seated metabolic irregularity. Of crucial importance here is the question "should gestation be terminated?" For even should the condition have become apparently normal, the percentage of recurrences is very high, and the disease may reappear after delivery. The question of interruption of gestation in the earlier months may be left out of question. While in theory the constant drain of the fetus upon the mother should demand instant termination of gestation, the fact remains that in the great majority of cases the anemia does not appear until late in pregnancy, so the rights of the unborn child must be taken into account. Figures show that early induction of labor give poor results both for mother and child, although we have no precise figures as to the ultimate fate of the latter. In cases left to spontaneous delivery the results appear more favorable. A remission may occur during the dreaded post partum period. In case of urgency we may use transfusion. The author allowed his case to go to term and after delivery a remission of the anemia was at once apparent. No other remedial measures were employed.

**Professional Accidents from Radioactive Substances.**—Gudzent and Halberstaedter refer chiefly to dermatological injuries and changes in the blood-count resulting from the use of radium and other radioactive substances. Under the head of general phenomena are considered in addition to the blood count changes in the genital glands. Nearly all those who cooperate in radium institutes suffer at the outset from weariness and insomnia. A large personal equation is involved herein. Women are more sensitive to the radiation and in two, menstrual disturbances resulted. The blood count shows a definite resemblance to that resulting from the *x*-ray. The same may be shown to be true of cutaneous lesions due to radium, which represent in a very small and apparently harmless way seven results of *x*-ray (burns, etc.). For the prevention of radium injuries a technique is in use which is based upon that required to protect the organism from *x*-rays.

**Drug Anaphylaxis.**—T. Silvestri states that drug idiosyncrasy as well as alimentary anaphylaxis may be local or general, congenital or acquired. It may be diminished or increased by the most varied physiological conditions, such as pregnancy, menstruation, etc., or by pathological conditions. It may disappear spontaneously or it may be affected by the administration of certain internal secretions. In a case reported by the author the idiosyncrasy to morphine was removed by the administration of small enemata of laudanum, by small doses of the latter administered by the mouth, by the use of heroine or dionine administered by the mouth or hypodermically, or by the use of minute doses of morphine.—*Il Policlinico.*

## Insurance Medicine.

**Group Insurance—Its Aim and Its Field.**—Judge William A. Day, president of the Equitable Life Insurance Society, in his address before the Association of Life Insurance Presidents, December, 1913, describes group insurance as a phase of the economic and social tendencies of the day for just relations between employer and employed. It has the double function of protecting families of the employed and rewarding efficient and persistent service.

While the interests of our countrymen are interwoven, and we are dependent upon one another, the effects of business derangements are mainly borne by those of limited means. The demands of living in these days leave most American families a margin between living conditions and poverty that is not over-strong. The extensive workingmen's insurance systems of England and Germany were devised largely to ward off the suffering and losses ordinarily caused by temporary unemployment. That something should be done in a comprehensive way in this country to protect against the permanent stoppage of family income has long been patent to thoughtful observers. Individual insurance does its part well, but does not adequately answer the call. Group insurance, like a great wall stretching around thousands of homes provides against distressful poverty. Its widespread adoption would materially reduce the number of women and children annually forced into the struggle with adversity.

Groups must be of sufficient size to present reasonable opportunity for the law of average to operate. Thus far experience has clearly shown that the strong lives support the weaker ones in an average that gives a lower mortality than that secured on individual insurances through regular medical examinations. Of the thousand persons applying ing for employment in response to the advertising, the ultimate sifting would put only a comparatively small number on the permanent payroll. The less intelligent, the less fit physically, and, therefore, the weaker lives, would be eliminated and those who demonstrated aptitude for the work and were employed would have to maintain the necessary level of bodily and mental fitness to continue employment.

From the employer's standpoint, group insurance is the one way by which he can make sure that every man and woman in his employ is covered by insurance. Employers rightly regard it as an effective welfare measure and an opportunity to prove in good faith their interest in those who collectively assure the success of their enterprises.

So far as employees are concerned, group insurance makes life insurance general, at least during the period of employment, and it comes to them without cost in nearly all cases. Group insurance insures the continuance of the pay envelope for a generous period and goes to the heart of the problem by protecting producing values. Usually the amount of insurance is one year's wage and the employer generally supplies this much gratis, leaving to the employee the burden of carrying individual insurance. Group insurance overcomes the procrastination and failure with respect to insurance of which so many are guilty and which leaves so many families unprovided for in event of death. It is a logical and reasonable response to a real public need; it is not in advance of the times.

**Paralysis Agitans Following Trauma.**—The conclusions of Decker on this subject are as follows: Paralysis agitans seldom appears after injury. To decide that there is any connection between the latter and the appearance of the former is in many cases extremely difficult. Only in a minimum number of such cases was the certainty demanded by science established. More frequently there was a sufficient probability or possibility of such a sequence. In all such decisions as to cause and effect, the question of predisposition plays a major rôle, whether this be inherited or acquired. Mendel says of shaking palsy that it cannot be due purely to injury if the subject up to that period had been fully sound including freedom from any neuropathic taint. There is in other words no such an entity as a purely traumatic paralysis agitans.—*Zeitschrift für Versicherungsmedizin*, December, 1913.

**Sensitiveness of Abdominal Organs to Percussion, and Its Utilization in Insurance Practice.**—Goliner mentions the fact that the thorax is percussed far more than the abdomen, although abdominal percussion is much more simple, for here there are no ribs interposed. In using a percussing hammer, the percussion waves set up occasion no painful sensations in the subjacent viscera provided the latter are sound. However, should there be some lesion in the viscera or mucous canals these percutory commotions may cause unpleasant, and even very painful sensations. The skin must be eliminated as a source of tenderness by percussing the tissues beneath. If one organ percussed be superposed above another, the percussion notes concern only the more superficial organ.

While abdominal percussion is simple *per se*, the large number of viscera involved contrasts unfavorably with the small number of intrathoracic organs. Hence with patient upon his back, the viscera not directly involved are pushed away, so that, for example, the inferior border of the liver is made more accessible. One may thus map out the liver and even the gall-bladder. A principal task in this work is to push the hollow tympanitic structures away from the solid organs, so that the latter can be mapped out. There are a number of artifices for bringing this result about. It must not, of course, be overlooked that the intestine itself may be diseased while the viscera are sound. Distended intestines further mask the conditions beneath.

In insurance practice especial attention must be given to percutory sensibility about the gall-bladder and passages—in which gallstones may be harbored—and cancer and ulcer of the stomach and duodenum. In connection with the bile passages, cholangitis rather than the mere incidence of stone, is significant. Given a history of biliary colic, with no interval symptoms, the entire hepatic region should be percussed and if sensitiveness be present the subject cannot be accepted. If the percussion gives a negative result, Goldflam's succussion method may be applied throughout the liver, when induced pain may point to cancer.

The diagnosis of ulcer or cancer of the pylorus or duodenum may be made by an elaborate percutory technique which cannot be detailed here. It is hardly to be supposed, however, that the average medical examiner can profit very greatly from such refinements of diagnosis.—*Blätter für Vertrauensärzte der Lebensversicherung*, 1914, Vol. V, January-February.

# Society Reports.

## MEDICAL SOCIETY OF THE STATE OF NEW YORK.

*One Hundred and Eighth Annual Meeting, Held in New York City, April 27, 28, and 29, 1914.*

(Special Report to the MEDICAL RECORD.)

HOUSE OF DELEGATES

*Monday, April 26—First Day.*

THE PRESIDENT, DR. WILLIAM FRANCIS CAMPBELL, IN THE CHAIR.

**Report of the President.**—Dr. WILLIAM FRANCIS CAMPBELL of Brooklyn stated that it had been his privilege in order better to equip himself for his task to make official visits to the county societies in order to gain a personal impression of the local conditions, the aspirations, and the needs of the individual units which collectively formed the Medical Society of the State of New York. While every county society had not been visited, territorially the State had been fairly covered. It was thus that he hoped to interpret the local needs and aspirations of their profession throughout the State; to suggest such changes as progress demanded, and to promulgate those broad and comprehensive principles of fraternity in which sectional differences were submerged in the greater good of the larger number. It was gratifying to note the activity and increase in membership in the county societies. With few exceptions the membership committees had done effective work, and some of the counties reported that they had secured all the desirable physicians in their sections. There was throughout the State a fine scientific spirit actuating the rank and file of our profession. No longer did the large cities monopolize men of capacity and scientific attainments; the smaller towns were well equipped with hospitals and laboratories, and their efficiency was guaranteed by men of broad culture and recognized ability. The grave danger to an organization like this society, which lacked the cohesion that accrued from frequent meetings and the sustained interest of the majority, was the tendency of its government to drift into the hands of a few; its policies to travel in well-worn grooves, and precedent to take the place of progress. The function of the State Medical Society was not general—it was specific; it was to do for the individual members what they could not do for themselves; its aim was to safeguard the interests of its individual members better and thereby to sustain the dignity of the medical profession in the various communities throughout the State. The State Society served the profession chiefly in four directions—malpractice defense, the *State Journal*, the Directory, and the work of the committee on legislation. After reviewing the work being done in each of these directions the president presented the following questions which seemed to him worthy of consideration:

Can our *State Journal of Medicine* be made self-supporting under different management? Would the entire time of a business manager be more efficient than the sporadic efforts of a committee of professional men? In short, are the *Journal's* possibilities being fully realized, and its business conducted according to modern methods of efficiency?

Can our malpractice defense be made still further effective by the establishment of a legal bureau with a central office, counsel, and assistants, who shall not only conduct malpractice defense, but assist in the prosecution of illegal practitioners throughout the State?

Is the Directory of sufficient importance to the Society, as a whole, to warrant the present appropriation? Would the best interests of the Society be better conserved by publishing the Directory biennially, or by limiting it to New York State, or by contracting with the American Medical Association to bind, in a single volume, that part of their directory which refers to New York State, as is done by other States?

The house resolved itself into a committee of the whole for the consideration of these recommendations, and after a lengthy and sometimes heated discussion motions were adopted to the effect that the *Journal* be continued under its present system of management, since experience had taught them that under a business manager, not a professional man, they were liable to have considerable difficulty in excluding undesirable and unethical advertisements. That the malpractice defense be continued without any change, as the establishment of a bureau such as suggested would involve an outlay of money entirely beyond their means. That the Directory was of sufficient value to the Society as a whole to warrant its publication as at present.

**Report of the Secretary.**—Dr. WISNER R. TOWNSEND submitted this report in which he stated that the membership on January 1, 1913, was 6,964 and on January 1, 1914, 7,239, an increase of 273 members, which was larger than that for any of the last four years. The percentage of paid-up membership was larger than it had ever been. It was with great pleasure that the announcement was made that during the past year the few missing volumes of the transactions of the State Society had been secured and to-day the set was complete from the beginning to the present time. The pleasant task of collecting the portraits of the ex-presidents had also been completed in so far as was possible. There were hanging to-day on the walls of the Society's rooms pictures of 80 ex-presidents. During last summer the Essex County Society had been reorganized and during the latter part of the year the Bronx County Medical Society, which would bring into the State organization many members. There were in the State 62 counties and all had medical societies except two, and these were so sparsely settled as to make it inadvisable to endeavor to form societies. A request had been received from the council on health and public instruction of the American Medical Association asking the State Society to appoint a committee on health and public instruction or modify existing committees so as to provide for an appropriate committee of the Society through which the work of the council might be carried on in each State. It was the desire of the council to carry on this work in each State as far as possible through the officers and committees of the State organization. The committee on Red Cross of the American Medical Association also desired the appointment of members throughout the State to represent it in any case of emergency in which the Red Cross might act. The Workmen's Compensation Commission would be appointed early in the year, before the meeting of the State organization, and it seemed desirable for the Society to appoint a committee of conference of not less than five members, representing different parts of the State, to appear before this commission from time to time to present the views of the profession upon the various questions that would come up for solution. This report was accepted and the recommendations contained therein were adopted.

**Report of the Council.**—Dr. JOSHUA M. VAN COTT of Brooklyn submitted this report in which it was stated that the council had held three meetings during the year, at the last of which the following resolutions were adopted and would be presented to the House of Delegates for action:

*First.* Members shall not be entitled to malpractice defense if the acts in the suit for which they make application for defense were committed prior to their admission to membership in the State society.

*Second.* Members who have been dropped for nonpayment of dues, if reinstated, shall not be entitled to malpractice defense for acts committed during the time they were not members of the society.

*Third.* Active members of the society desiring to avail themselves of the privileges of this act shall make application therefor in writing to the secretary of the Society, and it shall be shown to his satisfaction that they are members in good standing in the State Society. They shall also furnish the secretary a complete and accurate statement of their connection with, and treatment of, persons upon which complaints against them are based, giving dates of attendance, names and residences of nurses and of other persons cognizant of facts and circumstances necessary to a clear and definite understanding of all matters in question, and shall furnish such other relevant information and execute such papers as may be required of them by the secretary or the attorney of the State Society.

*Fourth.* A member shall agree not to compromise any claim against him, nor to make settlement in any manner without the advice or consent of the Society given through its attorney.

*Fifth.* In the event that a member sued or threatened with suit shall, without the advice or consent of the attorney of the Society, determine to settle or compromise any claim against him, he shall reimburse the Society for the expenses incurred in undertaking his defense, and in default thereof he shall be deprived of further privileges under this resolution.

*Sixth.* The Society shall not assume any responsibility for the payment of any sum agreed upon by arbitration in the settlement of claims, or awarded by court verdicts, or for making payments for any purpose whatsoever.

This report was accepted and the recommendations adopted.

The Council further reported that in their endeavor to induce the Regents to raise the preliminary requirements for the study of medicine that they had found that the Regents had no power to act in this matter, the law compelling them to carry out its provisions, which they had found to be faulty. In view of the important matters now pending, such as the antivisection question, osteopathy, etc., it was deemed unwise for the present to urge the Regents to attempt to change the law.

**Report of Committee on Publication.**—This committee reported that owing to the increase in membership the edition was now 8,300 copies per month and that in 1914 it would be 8,500. The cost of publishing the *Journal* was $4,449 for the year 1913, a saving of $1,410 over the preceding year. The cost of publishing the "Directory" was $5,762 in 1912, and $6,043 in 1913. In the opinion of the committee a publication based on the plan of the "American Medical Directory" would greatly lessen the value of the book.

**Report of the Treasurer.**—Dr. ALEXANDER LAMBERT presented this report which showed an excess of income for the past eight years of $5,845.95 and that the cash surplus of the Society had risen from $5,328 in 1906 to $9,448 on December 31, 1913. The report pointed out that they could not hope to increase the sales or the advertisements of the "Directory" or the *Journal* and that any increased revenue to the Society must come from increased membership.

**Report of the Committee on Legislation.**—Dr. LEWIS K. NEFF submitted this report, which was read by the secretary. He stated that during the year the work of the committee had been greatly increased by the large number of bills introduced. The Health bill which was passed was amended in important particulars as the result of the work of the State Society. The attention of the profession was called to the fact that if the Society was to be of any great influence in the future the individual members must do more work. With the proper support from the entire profession any measure they opposed stood a poor chance of passing. If, in the future, measures such as the Osteopathic, Naturopathic, and Chiropractic bills were not to be passed, the profession must realize that every man had his work; otherwise they would see much undesirable legislation placed on the statute books.

**Report of Committee on Public Health.**—This committee, after urging that the State and County Societies do all in their power to further the good measures affecting public health and oppose the bad, and after congratulating the State on the appointment of Dr. Hermann Biggs as Health Commissioner, suggested that a bill be submitted to the Legislature providing for an appropriation of $100,000 for the purchase of radium for the New York State Cancer Hospital for the treatment of epithelioma. The report expressed the belief that the time was at hand for the establishment of filtering plants in cities situated as Buffalo and Niagara Falls where the lake and river waters were so polluted as to make a clean water supply next to impossible. The often reiterated recommendation was emphasized that the State Society should take an interest in definite action looking to the establishment of pathological and bacteriological laboratories in all counties where there existed a demand for them. It was recommended that a committee be appointed to confer with the State Department of Health on this matter. Finally, this report urged that the Legislature be appealed to by the State Society to appropriate a sufficient sum of money to make the quarantine station adequate to the needs of the largest port of entry in the world. The State Society should endorse a request for $2,000,000 for this purpose. Hoffman and Swinburne Islands should be shored up, a modern unit system of pavilions should be built on Swinburne Island and the old buildings on Hoffman Island should be either reconstructed or replaced by modern structures. There should be a central light, heat, power and water plant which would make a great saving of running expenses. And the channel to the two islands should be deepened. We could then point with pride to a Quarantine Station which would be on a par with those of the other great powers. This report was accepted and referred to the Committee on Legislation with power to act. The recommendations contained therein were adopted with the exception of the one relating to the purchase of radium. It was pointed out that we were still in too much doubt as to the value of this agent as a cure for epithelioma to make it advisable to urge such an appropriation on the State.

**Report of Committee on Arrangements.**—Dr. CHARLES H. RICHARDSON in making this report, called attention to the clinical features of this meeting. Clinics would be held for the visitors at the various hospitals during the afternoons of the meeting, and opportunities would be afforded to visit the scientific and research institutions of the city.

**Report of Committee on Prize Essays.**—Dr. EDWARD D. FISHER reported for this committee that no essay had been presented in competition for the Merritt H. Cash prize and but one for the Lucien Howe prize. This was by Dr. M. J. Schoenberg, of New York and was entitled "Contribution to the Experimental Study of Ocular Anaphylaxis."

**The Report of the Committee Appointed to Consider the Question of the Prosecution of Illegal Practitioners.**—Dr. R. P. HIGGINS of Cortland presented this report, which was the result of a very careful investigation. They found the following facts to be true:

There were in most of the counties of the State, depending on their size and various local conditions, from one to several illegal practitioners. In many cases the local county society had procured indictments against these practitioners and the case had been brought to trial. In most of these cases, with the notable exception of the cities of New York and Buffalo, where the prosecution of these cases had been well organized, the defendants had been acquitted and the after effect of the verdict had been to establish them more firmly than ever in their practice. In rural or smaller communities local prejudice and feeling had been drawn upon and the defense had maintained that this was a free country and defendant was a poor fellow trying to earn an honest (?) living, and that the physicians had been trying to establish a monopoly of the healing art, and that many physicians' acts would not bear the light of investigation. In many of these cases the defense had endeavored to bring forward the claim that he had only done good, that he had cured cases pronounced incurable by the physicians, and that he had done no harm by his practice. It was just on these points that it seemed to the committee that successful prosecution could be brought. No matter what might be the technical violation of the law, unless evidence could be brought forward showing actual harm done by the defendant, prosecutions would be very difficult in the smaller communities. This could and should be done in every posible case, and instances of the harm done by these practitioners should be brought to the attention of the public in some forcible manner. It was suggested that the State Society through the State *Journal* could serve as a medium for spreading the information, and county boards of censors could be advised as to proper steps to be taken in prosecuting these cases and that the State Society, through its executive officers or through a standing committee for this purpose, serve as a bureau of information and tender its advice and counsel when requested, either in advice as to getting evidence in these special cases, or in counsel when these cases are presented for trial. This report was accepted.

**Report of the Counsel.**—JAMES TAYLOR LEWIS submitted this report. He stated that more actions had been begun during the past year than during any other year, and if certain years were selected more had been brought than during two years together. In all there had been fifty-seven actions brought. Thus it went without saying that the work of the counsel had been far greater than ever before. Only one case had been lost and that had been appealed. For years many physicians had settled their own cases and it was evident why the number of cases coming to the counsel of the Society was small; but now the knowledge of this defense having finally reached the great body of physicians in this State, and realizing the powerful influence for good represented by this organized malpractice defense there had been less and less of this settling of cases. The counsel felt certain that there would be a great reduction in the number of cases brought during 1914, because lawyers who were bringing these actions were becoming more and more discouraged. In no case of malpractice had any member of the State Society been called upon to pay money.

**Election to Honorary Membership.**—Dr. JOHN GEORGE ADAMI of Montreal, Canada, was elected to honorary membership in the Medical Society of the State of New York by unanimous vote.

**Election to Retired Membership.**—Dr. EDWARD GEORGE RAVE of Hicksville was unanimously elected to retired membership in the Society.

**Resolutions Adopted.**—Among the resolutions adopted by the House were the following: A resolution providing that the Committee on Public Health of the State Society form a standing committee to act in connection with the Council on Health and Public Instruction of the American Medical Association. A resolution providing for a committee which shall prepare a bill designed to raise the requirements of the medical practice law so that a high school diploma with 72 counts on the Regent's examination be required for entrance to a medical school, and that one year's work in chemistry, biology, and physiology be required for admission; these might be taken in the medical course, in which case five years should be required in the medical schools. Resolutions pointing out the increasing menace and burden of the mental defectives allowed to enter our port and urging the appointment of an efficient corps of examiners under the Public Health Service for the examination of immigrants. Resolutions providing for the appointment of a committee of two who should formulate a fitting memorial to Dr. Egbert Le Fevre, Dr. Joseph D. Bryant, Dr. Roswell Park, and Dr. Nathan Jacobson. Resolutions providing for the appointment of a commission to investigate the midwife problem in this State and to present a report at the next meeting.

**Place of Meeting.**—It was voted to hold the next meeting in Buffalo on April 27, 1915.

*Tuesday, April 28—Second Day.*

**Election of Officers.**—The following officers were elected for the ensuing year: *President*, Dr. GROVER W. WENDE of Buffalo; *First Vice-President*, Dr. MYRON B. PALMER of Rochester; *Second Vice-President*, Dr. S. W. S. TOMS of Nyack; *Third Vice-President*, Dr. ROBERT W. ELLIOTT of Willard; *Secretary*, Dr. WISNER R. TOWNSEND of New York; *Treasurer*, Dr. ALEXANDER LAMBERT of New York; *Chairman of Committee on Scientific work*, Dr. T. H. MCKEE of Buffalo; *Chairman of Committee on Public Health*, Dr. JOSHUA M. VAN COTT of Brooklyn; *Chairman of Committee on Legislation*, Dr. LEWIS K. NEFF; *Chairman of Committee on Arrangements*, Dr. ALBERT T. LYTLE of Buffalo; *Chairman of Committee on Medical Research*, Dr. FRANK VAN VLEET; *Delegates to the American Medical Association for two years*, Dr. DWIGHT H. MURRAY of Syracuse, Dr. J. W. FLEMMING of Brooklyn, Dr. WENDELL C. PHILLIPS of New York, Dr. J. C. MACEVITT of Brooklyn, and Dr. CHARLES H. RICHARDSON of New York; *Alternates*, Dr. OWEN E. JONES of Rochester, Dr. SAMUEL LLOYD of New York, Dr. M. M. LUCID of Cortland, Dr. A. W. BOOTH of Elmira, and Dr. W. E. BOWEN of Rochester, and Dr. J. R. KEVIN of Brooklyn.

**Presentation and Adoption of Resolutions.**—Resolutions were adopted providing for the appointment of a committee of three to be present at the convention on the revision of the Constitution of New York State to see that the interests of the profession were properly protected. . . . The following resolution was also adopted: *Whereas*, the object of the National Food and Drug Act as applied to drugs being specifically for the purpose of conserving the public health in relation to the standard of purity and quality, and *Whereas*, under the present construction of the law in relation thereto it is manifest that the purpose is wholly defeated by the proviso which admits of any standard, and *Whereas*, there could be only one standard of purity quality in medicines in order to safeguard the public health, *Resolved*, That we of the Medical Society of the State of New York use every effort so that there be but one recognized standard of purity and quality and that the one designated by the United States Pharmacopœia and the National Formulary.

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GENERAL SESSION.

*Tuesday, April 29—First Day.*

THE PRESIDENT, DR. WILLIAM FRANCIS CAMPBELL, IN THE CHAIR.

**Address of Welcome.**—Dr. WILLIAM FRANCIS CAMPBELL made this brief address in which he extended a hearty welcome to all and hoped that the meeting would prove edifying as well as entertaining. He stated that a broad medical culture was not attained by staying at home and plying in the old groove. This had been recognized and the spirit of travel and of exchange of courtesy and work was abroad and was vitalizing the profession to a remarkable extent. No town had a monopoly of the genius of American Medicine, and thus they had gone from New York to Cleveland to cull the blooms on that fruitful vine and to find the leaven that would leaven the mass. In closing Dr. Campbell referred to the wealth of clinical material in the city and urged the visitors to take advantage of what was offered.

HONORABLE MARK M. MARKS, Borough President of Manhattan, in a brief address of welcome, spoke of his pleasant relations with physicians and said that in sending one his check he had always added "This is but a nominal acknowledgment of the care and worry you have had in my behalf; your service is one which money cannot repay." He then spoke of the altruistic spirit of the profession as typified by such men as Dr. Abraham Jacobi and Dr. Hermann Biggs, and said that the spirit of the day was to give rather than to receive. The emphasis in medicine today was being placed on the prevention rather than the cure of disease.

**The Kinetic System.**—Dr. GEORGE W. CRILE of Cleveland delivered the Address on Medicine, in which he formulated a theory which he hoped would harmonize a large amount of clinical and experimental data; supply an interpretation of certain diseases, and show that many and diverse causes produced the same end effects; to offer evidence that there was in the body a system evolved primarily for the transformation of latent energy into motion and into heat. This system the author designated the "Kinetic System." It did not directly circulate the blood, exchange oxygen for carbon dioxide, it did not perform the functions of digestion, urinary elimination or procreation, but it did indirectly play an important rôle in each. The principal organs which comprised the kinetic system were the brain, the thyroid, the suprarenals, the liver, and the muscles. After specifying the particular functions of each of these organs, the writer said that adrenalin alone, brain activity alone, and muscular activity alone were capable of causing the temperature to rise above normal. The functional activity of no other gland alone and the secretion of no other gland alone could cause a comparable rise in body temperature—that was, increased functional activity, and no active principle derived from the kidney, the liver, the stomach, the pancreas, the hypophysis, the parathyroids, the spleen, the intestines, the thymus, the lymphatic glands or the bones could *per se* cause a rise in the general body temperature comparable to the rise that might be caused by the activity of the brain or the muscles or by the injection of adrenalin or thyroid extract. When the brain, the thyroid, the suprarenals, the liver, or the muscles were eliminated the power of the body to convert latent into kinetic energy was impaired or lost. The author then offered evidence to show that an excess of either internal or external environmental stimuli might modify one or more organs of the kinetic system and that this modification might cause certain diseases. The amount of latent energy which might be converted into kinetic energy varied in different species; in individuals of the same species; in the same individual in different seasons; in the life cycle of growth, reproduction and decay; in the waking and the sleeping hours; in disease and in activity. The author then considered the reasons for some of those variations and the mechanisms which made them possible. If his thesis that men and animals were mechanisms responding to environmental stimuli was correct, and if the speed of energy output was due to changes activating the organs as a result of adaptive stimulation then they should expect to find physical changes in the activating glands during the cycles of increased activation. The facts were that most animals had breeding seasons evolved as adaptations to the food supply and weather. Hence there was in most animals a mating season in advance of the season of maximum food supply so that the young might appear at the season when food was most abundant. During the mating season the thyroid was known to enlarge materially though this increase in thyroid activity was probably no greater than the increased activity of other glands. Not only was there a seasonal rhythm in the rate of flow of energy, but there was a diurnal variation, the ebb was at night and the full

tide in the day time. In addition there were variations also in the rate of discharge of energy in the various life cycles of the individual. The young were evolved at higher speed for growth, so as the sooner to develop the power of self-protection. They must adapt themselves to bacteria, to food, to all the elements in their environment. The cycle of greatest kinetic energy ended with the period of reproduction. The secondary sexual characteristics might be developed at will, for example, by feeding thyroid products from alien species to the individual deprived of the thyroid. The author then considered the conversion of latent into kinetic energy in the production of heat. The question which arose at once was: Was there one mechanism for the conversion of latent energy into muscular action? What was the adaptive advantage of fever? In fevers there was a diminished intake of energy but an increased output of energy, hence the available potential energy in the body was rapidly consumed. This might be an adaptation for the purpose of breaking up the foreign protein molecules composing the bacteria. Thus the body might be purified by chemical combustion so furious that frequently the heat itself was destroyed. As to the mechanism which produced fever the writer postulated that it was the same as that which produced muscular activity. Muscular activity was produced by the conversion of latent energy into motion, and fever was produced largely in the muscles by the conversion of latent energy into heat. They should, therefore, find similar changes in the brain, the adrenals, the thyroid, and the liver whatever might be the purpose of the conversion of energy, running, fighting, emotions, or infections. As a result of excessive activity from whatever cause experimental evidence was adduced tending to show what part was played by the brain in the production of muscular and febrile action, and then the part played by the suprarenals, the thyroid, and the liver was discussed. To this end he had studied the brain cells in human cases of fever, in animals after prolonged insomnia, after the injection of toxins, gonococci, streptococci, staphylococci, bacilli of tetanus, diphtheria, and typhoid, of foreign proteins, indol, and skatol; of leucin and peptones. He had studied the brains of animals that had been activated in varying degrees up to the point of complete exhaustion by running, fighting, by rage and fear, by physical injury and by the injection of strychnine; the brains of salmon and the brains of electric fish, the brains of woodchucks in hibernation and after fighting; the brains of humans who had died from anemia, resulting from hemorrhage, from acidosis, from eclampsia, from cancer, and from other chronic diseases. They had studied the brains of animals after the excision of the suprerenals, of the pancreas, and of the liver. In every instance the loss of vitality, the loss of normal power to convert potential into kinetic energy was accompanied by physical changes in the brain cells. *The changes in the brain cells were identical whatever the cause.* The crucial question then became: "Were these constant changes in the brain cells the result of work done by the brain cells in running, fever, emotion, etc.?" In cross circulation experiments he had found that the brain cell changes were not due to waste products or to metabolic poisons. He found that in the production of muscular action and of fever there were brain cell changes which showed a quantitative relation to the temperature changes or to the muscular work done. He had observed that under deep morphinization the febrile response or the muscular work done was either diminished or eliminated and that the brain cell changes were correspondingly diminished or eliminated. He found also that brain cell changes and muscular work followed electrical stimulation alone. He therefore concluded that brain cell changes were work changes. The writer then considered the other organs of the kinetic system in their relation to muscular activity, to emotion, to consciousness, to hibernation and to heat production. It was shown that brain and suprarenal activity went hand in hand. It was further shown that there was an interdependent relation between the brain, the suprarenals, and the liver. Histological studies were made of every organ in the body, in animals after they were subjected to a long period of wakefulness and only these three organs showed histological changes. With these three kinetic organs they also associated the "furnace," the muscles, in which the energy provided by the brain, the suprarenals, and the liver plus oxygen fabricated into heat and motion. He then showed that none of these organs had the power to change the rate of discharge of energy, but that the thyroid presided over this function. In other words it was the pace maker. The effect of the output of energy of impaired or lost function of each of the several links in the kinetic chain was then discussed and it was shown that if the brain was impaired it could not stimulate other organs to the conversion of energy into latent heat or motion, but in these cases one found weakened muscular and intellectual power. In such destructive lesions of the suprarenals as Addison's disease one of the cardinal symptoms was a subnormal temperature and impaired muscular function power. When the function of the liver was impaired by tumors, cirrhosis, etc., then the entire energy of the body was correspondingly diminished as evidenced by the gradual loss of efficiency which finally reached the stage of asthenia. It had been observed that if the muscles were impaired by long disuse, then the range of production of both heat and motion was below normal. When the thyroid was impaired as in myxedema, one of the cardinal symptoms was a persistently subnormal temperature, and subjects of myxedema showed but feeble febrile response and readily succumbed to infection. If our conclusions were sound then in the kinetic system was found the explanation of many diseases, and having found this explanation in time they might find new methods of combatting them. The author then considered what he termed the kinetic diseases. When the kinetic system was driven at an overwhelming rate of speed as by severe physical injury, intense emotional excitement, perforation of the intestines, the pointing of an abscess into new territory, or by the sudden onset of infectious disease, by an overdose of strychnine, by foreign proteids, etc., the result was clinically designated shock, and, according to the cause, termed traumatic shock, toxic shock, etc. The essential pathology of shock was essentially the same whatever the cause and whenever any one link in the kinetic chain was unable to bear the strain, the balance was destroyed. If the brain was the weakened link then neurasthenia, nerve exhaustion, or even insanity followed. If the thyroid could not endure then that organ underwent hyperplasia, which might result in colloid goiter or exophthalmic goiter. If the suprarenals could not bear the strain the cardiovascular disease might develop. If the liver, then death from acute acidosis might follow, or if the neutralizing effect of the liver was only partially destroyed then the acidity might cause Bright's disease. Over activation of the kinetic system might cause glycosuria and diabetes. Identical physical and functional changes in the organs of the kinetic system might result from intense continued stimulation from any of the following causes: Excessive physical exercise, worry or anxiety, athletic exercise, chronic infections, such as oral sepsis, tonsilitis, adenoids; chronic appendicitis, chronic cholecystitis, colitis, skin infections, emotional strain, intestinal autointoxication, excessive intake of proteid food, business or professional strain. In this hypothesis one found the reason why cardiovascular diseases might be caused by chronic infection, by acute intestinal autointoxication, overwork, or emotional excitement. The problem was whether this theory would stand the test of clinical experience; of controlling the protein disease bred in the stress of daily life. The force of the kinetic stimuli might be broken at the thyroid by dividing the nerve supply, reducing the blood supply, or by partial excision. They already had the shockless operation, the surgical treatment of Graves' disease, the control of shock and the acute infections by overwhelming morphinism.

## NEW YORK NEUROLOGICAL SOCIETY.

*Stated Meeting, Held January 6, 1914.*

THE PRESIDENT, DR. SMITH ELY JELLIFFE, IN THE CHAIR.

**A Case of Traumatic Epilepsy Cured by Operation.**—Dr. WILLIAM M. LESZYNSKY presented a man, thirty years old, with a negative family history and whose personal history was uneventful up to the age of six years. At that time he fell from a height, receiving a compound, comminuted fracture of the skull over the right temporo-parietal region. He was taken to a hospital, where he was treated surgically, a section of the bone being removed, and when he returned home, a few weeks later, he was apparently free from all symptoms. A few months later he began to attend school, and ultimately became a bookkeeper. At the

age of twenty-one, fifteen years after the receipt of his injury, he began to develop epileptic convulsions. The attacks were at first infrequent, and always began with a convulsive movement of the left hand, gradually becoming general. For five years he averaged about one attack a month, but they gradually became more frequent and severe, and when Dr. Leszynsky first saw the patient, nearly four years ago, he had recently had four severe attacks in a single night. Upon examining the cranium, the presence of adhesions over the site of the old wound were suspected, and an early operation was recommended, and this was done by Dr. Henry Roth at the Lebanon Hospital on May 23, 1910. It was then found that the skull, the dura and pia mater and the cortex were matted together in one mass. After some difficulty the cortex was freed and covered with a piece of Cargile membrane and the wound was then closed. The patient's operative recovery was good, and he left the hospital shortly afterwards. Three years and eight months had elapsed since the operation, and the man had never had an epileptic convulsion since that time. His treatment had been purely hygienic, and he had never received any sedative drugs.

Dr. Arthur C. Brush, of Brooklyn, said the theory promulgated by the late Dr. Ira Van Gieson a few years ago that the epileptic seizures were the result of a wedge-shaped piece of tissue producing irritation of the cortex did not hold good in this case, as nothing was done here but to separate the adhesions and insert a piece of Cargile membrane. Here we either had to accept the fact that the epilepsy was cured by the surgical operation or else that the epilepsy was not due to the injury at all. The fact that the convulsive movements began in the left hand and were followed by unconsciousness pointed to the Rolandic area.

Dr. Leszynsky, in closing, said the character of the attacks was always the same, invariably beginning in the left hand, extending up the arm and over the rest of the body, with almost immediate loss of consciousness. The patient never had any *petit mal* attacks. The attacks occurred both during the day and at night, and were purely Jacksonian in the beginning.

A Case of Multiple Sclerosis.—Dr. S. P. Goodhart presented a girl, twenty-four years old, with a negative family history, who seven years ago began to complain of peculiar burning sensations in the palms and soles. Finally, this paresthesia extended to the upper and lower extremities, giving her the sensation, as she described it, as though the extremities were enveloped in gloves. This disappeared, and was followed by a flaccid paralysis of the lower extremities, which practically became complete. At the end of three months she began to improve and three months later the paralysis had entirely disappeared. She then remained well until last July (1913), when she began to suffer from weakness in the left upper extremity, and extending very gradually to the corresponding lower extremity. The eye grounds at this time suggested some change in the disks. In the course of a short time this paralysis, which followed a very suggestive anatomical distribution, was accompanied by a tremor, and the case now presented a typical picture of multiple sclerosis, which was confirmed by the eye findings. There was an absence of the abdominal reflex; a marked Babinski was present on the left side, less marked on the right. The patient had also developed a peculiar spasm of the left hand. There was nystagmus on convergence. The Wassermann was invariably negative.

Epilepsies and Psychoanalysis: A Query.—Drs. Smith Ely Jelliffe and Frank M. Hallock presented this paper.

Dr. Jelliffe, preliminary to the presentation of a patient bearing on this subject, said we knew so little about the dynamic factors in the causation of the epileptic discharge, particularly in the so-called true or idiopathic type of epilepsy, where we had no antecedent history, and objective neurological examination left us at a loss, that he took occasion to ask Dr. Hallock to investigate some of these cases, more particularly in relation to their complex reactions and psychic disturbances, in the hope of eliciting some facts that might be pertinent to or have some bearing upon the particular type of energy discharge. The class of patients he had in mind were those in which the seizures had come on at about the ages of eleven, twelve, or thirteen, more or less coincident with the awakening of the puberty influences. Even from the time of the early Greek writers, coitus had been described as a minor epileptic attack, and the motor manifestations of the epileptic discharge were so striking as to suggest the possibility of such a relationship. Possibly, and the subject is presented to-night in the form of a query, this apparently motiveless discharge of energy may depend upon certain psychogenic factors that were worthy of investigation. We know that during the night, when the usual avenues of energy dissipation are not open, that epileptic attacks are more frequent than during the daytime. It is a familiar fact that in institutions where large numbers of epileptic individuals are grouped, interference with the regular routine employment of the patients, such as that caused by a rainy day, a stormy day, Sundays and holidays, is coincident with an increase in the number of attacks: such attacks occur more frequently when the patients are not discharging energy in normal ways. It might be possible that the rigid application of the libido theory with the psychoanalytic study of the distribution of energy and the introversion of energy might offer a field in which an explanation for certain forms of epileptic discharge might be formulated.

Dr. Frank M. Hallock said this case was presented very early in the course of the psychoanalysis. The patient was an epileptic boy, seventeen years old, who came to Dr. Jelliffe's clinic at the Post-Graduate Hospital on October 15, 1913. His family history was negative. The epilepsy began at the age of eleven years, the attacks occurring about twice a month, without prodromata. They began with twitching of the right hand and occurred only during sleep, lasting from two to twenty minutes. During the attacks the patient frequently bit his tongue. There were occasional semiconscious states, with staring and dreamy states, lasting a few seconds or minutes. Occasionally, the boy heard voices; sometimes it was part of a prayer, etc. He also complained of certain insistent words that troubled him for several days. The boy was unable to work on account of his convulsions; he feared that work might aggravate them, although they never occurred during his waking state. He also had a tendency to hoboism, and had once beaten his way from Springfield, Ill., to St. Louis on a freight train. He had made attempts to hypnotize himself by staring into a mirror until he lost his equilibrium, and staggered across the floor. He said he had also tried "stunts" with his eyes to make them come together by holding his finger near the nose, in order to make each eye independent of the other. He had done this half an hour at a time. Inquiries into the boy's sexual life elicited the fact that masturbation began through the instruction of other boys at the age of twelve and a half, but was stopped by his uncle six months later. Two years ago he again began to masturbate, and continued the practice for several months. Other sexual experiences had been slight, and there had never been any seminal discharge. The boy's environment had been a difficult one. When he was a small child he liked his father, but now he looked upon his as too much of a religious fanatic. This dated back to about the age of ten. "I began," he said, "to read Darwin, but my father was steeped in his old orthodox beliefs and we clashed. He has beaten me plenty of times, ever since I can remember." He was also frequently beaten by the Rabbi, to whom he was sent for religious instruction. Of his mother, he said: "I like her pretty fair. She is a little better than father. Because he doesn't like me, she does." Of his sister, fifteen years old, he said: "She is my father's pet, and I got into many scrapes on her account." The patient had occasional dreams of sexual intercourse with this sister. He had no girl friends. The patient had many dreams, some of them very intricate. They were full of his struggles with his father. After one of these he awoke, his father shaking him vigorously in order to awaken him, asking what he was yelling about, and evidently fearing an impending fit. As the child advanced in years he met with decided rebuffs. He sought expression for his love-nature and found his father in the way. As a young child he knew the world only through father and mother, and it seemed to him to be a pretty tough world. Rather than make any further effort toward understanding his love-life, which demanded expression in some form, he retired to the cradle—to the memories of his infancy and childhood. He dreamed of a nest in his mother's arms, where he would be loved as he was when a baby. One day, after having a fit, he was asked how he felt, and he replied: "I feel like a baby three or four years old. When I am well I beat my own way and do as I like, but now I do whatever my mother tells me. She treats me better than she does the other children. To-day I asked her why, and

she said because of my illness." He had thus succeeded in his unconscious object of drawing his mother's sympathy and attention by means of his fits, thus feeling himself once more in her care, as he was when a baby. Dr. Hallock said the analysis of this case would be continued, because, with the understanding of the nature of his conflict, the patient's attitude of mind toward life had already changed. He expressed himself as feeling different and better. The struggle with his environment was not so keen and his dreams had already shown some change in the direction of an understanding and control of his conflict.

Dr. C. P. Oberndorf asked if the more important signs of the classical epileptic attack, such as the abolition of the corneal and light reflexes while the patient remained unconscious, involuntary evacuation of the bowels and bladder, and the Babinski sign immediately following the convulsion had been recorded in this case.

Dr. Hallock could not answer Dr. Oberndorf's questions, as he had never seen the boy during an attack.

Dr. Oberndorf said that without an accurate examination during the attack it was impossible to distinguish between epilepsy and the convulsive manifestations of hysterical states, or some of the lapses seen in dementia præcox. In one case of convulsive attacks, apparently of psychogenetic origin, which he had observed, there was voiding of the bladder, and in another case, in a girl of twelve, the attack culminated in an orgasm. In both instances the attack seemed to be a substitution for masturbation. In the case just presented there was no evidence to warrant the assumption that the attacks, whether hysterical or otherwise, were dependent on either the conscious or unconscious psychical life of the patient, nor had any analysis of the hallucinations been attempted.

Dr. Jelliffe said the attacks were accompanied by biting of the tongue and involuntary evacuations of the bowels and bladder, and he had no doubt that they were of the major epileptic type.

Dr. I. Abrahamson said he could see no possible connection between the epilepsy in this case and the psychoanalysis. Many of the dreams that had been reported by Dr. Hallock appeared to be due to suggestions received from the examiner.

Dr. Hallock said that what was apparent on the surface of a dream was not its real meaning, which was something quite deeper. While his close association with the patient might bring out something, it would have nothing to do with the true meaning of the dream.

Dr. Jelliffe said that while this work was still in an experimental stage he thought Dr. Hallock had gone quite far enough to show that in this particular case the theoretical importance of the Œdipus complex was demonstrated, and that possibly the motor discharge was in response to the psychogenetic factor of hate to the father and incestuous phantasies regarding the mother. We should not lose sight of the fact that we were merely discussing a form of energy distribution which is described under the symbol epilepsy.

**The Intensive Treatment of Syphilis of the Nervous System by Neosalvarsan, Intravenously, and Mercury by Injunction: A Preliminary Report.**—Drs. Frederick Peterson and J. W. Stephenson presented this communication. (See p. 786.)

Dr. J. Ramsay Hunt, after referring to the very encouraging results obtained in the cases reported by Dr. Stephenson, said that Ehrlich had lately recommended the combined use of salvarsan and mercury in obstinate cases. A course of treatment with salvarsan, then, after a brief intermission, a course of treatment with mercury, or the mercury might precede treatment with salvarsan. In a recent paper Wechselmann had attributed a certain number of deaths from salvarsan intoxication to the preliminary use of mercury; he claims that the mercury produces a mild form of nephritis, or renal disturbance, so that when the salvarsan is given the kidneys are incapable of eliminating the arsenic, and that a second injection under such conditions may result in serious symptoms of intoxication. It was well to keep this possibility in mind, Dr. Hunt said, in connection with the intensive treatment, as outlined by the reader of the paper. We know that the kidneys are an important factor in elimination, and during such a course of treatment as this the renal secretion should be frequently examined, preferably daily, and at the slightest indication of disturbance further medication should be postponed and every precaution should be taken to guard against untoward results. Dr. Hunt said he had seen two cases of very severe intoxication from salvarsan, both following the second injection. In both instances slightly less than the usual dose was employed, and the full interval of one week was allowed to elapse after the first injection. In one of the cases a severe myelitis developed, and in the other there was a general intoxication, with jaundice. Both were most severe, and, in the acute stage, alarming cases. While the results obtained in the series of cases reported by Dr. Stephenson were most encouraging, both from a serological and clinical standpoint, they should not blind us to the possible danger of pushing the medication in these patients.

Dr. Leszynsky said that in one of the cases reported by Dr. Stephenson he spoke of giving one-sixth of a grain of mercury, presumably the bichloride, following which the Wassermann in both the blood and cerebrospinal fluid became negative. It was an open question, Dr. Leszynsky said, whether the serological reactions were changed by the mercury or the salvarsan, and, personally, he would be inclined to depend on the action of the former, which was safer than salvarsan. The speaker said that in a number of cases he had used potassium iodide in increasing doses coincident with injection of neosalvarsan, without untoward results.

Dr. Abrahamson said that at the Mt. Sinai Hospital, in the service of Dr. B. Sachs, they employed an intensive method of treating severe cases of cerebrospinal syphilis, but the treatment was carried over a longer period than that described in the paper. In cases with a doubtful and negative Wassermann, they give a provocative injection of salvarsan to bring out a positive reaction. In connection with this general subject, the speaker said, the question naturally arose, what did a serological examination mean? Personally, he did not believe that the result of an examination of the cerebrospinal fluid indicated definitely the degree of the infection. Such a presumption was too often contradicted by the actual findings. On the one hand, they saw serious paretic and tabetic cases with mild serological findings, while on the other hand, patients with very slight symptoms often gave very positive blood and cerebrospinal findings. The important factors were the symptoms presented by the patient. They deserved more consideration than a negative or positive Wassermann in the blood or fluid; the effect of treatment on the biological findings was very important. Dr. Abrahamson said their results with general paresis had not been as favorable as some of those reported by Dr. Stephenson, and they had not succeeded in rendering the fluid of many general paretics negative. These had proven the most obstinate of all their cases, much more so than the tabetics. He did not believe that the biological examination was definitely diagnostic between taboparesis and general paresis.

Dr. Goodhart, replying to Dr. Hunt, said he did not think it was the mercury that brought about the disturbance of the renal function, which, in turn, was responsible for the subsequent salvarsan intoxication. We knew that salvarsan was given to syphilitics by men in other lines than neurology with comparatively little regard to organic disturbance, such as heart lesions, etc. Personally, he was rather inclined to attribute the untoward results that had been reported to the combined treatment. When salvarsan and mercury were administered at the same time, it was quite possible that a poisonous compound was thus generated.

Dr. H. Goldenberg said that in his remarks he would limit himself to a discussion of the statement of Wechselmann, quoted by Dr. Hunt, that some of the fatal results which had been reported were due to the combination of salvarsan and mercury. Without any intention of trying to detract from the credit of Wechselmann for his work in this field, we should not lose sight of the fact that he had not been entirely consistent, and had changed his mind repeatedly on this point. At first, he attributed the fatalities to the so-called "Wasserfehler," and now he thought these were due to the mercury which had been combined with the salvarsan. Dr. Goldenberg said that from the very beginning of the salvarsan era, he had made it a rule, at Mt. Sinai Hospital, to combine the salvarsan with mercury injections. He had had two deaths which were due not to the mercury, or to the combination of the mercury and salvarsan, but purely to the salvarsan. The first was one of his very early cases; in fact, his first case of intravenous injection. The patient was an adult with mucous patches, who had contracted a chancre ab
year before. He left the hospital five days aft
injection, went on a debauch the same night, a
readmitted two days later. He was then irr

became maniacal, and died a week later under the symptoms of a hemorrhagic encephalitis. The second case was that of a girl of fifteen, with lesions on the vulva, due to an acquired infection. She had received one salvarsan injection without untoward symptoms. Two weeks later she received a second injection of 0.4 gram, which was followed by a rise of temperature, a transitory erythematous rash, jaundice, multiple neuritis, with ulcerations in the mouth, at the base of the tongue and on the epiglottis. She died with the clinical picture of an acute yellow atrophy of the liver, seventeen days after the second injection. The so-called Herxheimer reaction, following immediately, sometimes while the patient was still on the table, or, subsequently, the symptoms consisting of flushing of the face, watery eyes, intense headache, swelling of the mucous membranes of the mouth, abdominal cramps, etc., had recently been explained by Milian, a French writer, as being due to a dilatation of the blood-vessels caused by the arsenic. In a number of cases where he had previously observed this complex of symptoms he was able to prevent them after subsequent injections by the previous intramuscular administration of adrenalin. Neurorelapses were not longer seen in his service. Dr. Goldenberg said, since the patients were given sufficient salvarsan treatment. They were due to syphilis, and not to salvarsan.

Dr. Hunt thought that Wechselmann's discovery of the "Wasserfehler" was a most valuable contribution to the technique of the administration of salvarsan. It was a step in the right direction toward the perfection of that technique, and the same could be said of his more recent work in attributing the possibility of salvarsan intoxication to the deleterious action on the kidneys of a preceding course of mercury. This, the speaker thought, could scarcely be regarded as a change of mind on Wechselmann's part. It was certainly of the first importance that every contributing factor in the production of unfavorable results, both in the technique of administration and the selection of cases be carefuly analyzed, and such factors, when determined, eliminated. It could hardly be questioned that ignorance of these factors in the early period of the salvarsan treatment and inattention to them in the later was largely responsible for the fatalities and many of the untoward results that have occurred.

Dr. Goldenberg said he did not wish to be misunderstood in his remarks as criticising Wechselmann, who was a pioneer in this work. He only spoke of the apparent change in the views of that authority as to the cause of death following the administration of salvarsan. Personally, Dr. Goldenberg said, he had given salvarsan in a number of cases of supposed syphilitic nephritis not only without injurious results, but with great benefit to the patient.

**The Neural Atrophy of the Small Muscles of the Hand, Without Sensory Disturbances.**—Dr. J. Ramsay Hunt referred briefly to the two types of neural atrophy of the small muscles of the hand, without sensory disturbances described by him in previous communications:

(1) A hypothenar type, from compression neuritis of the deep palmar branch of the ulnar nerve; (2) a thenar type, from compression neuritis of the thenar branch of the median nerve. The author stated that one of the chief points of clinical interest of these two types of neural atrophy of the small muscles of the hand without sensory disturbances lay in their resemblance to and possible confusion with the atrophy of the hand muscles of spinal cord origin, viz., the Aran-Duchenne type of progressive muscular atrophy, the early stage of amyotropic lateral sclerosis beginning in the hand musculature, and the various types of subacute and chronic poliomyelitis of syphilitic origin, in which the lesions originated in, or were more or less restricted to the lower segments of the cervical cord. Of special importance was the so-called tephromalacia anterior described by Marie and Foix, in which the atrophy of the anterior horns, limited to the 8th cervical and adjacent portion of the 7th cervical and 1st dorsal segments of the cord, was produced by a vascular lesion of syphilitic origin. (Endarteritis and periarteritis without thrombosis.)

(1) The *hypothenar type* of neural atrophy was characterized by a complete paralysis, with consecutive atrophy and reactions of degeneration in all the muscles of the hand supplied by the ulnar nerve. (The hypothenar, interossei, abductor pollicis, and inner head of the flexor brevis pollicis.) There were no objective or subjective disturbances of sensation in the distribution of the ulnar nerve. The ulnar flexion of the wrist was preserved, as was also the function of the palmaris brevis. The motor branch to this small subcutaneous muscle passing in the superficial palmar, which is sensory; the deep palmar is partly motor in function. The preservation of this small motor branch to the palmaris brevis and of the sensory functions showed that the compression lesion was situated in the deep volar branch, after the division of the nerve at the level of the pisiform bone. Just after this division the deep palmar branch passed between the tendinous origins of the abductor minimi digiti and the flexor brevis minimi digiti, to beneath the hook of the unciform bone. The compression neuritis, therefore, by a process of exclusion, must take place in this section of the deep palmar branch.

Report of a case: The patient was a man of thirty, by occupation an ironer and presser of clothes. He denied lues and gave no history of alcohol or lead intoxication. For the past six months he had suffered from weakness of the right hand, with gradually increasing atrophy. In spite of this he had continued his occupation. He had no pain and no paresthesiæ in the distribution of either the ulnar or median nerves. There was complete paralysis, with considerable wasting, of all the hand muscles supplied by the ulnar nerve, with complete reactions of degeneration. The ulnar flexion of the wrist and the function of the palmaris brevis were preserved. Sensation was perfectly normal to touch, pain and temperature, and the deep sensibility was preserved. The atrophy and paralysis were strictly limited to the ulnar distribution in the hand, and the hand had somewhat the attitude and appearance of the *main en griffe*. No fibrillation was present. There was no tenderness on pressure along the ulnar nerve, but deep pressure at the pisiform bone was slightly tender. The pupils were equal and reacted normally. All the tendon reflexes of both upper and lower extremities were normal in intensity, and were equal on the two sides. The skin reflexes were normal. The plantar reflex gave a flexion response on both sides. An *x*-ray examination for cervical ribs was entirely negative. There was no lead line on the gums, and the Wassermann reaction was negative. The urine was normal. Lumbar puncture was not permitted.

(2) The *thenar type* was characterized by paralysis and reactions of degeneration, with atrophy of all the small muscles of the thenar eminence supplied by the median nerve. There were no subjective or objective sensory disturbances in the distribution of this nerve. The compression lesion in this type takes place beneath the anterior annular ligament, where the thenar branch, a purely motor nerve emerged before dividing into the muscular branches to the abductor pollicis, the opponens pollicis and the outer head of the flexor brevis pollicis.

Report of a case: The patient was a man, forty-nine years old. He denied lues, had used alcohol in moderation, and gave no history of lead intoxication. By occupation he was a general houseworker, sweeping, scrubbing, and washing floors and polishing brass. This patient, Dr. Hunt said, had been under his direct observation for a year, presenting himself originally for a weakness of the left thumb, with wasting of the muscles in the thenar region. This had appeared a few weeks previously without pains or paresthesiæ. During the entire period of observation he had had no subjective sensations in the distribution of the median nerve. The paralysis and atrophy were confined to the thenar muscles supplied by the median nerve. The function of the abductor pollicis and the inner portion of the flexor brevis pollicis were preserved. There were complete reactions of degeneration in all the thenar muscles supplied by the median nerve; all the other small muscles of the hand were normal both in power and electrical reactions. No fibrillations were noted in the atrophic area. There were no objective disturbances of sensation in the right upper extremity, and the median distribution was entirely normal to touch, pain, and temperature. There was no tenderness along the course of the median nerve. The urine was normal. The *x*-ray showed no cervical rib. There was no lead line on the gums. The pupils were unequal, the right being greater than the left; both pupils were rigid to light, and the left only reacted to accommodation. The supinator, biceps, and triceps jerks were equal on both sides, and not exaggerated. The jaw jerk was present. The knee jerks were unequal, the right being less active than the left. Both Achilles jerks were present and equal. Plantar reflex normal. For the

past seven months the patient had complained of mild, lancinating pains in the legs and chest, with slight vesical trouble. No crises; no diplopia. A mammary zone of hypalgesia and analgesia was demonstrable. The Wassermann reaction was negative. Spinal puncture was not performed. Diagnosis, *incipient tabes* and the *thenar type of neural atrophy.*

The clinical diagnosis of incipent tabes in this case was based upon the Argyll-Robertson pupil, lancinating pains, unequal knee jerks, vesical disturbance, and a mammary zone of hypalgesia, a group of symptoms which makes such a diagnosis practically certain. The existence of parasyphilis in conjunction with atrophy of the thenar eminence suggested, first of all, a myelopathic origin, developing upon the basis of an old syphilis. This interpretation, the speaker said, he would exclude in the case under consideration for the following reasons: The paralysis was of rather rapid onset, and was definitely limited to the muscles supplied by the thenar branch of the median nerve. The reactions of degeneration were complete five weeks after the onset of symptoms, and were, as they are at the present time, definitely limited to the median nerve distribution of the hand. After a year's observation, there had been no extension of weakness or atrophy to other muscle groups of the hand. At no time had fibrillations been noted. The process had remained definitely limited to the distribution of the thenar branch of the median nerve on the left side.

The author believed that such affections as progressive muscular atrophy and chronic and subacute poliomyelitis could be excluded by reason of the strict limitation to a neutral distribution and the absence of progression and other symptoms indicating spinal cord involvment.

The tephromalacia anterior, as described by Marie and Foix, could also be excluded with equal certainty by reason of the comparatively acute onset of the symptoms and the strictly neutral distribution. In Marie's two cases of tephromalacia anterior of syphilitic origin, with autopsy, the lesions were bilateral, affecting both hands, although predominating in one, and there was a diffuse atrophy of the small muscles of the hand, and not limited to a definite neural distribution, as in the two groups of cases described by Dr. Hunt. The similarity may be great, however, as Marie insisted on the non-progressive tendency and the strict limitation to the small muscles of the hands. That the lesion of tephromalacia should be so limited was in itself interesting and peculiar, but that this limitation should assume a persistently neural character and distribution, as in the thenar and hypothenar types of neural atrophy of the small muscles of the hand, was from the very nature of the lesion scarcely conceivable.

In a recent communication before the Société de Neurologie de Paris, November 13, 1913, Marie and Foix recorded a case of double thenar atrophy, with autopsy, in which the spinal cord was found normal, and a compression lesion of the median nerve was demonstrated beneath the annular ligament of the wrist, which was confirmatory of the localization and nature of the lesion which the speaker said he had assigned in his original communications on this subject.

Dr. Abramson said that some years ago he showed two cases of bilateral symmetrical atrophy of the flexor brevis pollicis. The patients were presented at one of the meetings of this Society. He saw one of those patients recently, and there had been no change in his condition.

Dr. Goodhart said it was rather difficult to conceive how a lesion restricted to the 7th or 8th dorsal segment of the cord could produce such a selective action on certain muscless of the hand. Stewart and others recently reported cases where an atrophy and paralysis of certain muscles of the hand were traced to the presence of a cervical rib. The speaker said that he had reported similar cases. In one of them, double false ribs were described in one patient. The initial symptoms were atrophy of the interossei, and the diagnosis of progressive muscular atrophy had been previously made. Removal of both ribs arrested the progress.

Dr. Hunt, in closing, said that in his second case the *x*-ray had shown no evidence of the presence of a cervical rib. Of course, there were many lesions along the entire course of the peripheral neurones of the upper extremity which might produce these localized hand atrophies, and all such possible etiological factors should be borne in mind. The statements made by Marie and Foix in regard to the arterial changes observed in their cases were based on very thorough pathological studies. These vascular lesions were of specific origin, with a resulting atrophy and loss of substance of the anterior horns, with complete preservation of the white substance of the cord. That the tephromalacia should be so limited in a syphilitic vascular lesion is indeed strange, and the authors were unable to offer any explanation for this peculiar predilection for the lower cervical regions, and its limitation to one or two segments of the cord. Therefore, in the interpretation of non-progressive atrophy of the small muscles of the hand, without sensory disturbances, two distinct conditions must be borne in mind, the tephromalacia anterior and the thenar and hypothenar types of neural atrophy.

# State Medical Licensing Boards.

## STATE BOARD EXAMINATION QUESTIONS.

### Kentucky State Board of Medical Examiners.

*December* 11-13, 1913.

(*Concluded from page* 736.)

#### SURGERY.

1. (*a*) Give differential diagnosis between orchitis and epididymitis. (*b*) Give causation.
2. How would you reduce dislocation of the shoulder, (*a*) acute, (*b*) chronic?
3. Give differential diagnosis between fracture and dislocation of the hip.
4. Give method of reduction of dislocation of hip.
5. Give (*a*) diagnosis and (*b*) pathology of gastric ulcer.
6. (*a*) Under what circumstances would you advise operation for inguinal hernia? (*b*) What anatomical structures would be gone through?
7. Give (*a*) pathology, (*b*) diagnosis, and (*c*) indications for operation in empyema.
8. Give symptoms, diagnosis, and indications for operation in chronic prostatic hypertrophy.
9. What would make you decide when to advise operative measures in obstruction of the bowels?
10. (*a*) Define, (*b*) give pathology, and (*c*) precautions against surgical shock.

#### OPHTHALMOLOGY, OTOLOGY, AND LARYNGOLOGY.

1. Give the symptoms and etiology of marginal blepharitis.
2. Give the symptoms, etiology, and complications of iritis.
3. Give the differential diagnosis between conjunctivitis and iritis.
4. Tell us what you know of dacryocystitis.
5. Give Politzer's and Valsalva's methods of inflating the Eustachian tube and tympanum.
6. What ear symptoms would you expect in fracture of the base of the skull?
7. Give the ear complications that might possibly result from tonsillitis.
8. Give symptoms and etiology of edema of the glottis.
9. Give etiology of differential diagnosis of tuberculosis of the larynx.
10. (*a*) Describe the instruments used and (*b*) indications for intubation.

#### HYGIENE, MEDICAL JURISPRUDENCE, MENTAL, AND NERVOUS DISEASES.

1. Give period of incubation for scarlet fever, mumps, and measles.
2. (*a*) What is uncinariasis and (*b*) what is the prophylaxis?
3. (*a*) What is meant by occupational diseases? (*b*) Name four of the most common kinds. (*c*) How may they be prevented?
4. (*a*) Give the diagnosis and symptomatology of herpes zoster. (*b*) What are the characteristics of syphilitic eruptions of the skin?
5. Under what conditions is the induction of an abortion legally justifiable?
6. (*a*) Define a poison and (*b*) name five of the most common ones.
7. (*a*) How would you diagnose an impacted stone in the right ureter and (*b*) from what other conditions is it to be differentiated?
8. What is the clinical significance of acetone and diacetic acid in the urine?

9 What is meant by (*a*) Babinski's sign, (*b*) Stellwag's sign, (*c*) Kernig's sign?

10. Give differential diagnosis of tuberculous meningitis.

## ANSWERS.

### SURGERY.

1. In *epididymitis*, the swelling is elongated and is situated at the back of the testicle, and the latter can be felt of its usual size at the upper and anterior part of the swelling.

In *orchitis* the swelling is globular, and the enlargement and tenderness are most pronounced at the front and sides; the tunica vaginalis is filled with fluid; fever may be present.

*Epididymitis* may be due to gonorrhea, stricture, catheterism, some operation on the prostatic urethra.

*Orchitis* may be due to mumps, traumatism, cold, wet, rheumatism, gonorrhea.

2. *Recent dislocation of the shoulder.* Kocher's method of reduction is: to flex the forearm, press the elbow to the side, rotate the arm outward. Bring the arm forward and upward to a right angle with the body, then rotate inward, while the elbow is brought down over the body so that the fingers sweep the opposite shoulder.

"In trying to reduce an *old dislocation* give ether, make movement to break up adhesions, and persist in making these motions until the head of the bone is felt to move; then try at once to reduce by manipulation or extension and counter-extension, not waiting for two days, as some suggest. If the head of the bone cannot be made to move the Dieffenbach plan has been advised, which is to cut the tense restraining bands with a tenotome. Lord Lister, being much impressed with the danger inevitably linked with forcibly dragging old dislocations into place, prefers to cut down and restore the bone, employing, of course, the strictest asepsis, and surgeons in general have adopted this view. In some old dislocations excision of the head of the bone is the proper operation." (Da Costa's *Modern Surgery.*)

3. In fracture of the neck of the femur, the head of the femur will be found in the acetabulum; in dislocation, the acetabulum will be empty, and the head of the femur will be found elsewhere, *e. g.* on the dorsum of the ilium. In the fracture, crepitus *may* be elicited; in the dislocation, never. In the dislocation, there is inversion and a fixed position of the limb, both of which are absent in fracture. In fracture there is shortening and outward rotation.

4. In *backward dislocations:* "Flex the knee and thigh in position of adduction. Abduct the thigh and evert simultaneously. Bring the leg down straight. Lift up, bend out, roll out. Direct traction of the thigh forward in a line at right angles to the body." In *forward dislocations:* "Thigh is flexed in a position of abduction. Abduct the thigh and then invert it. Bring the thigh down straight. Lift up, bend in, roll in." (*Synopsis of Surgery.*)

5. For *diagnosis* of gastric ulcer, see ETIOLOGY AND PHYSICAL DIAGNOSIS, Question 10.

*Pathology:* "Peptic ulcers may be single, but are more often multiple. They are commonly situated in the lesser curvature and the posterior wall of the stomach, near the pylorus; occasionally they are found at the fundus or at the cardiac end. They vary in diameter from a few millimeters to three or five centimeters. Their shape is characteristic in that they have sloping edges giving them a funnel-form, with the apex toward the muscular coat. The edges may be irregular and rough, but are often, especially in older ulcers, quite smooth and rounded. Two dangers are always imminent, hemorrhage and perforation. Constant oozing of blood may be due to erosion of the surface, and larger hemorrhages may result from ulceration of one of the larger arterial branches of the stomach. Perforation is less common than hemorrhage. When the ulcer is situated posteriorly perforation is prevented by adhesions attaching the stomach to the head of the pancreas or other structures. When the ulcer is in the anterior wall perforation is more liable to take place. The rupture may occur into the peritoneal cavity or into any of the surrounding structures and fistulous communications may be established with the pleural or pericardial cavities, or even with the exterior through the abdominal walls. Abscesses of the liver, spleen, or pancreas may result from perforation into these organs. In the healing of the ulcers scars are formed in the wall of the stomach. These have usually a rather characteristic stellate shape. In case of large ulcers extensive scars and considerable construction of portions of the walls of the stomach result. Hour-glass contraction of the organ, or pyloric stenosis, may follow, and secondary changes, such as gastric dilatation, may ensue. Carcinomatous transformation is a not infrequent result of long-standing ulceration." (Stengel's *Pathology.*)

6. *Operative treatment for inguinal hernia.* "When the hernia cannot be efficiently controlled by a truss, when it is irreducible, and when there has been a threatened or actual strangulation, this is the most satisfactory method of treatment. In congenital cases and in cases complicated by imperfect descent of the testis, also, operation is indicated. Operation is also performed in young men who intend entering one of the public services, or who are going abroad, where they may be out of reach of surgical assistance; and in cases in which, from the nature of the patient's occupation and habits, the use of a truss is liable to be interfered with. In many cases the choice between the wearing of a truss and operation may be left to the patient. Cases unsuited for operation include those in which the hernia is of such enormous size that the abdomen is unlikely to be able to accommodate the protruded viscera, and those in which the abdominal walls are flaccid and bulging, and in which the conditions that have led to the formation of the hernia are likely to continue, for example persistent coughing, or straining on micturition." (Thomson and Miles' *Surgery.*)

*Structures divided in operation for inguinal hernia:* Skin, fascia, aponeurosis of external oblique, internal oblique muscle, transversalis muscle, sac (peritoneum); arteries, veins, lymphatics, and nerves.

7. EMPYEMA. *Pathology:* The organisms causing it are pneumococci, streptococci, staphylococci, tubercle bacilli, *Bacillus coli*, and actinomycosis.

The physical signs are those of fluid in the pleural cavity; that side does not move well, the percussion note is dull, there is absence of breath sounds, vocal fremitus and resonance are diminished. Left alone, an empyema may burst through an intercostal space, usually the fifth. The lung is collapsed in extent according to the amount of pus. The pleura, at first covered with lymph, soon becomes covered with layers of granulation tissue, the deeper part of which is converted into fibrocicatricial tissue, and the lung itself also undergoes some fibroid change. If the pus is let out early the lung and pleura soon expand, but if allowed to go on the infiltration of the lung and the density of the scar tissue covering it hinder expansion. Nature attempts to remedy this in various ways. (1) The other lung expands and pushes the heart over to the opposite side; (2) the chest wall falls in, the intercostal spaces are obliterated, and the spine is curved, with its concavity toward that side; (3) the abdominal viscera are pushed up; and (4) exuberant granulations form on the pleura. If a cavity still remains an operation is necessary.

*Symptoms:* Fever, sweats, chill, diminished breath sounds and vocal fremitus, impaired mobility of chest, dullness on affected side, heart displaced to opposite side, leucocytosis.

*Treatment:* Aspiration, drainage, irrigation, resection of ribs (Estlander's operation), or resection of chest wall (Schede's operation). Operation of some sort is the only treatment.

8. *Prostatic hypertrophy is characterized by:* Slowness in starting urination; difficult micturition; frequency of micturition, particularly at night; the presence of residual urine; dull, aching pain in the perineum and above the pubes; enlargement of the lateral lobes of the prostate; there may be cystitis and retention of urine. The *cause:* It is a senile change, and may be due to increase of the glandular substance or of the interstitial fibrous or muscular tissue.

"If the patient is intelligent and dextrous, if cystitis is not severe, if the amount of residual urine is not very large, if obstruction is not great, if the bladder retains considerable expulsive power, and if catheterization is easy and painless, we are justified in relying upon this simple plan of treatment."—(Alexander). Otherwise, operation is indicated.

9. Every case should be submitted to operation as soon as obstruction is proved or is even probable. The prospects of success depend largely upon the early period at which the operation is undertaken.

10. *Shock* is the name given to a sudden and general depression of the vital powers, due to some strong

stimulation (such as injury or emotion), acting on the vital centers in the medulla and producing vasomotor paralysis. Shock is *primary* when the symptoms appear promptly; it is *secondary* when the symptoms don't appear for several hours (often observed after railway accidents, intoxication, etc.)

"The explanation of shock usually accepted, largely on the authority of Crile and Mummery, is that the paralysis or exhaustion of the vasomotor center in the medulla results in a lessening of the vascular tone, particularly that of the arteries, and a marked fall in the blood pressure. Most of the blood leaves the arteries and collects in the large venous trunks, especially those of the abdomen, and there is thus produced an anemia of the brain and of the superficial parts of the body. At the same time the right side of the heart becomes overloaded and impeded in its action. According to J. D. Malcolm the disturbance of the vasomotor center results, not in dilatation, but in contraction of the arteries. At first the superficial vessels are constricted, and if the exciting cause is kept up this condition spreads back to the larger vessels, so that the blood is driven out into the tissues and back into the abdominal veins."

"*Prevention of Operation Shock.*—In the preparation of a patient for operation, drastic purgation and prolonged fasting must be avoided, and about half an hour before a prolonged and severe operation a pint of saline solution should be slowly introduced into the rectum; and this is repeated, if necessary, during the operation, and at its conclusion. The operating-room must be warm—not less than 70° F.—and the patient should be wrapped in cotton wool and blankets and surrounded by hot bottles. All lotions used must be warm (100° F.); and the operation should be completed as speedily and as bloodlessly as possible. With a view to preventing the passage of exciting afferent impulses, Crile advocates "blocking" of the nerves by the injection of a 1 per cent. solution of eucaine into their substance on the proximal side of the field of operation. In selecting an anesthetic it may be borne in mind that chloroform lowers the blood pressure more than ether does, and that with spinal anesthesia there is no lowering of the blood pressure." (Thomson and Miles' *Surgery.*)

OPHTHALMOLOGY, OTOLOGY, AND LARYNGOLOGY.

1. MARGINAL BLEPHARITIS. *Symptoms:* The margins of the lids are red and swollen, the lashes fall out readily but others grow, there may be yellowish crusts which glue the lashes together, and later on the lashes fall out and are not replaced by others; itching, soreness, photophobia and epiphora are present.

*Etiology:* Poor hygienic surroundings, a run-down condition of health, errors of refraction, exanthematous diseases, dust, smoke, wind, conjunctivitis.

2. IRITIS. *Causes:* Syphilis, rheumatism, gonorrhea, gout, diabetes, leprosy, scrofula, tuberculosis, injury, transmission from the eye. *Symptoms:* Pain, photophobia, small pupil, ciliary congestion, discoloration of iris, exudate in anterior chamber.

*Complications:* Involvement of conjunctiva, cornea, or some other part of the eye, inflammation of the ciliary body is common, diminution in vision, and varied ocular tension.

3.

| CONJUNCTIVITIS. | IRITIS. |
|---|---|
| 1. No change in iris. | 1. Discolored, swollen and dull iris. |
| 2. Pupil normal. | 2. Pupil small, gray, sluggish, irregular after use of atropine. |
| 3. Anterior chamber normal. | 3. Exudation in anterior chamber. |
| 4. Conjunctival injection, coarse meshes, most pronounced in fornix and fading toward the cornea. | 4. Ciliary (circumcorneal) injection; pink zone of fine vessels surrounding cornea and fading toward fornix. |
| 5. Mucous or mucopurulent secretion. | 5. Lacrymation, but no secretion. |
| 6. Discomfort, but no real pain. | 6. Pain, worse at night. |
| 7. Conjunctiva reddened and opaque. | 7. Conjunctiva usually transparent. |
| 8. No interference with vision. | 8. Vision diminished in acuteness. |

—(May's *Diseases of the Eye.*)

4. *Dacryocystis* is an inflammation of the mucous lining of the lacrymal sac; it is due to stricture of the nasal duct. The patient complains of epiphora, and conjunctivitis and blepharitis are commonly present. Pressure over the lacrymal sac causes fluid to appear through the puncta. The condition is treated by passing probes into the nasal duct, or by slitting the canaliculus and cutting the stricture in the nasal duct.

5. *Valsalva's method of inflating the middle ear:* "The patient closes both nostrils by grasping the nose with the thumb and forefinger of one hand, shuts the mouth firmly, and then makes a strong expiratory effort. In this way he compresses the air in the pharyngeal and nasal cavities to such an extent that it seeks an outlet through the Eustachian tubes. If the effort is successful, the physician, who has previously established a communication between his own ear and that of the patient, by means of a flexible auscultation tube, will hear a slight puff or thud, as the air enters the middle ear and distends the drum-membrane."

*Politzer's method of inflating the middle ear:* "The patient is told to take a little water into his mouth and to hold it there, with closed lips, until the physician says, Swallow. At this signal he should forthwith swallow the water. The physician, on his part, is to hold the Politzer bag in his right hand, and then, as soon as the patient has taken the water into his mouth, he is to introduce the nose-piece into the patient's left nostril, using, if necessary, the left hand to aid him in accomplishing this. When the nose-piece of the instrument is in its proper position on the floor of the nasal passage, the physician should at once compress the nostrils over the rubber nose-piece, and give the patient the signal to swallow. The act of compressing the bag and forcing air into the nasal cavities should follow the signal almost instantly—that is, at the precise moment when, in the act of swallowing, the thyroid cartilage makes an upward movement."—(Buck's *Otology.*)

6. In fracture of the base of the skull, blood, cerebrospinal fluid, or brain substance may escape from the ear.

7. Tonsillitis may be complicated with partial deafness, inflammation, or infection of the ear.

8. "The *causes of edma of the glottis* are: acute laryngitis; chronic diseases, such as tuberculosis, malignant disease, or syphilis; inflammatory disorders, such as diphtheria and erysipelas; acute infectious diseases; Bright's disease; aneurysm; whooping-cough; pneumonia; quinsy; wounds of the larynx; wounds of the neck; scalds and burns of the larynx, and the inhalation of irritating vapors, such as those of ammonia and sulphur. The *symptoms* are sudden and rapidly increasing dyspnea, respiratory stridor, huskiness of the voice, and finally aphonia. The swollen epiglottis may be felt with the finger and may be seen with the help of a mirror."—(Da Costa's *Modern Surgery.*)

9. *Tuberculosis of the larynx* is due to the tubercle bacillus; it is generally secondary to pulmonary tuberculosis, and chronic laryngitis is believed to be a predisposing factor.

*Differential diagnosis* is shown in the table on the following page (from the *Reference Handbook of the Medical Sciences*).

10. *Instruments used in intubation* are: An introducing instrument, an extracting instrument, a set of tubes of various sizes, a mouth-gag, and a finger stall. *Indications* are: Diphtheria, and any condition in which there is serious obstruction to respiration, such as stenosis, tumors, foreign bodies, and edema of the glottis.

HYGIENE, MEDICAL JURISPRUDENCE, MENTAL AND NERVOUS DISEASES.

1. *Incubation period* of *scarlet fever* is about one day to three weeks; of *mumps* is about two to three weeks; of *measles* is about ten to twelve days.

2. *Uncinariasis* is hookworm disease, due to ingestion of the eggs of the hookworm. Prophylaxis consists in the use of proper toilet facilities and the wearing of shoes; flies should be excluded.

3. An *occupation-disease* is a disease which is directly traceable to the effects of a particular trade in which a person is engaged. Caisson disease, writer's cramp, miner's nystagmus, and plumbism are occupational diseases. They can be prevented by a careful study of the etiological factors in each case, followed by removal or lessening of the harmful features.

4. *Herpes zoster* is characterized by the formation of groups of vesicles along the line of a cutaneous nerve (such as an intercostal nerve), and accompanied by

| TUBERCULOSIS. | SYPHILIS. | CARCINOMA. | LUPUS. |
|---|---|---|---|
| Pain severe on deglutition.... | Pain usually slight..... | Paint constant, lancinating... | No pain. |
| Favorite site in the interarytenoid space, and base of arytenoid cartilages. | Attacks any portion of the larynx ..... | Attacks any portion of the larynx ..... | Attacks epiglottis. |
| Ulcerates slowly ..... | Ulcerates rapidly ..... | Ulcerates more slowly than syphilis. | Ulcerates very slowly. |
| Usually first appears as small spots or nodules which are rapidly followed by great edema. | Is rarely seen in stage of induration, the first evidence being a clear-cut, deep ulcer. | First appearance is that of a new growth occupying laryngeal cavity; no clear-cut ulcer. | Nodular mass. |
| Great edema of arytenoids... | Some induration around ulcer, but usually very little edema. | The growth fills or encroaches upon the laryngeal cavity. | Little or no edema. |
| Ulcers extend laterally but not deeply. | Ulcers extend deeply, often involving cartilage. | Growth extends in all directions, involving all tissue in its course. | Very slow in progress. Ulcers rarely observed. |
| Surface of ulcer covered with thick mucopurulent secretion and agglutinated mucus. | Surface of ulcer covered with mucopurulent secretion and necrosed tissue. | Surface of growth covered with discharge. | Little or no discharge. |
| Mucous membrane usually pale | Mucous membrane hyperemic, injected. | Mucous membrane hyperemic. | Mucous membrane injected. |
| Laryngeal stenosis rarely occurs ..... | Laryngeal stenosis uncommon until cicatrization occurs. | Laryngeal stenosis common... | Slight stenosis. |
| Health impaired previous to laryngeal involvement. | General health unimpaired.... | Early in disease no impairment of general health. Later, marked cachexia. | Very little impairment of general health. |
| Previous or coincident pulmonary trouble common. | Frequently evidence of syphilitic disease in other tissues. | In primary laryngeal carcinoma no other evidences until later in the disease. | Frequently nasal, pharyngeal, and cutaneous manifestations. |
| Iodides have no influence.... | Readily improves under iodides | Iodides may at first have slight influence, later none, on the course of the disease. | Iodides have no influence. |

neuralgic pains. The disease is self-limited, is generally unilateral, and seldom recurs.

*Syphilitic eruptions of the skin* are generally roughly symmetrical, ham-colored, do not itch, may assume several different forms, and are more or less grouped.

5. Conditions that justify the induction of premature labor: (1) Certain pelvic deformities; (2) placenta prævia; (3) pernicious anemia; (4) toxemia of pregnancy; (5) habitual death of a fetus toward the end of pregnancy; (6) hydatidiform mole; (7) habitually large fetal head.

6. A *poison* is a substance which being in solution in or acting chemically upon the blood is capable of causing death or serious bodily harm. Example: Carbon monoxide, opium, nux vomica, arsenic trioxide, hydrocyanic acid.

7. Impacted Stone in Ureter. *Symptoms:* Colic pain shooting along ureter, tenderness over ureter, hematuria, anuria (if opposite kidney is blocked or diseased), abdominal tumor (persistent or intermittent). Urine contains crystals, blood, or pus. Prolapse of ureter into bladder. Skiagram shows stone. In the majority of cases the symptoms are simply those of renal calculus, and diagnosis is only complete on lumbar exploration and passing ureteral sound.

In some cases the stone can be felt per rectum or per vaginam.

*From encysted vesical calculus:* impossible clinically.

*From cystitis.*—In this: Urine is alkaline; pus at beginning or end of micturition.

*From ureteritis.*—Difficult in absence of history of colic.

*From vesical tuberculosis.*—In this: Tubercle in urine; polyuria; frequent micturition; slight hematuria; symptoms not relieved by rest.

*From prolapsed inflamed ovary.*—Ovary lies behind broad ligament and at greater distance from vaginal wall. Stone is felt in anterolateral fornix. Hardness and outline are more definite.

*The skiagram* shows a shadow in the course of the ureter, but this has to be distinguished from that of calcareous iliac glands or that of an appendix concretion (the latter very rarely throws a shadow).

*Ureteral catheterization* through the cystoscope not only shows which side is affected, but the end of the catheter may touch the stone and a waxed tip receives a scratched impression.—(Graves' *Synopsis of Surgery.*)

8. *Acetone and diacetic acid* are found in the urine in diabetes mellitus.

*Acetone* may be found in the urine in typhoid, scarlet fever, pneumonia, high fevers generally, some digestive disturbances, carcinoma, autointoxication, and chloroform narcosis.

*Diacetic acid* may be found in the urine in the same conditions as acetone.

9. *Babinski's reflex:* If the skin of the sole of the foot is irritated, extension of the toes occurs instead of flexion; found in organic hemiplegia and lesions of the pyramidal tract.

*Stellwag's sign:* Absence or diminution in the frequency of the winking movements of the eyelids, and abnormal width of the palpebral fissure; seen in exophthalmic goiter.

*Kernig's sign:* If the patient lies on his back and his thigh is flexed to a right angle with his body, he is unable to extend the leg on the thigh; found in meningitis.

10.—

| SIMPLE MENINGITIS. | TUBERCULOUS MENINGITIS. |
|---|---|
| *Age.*—Any age. | *Age.*—Young children and young adults. |
| *Cause.*—Injury or local causes, fevers, etc. | *Cause.*—No local cause, but symptoms of tubercle elsewhere. |
| *Course.*—Short. | *Course.*—Longer than simple, especially the prodromal stage. |
| *Convulsions.* — May be present. | *Convulsions.* — Common, even during the compression stage; often precede death. |
| *Abdomen.* — Nothing marked. | *Abdomen.*—Markedly retracted. |
| *Morbid changes.*— | *Morbid changes.*— |
| 1. Those of simple or suppurative inflammation. | 1. Those associated with the presence of tubercle, and formation of peculiar greenish pus. |
| 2. Attacks convexity of brain. | 2. Attacks the base of brain. |
| 3. Ventricles not distended. | 3. Ventricles are distended, and hyprocephalus may follow. |
| *Lumbar puncture.* — Fluid turbid; polymorphonuclear leucocytosis. | *Lumbar puncture.*—Fluid much less turbid or almost clear; lymphocytosis. |

—(Wheeler and Jack's *Handbook of Medicine.*)

**Microorganisms Isolated from Non-Ulcerating Cancerous Growths.**—E. P. Minett concludes that the *Micrococcus neoformans* is identical with that type of *Staphylococcus albus* which can be isolated from deep tissues, both in human beings and in animals. The coccus isolated from deep tissues is merely the ordinary skin staphylococcus, modified by growing for considerable periods in the tissues where oxygen is absent or very scarce. The above statement is justified by the fact than an anaerobic growth of skin staphylococcus gradually assumes the characters of the *Micrococcus neoformans.* The serum of cancerous patients does not possess specific agglutinins for *Micrococcus neoformans* in a greater degree than does normal serum. Cancerous patients do not react in any marked degree to vaccine treatment with this organism. The temperature is not affected by large doses of the vaccine, nor can specific opsonins be detected.—*Proceedings of the Royal Society of Medicine.*

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## Original Articles.

### THE PRACTICAL MANAGEMENT OF CHRONIC OSTEOARTHRITIS.

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ONE of the striking features in the histories of patients suffering from chronic osteoarthritis is the variety of treatments to which they have submitted without permanent relief. The inference to be drawn from this is a lack of appreciation by the profession at large of the fundamentals underlying the causes of the malady and the possible remedies. That the published literature is somewhat responsible for such a state of affairs is quite probable, for much of it is confusing and not a little of it misleading.

It is not the purpose of this paper to question the value of the research work which is in progress, looking to the identification of the etiological factors of the chronic arthritides and the development of specific remedies, nor to comment upon the various classifications into which chronic osteoarthritis has been divided. That the latter are unnecessarily numerous goes without saying, but the nomenclature is in a state of evolution and in time order will no doubt come out of chaos. It is the intent, rather, to outline a method of treatment which in various forms of lesions has given favorable results, and to cite a sufficient number of cases to illustrate the fact that extreme refinement in diagnosis is not an essential to reasonable treatment. The explanation of this lies in the fact that, whatever the cause, the joint picture is always one of altered nutrition, and that by using what information we have of the influence of the ductless glands upon metabolism, much may be done to relieve pain and prevent deformity. As our knowledge of the etiological factors grows, improvement in therapy will follow, but under present mixed opinions it will not be amiss to adopt measures which, if lacking much in precision and true scientific application, still are in the majority of cases effective. Care should be taken, however, to differentiate between progressive conditions and rapidly developing deformities resulting from severe acute infections which are often erroneously classified among chronic joint diseases.

As a broad working basis, it is sufficient in the light of our meager knowledge of the etiology of chronic joint troubles, excluding those of tuberculous and syphilitic origin, to divide them into two classes, namely: those due to or following up a demonstrable infection, and those due to a vicious metabolism. That disturbed metabolism may be due to the remote effects of infection, that tissue changes may be hypertrophic or atrophic, that sometimes osseous lesions predominate over those of the soft tissues and vice versa, is of course apparent; but it adds nothing but confusion to the practical management of these conditions to separate them into distinct classes and regard them as of individual origin.

It is enough, until laboratory investigators have shed more light upon the matter, to know that the causes of chronic osteoarthritis are toxic and mechanical irritants and traumatism, and emphasis should be laid upon traumatism. In the clinics it is a very common experience to find a monarticular osteoarthritis of the hip following a fall or other injury. It is obvious, also, that the joints most used, notably those of the hands, are the subjects of greatest deformity. Conversely, affected joints, as, for instance, knees which are swollen and exquisitely sensitive, undergo recession in both pain and enlargement when immobilized in plaster-of-Paris, while those difficult of immobilization, as the cervical vertebræ and shoulders, are frequently the last in which pain subsides.

An effect of traumatism to which attention has not heretofore been called is the production by muscular pull of pain at the attachments of tendons and ligaments. These areas will be found in the early stages of osteoarthritis over the tuberosities of the condyles of the humeri and femora, the great trochanters, the heads of the fibulæ, the tips of the malleoli, and the spines of the vertebræ. Very constant points of tenderness, also, are the heads of the humeri where they are superficial. Patients are often unaware of the presence of these tender areas until subjected to examination, as this tenderness appears before the disease has progressed far enough to cause pain upon motion. Thus it is that people frequently come for advice complaining only of painful feet in whom a well established osteoarthritis can be demonstrated. Among other early symptoms a sense of insecurity in the knees in going up and down stairs is quite characteristic, and precedes actual pain. Search for these conditions will be of material aid in arriving at an early diagnosis.

The rôle played by toxic and mechanical irritants as the primary causes of osteoarthritis is obviously very great. Toxins of the various pathogenic organisms and those emanating from the intestinal tract are credited with power to induce tissue changes in the joints. Mechanical irritants have not usually been included among the etiological factors, but the writer has observed an abnormal number of arthritides in a district where an excess of lime is present in the drinking water and believes that the possible effects of this should not be overlooked.

As to the manner in which irritants operate to cause tissue change, there seem to be two reasonable theories. One recognizes a local action upon the affected parts and the other a central action upon nu-

trition, through alteration of the secretions of the ductless glands, either in quantity or character. The latter seems wholly tenable, if we stop to consider what recent research has revealed in regard to the influence of these bodies upon nutrition and bear in mind that the changes occurring in osteoarthritis are changes of nutrition. In any event, it is quite evident, from the cases outlined below, that the administration of glandular preparations has a distinct effect in reestablishing the equilibrium of joint metabolism.

In considering the treatment of osteoarthritis, the problem presented is plainly one of removing discernible foci of infection, improving local nutrition, correcting such deformities as tend to put undue strain upon weight-bearing joints, and to place the painful parts at rest, so far as that is possible. Before touching upon these points specifically, however, a word of caution should be spoken regarding the useless things which are commonly in vogue. It has long since been demonstrated that so-called antirheumatic remedies, such as the alkalis, salicylates, and iodides, have no effect upon the conditions under discussion and should be avoided because of the digestive disturbances which frequently follow their exhibition. The diet usually prescribed for "rheumatism" is harmful, because it denies certain elements of nutrition which the economy demands. Such treatment as is afforded at the various watering places is at best of merely temporary benefit and has at times been observed to be a source of real injury (Case II). Massage and manipulation of joints with the idea of keeping them pliable is an inexcusable error, for it serves only to perpetuate the irritation of the already sensitive tissues. It would seem, too, that the importance of correcting viceroptosis in these cases has been very much overestimated.

Approaching now the practical management of the chronic arthritides, it will be recalled that they were arbitrarily separated into those with demonstrable infective foci and those without. Naturally, where a focus of infection exists, it should be removed, and here is a fertile field of investigation in which the theorists have run riot. Not a single cavity of the body has been above suspicion as the possible source of toxins which have wrought joint impairment. The teeth, the tonsils, the throat, the nose, the sinuses, the ears, the stomach, the intestines, and the pelvic organs have been attacked with radical enthusiasm in the hope of clearing away the offending organisms, or, if these are found, of utilizing them in the preparation of vaccines to offset the injury they have done. The vaccine treatment offers much that is hopeful for the future, but it is still in the developmental stage, and while many cases subjected to vaccines have been observed, the writer has been content to clean up such avenues of toxic invasion as came to notice and to depend upon other means of combating tissue changes.

The essentials of treatment followed in the cases cited below have been the administration of glandular preparations, rest, a diet reducing the intake of calcium, and the use of the d'Arsenval or bipolar high frequency current. Of the glands which have direct influence upon nutrition, three stand out in clearly defined prominence; namely, the thymus, the thyroid, and the pituitary, each of which has its place in the treatment of osteoarthritis. It should be borne in mind that the subject of nutritional control is an extremely complex one—that these and other glands interact upon each other and that no single one of them meets all the requirements of a regulator of metabolism under all conditions.

The thyroid, which is most widely known, is least often indicated in osteoarthritis. It is seldom of value alone, but may be useful in conjunction with other glands where there has been recent marked increase in weight. When given it should be carefully carried to physiological limits and the dose then considerably reduced and continued at that point over a long period.

Thymus gland, for the knowledge of the efficacy of which we are indebted to the painstaking work of Nathan, has longer stood the test than any of the others. It is slow in action, but has an undoubtedly beneficial effect upon the course of osteoarthritis, whether of the metabolic type described by Nathan and in which it was first used, or of the chronic conditions following low grade infections. It should be given in doses of 10 or 15 grains, three times a day over a period of many months. It is contraindicated only in cases in which there has been a rapid increase in weight, as at times it stimulates general nutrition to an unusual extent. The gland deteriorates rapidly, therefore fresh preparations are essential. The powder, sealed in capsules at the laboratory, is perhaps the most reliable form for administration. The powder dispensed in bulk is of very uncertain strength. Disappointment in the use of thymus is frequently due to its slow action. It should not be abandoned before six months of continuous use.

Pituitary body has recently shown some very encouraging results. Wallace has used 1 per cent. and 2 per cent. solutions of the whole gland injected intramuscularly with the result, in many cases, of striking improvement in pain and joint swellings (Case V). The dose is 1 c.c., injected daily, using a 1 per cent. solution for two weeks and then a 2 per cent. solution. Uranalyses should occasionally be made for sugar and the blood pressure should be observed from time to time. Tablets of the whole gland will sometimes effect the same result as solutions (Case VI), but are apparently not quite so dependable. The posterior lobe alone does not seem to have any decided influence upon joints, but, promped by the illuminating work of Cushing, who, among other things, has demonstrated the effect of the anterior lobe on bone growth, the writer has used capsules of powdered anterior lobe, sealed at the laboratory, with beneficial effect. The anterior lobe used in conjunction with thymus appears to have a greater influence than thymus alone. The dose is 2 grains, three times a day, in capsules which have been sealed at the laboratory. The preparation is not yet on the market in this form.

In addition to these agents, there is undoubted value in the d'Arsonval current given for the local effect of the heat produced, and as a general application by means of autocondensation. The manner of its action would seem to be by dilatation of the vessels, plus the sedative effect of the rapid electrical vibrations. The improvement noted in the left hand of Case VII was undoubtedly due to this alone, as the thymus given had not time in the four weeks of treatment to become effective.

Not less important than the administration of remedies internally, is rest of the affected joints. In the same ratio that joint activity increases pain, immobolization reduces it. Too much stress can-

not be laid upon this point, and frequent failures in the treatment of clinic patients may reasonably be ascribed to their inability to obtain the needed amount of rest. Cases I, III, and XI illustrate its beneficial effect. Nothing is more fallacious than the idea that joints which are limited in motion should be exercised during the painful stage for the purpose of preventing ankylosis.

If plaster of Paris is used for immobilization, it is well—excepting in hip conditions—to remove the cast once in two weeks and leave it off for forty-eight hours for gentle, passive motion of the joints twice a day. Hands and wrists may preferably be put up in aluminum splints, shaped to meet the anatomical lines, and carried well up the arm. These may be removed once a day for gentle extension and flexion of the fingers (Case VII). Flexion deformities of the knee will often yield to repeated applications of plaster casts at intervals of a week or two without forcible stretching (Cases I and III). Such cases usually retain their arc of motion. Where the knees are stiff in the flexed position and painful, forcible stretching under an anesthetic is indicated, with tenotomy of the tendo Achilles to bring the foot to a right angle with the leg, if necessary. The leg should remain in plasted two weeks and the knee then be examined and plaster reapplied (Cases I and III). If tenotomy has been performed, the parts should not be disturbed for six weeks (Case X). Prognosis as to the restoration of motion should be guarded where forcible stretching has been undertaken. It does not return if the cartilage is destroyed.

In addition to tenotomies to relieve contractures of the hamstrings and tendo Achilles, operative measures may be advisable in severe monarticular osteoarthritis of the hip. Albee has devised an ankylosing procedure which locks up the hip, but relieves pain. Baer of Baltimore, has introduced an operation by which much of the joint motion may be conserved. It consists of trimming off the femoral head and removing the osteophytes which have accumulated about the rim of the acetabulum. Bone operations on the feet are also occasionally necessary for the relief of extreme hallux valgus or valgus of the entire foot. Both procedures are comparatively simple. Deformities of the hands are seldom subjected to operative treatment.

The following brief outlines of cases taken from private records will illustrate the effect of the measures which have been suggested in the foregoing paragraphs. It will be noted that nearly all of these patients had been growing progressively worse over a period of years despite a variety of different forms of treatment in which the cost was not considered. It will also be noted that the cases have a varied etiological history.

Case I.—Woman, aged 38 years, married. Multiple osteoarthritis. First symptoms appeared fourteen years ago with slight stiffness of two fingers of the right hand. Progress of the disease was very slow for five years, but by this time nearly all of the joints of the body were stiff and painful. During the next seven years pain and deformity increased notwithstanding various forms of treatment, including five visits of two months each to a well-known springs in the middle West. During this time patient was confined to her room, except when taken out in a wheeled chair. When she came under observation, two years ago, she considered herself a hopeless invalid. Had exaggerated palisade deformity of the fingers, stiff wrists, limitation of extension of elbows to about a right angle, little use of shoulders, practically stiff neck, limitation of motion at the temporomaxillary joints, limitation of extension of knees of about 40 degrees, valgus deformity of feet. Constant pain in all joints, and knees extremely sensitive and swollen. Treatment of this case consisted of administration of thymus gland fifteen grains three times a day, plaster of Paris for the knees and later the d'Arsonval current. Legs were encased in plaster from the bottom of feet to the groin and renewed three times during a period of four months. She was kept in bed five months altogether. During the past year has had d'Arsonval current half an hour three times a week. Improvement has been gradual and continuous, with occasional slight setbacks due to overexertion. Because of an increase in pain in the neck and shoulders, thymus was discontinued in November, 1913, and the anterior lobe of the pituitary body, in capsules sealed at the laboratory, was given in doses of 2 grains three times a day for five weeks with unmistakable benefit. Thymus treatment was then resumed. Patient is now practically free from pain, excepting some discomfort in the shoulders and neck. Extension of elbows has increased about 40 degrees, knees are nearly straight, much more freedom in neck and shoulders, deformity of the hands persists. Patient can walk a mile without discomfort; has climbed the long flights of steps in Morningside Park without ill effect and has long since discarded her cane.

Case II.—Woman, aged 50, married. Multiple osteoarthritis. First symptoms noticed five years ago, beginning with twinges in the shoulders and neck. Gradually practically all of the joints of the body were involved. Hands somewhat deformed, wrists enlarged and somewhat stiff, limitation of extension at the elbows, limitation of motion of the shoulders, both knees enlarged and tender, extremely painful on walking, spine slightly stiff, moves about the house with great difficulty. Has had many forms of treatment, including a long period in a sanatorium, where, because of the vigor of the measures used, she lost strength and weight rapidly, and had an increase of symptoms. Had thymus about a year before coming under observation. General condition much improved during that time, but there has been an increase in contraction at the elbows, in the swelling of the knees, and in her inability to get about. After two months of the use of thymus in capsules and of the d'Arsonval current through the knees condition much improved. Complains less of pain. Circumference of each knee decreased about one-half inch. In February, 1914, after nine months of treatment, patient's condition has improved remarkably in all respects. She has very little discomfort, is able to walk moderately long distances, knees nearly straight, extension of the elbows very much increased, has gained in weight, and general condition is excellent.

Case III.—Woman, age 50, unmarried. Multiple osteoarthritis. Symptoms first appeared twelve years ago with slight pains in left hand and elbow. No known history of infection. In a year's time nearly all the joints of the legs and arms were involved and patient walked with difficulty. Many forms of treatment were tried, including trips to the South and elsewhere. In June, 1913, her condition was one of apparently hopeless, painful invalidism. Extreme palisade deformities of the fingers, complete dislocation of the last phalanx of the right thumb, wrists stiff, elbows limited to about 40 degrees motion, shoulders to about 45 degrees of motion, knees flexed about 30 degrees, swollen and exquisitely tender, feet and toes deformed; walking or standing alone impossible; was taking aspirin and codeine in frequent doses to relieve pain; emaciation extreme. Fifteen grains of thymus gland three times a day ordered. Legs encased in plaster of Paris from bottom of feet to the groin. On removal from cast, seventeen days later, knees were found to be reduced in size, pain had disappeared, except over one or two spots on each knee, and there was a gain of about 10 degrees in extension. After gentle, passive motion once a day for a week casts were reapplied. On removing these, eighteen days later, all pain had disappeared, swelling had abated and extension was nearly normal. Casts were not reapplied. General condition showed improvement, with moderation of all joint pains; anodynes discontinued. Up to the present time, nine months after treatment was begun, improvement has been gradual and continuous. Patient is practically free from pain, except some of moderate degree in the upper extremities and neck. She can walk about the house; has gained in weight and has a very noticeable increase in motion at the wrists, elbows, shoulders, and knees; is still under treatment.

Case IV.—Woman, age 30, married; came under observation June 7, 1911. Multiple osteoarthritis of mod-

erate grade, involving practically all the joints of the body; tenderness of all on pressure. Moderate palisade deformities of the fingers with enlargement of the metacarpophalangeal joints; limited motion at the hip; 10 degrees limitation of extension at the knees; tenderness of the mediotarsal joints and valgus deformity of the feet. Condition has existed about five years. Dorsal and lumbar vertebral spines tender. Fifteen grains of thymus three times a day ordered. No other treatment. June 28, 1911—There was some improvement in the local symptoms; spine free from tenderness, less swelling in knees, less deviation of left hand and less tenderness of the left knee. General condition unsatisfactory. Weight, 92½ pounds. Tenderness has developed over both sacroiliac joints. Improvement began about this time and continued until October 6. Was unable to get thymus gland for about two weeks and noticed a general increase in the soreness. December 2, 1911—Patient has showed steady improvement; has gained 7½ pounds. Pains have materially abated. January 20, 1912—General condition excellent, weight 107 pounds. Pregnancy occurred some time before this examination and patient went through childbirth without difficulty. Under date of February 20, 1912, she writes: "My joints are all very free from soreness, save my ankles. Perhaps my extra weight is hard on them, for I have risen to the dignity of 118 pounds, the top notch in all my life." Her condition remained satisfactory until the duties of motherhood began to tell upon her, when she began to have an increase in symptoms. At this time she passed out of observation. A letter written in February, 1914, says that she is hardly able to walk across the floor and is generally incapacitated. Thymus was discontinued long ago. She has been under other treatment, growing steadily worse. This case illustrates the evil effect of activity. The patient was obliged to take care of her child and the necessary lifting, the use of her hands and her broken rest resulted in a relapse.

Case V.—Woman, age 64 years, married; multiple osteoarthritis. Was apparently perfectly well until five years ago, when the hands became somewhat stiffened and slightly painful. During the next three years all the joints of the extremities had become involved and the progress of the disease was continuous despite many forms of treatment. When first seen, about the middle of December, 1913, patient was suffering both day and night with constant pain throughout most of her joints. She had reached a degree of emaciation which might well be described as skin and bone; hands, wrists, and feet badly deformed; elbows and knees contracted. Was taking morphine for severe pain. She was given daily injections of one cubic centimeter of a 1 per cent. solution of whole pituitary body. In three weeks pain had receded very perceptibly; morphine discontinued. She then received 1 c.c. of a 2 per cent. solution of while pituitary body, but this was discontinued at the end of ten days because of continued drowsiness, and thymus was substituted. By the middle of February all pain had ceased, emaciation and deformity remained about the same, but the patient is more comfortable than she has been for several years.

Case VI.—Woman, age 35, unmarried; multiple osteoarthritis. Symptoms of infection nine years ago with stiffness and pain in left shoulder. During the succeeding five years symptoms occurred very gradually in the hands, feet, and knees. During the next four years the disease was progressive despite long periods of treatment in various New York hospitals. When the patient came under observation she was suffering from pain in her hands, elbows, shoulders, knees, and feet, which was constant. Joints of the fingers much enlarged and stiff. Knees somewhat swollen, very painful. Feet so painful that she walked with difficulty. She was put upon five-grain tablets of whole pituitary gland three times a day. In two weeks there was a slight recession of pain, in six weeks she was practically free from pain, swelling of the hands was very much reduced, the fingers sufficiently pliable for her to resume work. She states that she is more comfortable than she has been for more than five years. Stiffness of all the joints has been very much improved and the recession of both pain and deformity in the feet has been very striking. Still under treatment.

Case VII.—Woman, age 29, married; multiple osteoarthritis. When eighteen years old had an attack of pain in both shoulders, accompanied by temperature and other evidence of infection. This cleared up in a few days. Occasional stiffness in shoulders afterward. Has not been ill since, until seven years ago, six months after childbirth, fingers of right hand became stiff and swollen. Wrists and feet also involved. Two acute attacks of pain at the articulations of the jaws. Complains chiefly at present of pains in hands and feet. During the last five years has been under various forms of treatment in this country and spent a year and a half in Germany and England under the care of well-known men. She had six months of radium treatment in London. Hands have grown progressively worse. October 29, 1913—Flexion of fingers of right hand so limited that the tips of the fingers are about 2½ inches from the palm—of the left hand about 1 inch from the palm. Greatest angle of flexion of the index finger of the right hand at the metacarpophalangeal joints 55 degrees; on the left hand 65 degrees. Treatment consisted of fifteen grains of thymus, three times a day, the daily application of the bipolar high frequency current through the tips of the fingers and the immobilization of the right hand on an aluminum splint. The result of four weeks' treatment was marked reduction in the swelling of the joints, practical elimination of pain, which has been constant and severe for five years, and an increase of 25 degrees in the flexion of both index fingers; in other words, the tips of the fingers on the right hand approached the palm to within about three-quarters of an inch, and those of the left hand just touched the palm. Patient obliged at this time to leave for her home in the West, and is to return for further treatment. This case illustrates the benefit of the d'Arsonval current, as the recession of pain and swelling of the joints and the increase of flexibility of the fingers was far more rapid than would have occurred under thymus alone.

Case VIII.—Woman, age 33, unmarried; multiple osteoarthritis. In August, 1911, had an acute infection of one finger and two weeks later tonsillitis. A month later many joints were aching and were somewhat stiffened. Treated for rheumatism. When she came under observation in December, 1911, she had lost about thirty pounds, all large joints were stiff, tender, and somewhat swollen; walked with extreme difficulty and was unable to use her hands in her professional work, which was that of a sculptor. She was given fifteen grains of thymus three times a day and the d'Arsonval current daily. Slight improvement was noticed in a few weeks and progress from that time on was continuous but slow. After five months she began to use her hands and her general condition showed obvious gain in nutrition. The d'Arsonval current was discontinued about two months later and there followed increased stiffness of the joints, notably in the hands. These symptoms receded on resumption of the electricity. Patient has made a practically complete recovery, occasional twinges of pain at long intervals being the only reminder of her former disability.

Case IX.—Man, age about 40; multiple osteoarthritis. When this patient was first seen four years ago he was suffering from an osteoarthritis of gradual onset, which had been progressive for many years. Hardly a joint of his body permitted more than twenty degrees motion, and the knees and elbows were practically ankylosed. Pain all over his body was severe and constant. Having tried innumerable forms of treatment, he frankly avowed his skepticism regarding thymus. However, he took fifteen grains three times a day faithfully. In three months he reluctantly admitted an improvement in his pain, which continued to abate until its final disappearance, and it has not since returned. As the patient lives at a distance he has not been seen since the first examination, and whether there has been any increase in the mobility of the joints—as so often happens when pain ceases—is not known. The case is cited merely to show the effect of thymus. The man had no other treatment.

Case X.—Woman, age 52, married; multiple osteoarthritis. This case is briefly outlined to show what may be done in restoring to activity patients who have been disabled on account of deformities. Twenty-five years ago multiple osteoarthritis developed which gradually spread to all the joints of the body. When the patient was seen in June, 1913, the hands were badly deformed, one elbow was ankylosed at a right angle, the other had slight motion. Knees flexed at about 90 degrees, with 20 degrees of motion, feet in equinus, toes badly deformed. Shoulders and neck were also involved. Patient had not walked nor stood alone for twenty-three years. She was taken to the Postgraduate Hospital and the hamstring and tendon

Achillis on both sides cut. She was then put up in plaster of Paris for six weeks. On removing plaster knees were straight, with about 50 degrees of motion, tenderness had subsided and feet were at a right angle. She was gradually encouraged to use her legs, and at this writing, eight months later, has no pain and is able to walk about the room without crutches. She has been taking thymus gland since July, 1913.

Case XI.—Woman, about 45 years of age, married; multiple osteoarthritis. Joint symptoms have been present for about ten years, and when the patient was seen three years ago she was suffering from extremely painful multiple osteoarthritis, involving shoulders, elbows, wrists, hands, knees, hips, and feet; very marked deformities of the hands, contractures of the elbows, contracture of the knees to an agle of about 135 degrees, deformities of the feet and toes. Knees were extremley sensitive and swollen; left knee practically stiff, right knee had about 45 degrees of motion. Patient had for some time been unable to get about, and was carried up and downstairs. Had had many forms of treatment. She was put upon thymus, 15 grains three times a day, the knees encased in plaster from bottoms of feet to the groins. She remained in bed about four months, plaster casts being changed once a month. At the end of this time pain and swelling had receded; pains throughout the joints very much improved. Her progress was slow but continuous, and at the present time she is able to go up and downstairs several times a day and walk reasonable distances without discomfort and complains of no pain, excepting some discomfort in right shoulder and hand. Motion was not regained in the left knee, but that of the right knee is free. Motion at elbows increased. Her general health is better than it has been for many years and she has resumed her place in the social activities of her city.

The conclusions which a fairly broad experience with the chronic arthritides suggests are:

1. Regardless of their etiology, a majority of sufferers from progressive osteoarthritis may be relieved by the use of glandular preparations, rest, and such local measures as have been indicated in the foregoing paper.

2. A diagnosis of osteoarthritis may be established before the stage of deformity has been reached.

3. In discussing treatment, the element of time should be clearly understood by both physician and patient. Rapid results are seldom attained.

4. Rest or complete immobilization of affected joints is an essential factor in the treatment of pain.

5. Contracture deformities of the knees and ankles should always be corrected.

6. Innovations in treatment and the hobbies of a single investigator should be avoided by the general practitioner until their value has been proved.

7. A case not entirely ankylosed should never be considered hopeless.

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## ?T US SETTLE THE LOOSE KIDNEY QUESTION.*

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When men smile and agree nature weeps. Progress depends upon contest. Patients are weeping right now, however, because different members of the medical profession are too widely disagreed over the loose kidney question. Whenever a new subject comes up before us we are prone to polarize our consciousness, scattering the ray of light and sending it along a plane to the right or left according to our individual natures. The first observers of the subject of loose kidney set us to vibrating along the line of the idea that we were dealing with a diagnostic entity and a necessarily surgical condition. Later observers impressed the fact that we were dealing with a symptom only, and diverted our attention along another line of thought. In both instances the patient has had to bear the consequences.

Let us apply synthesis for a moment in an attempt to get back to natural light upon the subject. In order to make a concrete mental picture let us take one kind of a case of loose kidney only for consideration. Not long ago a patient from the West came to the office before going to the hospital for operation upon a loose right kidney. She was to have paid twenty-five hundred dollars for the operation, and everything had been arranged. As the patient was leaving the office I incidentally remarked that she would gain fifteen or twenty pounds in weight after the operation. She asked eagerly if that were true. Upon my responding in the affirmative she said, "Good-by, doctor!" and I have never seen her since that time. There was a patient who preferred to remain fashionably lithe and willowy at the expense of chronic gastrointestinal discomfort.

A woman came into the office one day asking to be informed about "two funny little things" which she felt through her abdominal wall after a hard ride across country following the hounds. She was red-cheeked and in good health, and her two loose kidneys were causing no disturbance. This means that we have different sorts of loose kidney patients.

Now, let us get back to the single loose right kidney in the first case for the purpose of drawing a picture. Why did that kidney ever leave Gerota's capsule? It was because the colon sagged, and sagging pulled upon the nephrocolic ligament which surrounds the kidney fat with its fibers as a mesh surrounds a balloon. When a sagging colon has pulled the kidney out of Gerota's pocket the walls of the pocket collapse, and the kidney never again gets exactly back to its normal position. Why did the colon sag in our patient? When in the course of evolution nature got us up on our hind legs a number of structural weaknesses appeared. Nature made a number of mistakes on this trip with organic life when planning the highest organism. These structural weaknesses are shown in hernial walls, broken down foot arches, loose sacroiliac articulations, up-hill work for ascending colons, and a number of other defects which will likely enough be remedied in the organic life of the next world as a result of nature's experience in this one.

When a right kidney has been pulled out of its pocket it may range in the retroperitoneal plane which brings it against the duodenum. Mechanical pressure will result in various gastrointestinal disturbances. That sort of a kidney should be fixed. When a loose right kidney ranges behind the peritoneum to a point at which it may make pressure upon the common bile-duct, symptoms of biliary obstruction follow. That sort of a kidney needs to be fixed. When a loose right kidney ranges along a caudad plane and the ureter becomes angulated, we have evidence of obstruction to the ureter. That sort of a kidney needs to be fixed. When a loose kidney results in torsion or angulation of its blood vessels and congestive nephritis results, we must

*A paper read on March 13, 1914, at a meeting of the Rochester Pathological Society.

fix that kidney. When a loose kidney places stress upon the great web of sympathetic nerve filaments which carry afferent impulse to the semi-lunar ganglia, efferent impulse as a result of this overstimulation may result in disturbance of all of the organs affected by efferent impulse from the semi-lunar ganglia. That sort of kidney should be fixed.

There are many cases of loose kidney in which this condition represents but one symptom of a neurasthenic condition in patients with a *habitus enteropticus*. All of the peritoneal visceral supports may be relaxed in these cases, and the organs appear to adapt themselves to each other in a way, becoming companions in misery. Under these circumstances fixation of a loose right kidney alone would be harmful. In these cases it is seldom the chief cause for disturbance. It is the chief cause for disturbance in a large class of patients who present symptoms which may be traced directly back to a loose kidney as a precipitating factor.

The question then resolves itself into one of good diagnosis. We are not to proceed to fix a loose kidney simply from the basis of fact that we have found one. On the other hand, we are not to allow patients to continue to suffer unnecessarily because physicians have learned that many loose kidneys are not productive of special disturbance. We are to determine which kidney produces which group of symptoms and act accordingly.

Some of the happiest patients in my clientele are ones for whom kidney fixation has been done. Often enough they had been advised against having any operation performed, and sometimes by first rate authorities. The doctor is identified by the proportion of things which he gets right. We are all so busy these days that we have to be pretty careful about our identification in relation to any subject.

One reason why loose kidneys have not been fixed more frequently is because the operation is too often looked upon as a serious affair. In fact it has been actually made too serious an affair. An operation which combines the ideas of Senn, Longyear, and Goelet may be done in ten minutes—this representing the time between the first incision and the last suture. The only instruments required are a pair of scissors and a needle. I had intended to demonstrate the operation at the hospital this afternoon but the combination of Friday and the 13th was too much for the patients whom members of your society asked to come to the hospital to-day. One of your members knows of a case in which seven minutes were required for fixing the right kidney and six minutes for fixing the left kidney. There are some patients for whom the operation cannot be done in less than twenty minutes, but if we count upon considering the operation as requiring only about ten minutes of time, and the only instruments required being a pair of scissors and a needle, it will lose many of the terrors which have prevented physicians from advising fixation of loose kidney for their patients.

So far as I am aware a fixed kidney does not become loose again after the operation to which I have referred. If it has become loose in any of my patients they went to some one else to make complaint, so I did not learn of the fact.

The question of abdominal supporters belongs particularly to the subject of panptosis. That subject has not been brought up this evening, because an elaboration of points would divert attention from the clearly outlined target which has been presented for quickly marking the aim of a few thoughts.

## SURGICAL TREATMENT FOR REDUCTION OF VACUUM CAUSED BY NASAL OBSTRUCTIONS.

By CHARLES AUBREY BUCKLIN, M.A., M.D.,

GLASGOW, SCOTLAND.

THE oldest operation known for nostril deformity is the submucous resection of the nasal septum. The earliest authorities regarding operations for septal deformities are Heylen,[1] Hartmann,[2] and Petersen.[3] None of these authorities produced an operation for removing cartilaginous defects from the septum which compares with the combination of older operators' efforts by Freer[4] or that of Killian,[5-6] which combines features of Hartmann's and Petersen's operations. Surgeons are now generally using these operations for removing the entire septum.

Suckstorff[7] of Hanover has published an extensive history of submucous excisions of the nasal septum, quoting thirty-three authorities to five only of which reference is made in this paper. These earlier operators did not possess the necessary technique to make their operations successful, while Freer and Killian were the first to attain success.

The submucous resections of the cartilaginous septum are the only operations that are successful in removing deformities of this nature from the septum. Performed with Ballinger's[8] swivel septum knife, the submucous resections leave nothing to be desired in connection with operations for defects of the cartilaginous septum, as they can all be removed in one piece submucously. The bony septum can also be removed by a chisel in one piece or it can be successfully removed in pieces by a bone cutting forceps. A description of the operative methods of Killian with slight modifications has been freely translated into English by Thomson.[9]

The popularity of the submucous operations has been so great in Europe that septal deformities have come to be considered by many as being the only cause of obstructed nostrils. These operations have caused the methods of removing simple spurs from the junction of the vomer and the superior maxillary bone, without removing the entire septum by the same operation, and the method of turbinectomy by means of a nasal saw designed in 1880 to be excluded from the mind of the average specialist.

There are still many specialists in America who prefer the use of a nasal saw for simple spurs in the above mentioned position and also for turbinectomies. Should turbinectomy be performed, the effect should be measured by the respirometer.[10-11-12].

Should successful results be obtained by turbinectomy, the deformity of the septum will not require attention. Regarding partial turbinectomy there cannot be any objection to the use of the nasal saw. The operator can place the saw behind the lower turbinated bone, determine how much he desires to remove, and then amputate the bone by means of the saw in five seconds. The submucous excisions of the septum are endorsed for all deformities of the septum excepting simple spurs.

To remove a spur by the submucous method, it is necessary to remove the entire septum at the same operation. Many object to this extensive operation for the removal of a spur from the septum, and only use it when the cartilaginous septum is also deformed.

It is a natural enquiry to ask why one should be afraid of a scar so small that it cannot be found

two months after the operation. No one hesitates to remove adenoids with Delstanché's improvement of Gottstein's curette, which leaves larger surfaces for scars to form. Since 1880 a large number of patients were examined who had been operated on

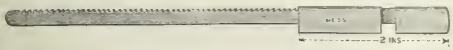


FIG. 1.

FIG. 1 shows the saw as first used by the author in 1880 for the removal of spurs from the nasal septum. The saw is a 3 mm., jeweller's saw finished on the distal extremity on a grindstone to prevent it from scratching; the end opposite that toward which the teeth rake has been removed so that the total length of the blade is 4 in.; to give stiffness to this slender blade its proximal end is covered with a folded piece of German silver sheeting 2 in. in length.

with a nasal saw for spurs of the septum; it was not found possible in a single case after two months had elapsed to detect any scab, scar or ulceration by reason of the the close union of the mucous membrane over the sawed surfaces. The above claim is endorsed by Bosworth.[12]

For those who object to leaving a wound in the nose uncovered by mucous membrane, it is proposed to operate submucously by separating the mucous membrane with a cataract knife having a blade two inches in length.

The mucous membrane is incised in front of the spur, flush with the surface of the septal wall; after this anterior piece of mucous membrane has been dissected up, the point of the knife blade is entered with the edge directed upwards, under the spur beneath the mucous membrane and is passed backwards until a proper counter puncture is made.

The membrane is dissected up with this knife blade, either the edge or the back of the blade being used to free the membrane from contact with the septal spur. Both the upper and lower margins of the mucous membrane are left in full contact with the septum. While the saw is being used to remove the same, the mucous membrane is held free from the spur by two delicate right-angled retractors with blades three inches long. The nostril is held open by a third retractor of similar form but greater breadth. Two assistants are required to complete this operation. After the operation the nostril is thoroughly packed with absorbent cotton which should be allowed to remain for two days in order that the correct position of the dissected flap be ensured. These submucous operations have been successfully performed with the nasal saw. Should the mucous membrane be cut by accident no unpleasant complications will exist after two months have passed, even should there be no attempt to make make good the resulting damage from this

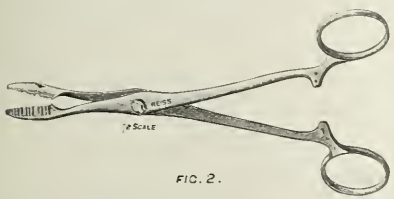


FIG. 2.

FIG. 2.—A clamping bullet forceps by which this saw blade was grasped at an angle of 45° in such a position that it could only cut upon withdrawal; the forceps being shown below this saw blade.

accident. The structure which a nasal saw must possess to remove in the most satisfactory manner spurs of the nasal septum and misplaced turbinated bones is not understood by the specialist or instrument maker, nor has it ever been the subject of a paper. One object of this paper is to give correct information regarding this subject. For this purpose there is here attached cuts showing the details of four nasal saws that have been introduced commencing with 1880.

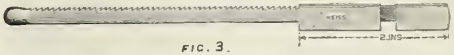


FIG. 3.

FIG. 3 shows a similar 3 mm. jeweller's saw 4 in. long as used in 1883.[14] The distal extremity of this saw is covered with a drop of solder to prevent it from scratching.

The illustrations given entirely describe the progress of development made with nasal saws until the present date.

Since the author's first operation for turbinectomy (see CASE IV) in 1890 it is known that no other operation for septal deformity is followed by such an increase in weight, or so much ability to overcome defects found in the respiratory tract. It must be recognized as the best treatment for nasal obstructions when it is applicable. After an extensive experience with partial turbinectomy the author has never seen a primary or secondary disadvantage resulting from this operation.

The report of Griffin[17] upon ten thousand operations for partial turbinectomy with the nasal saw without a single unfortunate complication is good confirmation regarding the value of this operation. He has also seen patients gain eighty pounds in weight in six months after partial turbinectomy. In New York a frequent cause of hypertrophic nasal catarrh is an abnormal position of the lower turbinated bone associated with the great swellings which are found in their coverings. These coverings are twice as extensively swollen as any other equal surface of the nasal mucous membrane. The cautery is useless, for this defect will always return after a lapse of time. Every occasion which brings a hot wire in contact with the periosteum causes a troublesome complication of periostitis which will require weeks to disappear. The only operation which can permanently relieve the above described conditions without complications is partial turbinectomy. The respirometer demonstrates this operation to be much more successful in relieving the annoyances experienced by obstructed nasal inspirations than any septal operation. The length of time required to complete this operation is not more than five seconds. It is believed that with proper attention paid to the requirements of this operation, partial turbinectomy, with its simplicity, ease of performance, the absence of complications, combined with the large measurable beneficial results which always follow its use, will make two-thirds of the present septal operations unnecessary.

A partial turbinectomy is required to reduce by one-half the height to which an individual suffering

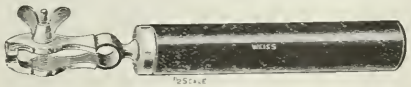


FIG. 4.

FIG. 4.—A pin-vise, driven into a file handle, which grasped at an angle of 45°, so that it could cut only upon withdrawal.

from obstructed nasal inspirations can raise water in the respirometer. This condition is always required for the cure of the simplest catarrhal diseases which are chronic in the respiratory tract. This reduction of the height to which water can be raised means a difference between external and internal atmospheric pressures during inspirations

equal to the difference resulting from a change of the patient's residence to about an altitude of 15,840 feet, or three miles reduced to feet."

The above-described changes in the atmospheric relations are sufficient to cure hypertrophic nasal ca-

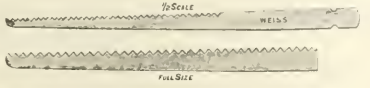


FIG. 5.

FIG. 5—Bosworths' saw.* As the handle is fixed, two saws are required if it be desired to cut with both edges in different directions. This saw does not stick, as it releases its hold on both strokes. Only one blade without a handle is shown in the cut. Bosworth's original description of this instrument is the following: "the blade to be as thin as possible, consistent with strength, an eighth of an inch in width, five inches long, with a cutting edge of three inches, thirty teeth to the inch, each tooth an exact equilateral triangle, with no crosscut, and no set to the tooth; the handle being three inches long, attached at an angle of forty-five degrees." The above saw has been tried; although it did not stick, it was not used after the first trial because it did not cut with sufficient rapidity.

tarrh (see CASE III), diseases of the lacrimal duct (CASE VI), catarrhal otitis media (CASES IV and V), chronic laryngeal and bronchial catarrh (CASE II). This elevation of the atmospheric relations places cases of pulmonary tuberculosis in a favorable condition for a cure by a forced diet of milk.

Russell's[19] experiments were the first to demonstrate the certainty of the removal of tubercle bacilli by a forced diet.

Since 1902 there have been treated by the author 146 cases of pulmonary tuberculosis. There were cured 106 cases. Forty cases died because they would not attach proper attention to what was told them about relapses of their disease, from a lack of forced nourishment. They did not understand that they could be reinfected from the tuberculous deposits which are usually carried about in their lungs. Milk has been found the only diet that can be forced on this class of patients to a sufficient extent without disturbing their digestion, to be of any benefit to them.

A patient with a good appetite can sometimes be cured of pulmonary tuberculosis in three months by the methods described in the above-mentioned journal. Most patients who have had pulmonary tuberculosis must continue their forced nourishment with

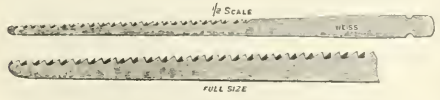


FIG. 6.

FIG. 6 shows the last saw blade of the author,[14-15] designed in 1905. It consists of a blade six inches long, the teeth occupy three and one-half inches, the cutting edge of the blade is made thick enough to clear the back of the saw, the width at the distal extremity is an eighth of an inch, and one-fourth of an inch at the proximal end of the teeth. The teeth are twenty to the inch, so set that they will only cut upon withdrawal, thus eliminating all tendencies to buckle when the saws are used. The butcher's saw, which has been constructed as the result of a great amount of experience, can safely be considered the best for cutting bone; it is the model after which the teeth of this last saw are constructed. The only instructions necessary for the inexperienced users of this saw are that no attempts should be made to force or drive them, as they will surely stick. The saw should be directed to saw upwards, even should one be obliged to enter the saw in a horizontal direction under the spur and turn it upwards before, or during its removal. For the benefit of those desiring to cut with both edges of one saw the blade has been made reversible, so that with one blade the operator is enabled to cut in any desired direction without inconvenience by changing the blade in the handle.

*At a meeting of the New York Academy of Medicine in 1886 Bosworth read a paper on "Deformities of the Nasal Septum." He here acknowledged that priority in the use of the nasal saw belonged to the author. He was mistaken in stating that operations on the nasal septum commenced with the saw designed in 1883.

milk to a sufficient extent to maintain the weight gained by previous treatment for the balance of their lives or they will develop fatal pulmonary disease through the sloughing of tuberculous deposits. The author has frequently seen this disease cured twice in one individual. It was caused the second time by infections from tuberculous deposits which sloughed in the lungs, thus producing pulmonary hemorrhage, and occasionally re-establishing the tubercle bacilli in the sputum.

The only method of protecting the patient against these sloughs is to have him obtain constant access to a scale and then protect himself against the reduction of his weight by sufficient forced nourishment with milk which has been sterilized, to prevent him from losing the weight that was accumulated during the first treatment of his disease. These sloughs will never take place as long as the weight is not allowed to decrease. Usually the tubercle bacilli do not appear in the sputum with these secondary attacks of this disease. Hemorrhage from the lungs appears, and is followed by a chronic inflammatory disease that causes the life of the patient to be lost. Occasionally the author has seen the sputum infected with tubercle bacilli after one of these secondary developments. The fighting of the secondary manifestations of pulmonary tuberculosis frequently means a struggle for a lifetime, which will be victorious if the weight be maintained. The great gain in weight which usually follows turbinectomy is explained by experiments with the displacement vessels.[20] These positively

FIG. 7.

FIG. 7 shows the handle of the author's saws as used since 1887.*

demonstrate that the amount of oxygen presented for absorption with each inspiration has been doubled. A gain of eighty pounds in weight within six months is frequently observed and it is explained by the above-mentioned experiments. The complications of hypertrophic nasal catarrh, adenoids, enlarged tonsils and nasal polypi with their treatment must be considered.

Among the diseases which are annoying in producing deafness hypertrophic nasal catarrhs rank first, adenoids rank second, inflammations of the tonsils rank third, and nasal polypi have never been known to produce deafness. For the treatment of these defects the author's universal snare,[21] designed in 1891, is strongly recommended. It has the advantage of being manipulated with one hand to the conclusion of every operation in which it is used. It is also fitted with a curved cannula for the nasopharynx and larynx which enables one to attack neoplasms and foreign bodies located therein. The cannula can be held in every position by a locknut attached to its proximal end.

The snare should be armed with a No. 6 piano wire having a tensile strain of sixty-seven pounds, which makes the wire loop sufficiently stiff to be readily adjusted about any growth and strong enough to cut through it. Since 1891 the author has used only this make of snare for the simultaneous removal of the tonsils.

Gottstein's curette as modified by Delstanché with

*The nostril deformity usually follows this saw when it is removed, if it does not the deformity should be removed by grasping it with an arterial forceps.

a hood containing sharp hooks inside of it is the most popular instrument with the profession for the removal of adenoids.

Tonsils before removal must always be inspected under a local anesthetic for the purpose of determining whether there are any pathological attachments to them, which must always be removed before any attempt is made to remove the tonsils, or there will be complications resulting in the loss of one-half of the soft palate. A large strabismus hook makes this examination thorough and easy. A pair of curved scissors is always of great assistance in connection with the strabismus hook in freeing pathological attachments from the tonsils. They are always removed simultaneously if both tonsils be diseased, because the patient may not consent to the removal of the second tonsil at a later date. They may be removed by others with a pair of Mathieu's tonsillotomes which also do their work completely with the use of one hand.

FIG. 8.—The author's respirometer.

Should tonsillotomy be followed by an annoying hemorrhage the cut surface should be painted with a solution of 2 per cent. novocain every fifteen seconds for three minutes. Should this not arrest the hemorrhage a piece of absorbent cotton should be taken in the left hand with a long forceps, while an arterial forceps is held in the right hand, an assistant should depress the tongue, and with moderate skill every hemorrhage resulting from the amputation of a tonsil can be promptly arrested by seizing and ligating or twisting the bleeding points. Hemorrhage[25] is an annoying complication, and to avoid it a tonsillotome should not be used for this operation.

The operator should always be provided with a strong, straight pair of scissors which will free the tonsil when the snare becomes disabled on account of a break in its mechanism or when the tonsillotome becomes jammed and disabled. This latter accident is usually caused by the beveled edge of the knife of the tonsillotome being turned toward the tonsil which is being amputated, under which conditions the instrument will frequently become disabled. Experience in the use of the snare will enable the operator to judge if this instrument be working properly. With the straight cannula in use any failure of this instrument can be compensated for by rapidly and continuously rotating the axis of the cannula in one direction, thus causing the wire loop to twist sufficiently to cut through the tissue grasped.

Bosworth[25] in 1897 recommended the abandoning of the tonsillotome and the use of his special snare with a No. 10 piano wire; in no case where Bosworth's snare was used has the hemorrhage been more than of the most trivial character. The only objections that the author offers against this instrument is that both tonsils cannot be removed simultaneously by them. With this endorsement the author recommends any piano wire snare, armed with at least a No. 6 wire, which can be manipulated throughout all operations with one hand as a universal means of removing the tonsils separately or simultaneously.

It was discovered in 1911 that a 1 per cent. solution of 20 minims was the best local anesthetic that could be used. With the use of this solution there is not the tendency of the patient to faint which is generally experienced with cocaine.

Such neurotic disturbances as hay fever (CASE VII), or chronic asthma (CASE VIII), not associated with heart diseases, have always been cured by a double turbinectomy of both lower bones. This reduces the ability of the patient who was able to raise water to 36 inches to about one-fourth, *i.e.* so that he can only raise it 9 inches. This is equal to a change of the patient's residence to an altitude during inspiration of 23,760 feet, which is 4.5 miles.

In using the respirometer the glass tube is removed from the vulcanite disinfecting case, which is 42 inches long, in which it is immersed and stored in a solution of bichloride of mercury of a strength of 1 to 31.25, which means that two commercial tablets of a strength of 1 to 1,000 when one is dissolved in one pint of water to each ounce of liquid used in the disinfecting case are added.

Stand the end of the glass tube which is to enter the patient's mouth in a tumberful of pure water for the purpose of removing the chemical. It is allowed to remain there for one minute before the rod is placed in the patient's mouth. The other end of the tube is placed in one-fourth of an inch of water in a tumbler standing on the floor.

After the patient has made a powerful expiration through the mouth the cleaned end of the tube is placed 3 inches into his mouth, the tongue being depressed with this end of the tube. The patient is then requested to seize the rubber which encircles the glass tube firmly with the lips and to make the quickest, most powerful inspiration through the nose that is possible, while the operator quickly notes and measures the height to which the water has been raised by this inspiration. The operator then divides three miles reduced to feet, which is equal to 15,840 feet, by one-half the number of inches that the patient has raised the water in this instrument. The quotient represents the number of feet that the atmospheric relations have been elevated for every inch that the patient's ability to raise water in this instrument has been reduced by the operation in the nose.

The patient described in CASE No. 1 raised water in this instrument to 36 inches. One-half of this number is 18 inches, by which 15,840 feet, or three miles reduced to feet, are divided, giving a quotient of 880 feet for every inch of reduction of height to which the patient could raise water in this instrument by means of the nasal operation. The partial turbinectomy has in this case reduced this ability to raise water so that the patient could only raise it to 12 inches, which when subtracted from 36 inches, leaves 24 inches reduction in the height to which the patient could raise water. Eight hundred and eighty feet are then multiplied by 24 inches, which gives 21,120 feet elevation of the atmospheric relations during inspiration. This number is divided by the number of feet in one mile, which is 5,280 feet; this gives an elevation in the atmospheric relations of this patient during inspiration as the result of a single turbinectomy equal to 4 miles. The reader can apply the above rules to every case after having observed what his ability for raising water was before and after an operation. No operation on the septum could have produced the above result.

the tonsils is the following: Each tonsil should have a drop of 2 per cent. solution of novocain placed on it above the place where it is anticipated that the hypodermic injection will be made, from a dropper consisting of a large-sized rubber eustachian catheter with a rubber bulb at one end. These drops should be repeated three times in one minute. In five minutes from the time that these drops were first applied an hypodermic injection of 1 per cent. solution of novocain to the amount of 10 minims is made in each tonsil to be removed. Five minutes after this injection of the drug into the tonsils the operation for their removal should be commenced.

CASE I.—B. J. Age twenty-nine years. He has had pulmonary tuberculosis for three years and had consulted several specialists regarding it without any beneficial results. He consulted the author on the 1st of September, 1902. His weight was 110 pounds. He raised water in the respirometer to 36 inches. The author removed one-half of the lower turbinated bone from the right nostril, after which the patient could not raise water to more than 12 inches. This changed his atmospheric relations to an elevation of four miles. His cough ceased within three weeks. He followed his trade, supporting a wife and four children. His weight increased to 150 pounds, making a gain of 40 pounds, which by a continuation of forced nourishment he retained. He never has had any secondary attack of tubercular disease since.

On March 1, 1903, the tubercle bacilli, which had always been present in his sputum, had disappeared. There is no cavity of a pathological nature in his lungs and there is every evidence that he has been cured of pulmonary tuberculosis.

This case and other patients with similar diseases, having the same treatment, demonstrate that when their diseases are not complicated by pathological cavities in their lungs tubercle bacilli will disappear in less than seven months provided they can tolerate the forced nourishment. If the weight gained during the first treatment is maintained there will not be any secondary attacks of pulmonary tuberculosis.

CASE II. W. B. Age twenty-six years. Had chronic bronchitis and catarrhal laryngitis from which he had suffered for years. Weight was 140 pounds. He did not show tubercle bacilli. He was constantly acquiring additional attacks of bronchitis complicated with cough and growing hoarse. The author was consulted August 4, 1902. The patient thought that the disease was pulmonary tuberculosis. Water was raised in the respirometer to 36 inches. After turbinectomy the patient could not raise water to more than 16 inches, which showed his atmospheric relations to have been elevated to 3.33 miles. This operation removed every annoying symptom within one week, and subsequent exposures to the weather did not cause the patient to develop catarrhal diseases in the air passages.

CASE III. C. S. B. Consulted the author on August 23, 1904. He had suffered from hypertrophic nasal catarrh for years. Many specialists had been consulted but all had advised him against submitting to any operation. He had never found a climate that was favorable to his disease in winter. He could raise water in the respirometer to 40 inches; after turbinectomy he could raise it to 15 inches, *i. e.*, his atmospheric relations were raised to 3.75 miles. In ten days every annoying symptom had disappeared.

CASE IV. H. J. Age fifteen years. The author was consulted on the 10th of April, 1890, which was two years before the respirometer had been discovered. He had attacks of suppurative disease in the right middle ear; heard a watch in this ear at two inches. The left ear had chronic catarrhal otitis media. In this ear he heard a watch at four inches. The defects in his nasal passages which caused the deafness were a deformity of the septum and a misplaced turbinated bone in the right nostril. He had consulted many specialists in New York, who had tried to relieve his nasal obstructions with various cauteries, which had left the adjacent surfaces of the septum and the turbinated bone denuded of mucous membrane, in consequence of which they were firmly adherent to each other. The deformity of the septum was first cut free by the saw from the septal side. The saw was next placed behind the turbinated bone, which was amputated. This obstruction when removed from the nostril consisted of the septal deformity, which was firmly united to the lower turbinated bone. The hearing was found within one month in the right ear to be equal to an ability to hear a watch at 30 inches, while the left ear heard a watch at 45 inches. The patient never had any further trouble with his ears.

CASE V. Age thirty-six years. Consulted the author on March 10, 1903. He had been developing catarrhal deafness for ten years, and could only hear conversation through a speaking tube. He raised water in the respirometer to 40 inches. After the removal of a misplaced turbinated bone he could only raise water to 13 inches, so that his atmospheric relations during inspirations were elevated to 4.05 miles. He commenced to improve in hearing within two months. There was no difficulty in carrying on ordinary conversation with him at the termination of three months.

CASE VI. W. H. W. Age forty years. He consulted the author on June 11, 1903. He was suffering from suppurative inflammation of his lachrimal duct, for which the author removed one-half of the lower turbinated bone on the affected side. The bone was covered with intensely hypertrophied tissue, which was considered sufficient cause for this disease. He raised water in the respirometer to 40 inches. After the removal of one-half of a turbinated bone from the affected side he was able to raise water to 10 inches only, so that his atmospheric relations during inspirations were elevated to about 4.5 miles. The operation cured the catarrhal disease of his nose, which had been the cause of the suppurative disease in his lacrimal duct.

CASE VII. J. H. Aged 28 years. Consulted the author on June 2, 1902, regarding attacks of hayfever. She had developed the attack during the second week in August for the past four years. During her first visit she could raise water in the respirometer to 36 inches. After the second week in August until frost appeared the water would be raised into the patient's mouth every time an experiment was made with the respirometer. On January 4, 1903, one-half of both lower turbinated bones were removed, so that she was able to raise water in the respirometer to 6 inches, which was exactly one-sixth of the height to which she formerly raised it. These turbinectomies elevated her atmospheric relations during inspiration to an altitude of five miles.

The hayfever never appeared again after this operation.

CASE VIII. J. S. Age thirty-six years. Consulted the author on December 15, 1903, regarding periodic attacks of asthma. There were no manifest diseases of the heart. He usually turned dark during these attacks, and they usually required a hypodermic injection of sulphate of morphia to relieve these spasmodic attacks of the disease. He raised water in the respirometer to 40 inches in March, 1903, which was reduced by a double turbinectomy to six inches, which raised his atmospheric relations during inspirations to 5.1 miles. These operations cured his periodic attacks of asthma and he has never had another attack of this disease.

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## ETHER-OIL RECTAL ANESTHESIA; SOME THEORETICAL CONSIDERATIONS.

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THE administration of ether per rectum has once more taken on a certain degree of popularity, the present advocates of the method using it in the form of an oil-ether enema. The results here, in the hands of experienced anesthetists, have been variable, some praising, others disfavoring the method. There are some theoretical objections, however, to the procedure, and it is the purpose of these remarks to deal with the subject chiefly from this viewpoint.

The usual technique, omitting special refinements, is in brief as follows: Effort is made to thoroughly cleanse the intestinal tract, especially the large intestine, beforehand; a hypodermic injection of morphine, sometimes in combination with atropine or hyoscine, is usually given one-half hour before injecting the ether; the mixture of ether and oil (olive oil being mostly used), containing about seventy-five per cent. ether in adult cases, is given in a single dose of six to eight ounces by volume very slowly through a small catheter into the lower bowel. This is injected about thirty minutes before operation, the patient being in bed until the unconscious state is reached. If surgical anesthesia is not obtained in thirty to forty minutes, more ether is injected per rectum or administered for a brief time by inhalation.

Can we say that this method is founded on a good scientific basis? In other words, is it exact or accurate? The administration of ether, to be exact within a reasonable meaning of the term, should have the dosage, or amount administered, under direct control, which in turn exercises a fairly definite influence on the dose or amount actually absorbed. This fundamental requirement does not appear to be fulfilled here: (1) because the entire dosage is estimated, and placed in the intestine for absorption before essential information is acquired by the anesthetist regarding, (a) length of time the operation will take (which is often impossible to know), (b) the patient's resistance, susceptibility, or even special idiosyncrasy to the drug; (2) because a portion or all of the mixture may be expelled and lost, in which event an estimation of the amount still retained would be largely guesswork; (3) since there is also a small chance of error if the mixture is given in the usual manner by pouring through an open-topped funnel; over a period of five minutes material loss by evaporation could occur.

Then, in reference to the important question of dose there also appears to be considerable uncertainty, and the reasons for this are: (1) the influence of the inaccurate dosage as pointed out above; (2) the patient's age would have a bearing on the rate of absorption, a given quantity of ether probably entering the blood stream in young people, in considerable less time than it would in those past middle life; (3) position of the solution in the large intestine has, undoubtedly, a marked influence on the rate of absorption. It is impossible to know just how high it goes in any particular case, which adds to the uncertainty; but it seems highly probable that in some cases reverse persistalsis may take place carrying the mixture into the cecum, making its recovery, in case of over dosage, practically impossible and materially increasing the rate of absorption. Practical proof of this possibility is shown in Stewart's case where a lead pencil, inserted into the rectum, soon reached the cecum from which it had to be removed. Also in Chapin's work on babies where *x*-ray examinations showed, after low injections of bismuth solution, that this material practically always reached the cecum. LeWald further states that low rectal injections of bismuth solution pass into the ileum in about 10 per cent. of cases due to incompetency of the ileocecal valve, and that in over 90 per cent. the solution reaches the cecum. That this factor has an important practical side is evidenced by the fact that the Trendelenburg position (the necessity for which cannot always be foretold) is considered by some to contraindicate the use of the method; (4) pathological conditions of the rectum, sigmoid, or descending colon might strongly retard or increase the absorption; (5) an excessive amount of ether is probably absorbed (*a*) because the induction period is prolonged (frequently requiring one-half to three-quarters of an hour), which is due to the slow absorption, the mixture having not yet reached a very high position in the intestine. Likewise, in the administration by inhalation of vapors of insufficient strength, patients can be given excessive quantities of ether without obtaining surgical anesthesia, whereas a much smaller amount expediently administered gives the desired result in very much less time; (*b*) since olive oil is said to hold the ether in close combination and give it up slowly, absorption may continue for a considerable time after operation and delay the recovery, as there is no way of determining how much of the mixture still remains in the intestine after the passage of tubes or irrigation; (6) the varying amount of intestinal surface exposed to the action of the mixture; (7) the claim for even and constant evaporation of ether from the mixture would hardly seem valid, for many surgical cases run more or less severe temperatures, the influence of which toward increasing the absorption must be considerable in view of the low boiling point of ether.

Among other theoretical objections would be the possibility of a special form of toxemia from absorption; for a powerful solvent is placed immediately before it is to enter the blood stream, in direct contact with a variable amount of highly toxic intestinal material. Does it not seem possible, therefore, that definite quantities of toxines may thus be assisted to re-enter the circulation? If so an extra burden is placed upon the eliminative functions, and the vitality of the patient suffers accordingly. Furthermore, the mode of reaching the vital centers by the anesthetic is circuitous, it having to first enter the venous blood and be conducted through the portal system before reaching the right heart and lungs. It would seem desirable to introduce an anesthetic into as clean and accessible a part of the body as possible where it may immediately enter the arterial circulation, and reach the nerve centers by the most direct course. The pulmonary route fully meets these requirements.

The routine use of morphine is said to be necessary with the rectal method, which has the disadvantage of depressing the respiratory center and locking up the secretions; objections which here seem to have special import. Furthermore, the respiratory center cannot utilize its protective function against over-dosage in the rectal method, as it may in the inhalation methods where the administration is under direct control, because with the former depressed and superficial breathing does not automatically lessen the intake of ether, since the dosage is independent of this protection. In fact, the opposite appears to occur since the more ether absorbed the greater the respiratory depression and the less the respiratory interchange, resulting in retarded elimination with consequent cumulative ether effect. Lastly, that a normal anus should often be severely irritated in this procedure seems only natural to expect, and if a fissure or hemorrhoids were present the outcome might be quite serious.

The advantages of the oil-ether method outside of its simplicity seem to be more apparent than real. In fact, with the possible exception of selected cases of bronchoscopy, it is difficult to see any indication for its use that cannot be as well and probably more safely met by the modern pulmonary methods.[2] Its chief advantages are said to be found in surgery of the head and neck, since there is no hindrance to the operator in the way of anesthetic apparatus. The ordinary intratracheal catheter could not inconvenience the surgeon much, either, and the intratracheal method offers a much greater margin of safety to the patient, especially in surgery about the face, mouth, and neck, for several reasons; first, because it affords an efficient protection against pneumonia of the aspiration type; second, because it provides a delicate and even control of the ether dosage, enabling one to maintain a very light narcosis, and establish the coughing reflex at the close of the operation; third, it further conserves the patient's vitality by providing perfect aeration, thus obviating any possibility of obstructed breathing or necessity of packing off the throat, with the use of nasal tubes. In our series of intratracheal anesthesias we note that it has been employed forty times in operations about the head and neck (over half of which were resections of the upper and lower jaw and tongue and plastic procedures), without a single case of pneumonia or anesthetic complication, except one case of subcutaneous emphysema, which recovered. On the other hand, the only jaw resection we have done with the oil-ether method died with an aspiration type of pneumonia twenty-two hours after operation. This patient, a fairly vigorous man of about fifty years, really never recovered from the anesthetic, and was in a most profound state of narcosis for nearly six hours. Six ounces of ether and two ounces of olive oil were administered in the usual manner, and both before and after the operation was completed the colon was repeatedly irrigated without apparent benefit. This case is cited here simply to point out one of the method's shortcomings in this kind of work. Another advantage is said to be the very quiet type of anesthesia produced, which is common in any method where there is a free air-way. But it must be remembered that most patients profoundly under ether behave in this manner. In a good ether anesthesia the depth of narcosis is intelligently and gradually varied to meet the operative requirements during the different stages of the operation. This would appear to be possible only when the dosage is under direct and definite control.

In closing these remarks it may be well to mention some of the undesirable clinical features which must certainly be looked for in a method involving so many theoretical objections. The following are offered for consideration: (1) The rather exhaustive and unpleasant experience accompanying any special rectal preparation, as required here; (2) the occasional necessity and inconvenience of preliminary and subsequent proctoscopic examinations, as a matter of safety and caution; (3) occurrence during the induction period of cramps, with distressing sensations of fullness and pressure in the lower bowel, accompanied by desire for stool; varying degrees of anal irritation occuring early or late; (4) prolonged induction stage with frequent necessary recourse to the inhalation method; (5) any time after the first fifteen or twenty minutes' respiratory depression may rather suddenly or slowly appear, followed by arrested breathing, loss of muscular tone and diluted pupils, with the possibility of fatal syncope supervening; (6) the occurrence of mild to very severe grades of proctitis and colitis, these complications appearing in more aggravated forms where any pre-existent pathological condition is present; (7) delayed recovery, which may be prolonged for many hours; (8) increased toxemia, dependent on a number of factors already discussed and which has recently been pointed out by Coburn.[3]

We believe that any method of administering ether to children, old people, or cases at any age where there is more than the average risk, that does not provide for immediate and definite control at all times, is certainly hazardous. It is also contended that any principle of administration which attempts to figure the dosage of ether on the basis of body weight is unscientific and impractical; because the influence and importance of personal equation in drug dosage is a matter of every day experience, and in operative work there are a number of other factors which always play an important rôle in the amount of anesthetic required.

To point out some of the theoretical shortcomings of a method does not necessarily condemn that procedure; but by presenting the possibility of undesirable or dangerous symptoms and results, it may help to temper with conservatism the light-hearted manner in which many of these new propositions are taken up, especially by those who are inexperienced.

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201 WEST ONE HUNDRED AND TENTH STREET

## THE PRACTICAL, SCIENTIFIC DIAGNOSIS AND TREATMENT OF STERILITY IN THE MALE AND FEMALE.

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THE method of procedure generally employed in cases of sterility is far from accurate, even in the hands of the most up-to-date physician. It may be

summarized as follows: A condom specimen of the husband's semen is examined, and if found normal, the wife is examined for any abnormality of the genitals. In case an anteflexion or stenosis is discovered, the woman is subjected to a curettage or dilatation, and to one of the operations on the cervix which the physician may prefer. If this is not successful she may have the operation repeated in part by the same or by another physician, and finally the operation of exploratory laparotomy might be suggested.

The above method of procedure, which is the one generally followed, with the exception that the operative procedure varies with the abnormality discovered on examination, is probably the best that could have been followed heretofore. From the results of my experiments and study of many cases, however, I consider it far from ideal. In the first place I desire to emphasize the fact that the mere finding of normal spermatozoa in the condom does not by any means absolve the husband from being the cause of sterile wedlock. The husband may be suffering from a marked hypospadias or epispadias, in which case the condom specimen would be filled with normal spermatozoa, but on account of the abnormal position of the meatus (unless the cervix be also placed in a peculiar position) the stream of semen is directed away from the genital orifice of the female or even, in particularly bad cases, may not be ejaculated into the vulva at all, but entirely outside the genitals. He may be suffering from premature emissions (where in very bad cases the ejaculation takes place before the penis has a chance to enter the vagina) and still, in such a case again, the condom specimen might be all that can be desired. In certain cases of stricture of the urethra the seminal fluid is not at all ejaculated, but dribbles out after coitus when the penis resumes the flaccid condition, and here again the condom would show normal spermatozoa. But even should it be proven that the husband is absolutely normal in this regard (and I will explain how this can be definitely determined) the operator still does not know that the particular abnormality discovered in the female is the cause of the sterility, or that the relief of such abnormality will cure his patient. In other words, he is working entirely in the dark.

In the following pages I will attempt to show how a preoperative diagnosis of the cause of the sterility may be determined in many cases, and how it may be treated scientifically as a result of such accurate preoperative diagnosis. The method of procedure has been so simplified as to bring it within the reach of the average physician.

This method consists in examining specimens of mucus taken at various times after coitus from the vagina, cervix, and fundus uteri, and examining these for live and dead spermatozoa. From such examinations we can in many cases definitely decide where the seat of the trouble lies. Thus, it would seem ridiculous to blame an anteflaxion for the sterility, when an examination shows live active spermatozoa in the fundus uteri, thereby showing that the flexion, no matter how acute, did not present a barrier to the progress of the spermatozoa. Yet how many women have been subjected to operation for sterility on no more pathological evidences than this.

At first blush one might imagine that examinations of mucus from the fundus uteri would have no value, but if my technique is carefully followed we shall see that this is by no means the case. It is true that if the examination is made shortly after coitus, and if we then find spermatozoa in the cervix, and also in the fundus uteri, we cannot be absolutely sure (even with my instrument) that the spermatozoa found in the fundus uteri may not have been pushed forward with the instrument as it passes through the cervix, or that they may not have adhered to the instrument from the cervix on its way out; but if the investigation be made later, say between one and two days after coitus, and if the precaution has been taken to make first several examinations of the mucus of the *cervix*, we shall find in most cases examined at this time, either no or only dead spermatozoa in the cervical mucus, and then if we find live spermatozoa upon reaching the fundus, we can say that these came from the fundus and have not been brought from anywhere else; in other words, that in this particular case the flexion is not the cause of the sterility. And such cases are not exceptions by any means. It is true that the later after coitus examinations are made the more difficult it is to find spermatozoa, but if they are found we are much more certain where they came from and the information as regards diagnosis and treatment is of much more value. The longer after coitus the examination is made the less likely are we to find live spermatozoa, or indeed, any spermatozoa at all, outside of the fundus uteri and cervix. Those in the vulva, especially around the meatus urinarius, die within a very short time; those in the vagina, in the vast majority of cases, are all dead at the end of one or two hours. It is only those that are protected in the interior of the cervix and body of the uterus that remain alive for several days, so that for accurate diagnosis it is necessary to make several examinations, some at least two or three days after coitus. It may be set down almost as a truism that any spermatozoa found several days after coitus must have come from the uterus.

Inasmuch as the technique of recovering spermatozoa from the female genitals has been described by me in detail elsewhere,* I will not repeat it here, but will refer those interested to my previous work on the subject. I will here describe my method of procedure, which is the result of over five hundred examinations.

My method in a given case of sterility would be as follows: The wife presents herself as soon as possible after coitus, and we take specimens from the mucus of various portions of the genital tract and draw the following conclusions:

If live spermatozoa are found in the cervical mucus we can at once absolve the husband from all responsibility. In this case we do not need to care whether the husband has stricture, old epididymitis, hypospadias, or what not, or whether the husband is somewhat impotent as shown by premature ejaculation. In other words, we need not care what the condition of his sexual apparatus is, for we know at once that as far as impregnation is concerned his organs are satisfactory. Similarly, we need not listen to the wife's complaint that all the semen runs out of her immediately after coitus, for we know enough spermatozoa are in the cervical canal for purposes of impregnation.

If dead spermatozoa are found in the cervical mucus, it is safer to get a condom specimen to see whether the spermatozoa came out dead, or

*Hühner: "Sterility in the Male and Female and Its Treatment," Rebman Co., New York, 1913.

whether they were killed after they had entered the woman by the latter's secretions. If for some reason or other (as when the wife does not wish the husband to know that she is investigating the subject) we cannot get a condom specimen, we determine this point by the observations of Ultzmann, to wit, that when spermatozoa have been ejaculated alive and later died their tails are straight, whereas spermatozoa that have never moved have their tails curled up. If in such cases we find the secretions of the vagina markedly acid and possibly also those of the cervix, we may order a phosphate of sodium douche before coitus, and will then sometimes find the spermatozoa alive at the next examination.

If after careful examination we find spermatozoa in the cervix but never beyond the internal os or angle of flexion in an anteflexed uterus, we may conclude that the flexion is the cause of the sterility as far as can be determined, and a dilatation and curettage are then indicated.

If we find lively spermatozoa in the body of the uterus we may conclude that no matter how acute the flexion it is not the cause of the sterility. In all probability the sterility in such case is due to one of two conditions, either an undeveloped or infantile uterus, which cannot support a growing fetus, or to some trouble higher up, such as either a stenosis of the tubes or some ovarian trouble. The condition of the uterus can be determined from the local examination, with the special precaution not to depend entirely upon palpation, but to determine the size of the uterus by the uterine sound. Very often the uterus is so extremely flexed and doubled upon itself that to the examining finger it appears very small and infantile, but upon introducing a sound we find that the canal is of proper length nevertheless, and that the uterus is only apparently small. In determining the condition of the uterus by the uterine sound we must not be guided entirely by the length, but must determine how much is cervix and how much is body. We often find a long uterine canal by the sound, but on examination with the speculum see that almost the entire uterus is made up of cervix with but an extremely diminutive body. Such a uterus (unless the body can be developed) is obviously unfit for impregnation.

If, however, we find a perfectly well-developed uterus containing live spermatozoa several days after coitus (in the fundus), and if nothing wrong is found on palpation in the adnexa, we may then conclude that there is some stenosis of the tubes or some other pelvic condition not appreciated by palpation, and it is then, and then only, that a laparotomy may be considered and be justifiable. The statistics of the cure of sterility by laparotomy are poor enough as it is, and ought not to be made worse, and the whole procedure discredited by operating before a distinct indication, as outlined above, presents itself. I believe, however, that if we operate only in cases as above indicated, the results will be much better than they are at present.

If we find dead spermatozoa in the body of the uterus, and live ones in the cervix, we may conclude that it is not the flexion that causes the sterility, as the spermatozoa have passed it, but that it is the condition of the uterine endometrium that has killed the spermatozoa. In all these examinations we must take into consideration the time after coitus the examinations are made. As stated above, it is advisable to make the examinations as soon after coitus as possible. Sometimes, however, the patient does not appear until the next day, and then we may examine nevertheless, only making allowance for the lapse of time. In the above case a curettage would be indicated. We must also remember that the endometritis may be the result of a flexion or displacement of the uterus and direct our treatment accordingly.

If no spermatozoa at all are found in any portion of the genital tract, or only dead ones are found in the vagina, but none at all in the cervix, the fault may be either with the husband or the wife. We then request a condom specimen, and if live, active spermatozoa are found therein, the fault may still be with the husband or with the wife. It may be the case of a normal penis with an abnormal position of the cervix, such as a long, conical cervix, a very short cervix, or a cervix pulled out of position by adhesions or otherwise dislocated. Again there may be in the male organ a condition of hypospadias, epispadias, or stricture of the urethra, or any of the functional sexual disorders, such as premature ejaculation, etc. As long as no spermatozoa are found in the cervix it is always advisable to examine the husband, no matter what we may find in the condom specimen.

If we find that the fault is with the husband no operation should be performed on the wife, except if indicated for some other complaint aside from sterility.

If we find that the husband has normal spermatozoa in the condom, but is suffering from hypospadias, epispadias, stricture, or functional sexual disorder, these should be remedied, if possible.

If on several examinations and after long periods of continence there never are any spermatozoa in the semen at all, either dead or alive, the husband should be examined for signs of old epididymitis, atrophic testicles, or tuberculous testicles. It has been noticed that tuberculosis of one testicle causes an absence of spermatozoa from both testicles, and often the absence of spermatozoa precedes by two years the clinical appearance of the tuberculosis. Conversely, therefore, in every case of sterility in the male, without other obvious reason, we must suspect tuberculosis of the testicle. In the vast majority of cases, however, we shall find signs of an old epididymitis, or the history of an acute epididymitis several years before. In rare cases, too, we may find a syphilitic epididymitis which requires the regulation treatment.

If we are in the presence of an old chronic epididymitis of several years' duration, we ought first to determine if either testicle secretes spermatozoa before we can suggest any treatment. We must remember that the sexual function (by which I mean that which determines the sexual passion) and the secretory function of the organ, are each entirely independent, and the fact that the man's sexual passion and ability are normal, does not imply that spermatozoa are secreted. In such a case, therefore, we should first aspirate the testicles† in order to determine if one or both testicles have retained their ability to secrete spermatozoa. If no spermatozoa are found in the testicle after various periods of continence or immediately after coitus, I do not believe anything can be done for the individual, although it may not be wise policy to tell him so, as there are on record cases of

†The technique of aspiration of the testicles is fully described in my book above mentioned.

suicide due to the fact that patients were told that they were hopelessly sterile. There are other reasons also which will readily suggest themselves why the patient should be kept in ignorance; but in any event he must be kept away from quacks. I certainly would not advise operation in these cases. This is very important, as I know of one case where a prominent surgeon wanted to perform the operation of epididymovasostomy, where I had repeatedly found nothing but clear serum in the testicles.

If we do find live, active spermatozoa in one or both testicles, we may attempt to treat the prostatic urethra by deep urethral injections, and also to massage the prostate. Although the authorities assert that nothing can be done in these cases, still in a few I have seen a reappearance of spermatozoa in the condom. This method has the additional advantage that it does not lay the patient up, that it cannot possibly do any harm, and that it does not interfere with any more radical procedure that may be determined upon later on. If anything, it materially improves the chances. I am led the more to this conclusion because I have observed that the more radical operation of anastomosis is mostly unsuccessful, and I therefore would not recommend it until other milder methods have been tried. If there is no reappearance of spermatozoa within six months of treatment I think it may be abandoned.

In this latter condition and before recommending the operation of epididymovasostomy we may attempt the procedure I have recommended elsewhere,* namely, that of injecting the aspirated testicular fluid directly into the cervix of the wife, either with or without the addition of prostatic fluid.

In the foregoing pages I have endeavored to outline the treatment of sterility in the male and female upon scientific principles, so far as our present knowledge permits. When we get more light upon certain obscure physiological problems the treatment may have to be changed. Yet one word more. We must never positively promise a cure, no matter how definite the pathological condition is. In the first place, the removal of an obvious impediment does not guarantee that some more serious impediment does not exist higher up, and in the second place there are cases of sterility where we can find absolutely nothing abnormal in either party (even on laparotomy in the female) and still for some unknown reason the sterility persists.

We also find cases where the parties separate and marry other persons, and both parties subsequently have children with their different mates. On the other hand, we ought not to give an absolutely bad prognosis, except where the husband has no spermatozoa at all. It is not by any means rare for a woman to conceive after years of sterility, even where everything had apparently been done for relief without result, and where all hope (as well as all treatment) had been abandoned for years. Nor is it rare to find a very small uterus that on examination seems positively too small for maternity, develop for some reason or other, without any treatment whatsoever, and the patient conceive afterward.

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*Hühner: "Sterility in the Male and Female and Its Treatment," pp. 103-104.

## FOUR CASES OF MULTIPLE MYELOMA.

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Multiple myeloma has been defined as "a primary neoplasm of the bone marrow, affecting chiefly the sternum, the ribs, the vertebræ, and the skull, the substance of the bone being more or less replaced by tumor tissue."[1] Though its discovery is sometimes dated later, J. von Rustizky[2] first described and christened it in 1873. Since that time various observers have written on the subject. In 1907 Permin[3] recorded forty cases, and in the following year Decastello[4] added two. In the recent literature I have been able to find fifteen additional cases. Of these, eight are reported from Germany, five from the United States, one from England, and one from France. The present report adds four cases, making sixty-one in all.

Pathologically, depending greatly upon the opinion as to the cells of the medulla from which the neoplasm arises, the disease has acquired various designations: Myeloma (Rustizky), sarcoma (Butlin[5]), intravascular endothelioma (Marckwald[6]), lymphosarcoma (Wieland[7]), myelosarcoma (Odenius[8]), lymphadenia ossium (Nothnagel[9]), erythroblastoma (Ribbert[10]), and plasmoma (Hoffmann[11]). Versé[12] recently proposed a nomenclature adequate from a histogenic standpoint. As there seems to be no uniformity in the histological structure of these medullary new growths, he gives the name myeloma a generic signification without regard to the cell type found in the tumor. The name myelocytoma he employs to designate those tumors arising from the specific marrow cells, the myelocytes. The plasma cellular myeloma or plasmacytoma, arising, as Wright also assumes, from an abnormal proliferation of these cells, he considers a type of lymphocellular variety of tumor.

Two of the cases reported by Versé were plasma-cell myeloma. In these, characteristic plasma cells composed the bulk of the tumors; thickly placed, polygonal in form, they produced a mosaic appearance. The nuclei were round and presented two or three clumps of chromatin. Small cells of a different type, granular cells and large giant cells were also present. But these were found only in the less characteristic parts of the tumors, near the periphery, and the author believes the giant cells to be reactive irritation forms. He named his third case diffuse myelocytic myeloma, showing as it did, bone elements microscopically: myelocytes, lymphocytes, polymorphonuclear leucocytes, megakaryocytes of large size, and myeloblasts.

Schmorl[13] demonstrated a case in which plasma cells formed the picture of the tumor, and Simonds[14] names his cases plasmoma. Berblinger's[15] case is of the same nature. Both of Stumm's[16] cases showed, as is recognizable from description, plasma cells predominating. Zinninger's[17] two cases were of a similar nature. Norris[18] recorded a case in which two types of cells occurred in the bone tumors, one a large cell with granular protoplasm, a large nucleus and scanty chromatin network. The other cell, smaller, had eosinophilic protoplasm and a small dense nucleus and was believed to be erythroblastic in origin. The consensus of opinion on this tumor was in favor of its being plasmacytic. Ewing[19] found that in most bone tumors the cells resemble neoplastic marrow cells of various types.

Williams'[19] case was found to be composed of round cells. The case reported by Morax[20] with orbital and cranial involvement showed myelocytic proliferation. A tumor invading the kidney of a ten-month infant suffering from anemia was reported by Tixier[21] to have been composed of nucleated red blood cells, myelocytes, undifferentiated lymphocytes and megakaryocytes enmeshed in a fine reticulum and blood vessels, giving it an embryonal character. He believed this tumor to have been a myeloid growth in the viscus. The case of Hohn[22] is myelocytic in structure. Fischer[23] reported a case in which an epitheliomatous tumor was associated. The case of Austin[24] is interesting, being complicated by healed tuberculosis, pulmonary, pleural, and peritoneal. There followed complete disappearance of the bony substance of the twelfth dorsal vertebra, and there were other foci in the neighboring vertebræ and in the ribs.

The disease is clinically characterized by the presence of irregularities of the surface of the bones involved, leading to spontaneous fractures. It occurs in the latter half of life and affects chiefly males. Of the cases reported during the past three years, only that of Hohn was a woman, forty-three years old. Nine of the cases were between forty and seventy, and five of these were in the seventh decade.

The onset is insidious and the symptoms are extremely puzzling. The diagnosis early either is not made or only surmised by exclusion. A question of considerable interest involves the relationship of trauma to the disease. Often the sequence of events would lead one to construe injury as a direct factor, and it is notable that in several cases first attention was drawn to the existence of the disease by some such cause. In Simmonds' case a fracture of the arm, and in two of Versé's cases trauma seems to have played a rôle. In his first case the lumbar spine was injured, and it was there that the most marked pathological changes were later found, and in the second case a rib was fractured by a blow on the chest.

Pain in the bones and tenderness on pressure over them are important features. Subjectively, this symptom has figured in every case. It is vaguely localized over the chest or spine, and often from there radiates down the thighs. Headache may be an expression of cranial involvement and be very severe. In Schmorl's case the circumference of the skull increased three centimeters during the illness. The pain compels the patient to remain abed, and sometimes precludes movement even while lying down. The malady presents a progressive course with emaciation and anemia. Remissions sometimes intervene. The course of the illness varies from one month to one and a half years, and so far as is known, always proves fatal. Pallor is sometimes a more marked symptom than loss of weight. Together with an obtrusive asthenia the former may suggest pernicious anemia, especially when symptoms referable to the spinal cord supervene. Such symptoms in many cases form the first complaint. Weakness of the lower extremities with sensory disturbances are attributable to spinal complications, as are probably also the involuntary evacuations which later take place. The spinal cord may be affected by pressure from the vertebræ. When these are extensively diseased deformities may result.

Pulmonary complications are comparatively frequent, not only terminal when they seem to be very common, but also during the course of the disease. In three of the cases here reported the lungs gave signs of involvement. Whether the proximity of fractured ribs has any relationship to it is doubtful. Metastatic growths in the viscera are not a part of the clinical picture. Parkes Weber[25] states that the disease nearly always remains limited to the osseous system, though by direct extension it may form localized outgrowths projecting from the bones.

The finding of multiple spontaneous fractures of the ribs is most important in the foundation of the diagnosis.[26] The ribs, sternum, vertebræ and other bones involved become friable and are easily broken as a result of the absorption of the hard osseous tissue. The ribs post-mortem can sometimes be crushed between the fingers, the cortical portion having become attentuated, and the medulla filled with yellowish-gray or reddish-gray neoplastic tissue, pulpy and granular. The vertebræ are frequently easily sectioned.

Space must be allowed for a few words on the occurrence of Bence-Jones albumosuria. It is an excretory phenomenon first described in 1847 in a case of "mollities ossium."[27] This protein differs from the ordinary urinary proteoses, being excreted in larger quantities, soluble in water, crystallizable, and is coagulated at low temperatures. The urine on heating becomes turbid at 50° C. and a flocculent precipitate forms, which clings to the sides of the test-tube and rises up in the froth. It dissolves on heating above 60° C., with the addition of acid, though some turbidity persists. On cooling the precipitate reappears. In Williams' case the urine was first clear, and later quite milky when passed. And an interesting feature of a case of Parkes Weber was the fact that the proteid was occasionally precipitated spontaneously and caused the urine to become turbid when freshly voided.

Not all cases of multiple myeloma have Bence-Jones albumosuria. There have been several cases clinically unmistakable, and some proven by autopsy, which showed no Bence-Jones protein in the urine. On the other hand, according to Garrod,[28] it has not been met with apart from disease of the bone marrow. Rosenbloom[29] states in his study of the subject that in cases of excretion of the Bence-Jones protein unaccompanied by multiple myeloma, disease of the blood-forming organs or of bone was present. Parkes Weber has expressed the opinion that cases of multiple myeloma with albumosuria are essentially different from those without it. Its origin is attributed to either abnormal metabolism of the protein of the food, as held by Magnus-Levy,[30] Senator,[31] and others, or to an abnormal metabolic or degenerative process in the myelocytes and their related and derived tumor cells, as held by Virchow,[32] Hutchinson and Weber.[33] Possibly in cases in which its presence was intermittent there was the same error of metabolism, but this has been arrested at different stages. Rosenbloom[34] has proven its possible derivation from osseoalbumoid by the action of enzymes present in the bone marrow. In a recent study of Bence-Jones proteinuria, Boggs and Guthrie[35] report three cases of its occurrence in chronic myelocytic leucemia and one in chronic lymphatic leucemia. The small amount of the albumose in the urine seems to be characteristic, according to the authors, when it occurs apart from multiple myeloma. They express the view that Bence-Jones proteinuria is not essentially dependent upon one disease, but is a manifestation of disturb-

ances in the bone marrow affecting endogenous metabolism.

The following four cases are clinically typical. The onset in all was gradual. They all complained of pain over the bones involved, had multiple costal fractures, became progressively cachectic and anemic, had spinal symptoms, pulmonary implication, and died of the disease. Bence-Jones albumosuria was present in two of the cases. In one case which did not show it during a prolonged period of observation, autopsy was performed and showed the characteristic lesions in the bones. Pulmonary tuberculosis complicated one case.

Case I.—Thoracic and spinal pain; anemia; cachexia; multiple costal fractures; spinal symptoms; pulmonary complication; coma, and death. L. M. B., a widow, fifty years of age, gave a negative family history. There were no family tendencies or susceptibility to disease. During her childhood the patient had measles. At the age of eighteen, scarlet fever was followed by otitis media, since when hearing in the left ear had been lost. Her habits were normal. Menstruation was regular. She had no children; there was one miscarriage. The patient was apparently well until seven weeks before she came to the hospital. At the time of admission her history dated from the time when, while riding in a train, a sudden jolt caused sharp, sticking pain in the lumbar spine; she fell on her back, unable to bear it. She had chilly sensations, felt weak, and after a few days took to bed. The pain was localized over the left half of the chest and over the twelfth dorsal vertebra. The patient characterized it as tearing and burning, radiating around the lower abdomen and groins, extending down the thighs to the legs and feet. This had been the most constant symptom. It was aggravated by coughing or straining. From the onset there had been marked weakness, the asthenia being general. The lower extremities, and of these the left more, were extremely weak. The patient lost 30 pounds in weight, having been normal at 190. Yet the pallor and asthenia appeared to the observer to be out of proportion to the emaciation. About one month after the onset, the patient developed a sensation of falling directly downward as she lay in bed when she attempted to turn toward the left. She also had vertigo and frequent headaches just behind the eyeballs. The eyesight was weak, but had not recently troubled her. The bowels, previously normal, were costive since she took to bed. Urination was undisturbed. Until two weeks before she came to the hospital, the patient had fever, cough and pain in the chest. The diagnosis of bronchopneumonia was made, during which illness she frequently vomited bilious material.

In the physical examination after admission the following facts were noted: General condition poor. Marked weakness and pallor. Mentality clear. Patient responsive, though somewhat somnolent. Eyes: Show slight exophthalmus. No petechiæ present. Ears: Chronic otitis media sinistra with perforation in the membrana tympani. Mouth: No pigmentation of the mucous membranes. Pharynx and tonsils normal. Thyroid gland palpable, soft, not enlarged. Muscles: Visible atrophy of the thenar and hypothenar eminences, and of all the skeletal muscles of the extremities, flabby and doughy to the touch, probably from disuse. Bones and joints: Patient generally hyperesthetic to pressure over the sternum, ribs, thighs and legs, arms and spine. Ribs: Over the upper three ribs, on each side of the sternum, on careful palpation, one discerns smooth, elevated irregularities. There is also marked irregularity and a resilient depression over the fifth rib, just outside the left midclavicular line, recognizable as the point of a fracture. Over this point the skin presents a small ecchymotic area. Spine: Tenderness over the twelfth dorsal vertebra. Flexion of the head produces pain along the spine. Chest: Expansion fair and equal. Lungs: Left lung normal. Over the right lung, from the angle of the scapula to the base are numerous subcrepitant rales, chiefly on inspiration, the remains of the former bronchopneumonia. Heart: Area of dulness normal. Action regular, fair force; soft systolic blow over the apex and pulmonic area, and louder and slightly rougher over the aortic area and right subclavian region. *Bruit de diable* audible in the vessels of the neck. Arteries show no sclerosis. Abdomen. No masses felt. No tenderness. Kidneys: Not felt. Liver: Dulness from fourth rib to free border; edge not felt. Spleen: Does not percuss large; edge not felt. Extremities: Left lower extremity very weak and flaccid. Right also weakened. Knee jerks obtained only by Jendrassik method. No ankle jerk obtainable. No Babinski. No sensory disturbances, except general hyperesthesia to pressure. Rectal examination negative. Vaginal examination: Uterus involuted, atrophic; no masses felt. The picture was that of gradual progress in the disease. The patient would lie without much moving, rather apathetic. Cough produced severe pain in the left chest and lower aodomen, and was suppressed on that account. Sometimes she vomited after her nourishment, simultaneously with a feeling of dizziness. When moved she moaned plaintively.

Gradually the patient became delirious and comatose. The delirium was low and muttering, and later she no longer spoke. Two weeks before death she still recognized individuals, but was not communicative. For two weeks she lay in coma, at times muttering unintelligibly. Then Biot's type of breathing ensued, with respirations irregular in rate and depth, long pauses and frequent deep sighing inspirations. There was slight rigidity of the neck, and the patient was still reactive to pressure on the chest. The cardiac murmur became less audible, the pulse became more rapid. Mucus collected freely in the bronchi and a monotonous gurgling in the throat attended the respirations. The pallor increased. The spleen and liver were not palpable at any time. Involuntary urinations commenced. Throughout the course of the illness the temperature ranged between 99.4° and 101° F., and the pulse between 106 and 120. The blood pressure remained normal (120 to 130 mm. Mercury, by the Rudisch sphygmomanometer). The urine was clear, light amber, acid; specific gravity averaged about 1010; a trace of albumin was present: urea was 1.8 per cent.; there was no bile, a faint trace of indican; no sugar, and negative tests for acetone and diazo bodies. Microscopically, there were many epithelial cells, a moderate number of leucocytes, and few hyaline and granular casts. No Bence-Jones albumose could be demonstrated in the urine, though several single specimens and twenty-four-hour collections were examined. The blood showed a secondary anemia. The red cells showed marked pallor and slight variations in shape and size. Erythrocytes, 3,200,000. Hemoglobin, 34 per cent. (Sahli-Gower instrument). Color index, 0.5. Leucocytes, 10,200. Polynuclear neutrophiles, 63 per cent. Lymphocytes, 35 per cent. Large mononuclears, 2 per cent. The coagulation time was seven minutes (method of Sabrazes and McGowan). The stool was green, unformed, with mucus; no ova or parasites. Tests for occult blood were negative.

Case II.—Thoracic pain; sternal and costal tenderness; anemia; emaciation; multiple costal fractures; pulmonary involvement; kyphosis; Bence-Jones albumosuria; pulmonary edema and death. G. R., fifty-eight years old, suffered for ten months from multiple myeloma before she died. Her family history was blameless. She had smallpox as a child, but no other diseases that she could recall. She had three living children, while four others died of acute febrile conditions in their childhood. She had no miscarriages. On admission the disease had been of eight months' duration. It began insidiously with pain, at first of dull character, later more acute, over the upper left chest in front and posteriorly. The pain gradually extended downward over the precordium and left hypochondrium, and laterally to the axilla and side of the chest as far downward as the lumbar region. This persisted more or less constantly, but radiated at times around both sides, producing a girdle pain at the level of the diaphragm. The pain was worse on coughing, deep inspiration, or on walking about. The patient had lost some weight and felt very weak though the appetite remained fair. She also had an occasional dry cough. There was nausea at times, but no vomiting, no hiccoughs, no fever, no dyspnea or cardiac symptoms. The bowels were costive; urination normal. The patient was in bed ten weeks before death. The physical examination revealed the following: General condition fair. Signs of senility and emaciation. There is a sudden stop at the end of inspiration, apparently due to pain. Eyes and ears normal. Mouth: Teeth and gums in very poor condition. Thyroid gland not felt. Lymph nodes not palpable. Chest: Expansion slight, equal bilaterally. Marked sternal tenderness, and also on pressure over the ribs on both sides. Marked tenderness on antero-

posterior compression of thorax. Ribs: Over the lower part of the left chest a slight depression is seen during inspiration. This area is about 3 inches in diameter, and covers the third, fourth and fifth ribs with apparent mobility and softening of the thoracic wall, with crepitus. This area is extremely tender to pressure. The cardiac pulsation is readily palpable in this region. Pressure backward on the sternal end of the first and second right ribs evinces crepitus and abnormal mobility. Spine: Marked rounded dorsal kyphosis. Lungs: At the left base over a small area near the spine there is exaggerated harsh breathing and râles. In the left axilla there is marked dullness, almost absent tactile fremitus, diminished breathing and distant voice. Elsewhere the breathing is hyperresonant. Posteriorly over the right lung there is dulness from two fingers below the angle of the scapula to the base, with a few crepitant râles at the end of inspiration. Heart: Apex beat in fifth space in the midclavicular line. Area of dulness is not increased. Short soft, systolic murmur at apex, not transmitted. Arteries show a moderate amount of thickening. Abdomen: Lax, tympanitic; no masses felt; no tenderness. Liver: Dulness extends from fourth rib down; edge is not felt. Spleen: Not felt. Extremities: Slight tenderness over both tibæ; knee jerks present; no edema. Vaginal and rectal examinations were negative. The temperature ranged between 99° and 101° F. during the greater part of the illness. The pulmonary signs became aggravated and more defined with consolidation over both bases, and for a short period the fever reached 102° and 103° F. There was a moderate expectoration of purulent sputum. The respirations were 26 to 30 per minute. Meanwhile there appeared abnormal mobility and tenderness over the upper four ribs on each side, and crepitus over the outer part of the third right rib. Later there was also observed thickening at the junction of the ribs and cartilages, especially on the right side. Anemia and loss of weight became evident. For two weeks before death the patient vomited frequently and finally there was blood in the vomitus. The thoracic pains were persistent and the lung signs unchanged. Cardiac weakness rapidly progressed, the pulse became imperceptible, and a slow extinction of life followed upon pulmonary edema. The urine was amber, clear, acid, and varied in specific gravity from 1010 to 1030. Albumin was present in large quantity. Microscopically, a few epithelial cells and leucocytes were found. Bence-Jones albumose was present in every uranalysis and persisted to the end. The blood count on admission was as follows: Erythrocytes, 4,832,000; hemoglobin, 98 per cent. (Sahli-Gowers); color index, 1.0; leucocytes, 10,200; polynuclear neutrophiles, 70 per cent.; lymphocytes, 17 per cent.; large mononuclears, 13 per cent. The anemia progressed and the count gradually changed to the following: hemoglobin, 78 per cent.; leucocytes, 8,000; polynuclear neutrophiles, 56 per cent.; lymphocytes, 37 per cent.; large mononuclears, 6 per cent.; eosinophiles, 1 per cent. The sputum, which was examined three times, showed no tubercle bacilli.

Case III.—Abdominal pain and gastric symptoms; sternal and costal tenderness; asthenia; emaciation and marked anemia; spinal symptoms; pulmonary tuberculosis; no albumosuria; death; autopsy. S. K., a Russian peddler, forty-six years of age, was ill for nine months before he came to the hospital for treatment, and died there after a stay of three months. His family and previous histories were apparently unrelated to the disease under description. He had measles in childhood and malaria when thirty years old. His wife and six children were well. His habits were good. For nine months before the patient had been complaining of severe cramp-like pains in the epigastric region. These came on about one-half hour after eating and lasted about one hour. His appetite was steadily becoming poor. Three months ago while at work, he felt dizzy and vomited several times that night. He had chilly sensations, diarrhea, and fever for a week after. The stools were watery, brown, and contained no macroscopic blood or mucus; evacuations occurred about four or five times daily. These diarrheal attacks recurred about every week for two days, with intervals of constipation. He felt nauseated at times, but did not vomit after the original attack. Since then he had a continuous sticking pain extending from the right lumbar region down the right side of the abdomen to the groin. This was worse after exertion. For some time after the attempt to urinate produced pain at the urethral meatus, but the urine had never been bloody nor contained gravel. Micturition had become more frequent, compelling the patient to rise once at night. He perspired profusely, especially at night, often with fever and chilly sensations. There was no cough or hemoptysis. For one month he had headaches, dizzy spells, cardiac palpitation and dyspnea on exertion. No syncopal attacks, precordial pain, or edema of the feet. No jaundice, rash, epistaxis, or bleeding gums. The patient had been feeling very weak and had lost much in weight since the onset. For two months he noticed tenderness on pressure over the lower part of the sternum. During the physical examination the following data were recorded: General condition fair. Some emaciation, anemia, and slight puffiness of the eyelids. Eyes: Show marked arcus senilis. Mouth: Teeth and gums in poor condition; marked pyorrhea and fetor exore. Glands: Some large anterior cervical glands; small glands in axillæ and groins; small left epitrochlear glands. Bones: Tenderness on pressure over sternum and lower ribs on the right side. Tenderness on pressure over the lower dorsal and lumbar spine. Chest: Marked supraclavicular retraction, more on the right side. Lungs: Hyperresonant note over both sides anteriorly and posteriorly. Heart: Borders obscured by pulmonary resonance. Apex beat not felt. Action slow and regular. Sounds weak and distant, with faint systolic murmur at apex and also over base. Arteries show considerable thickening and tortuosity. Abdomen: Flat, generally tympanitic, some slight general sensitiveness. Liver: By percussion, extends from sixth rib down to two fingers below the free border. Spleen: Felt two fingers below the free border. Extremities: Knee jerks exaggerated; no edema; no tibial tenderness; no irregularity of tibial crests. Genital and rectal examination negative. During the one and one-half months in the hospital, the one unremitting symptom was the tenderness over the sternum, lower ribs and the spine in the mid-dorsal, lower dorsal and lumbar regions. In addition, the patient developed tenderness on pressure over the posterior half of the iliac crests. It was attempted to get him out of bed, but the pain in the affected regions interdicted.

About one month after admission the patient began to have lung signs which were steadily progressive. At first an area was present at the base of the left lung over which there were dulness and almost bronchial breathing and voice with crepitant râles, and over the rest of both lungs were audible moist and dry râles. The area at the base of the left lung increased in size, extending up to the angle of the scapula. Then there developed râles and bronchi anteriorly over a dull area below the right clavicle. These lung signs persisted throughout until the patient's death. The respirations were between 20 and 26, but with increase of the lung signs they rose sometimes to 30, and antemortem to 34 and 40. Several times during his stay the patient had abdominal cramps for several days, relieved by movement of the bowels. Diarrhea also occurred. The abdomen showed no signs of importance. Twice after a few days of administration of Fowler's solution, he developed puffiness of the eyelids, complained of thirst and pruritus and had abdominal pain. The heart action was regular throughout. The rate was usually between 84 and 108, a few times rising higher and up to 120. There was a faint apical systolic murmur, and a murmur over the pulmonic area which became later louder and rougher. The patient rapidly emaciated and weakened. The temperature ranged between 98° and 100° F., hovering most often just above 99° F. It rose twice to 101° F., but for two weeks before death it did not go above 99° F. Just about one year after the onset of his illness the patient developed pulmonary edema and died. The urine was clear, pale amber, acid, specific gravity ranging between 1010 and 1020. There was no reduction of Fehling's solution. The urea in twenty-four-hour specimens was 15 to 20 grams and between 0.7 and 2.0 per cent. Albumin was present in faint traces at first, almost daily examinations being made. It gradually increased until it was recorded as a "heavy trace" when the patient was near death. There were present hyaline and granular casts in varying numbers in almost every examination, together with a few leucocytes, epithelial cells, and uric acid crystals. The casts increased in number with the progress of the disease. The amount of urine averaged 45 to 50 ounces daily. Repeated examination for Bence-Jones albumose in single and twenty-four-hour collections of urine were negative. The urine was examined

and found negative for tubercle bacilli. Soon after admission a few unmistakable tubercle bacilli were found in the sputum though numerous subsequent examinations were negative. The blood on admission revealed: Erythrocytes, 2,000,000; hemoglobin, 30 per cent.; color index, 0.7; leucocytes, 4,800; polynuclear neutrophiles, 49 per cent.; lymphocytes, 42 per cent.; large mononuclears, 9 per cent. The hemoglobin and erythrocytes gradually diminished. The differential count remained unchanged for some time, then varied and was as follows: Erythrocytes, 1,584,000; hemoglobin, 18 per cent.; color index, 0.6; leucocytes, 4,800; polynuclear neutrophiles, 60 per cent.; lymphocytes, 36 per cent.; large mononuclear and transitional cells, 3 per cent.; basophiles, 1 per cent. There were no nucleated red corpuscles; anisocytosis and poikilocytosis were slight; there was no tendency to megalocytosis. Seven examinations of the stool were negative for blood, ova, parasites and tubercle bacilli. Proctoscopy showed a pale normal mucous membrane. Ophthalmoscopic examination[26] during life was negative. Ewald test breakfast, removed after fifty minutes, showed a free acid content of 20 and total acidity 30; it was otherwise negative. Two other test meals showed the stomach empty at the end of one hour. Two radiographic examinations of the chest and abdomen, taken on admission and after three months respectively, were reported negative. The post-mortem examination showed typical lesions of multiple myeloma. Permission was obtained only for the removal of the involved ribs. Soft grayish white tissue was found about the ribs that could be exposed and grayish infiltration of the marrow. Microscopic examination of the tissue obtained showed the presence of plasmacellular myeloma.

Case IV.—Thoracic pain; sternal and costal tenderness; spontaneous costal fractures; clavicular involvement and fracture; scoliosis; Bence-Jones albumosuria; anemia; emaciation; death. J. W., was sixty-two years old when he was admitted to the hospital. Two months before, he had been a patient in the Presbyterian Hospital, and the case was there diagnosed multiple myeloma. His family and personal history was negative. His present illness commenced insidiously three months before with pain in the upper and lower portions of the left half of the chest anteriorly, and all over the thorax on deep breathing and coughing; in bed also on changing position. There was slight unproductive cough. The appetite was fair. The bowels were costive. There was no vomiting. Urination was frequent, but no hematuria occurred. There was no loss of weight. The physical examination revealed the following: General condition: Patient well nourished, but anemic. Eyes and Ears: Normal. Mouth: Teeth and gums in poor condition. Lymph Glands: Axillary glands felt. No lateral thoracic glands felt. Skin: Negative. Bones and Joints: There is general tenderness on pressure over the thorax. There is an insensitive swelling of the inner end of the left clavicle. The left sternoclavicular joint seems loose, permitting of greater mobility than normal. There is a depression over the inner part of the second right rib, one inch from the sternum, corresponding to a point where the rib is fractured. There is, however, no crepitus over it. A hard swelling is felt involving the sixth right rib in the anterior axillary line, two inches in its long diameter, not tender. No other bones or joints are involved. Spine: There is a prominence over the lower dorsal spine with scoliosis toward the left in this region and bulging of the left side of the thorax. Chest: Barrel-shaped; expansion poor. Depression over upper right chest as noted above, especially over the second intercostal space. Lungs: Show signs of emphysema. Heart: The right border is one finger's breadth to the right of the right sternal border. The apex beat is in the fifth space. Action is regular, of normal rate and fair force. At the apex, over the aortic area and at the base there is heard a soft, blowing systolic murmur, heard also in the vessels of the neck. The second aortic sound is accentuated. Vessels: Very tortuous and sclerotic. Abdomen: Soft, tympanitic; no masses felt. Liver: Percusses flat from the fifth rib to the free border, and its edge is felt one finger's breadth below the free border; it is hard, tender, and has a smooth surface. Spleen: Not felt. Extremities: Normal. There is no tenderness over the long bones of the limbs. Knee jerks normal; no ankle clonus or Babinski sign. No edema. Genital and rectal examination: Negative. The illness progressed in its osseous manifestations, though the patient complained only of radiating pains in the chest. A swelling developed at the inner end of the right clavicle, producing pain on motion extending down the right arm. The clavicular masses on both sides increased in size. A fracture was found of the second left rib about one inch from its sternal end with crepitus. Another fracture occurred of the left third rib about two inches from its sternal end, also with crepitus. Later there developed thickening of the fourth and fifth ribs in both axillæ. The dorsal kyphosis seemed to have grown a little larger. An early *x*-ray showed a rarefying bone process over the eleventh left rib with considerable necrosis of bone. Four months after the onset the eighth left rib was found by *x*-ray to be very irregular and thickened near its angle. One week later fracture was reported present at the sternal end of the left clavicle.

Two months after the onset of the illness, the patient's blood count was as follows: Erythrocytes: 4,600,000. Hemoglobin: 70 per cent. Color Index: 0.7. Leucocytes: 7,700. Polynuclear neutrophiles, 59 per cent. Lymphocytes: 30 per cent. Large mononuclear and transition cells: 9 per cent. Basophiles: 1 per cent. Eosinophiles: 1 per cent. After four weeks elapsed, the blood count was: Erythrocytes: 2,900,000. Hemoglobin: 52 per cent. (Sahli-Gowers). Color index: 0.9. Leucocytes: 5,400. Polynuclear neutrophiles: 62 per cent. Lymphocytes: 28 per cent. Large mononuclear and transitional cells: 10 per cent. Morphologically the cells were normal. Wassermann and Noguchi tests for syphilis were negative. The urine was light, amber, clear, acid; the specific gravity varied from 1022 to 1030. Albumin was present in large amount. The estimated urea content (hypobromite method) was 13.5 grams daily output. Bence-Jones albumose was present in all specimens examined, almost daily tests having been made. The patient died after he was discharged from the hospital with progressive anemia and finally pulmonary edema.

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165 WEST SEVENTY-FIRST STREET.

## A CASE OF VINCENT'S ANGINA, TREATED WITH NEOSALVARSAN.

BY H. H. AMSDEN, M.D.,

CONCORD, N. H.

THIS disease was first recognized by Vincent[1] in 1898, who gave a very complete account of its pathology and symptomatology; he described the fusiform bacillus and spirillum. Bruce[2] also gave a thorough résumé of the disease. Vincent[3] in 1905, also Klopstock and Kowarsky[4] describe two forms; one the ulcerous, more common, in which both the fusiform bacillus and spirillum are found; the other, the membranous or diphtheroid, much more infrequent, in which only the fusiform bacillus appears. Tunnicliffe[5,6] and Wright[7] believe that the fusiform bacillus and spirillum are different stages in the development of the same micro-organism. Various authors describe different forms or rather different degrees of severity, from a mild transitory form of sore throat, self-limited in a week or less with little constitutional disturbance, to a severe destructive process affecting tonsils, pillars, and uvula, with prostration, fever, and other marked general symptoms. Rolleston and Goodall[8] report cases illustrating different types of the disease. Coplin[9] states that recent investigators are of the opinion that the various forms of spirochetæ and spirilla found in syphilis, Vincent's angina, and relapsing fever, are not bacteria in the true sense of the term, but are animal parasites closely allied with the trypanosomes. If this be true, it would seem probable that a therapeutic agent having a curative action on a disease caused by one member of this group might have a similar action on other diseases caused by members of the same family, so to speak; hence salvarsan has been recommended by Gerber[10] and Rumpel[11] in the treatment of Vincent's angina.

The following case illustrates some phases of the disease described above:

C. A., age 20, nurse, was in charge of diphtheria cases in contagious ward of hospital. Two days after being released from duty, she was admitted to the hospital with sore throat, headache, backache, and general malaise. Objectively, the right tonsil showed a small ulcerated area covered with a thin grayish slough; there was no perceptible fetor. A slight cervical adenitis was present. Pulse, temperature, and respiration were normal. Cultures from throat were negative for diphtheria, and two Wassermann tests were also negative. Examination of smears from tonsil showed presence of fusiform bacillus and spirillum of Vincent's angina, and practically no other bacteria could be detected. During the next ten days various local and general measures were tried, including solutions of silver nitrate from 5 to 50 per cent., tincture of iodine, tincture chloride of iron, and argyrol 20 per cent., with no improvement in symptoms; the ulceration gradually extended until it covered nearly the whole faucial surface of the tonsil. It was then determined to try the effect of neosalvarsan, and accordingly 0.6 gram was injected intravenously. Following injection there was a rise of temperature to 99.2° and patient was much nauseated. The following day, throat was much improved, subjectively and objectively, and the ulceration was entirely healed inside of three days. On third day following injection, left side of throat became sore; practically the same conditions were present as on right side, though less marked. Local treatment as before was instituted, with no effect, and one week from first injection, a second of same dose was given, followed by rise of temperature as before to 99.2°, and marked nausea and vomiting, which persisted for nearly three days. Throat symptoms were relieved subjectively and objectively within twenty-four hours, and patient was discharged well on fourth day after last injection.

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## A BIOLOGICAL TREATMENT FOR CANCER

BY CHARLES F. D'ARTOIS FRANCIS, M.D.,

BROOKLYN, N. Y.

THYROID gland has materially assisted those suffering from cancer (Bishop and Page, *Lancet*, May 28, 1898; Hermann, *Lancet*, June 11, 1898; Jones, *British Medical Journal*, February 25, 1911). In the *Medical Council*, May, 1912, I described an oxidizing mixture that is harmless to the organism and will effect a cure in cancer. Thyroid gland fulfills the function of such an oxidizing agent. It increases the nitrogenous and purin output of the body. Thyroid, in combination with the deficient salts, hemoglobin and the antihemolysin cholesterin seems to be a rational mode of treatment. Ross of Liverpool states kreatin, one of the purin bases, with globin, prevents the proliferation of the cancer epithelium. Hemolysis being a frequent phenomenon in cancer, I use the antihemolysin cholesterin. With the following mode of treatment I have effected what seem cures in some twelve cases. Some of these cases were inoperable cancer of the breast others abdominal cases. The length of time of treatment was three months. Cancerous ulcers of a superficial type scabbed over in a week.

FORMULA I.

℞ Thyroid gland, desiccated, 0.12 to 0.25 gram.

This should be taken an hour before the following hemoglobin mixture:

FORMULA II.

℞ Sodium chloride, 2 grams.
Potassium sulphate, 0.070 gram.
Sodium sulphate, 0.063 gram.
Calcium phosphate, 0.075 gram.
Magnesium phosphate, 0.055 gram.
Manganese dioxide (intravenously 0.008), 0.032 gram.
Cholesterin, 0.3 gram.
Hemoglobin, 3.25 gram.
Boiled water, 250 c.c.

Dissolve the soluble salts in the boiled water, filter, then add the other ingredients. This dose should be taken an hour before meals. If the intravenous injection is desired, it may be employed once a day, tricresol 0.2 per cent. being added as an antiseptic. Thyroid gland may be given intravenously or hypodermically in the dose of 0.06 to 0.12 gram once a day. If Formula II is put up dry in containers, one should add thymol 0.008 gram as a preservative; when it is to be used one should add 250 c.c. of sterilized water. With this mode of treatment one may prevent proliferation of the cancer epithelium and hemolysis, increase oxidation, and favor the action of the protective ferments.

951 St. Marks Avenue.

## Medicolegal Notes.

**Action for Compensation—Practising in Another State—Authority of Wife to Employ—Amount of Compensation.**—A physician executed a mortgage which was assigned to a personal friend, who died a bankrupt. The trustee in bankruptcy sued to foreclose the mortgage, which had been reduced by payments to $2,000. The physician set up a counterclaim for $2,500 for medical services rendered to the deceased bankrupt in his last illness. The plaintiff argued that the services in question were rendered as a friend, and not for compensation. The deceased bankrupt was a lawyer, practising in the State of New York. He attempted to commit suicide in a hotel in Newark, N. J., and was removed to the Newark City Hospital. His wife was communicated with and started from New York to Newark by automobile. On the way she requested her brother, who accompanied her, to get out and telephone to the defendant, who had rendered professional service to herself and husband for many years, and to ask him to come over to the hospital where her husband was. The defendant came the same afternoon, which was Sunday, and remained in constant attendance upon the patient until Thursday evening. He then was absent from the hospital until Friday morning, and remained until Friday night, when he finally left, having given up hope. The patient died Saturday morning. When the deceased was first taken to the hospital, which was a public hospital, treating patients without pay, he was put in a ward with other patients; but after the defendant's arrival he was transferred to a room reserved for special cases. While the rules of the hospital did not permit the defendant formally to take charge of the case, the hospital physicians and surgeons extended to him every courtesy, and all the freedom which the rules of the hospital permitted. He was in constant attendance at the bedside of the patient, and his suggestions as to treatment were complied with, and he administered some treatment himself. At his suggestion an operation for transfusion of blood was performed.

It was held that the evidence did not warrant the inference that the defendant rendered his services as a friend, and not for compensation. He had been the deceased's physician for years. It was also true that he had been an intimate friend of the deceased. While that circumstance might have had the effect of rendering his professional services to his friend more assiduous than they might otherwise have been, it manifestly did not change the character of the services. The failure of the defendant to make any charge on his books for this service and to render a bill therefor had no particular significance, because he knew that the estate was bankrupt, and, as he explained, he did not until afterwards understand that he was entitled to make a charge for his services as a counterclaim to the mortgage.

It was held that the wife had authority to employ the defendant. The case was a critical one. If the patient's life was to be saved, the unremitting attention of a skilled physician was called for; and such attention could not, in the nature of things, be received from the hospital physicians, there being between 300 and 400 patients in the hospital at the time.

The plaintiff also argued that, although a licensed physician of another State not licensed in New Jersey may act as a physician or surgeon in that State if he desires without rendering himself subject to punishment, yet he may not recover fees for such service. The court was of the opinion that the New Jersey statute was not intended to prevent the recovery of compensation for medical services rendered under the circumstances proved. Section 23 of the statute (3 Comp. St., N. J., 1910, p. 3328) provides: "That nothing in this act shall be so construed as to prevent any physician or surgeon in good standing and legally qualified to practise medicine or surgery in the State in which he or she resides, from practising in this State, but all persons opening any office, or appointing any place where he or she may meet patients, or receive calls, shall be deemed a sojourner in this State, and shall conform to the first section of this act." The court construed this section, along with section 36, providing for certain exemptions, as meaning that only those who either reside or sojourn in the State of New Jersey are subject to the requirements of the act. In any event, it held that the case might, if necessary, be decided irrespective of the New Jersey statute. The parties were all residents of the State of New York, the contract was made in that State and the action was brought in that State.

The court held that the defendant should be compensated rather upon the scale of charges for services of a family physician than the much higher scale of services of an operating surgeon. He performed no operation. On consideration of the widely varying testimony of the medical experts and the facts of the case, the compensation was fixed at the sum of $750.—Prentice v. Ladinski, 81 Misc. (N. Y.) 42, 141 N. Y. Supp. 1005.

**Implied Promise To Pay for Services to Adult Daughter.**—Action was brought for compensation for medical services rendered to the defendant's adult daughter while living in family with the defendant. The defendant was a widow, and her daughter had an interest in her father's estate. The plaintiff was called in to operate upon the daughter as the result of a family council. Three operations were performed. The defendant had paid for the first and for the consultation; the action was for payment for the other two operations. The defendant testified and the trial court found that the payments made by the defendant for the first two visits, though paid out of the defendant's funds, were made for the patient at her request, and were charged against her inheritance. No promise by the defendant to pay for the services herself was proven. The plaintiff's theory of an implied contract of the defendant to become liable for his services rested, therefore, on the facts that the patient was a member of the defendant's family, and that the plaintiff's compensation for a part of his services was paid by the defendant apparently out of her own funds, though, in reality, out of funds belonging to the patient. It was held that no implied promise was raised by these facts, following the rule that a mere request from a father to a physician to attend a child of full age, and for whom he is not bound to provide, and though sick at the father's house, raises no implied promise upon his part to pay for such medical services. The court, however, did not hold that the parent of an adult child might not, under certain circumstances, become bound to pay for medical services rendered the child upon an implied promise.—Crowell v. Donoho (Mo.), 153 S. W. 1082.

**Medical Experts: Extent of Testimony.**—In an action for personal injuries it was given as a general, though not inflexible rule, that a medical expert who has never treated an injured party, and only makes an examination after the injury was inflicted, and then solely for the purpose of qualifying him as an expert witness, may not give his opinion as to the cause of the present condition of the party, the extent and effect of the injuries, and their duration, when such opinion is based largely upon a history of the case given by the injured party to the expert for the purpose of qualifying him as an expert witness. Testimony of a medical expert, the court said, should in general be confined to the result of his actual investigations; and, when he has never been called to attend or prescribe for the party, should be limited to the conditions he finds on the examination, and to his opinion based thereon.

Testimony of a medical expert that the plaintiff whom he examined to qualify him as a witness could not deceive him as to her condition was held to be improperly received, for the reason that that question was for the jury.—Hintz v. Wagner, North Dakota Supreme Court, 140 N. W. 729.

# MEDICAL RECORD.

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## THE NEW YORK QUARANTINE.

At the annual meeting of the Medical Society of the State of New York, held in this city last week, the Committee on Public Health made a recommendation that the Legislature be urged to appropriate $2,000,000 for the physical rehabilitation of the quarantine station at this port. With all due respect to the Committee on Public Health and to the State Society, which apparently without consideration endorsed the recommendation, we earnestly hope the Legislature will do nothing of the kind. Two million dollars is a considerable sum of money for even such a rich State as New York to throw away, or to give away, and that is what it would be doing if it spent it on repairs on Hoffman and Swinburne Islands at the present time. A State or municipal quarantine is an anachronism, and sooner or later—the sooner the better, if the State can thereby save two million dollars—the quarantine service at this port will be put under the control of the Federal Government.

There are fifty ports of entry in this country, and twenty-one years ago all were under local (municipal or State) control; now there are forty-seven under Federal control and only three (Baltimore, Boston, and New York) under local authority. Philadelphia and Providence have quite recently transferred their quarantine to the keeping of the Public Health Service, and Baltimore is seriously considering the move, waiting apparently only for Boston and New York to take the initiative. As it is, these ports are practically already under Federal control, for Congress has empowered the Secretary of the Treasury through the Public Health Service to promulgate uniform quarantine regulations which must be observed at all ports, whether or not nominally under State or municipal control. In case of the refusal or failure of any local quarantine officer to carry out the regulations, the President is empowered to detail Federal officers for that purpose. The act also gives the Public Health Service the power to examine at any time the quarantine stations under local control to see whether they are observing the regulations imposed. The Federal government can assume temporary control at any time when the local quarantine is unable to meet an emergency, and in fact, more than once it has had to send Federal officers to the New York quarantine station. The New York quarantine therefore is only nominally independent; the State has the doubtful privilege of paying large sums for its support and all that it gets in return is that the party in power has some good jobs for its workers. If the State will transfer the quarantine to the Federal authorities it will not only save the money absolutely needed at once to make the station effective as well as a large annual appropriation for running expenses, but will be paid by the Federal government what the present plant is worth.

Of the twenty governments of the world which are signatories to the International Sanitary Agreement for uniform quarantine rules and administration, the United States is the only one which has not continuous control of all its quarantine stations. It has absolute control, however, in times of crisis so that the local health officer exercises his authority only at the tolerance of the Federal government although at the expense of the State government. Why the citizens of this State should be willing and seemingly anxious to pay a large amount of money each year for work which the Public Health Service is ready and willing to do better for nothing is a mystery of politics.

## FULL-TIME PROFESSORS.

The announcement that Dr. Theodore C. Janeway has abandoned his chair at Columbia to accept the call to a full-time professorship of medicine at the Johns Hopkins calls attention anew to this somewhat doubtful experiment in medical instruction. It will be remembered that the Rockefeller General Education Board announced last autumn an appropriation of $1,400,000 for the Johns Hopkins Medical School, Baltimore, the appropriation being granted for the purpose of reorganizing the Departments of Medicine, Surgery, and Pediatrics in the school. Through this reorganization the professors and instructors in these departments will be compelled to withdraw from paid practice and devote their time entirely to teaching, hospital work, and research. In other words, they will approach the condition of laboratory men rather than remain practitioners.

The teaching of the elementary branches, such as anatomy, physiology, bacteriology, chemistry pathology, and pharmacology is usually thought to be better in the hands of men devoting their entire time to instruction and research in these branches, though even here one fails to see how a chemist's or a bacteriologist's worth as a teacher would be depreciated by occasional outside analytical work. Indeed he might thereby gain some experience which his laboratory would not be able to give him and so broaden his horizon and indirectly help his students.

The question is different, however, when one has to do with the so-called practical branches of medical science, with clinical medicine, surgery, obstetrics, and pediatrics. Here the broader the outlook and the wider the experience of the teacher the better is the quality of the instruction which he has to give. Any man with ordinary intelligence

and a fluent tongue can deliver an acceptable didactic lecture before a class of students after cramming for an hour or two in three or four standard treatises on medicine or surgery or whatever his subject may be. But a good clinical instructor is another kind of man; the broader he is and the more contact he has with the world the more knowledge will he have to impart to his students.

The laboratory worker is a necessity in these days and he has his place and a very useful one in the world of medicine, but like all pure specialists he is and must be more or less narrow; he has neither the inclination nor the time to study in other fields or sometimes even to know to what practical purpose the results of his research may be put. The clinical professor whose practice must be limited to hospital and dispensary patients will have a broader view than that, but he will be in danger of losing the intimate knowledge of disease and of the patient which one can acquire only in private practice. Hospital practice, in the hands of even the most enthusiastic and the most conscientious man, always becomes more or less perfunctory and a matter of routine; much of the detail is left to the assistants, and moreover there is absent the stimulus to close and accurate work which, say what we will, is afforded by the prospective fee. We doubt not that students under full time professors will be well up in the science of medicine, but whether they would not learn just as much of the science and more of the art from a professor who lives and practises in the world is something for the future to reveal.

## A NEW APPLICATION OF CUTANEOUS REACTIONS.

Skin reactions have hitherto been employed almost entirely as aids to diagnosis. The field of prophylaxis is rapidly becoming more prominent and now some of these reactions are being used as guides in the application of prophylactic measures. With the introduction of the use of diphtheria antitoxin for immunizing purposes it became the custom to give an immunizing dose to every person who had been exposed to the disease. It was, of course, recognized that all were not equally susceptible, but there was no method whereby the susceptible could be separated from those who were not liable to acquire the disease. Such a test seems now to have been devised. Schick (*Münch. med. Wochensch.*, 1913, ix, 2608) injects intracutaneously one-fiftieth of a minimum lethal dose for the guinea-pig of diphtheria toxin. If the individual has no antitoxin in his blood there appears within twenty-four hours a local reaction of redness and induration about the site of injection. The absence of any reaction is taken to indicate that the person possesses diphtheria antitoxin probably in sufficient quantities to protect him against infection. He finds that nearly all the newborn have this natural immunity and that the percentage of the protected decreases as the children grow older. By using this test he is able not only to save large quantities of antitoxin, a distinct economic advantage, but also to avoid a certain amount of serum sickness and the possibility of anaphylaxis.

One of the difficulties in the application of typhoid prophylaxis by means of vaccines is the impossibility of determining how much protection an individual has against the disease. How many injections are necessary to protect and when the course should be repeated are questions that have so far lacked a satisfactory reply. It is well known that the agglutinating power of an individual's blood-serum is not necessarily an indication of the degree of his immunity, although it is the test which has been largely used to determine the immunity. Gay and Force[1] have been using an allergic reaction for this purpose and conclude that it is of presumptive value in indicating protection against typhoid fever. They employed a modification of the von Pirquet method of tuberculin testing. The "typhoidin," as they call it (prepared from a killed and concentrated culture of the typhoid bacillus by a method similar to that of the preparation of Koch's old tuberculin), is applied to an abrasion of the skin in the same manner as in the von Pirquet test, and the reactions are observed six and twenty-four hours later. The positive spot measures from 4 to 12 mm. in diameter and is usually somewhat indurated. The test was positive in practically all individuals giving a history of typhoid and uniformly negative in those in whom typhoid could definitely be excluded. The majority of individuals who had been vaccinated against typhoid gave a positive reaction and the authors think that the presence of this reaction is evidence of their immunity. If this is so this test will correct the most marked defect in the present methods of typhoid prophylaxis. The cutaneous reactions are so easy of application that they are accessible to all practitioners and, therefore, the addition of any accredited member to their ranks is a welcome thing. It is to be hoped that both these new members on further trial will prove to be as valuable as they promise.

## THE MIDWIFE IN AMERICA AND IN ENGLAND.

The situation as regards the midwife in this country is unsatisfactory. On this point there is general agreement, but as to the manner in which adequate and comprehensive reforms are to be introduced, there is a somewhat wide difference of opinion.

From many points of view the existing condition of affairs is serious. In the first place, it is a fact that a large number of cases of ophthalmia neonatorum, not infrequently leading to total blindness, are due to the ignorance and lack of skill of the attending midwife. Other accidents of a more or less grave nature are apt to occur, and do occur, both to mothers and infants, when a labor is attended by an untrained midwife. However, these statements are too obvious to require emphasis, and the crucial question is how is the problem of the midwife to be solved? Three courses with the object in view are open: To abolish the

[1] University of California Publications in Pathology, Vol. 2, No. 14.

midwife, to leave the situation as it is, which, by the way, would not be a solution, or to educate the midwife for her duties and not to permit her to pursue this calling until she has satisfied competent examiners by sufficient tests and has proved that she is a fit person to be granted a license to practise as a midwife. It may be objected that if this were done medical practitioners would be deprived of a certain amount of income, but it is doubtful if this would happen to an appreciable extent, for it must be borne in mind that there will always be a large proportion of the population who will be unable to pay the midwifery fees asked by medical men and resort will be had to midwives in any event. So that if midwives were abolished some scheme must be evolved whereby the services of medical practitioners for midwifery cases could be secured by the poor at a very much smaller fee than is asked at the present time.

Miss Carolyn Conant Van Blarcom, R. N., Secretary of the Committee for Prevention of Blindness, has recently published an account[1] of a visit to England taken in order to investigate the working of the comparatively new midwife act of that country. Miss Van Blarcom was in England for only six weeks, but during that period she appears to have investigated into and studied the matter earnestly, and therefore her conclusions are worthy of close consideration.

Up to 1902, the year in which the English act was passed, midwives in England were in much the same position as they are here now. The act enacts that midwives practising one year prior to the passing of the act are certified by virtue of their existing status, otherwise women wishing to practise as midwives must be certified because of holding certificates issued by the London Obstetrical Society, or as having been trained in one of the several designated schools, or certified after having passed the Central Midwives' Board examination. It would be impossible within the limits of an editorial article to refer more than very briefly to Miss Van Blarcom's account of her English investigations and her reasons for thinking that it would be possible and highly desirable to enact similar regulations regarding midwives in New York State, and America generally.

As a proof of the excellent results which have accrued from the passage in England, it is stated that during the nine years following the enactment the percentage of deaths among infants dropped from 151 per 1,000 during 1901 to 106 per 1,000 in 1910, and the deaths from puerperal sepsis and accidents at childbirth dropped from 4.65 per 1,000 in 1901 to 3.69 per 1,000 in 1909. It should be said that the midwives themselves in England are efficiently supervised by competent persons.

Miss Van Blarcom concludes that the practical value of the act was convincingly demonstrated by the three following results of the administration:

1. The substitution of clean, intelligent women for the old, unfit midwives, which is gradually being accomplished.

2. The encouragement of a superior class of women to train as midwives.

3. The ability of the authorities to control practising midwives and limit their work to attendance on normal cases, which constitute about 80 per cent. of all cases.

It is argued that the midwife would not compete with the obstetrician, but would rather be in the position of a thoroughly competent nurse, permitted only to attend normal cases, and sufficiently well trained to be able to recognize when the services of a medical practitioner are necessary. So far the act appears to have had good results in England, and there would seem to be no valid reasons why similar enactments regarding midwives should not be brought into force in this country.

[1] "The Midwife in England," being a study in England of the working of the English Midwives Act of 1902, by Carolyn Conant Van Blarcom, R.N. With an introduction by J. Clifton Edgar, M.D.

## The Sex Instinct.

Many attempts have been made to define the sexual instinct, but without much success. Freud and his followers attribute to this instinct the production of many if not the majority of nervous disorders, but, as a rule, the English-speaking psychologists do not agree with the far-reaching views of the Freudian School. At a joint meeting of the Section of Psychiatry of the British Royal Medical Society and the British Psychological Society, on March 10, Dr. William McDougall read a paper on the "Definition of the Sexual Instinct." He said in part that the present attitude of both academic and medical psychologists on the nature and rôle of instinct in general, and the instinct of sex in particular, was chaotic; and it was only by cooperation of medical with other psychologists that a right understanding of sex instinct could be hoped for. The erroneous views could be classified into two groups: (1) Those which were unduly simple, representing the sex instinct as merely the tendency to respond to certain disagreeable sense-stimuli with movements which abolished the disagreeable and produced pleasurable sensations; and (2) Those which ascribed to the sex instinct a variety of mental and bodily processes which originated in other and distinct roots. The Freudian doctrine, in his opinion, comprised several errors. Against the view that the sex instinct arose from the desire for pleasurable gratification was the fact that in some cases the instinct continued after complete castration. The speaker strongly disagreed with Freud's contention that the sex instinct was normally present in infancy; it really appeared to have its earliest beginnings at about the eighth year and progressed steadily to puberty. Though the sex instinct was admittedly complex, it should not be regarded as comprising two distinct impulses.

## Destructive Action of Weak Electric Currents on Tumor Cells and Trypanosomes

At a recent meeting of the Society of Naturalists and Physicians of Strasbourg (*Münchener medizinische Wochenschrift*, March 31) Seyderhelm stated that through the action of a constant current of 10 volts, with devices to exclude electrolysis of the electrodes, the tumors of mice and rats could be necrotized and exfoliated. A number of daily sessions was necessary. *In vitro*

cancer cells were acted upon in analogous fashion. A very low amperage, however, seems to stimulate all growth. The action of electricity resembles that of *x*-rays. Uhlenhuth stated that these currents also kill trypanosomes *in vitro*. It is questionable whether these discoveries will lead to therapeutic utilization at the expense of *x*-rays and radium.

### Cancer of the Rectum in an Adolescent.

A case of this very rare occurrence was recently reported to the Verein für wissenschaftliche Heilkunde zu Königsberg by Carl (*Berliner klinische Wochenschrift*, 1914, No. 12). The patient, a Russian youth of 17, had complained of rectal trouble for a year or more. There were difficult and painful evacuations, and eventually passage of pus and blood. Full examination under narcosis gave the impression of local tuberculosis. Only a diagnostic excision showed the cancerous nature of the mass, which involved the entire circumference of the gut above the anus. A final diagnosis was made of colloid cancer. As the growth was inoperable an artificial anus was established.

## News of the Week.

**A Large Cancer Hospital.**—By an agreement between the Cornell Medical College and the General Memorial Hospital, New York, made possible by the generosity of several philanthropists, there will shortly be established in this city a hospital for the treatment of cases of cancer which will be the largest of its sort in the world. The General Memorial Hospital buildings will be used, ninety beds thus becoming at once available, and any cases of cancer of interest in study or open to treatment will be received. The laboratories will be fitted with the latest appliances, such as *x*-ray apparatus, etc., and large amounts of radium will be available through the generosity of Dr. James Douglas, who has turned over to the hospital his half interest in the radium output of the mines owned by himself and Dr. Howard A. Kelly in Colorado. The pathological work of the hospital will be under the direction of the Department of Pathology of the college, and the attending staff of the hospital will shortly be announced.

**Civil Service Examinations.**—The United States Civil Service Commission announces a competitive examination, open to men only, for the purpose of filling vacancies in the position of technical assistant in pharmacology in the Division of Pharmacology, Hygienic Laboratory, Public Health Service, at salaries of $1,800 to $2,000 a year. The duties comprise research work in pharmacology, including original investigations in the physiological assay of drugs and of the action of drugs by means of the electrocardiograph. The degree of M.D. and at least two years subsequent experience in experimental pharmacology or physiology are prerequisites for this position. Persons meeting the requirements and desiring the examination should at once apply for Form 304 and special form to the United States Civil Service Commission, Washington, D. C.

The Commission also announces for June 3, 1914, an examination, open to men only for the purpose of filling a vacancy in the position of dental interne in the Government Hospital for the Insane, Washington, at a salary of $600 a year and maintenance. Applicants must be recent graduates of a regularly incorporated dental school, unmarried, and twenty years of age or over. Candidates should apply at once for Form 1312 to the United States Civil Service Commission, Washington, D. C.

**Health of the Philippines.**—The report of the Director of the Bureau of Health for the Philippine Islands for 1913, calls attention to the fact that the total number of deaths last year was 60,000 less than during 1905. This reduction, which has stood for several years, has occurred almost entirely among the preventable diseases, and therefore may be regarded as an index of the effect of health work in the Philippines. It is further stated that if the knowledge which is now available could be applied, at least 100,000 deaths per annum additional might be avoided by reducing the ravages of tuberculosis, malaria, beriberi and its indirect effects, and the intestinal diseases. The organization which has already brought about a reduction of 60,000 deaths per annum is believed to offer the best hope, if permitted to work along unhampered, of bringing about this further improvement; but in order to achieve any considerable results the cooperation of the entire public is essential.

**Street Accidents.**—During the month of April twenty-five children and twenty-one adults were killed in New York by automobiles, wagons, and street cars, according to the report of the National Highways Protective Society. Automobiles were responsible for seventeen deaths, wagons for fifteen, and street cars for fourteen. In addition to these, there were 146 serious accidents. In the State, outside of New York City, automobiles killed nine and injured eighty-three persons, and street cars killed four and injured fourteen.

**Hospital Saturday and Sunday Association.**—In its annual accounting on May 1, the Hospital Saturday and Sunday Association of New York apportioned $110,000 among the forty-seven non-municipal hospitals belonging to the association. This is the largest sum which the association has handled in the thirty-five years of its existence. The money was distributed as follows: General hospitals, $58,227.78; special hospitals, $18,645.75; women and children, $20,432.98; convalescents, $12,693.49.

**Exhibition at Lincoln Hospital.**—An exhibition of the industrial work done in the Home department of the Lincoln Hospital and Home, 114th Street and Southern Boulevard, New York, was held on April 22, 23, and 24, at 655 Fifth Avenue. The exhibition comprised the product of the industrial department, consisting of woven rugs, baskets, etc.

**First Typhus Death.**—Health Officer O'Connell, of New York, on April 27 reported the first death to occur from the present invasion of typhus fever. The patient was a Greek who boarded the steamship *Madonna* at Naples, and had been under treatment at Swinburne Island, with eighteen other typhus fever patients, all of whom have responded to treatment.

**City Death Rate.**—The death rate in New York City for the week ending April 25 was 15.30 per 1,000 of population, representing a total of 1,637 deaths, as compared to a rate of 16.28 per 1,000 and a total of 1,677 deaths for the corresponding week of 1913. For the seventeen weeks of this year the death rate was 15.46 per 1,000, as against a rate of 15.68 in the same period of last year, a decrease of .22 of a point.

**State Sanitary Supervisors.** — Commissioner Biggs of the New York State Department of Health

has announced the following appointments of sanitary supervisors: Dr. Edward Clark, Buffalo; Dr. Frederick W. Sears, Syracuse; Dr. Harry S. Crum, Ithaca; Dr. John J. Mahoney, Jamestown; Dr. Frank Overton, Patchogue; Dr. Charles S. Prest, Waterford; Dr. Samuel D. Hubbard, New York; Dr. Leroy W. Hubbard, Mount Vernon; Dr. John Archibald Smith, Saranac Lake; Dr. John A. Conway, Hornell; Dr. Charles C. Duryee, Schenectady; Dr. Charles V. Patchin, Dansville.

**More Plague in Havana.**—Two additional cases of bubonic plague were reported in Havana on April 28, and on the following day the third death from the disease during the present outbreak occurred.

**Personals.**—Dr. I. H. Goldberger has been appointed assistant director of educational hygiene to the public schools of the City of New York.

Dr. Alexander Lambert has moved to 43 East 72d street.

A report that Dr. Edward A. Ryan, an American physician working in Mexico, had been arrested and sentenced to death on April 30, caused considerable alarm among his friends in Scranton, Pa., and activity in the State Department at Washington. As a result of the latter, Dr. Ryan's safety was speedily assured, and at latest reports he was about to leave the country. Dr. Ryan was graduated from the Fordham University Medical College, New York, in 1910.

**A Bust of Dr. Wyeth.**—On the evening of Friday, May 1, the medical staff and Woman's Auxiliary Board of the New York Polyclinic Medical School and Hospital presented to that institution a portrait bust of Dr. John Allan Wyeth, the founder of the school and its surgeon-in-chief. The bust is life size, of bronze, and was executed by the eminent sculptor, Mr. Herbert Adams, of New York. Addresses were made by Drs. Charles H. Chetwood, John A. Bodine, D. Bryson Delavan and John A. Wyeth. The occasion marked the second anniversary of the occupancy of the new building of the Polyclinic.

**Gifts to Charities.**—By the will of the late Elizabeth B. Jeffries of Philadelphia the sum of $5,000 is bequeathed to the Germantown Hospital and the same amount is given, as a memorial to her husband, to St. Luke's Homeopathic Hospital, Philadelphia.

**American Protologic Society.**—The sixteenth annual meeting of this society will be held at Atlantic City, N. J., on June 22 and 23, 1914, under the presidency of Dr. Joseph M. Mathews of Louisville, Ky. The secretary of the association is Dr. Alfred J. Zobel of San Francisco.

**California State Medical Society.**—The fifty-fourth annual convention was held at Santa Barbara on April 14 and 15, when the following officers were elected for the ensuing year: *President*, Dr. Harry M. Sherman, San Francisco; *Secretary*, Dr. Philip Mills Jones, San Francisco; *Vice-Presidents*, Dr. George A. Hare, Fresno, and Dr. Rexwald Brown, Santa Barbara.

**Pan-American Medical and Surgical Association.**—Under this title a new medical society was recently formed in New Orleans, having for its objects the development of a high standard of professional efficiency, the encouragement of medical and surgical research, and the association of medical men throughout the country in the discussion of medical topics. The officers of the association are as follows: *President*, Dr. Stephen W. Stafford; *Vice-Presidents*, Dr. Joseph A. Estopinal, Dr. C. Grenes Cole, Dr. Charles V. Unsworth and Dr. E. W. Mahler; *Secretary*, Dr. Joseph J. Wymer; *Treasurer*, Dr. G. F. Patton.

**Hospital Investigation.**—A sweeping investigation under the direction of John H. Delaney, Commissioner of Efficiency and Economy, of the New York State Hospitals will result, it is reported, in the removal of a number of hospital employees and the displacement of several officers of these institutions. The report of the investigation is now being compiled, and it is said that it will contain severe criticisms of the conditions in many of the hospitals.

**Fight Against Cancer.**—The *Times* of London has made an appeal for the imitation in England of the American campaign against cancer, and urges the establishment of a society similar to the American Society for the Control of Cancer.

**Typhus on Liner.**—The steamship *Celtic* of the White Star Line, which arrived in New York on April 13 from Mediterranean ports, was held at Quarantine because of the discovery of four cases of typhus fever among the steerage passengers. The patients, three adults and one child, were removed to Swinburne Island for treatment and 554 steerage passengers were taken to Hoffman Island for observation.

**Health of the Canal Zone.**—During the month of February, 1914, the total number of deaths from all causes among employees in the Canal Zone was 30, of which 22 were due to disease and 8 to violence, giving an annual average per thousand of 5.34 and 1.94 respectively, or a total of 7.28. This is the lowest rate on record for the month. For the cities of Panama and Colon and the Canal Zone, including both employees and civil population, the annual average death rate for the month was 23.67 per thousand, an increase of two points over the rate for February, 1913. Among employees the deaths from the principal diseases were as follows: Lobar pneumonia, 4; organic heart disease, 1; tuberculosis, 7; typhoid fever, 1. No cases of yellow fever, smallpox, or plague originated on or were brought to the Isthmus during the month.

**Medical Society Elections.**—Fairfield County (Conn.) Medical Society: 122nd annual meeting at Bridgeport on April 14. Officers elected: *President*, Dr. George H. Noxen, Darien; *Vice-President*, Dr. F. W. Stevens, Bridgeport; *Secretary*, Dr. Eli B. Ives, Bridgeport; *Treasurer*, Dr. Philip W. Bill, Bridgeport.

Plymouth District (Mass.) Medical Society: Annual meeting at Brockton on April 16. Officers elected: *President*, Dr. Charles E. Lovell, Whitman; *Vice-President*, Dr. Nathaniel C. King, Brockton; *Secretary-Treasurer*, Dr. Francis J. Hanley, Whitman.

Bristol North District (Mass.) Medical Society: Annual meeting at Taunton on April 15. Officers elected: *President*, Dr. Ralph D. Dean, Taunton; *Vice-President*, Dr. William H. Allen, Mansfield; *Secretary*, Dr. Arthur R. Crandell, Taunton; *Treasurer*, Dr. William Y. Fox, Taunton.

Hornell (N. Y.) Medical and Surgical Association: Annual meeting at Hornell on April 6. Officers elected: *President*, Dr. Frederick C. Robbins; *Vice-President*, Dr. George W. Mitchell; *Secretary-Treasurer*, Dr. J. Raymond Kelly.

Middlesex County (Conn.) Medical Society: The 122d annual meeting at Middletown on April 9. Officers elected: *President*, Dr. Howard T. French,

Deep River; *Vice-President*, Dr. Arthur B. Coleburn, Middletown; *Clerk*, Dr. Charles A. McKendree, Cromwell.

Bronx County (N. Y.) Medical Society. This was incorporated at Albany on April 13, with the following directors: Dr. S. Carrington Minor, Dr. Gustave H. E. Starke, Dr. Arthur C. Palmateer, Dr. Joseph J. Smith, Dr. Edwin C. Podvin, and Dr. William E. Howley.

**Obituary Notes.**—Dr. James D. Madeira of Reading, Pa., a graduate of the Jefferson Medical College, Philadelphia, in 1883, and a member of the American Medical Association, the Medical Society of the State of Pennsylvania, and the Berks County Medical Society, died at his home from pneumonia on April 20, aged 58 years.

Dr. Herman Canfield, formerly chief sanitary inspector at Ancon, Canal Zone, a graduate of the New York University Medical College in 1876, died at Saint George, Fla., after a lingering illness, on April 9, aged 60 years.

Dr. Morris Wolf, former health officer of Yonkers, N. Y., a graduate of the Eclectic Medical College of the City of New York in 1893, and of the University of Rostock, Germany, in 1899, and physician to St. Joseph's Hospital Dispensary, died at St. Joseph's Hospital, from intestinal disease, on April 17.

Dr. Benjamin F. Spencer of Weston, Tex., a graduate of the University of Louisville, Medical Department, in 1874, and a member of the State Medical Association of Texas and the Collin County Medical Society, died at his home on March 25, aged 61 years.

Dr. John B. Wurtz of Philadelphia, a graduate of the Hahnemann Medical College and Hospital, Philadelphia, in 1876, and a member of the Germantown Medical Society, died at his home from apoplexy on April 2, aged 60 years.

Dr. Francis L. Gerald of Warren, N. H., a graduate of the Eclectic Medical College, Cincinnati, in 1873, for many years active in the health and school boards of Warren, and a member of the New Hampshire and Grafton County Medical Societies, died at his home from angina pectoris on April 5, aged 76 years.

Dr. Charles Arthur Derby of New Bedford, Mass., a graduate of the Tufts College Medical School, Boston, in 1909, superintendent of the New Bedford Emergency Hospital, and a member of the Massachusetts and Bristol South District Medical Society, died at the Emergency Hospital after a short illness, from abscess of the lung following pneumonia, on March 30, aged 37 years.

Dr. Frank Kelly Roarke of Troy, N. Y., a graduate of the Albany Medical College in 1891, laryngologist to the Samaritan Hospital, consulting laryngologist to St. Joseph's Maternity Hospital, and a member of the American Medical Association, the Medical Society of the State of New York, and the Rensselaer County Medical Society, died suddenly at his home on April 19, aged 45 years.

Dr. William H. Seip of Bath, Pa., a graduate of the Jefferson Medical College, Philadelphia, in 1859, and a member of the American Medical Association, the Medical Society of the State of Pennsylvania, and the Northampton County Medical Society, died at his home on April 13, aged 77 years.

Dr. Benjamin W. Kimball of Minneapolis, Minn., a graduate of the Medical School of Maine, Portland, in 1857, died at his home on April 11, aged 85 years.

Dr. Herman Milbacher of Aurora, Ill., a graduate of the University of Munich, Germany, in 1881, attending physician to the Aurora and St. Charles Hospitals, died suddenly at Sarasota, Fla., on April 12, aged 63 years.

Dr. Charles Pickering Putnam of Boston, Mass., a graduate of the Harvard Medical School in 1869, a member of the American Medical Association, the Massachusetts Medical Society, the Suffolk District Medical Society, the American Pediatric Society, and the New England Pediatric Society, and well known as a specialist in children's diseases, died at his home, after a short illness, on April 22, aged 69 years.

Dr. Charles H. Brockway of Worcester, Mass., a graduate of the College of Physicians and Surgeons, New York, in 1873, and a member of the Massachusetts Medical Society, and the Worcester District Medical Society, died at the Worcester Hospital after a brief illness on April 17, aged 62 years.

Dr. Charles J. Spratt of Minneapolis, Minn., a graduate of the Bellevue Hospital Medical College, New York, in 1869, and a member of the Minnesota State Medical Association, the Hennepin County Medical Society, and the Minnesota Academy of Ophthalmology and Oto-Laryngology, died at the Asbury Methodist Deaconess Hospital, on April 12, aged 65 years.

Dr. Ferdinand O. Kauffmann of St. Louis, Mo., a graduate of the Missouri Medical College, St. Louis, in 1873, and a member of the Tri-State Medical Society, died at his home from heart disease on April 14, aged 67 years.

Colonel Daniel M. Appel, Medical Corps, United States Army, in charge of the Department of Hawaii, a graduate of the Jefferson Medical College, Philadelphia, in 1875, and a member of the American Medical Association, died at Honolulu, Hawaiian Islands, from heart disease, on April 22, aged 59 years.

Dr. William Triplett Harris of Richmond, Va., a graduate of the Medical College of Virginia, Richmond, in 1907, and a member of the Medical Society of Virginia, and the Church Hill District Medical Society, died at his home, after a long illness, on April 18, aged 39 years.

Dr. James R. Reitzel of High Point, N. C., a graduate of Southern Methodist University, Medical Department, Memphis, Tenn., in 1892, and a member of the Medical Society of the State of North Carolina, and the Guilford County Medical Society, was instantly killed by the overturning of the automobile which he was driving, on April 17, aged 49 years.

Dr. Carl Wirth of St. Paul, Minn., a graduate of the Northwestern University Medical School, Chicago, in 1873, died suddenly at his home on April 17, aged 70 years.

Dr. John A. Jones of Altona, Ky., a member of the Kentucky State and Marshall County Medical Societies, died at his home from pneumonia after a short illness on April 14, aged 75 years.

Dr. Morris Stroud French, of Woodville, Pa., a graduate of the Jefferson Medical College, Philadelphia, in 1876, died suddenly in Philadelphia on April 26, aged 59 years.

Dr. William Walker Brackett, of New Britain, Conn., a graduate of the Jefferson Medical College, Philadelphia, in 1896, formerly health officer of the town and medical inspector of schools, attending surgeon to the New Britain General Hos-

pital, and a member of the Connecticut State and Hartford County Medical Societies, died at his home from malignant endocarditis on April 21, aged 41 years.

Dr. CHARLES EDWIN SANFORD, of Bridgeport, Conn., a graduate of the Medical Department of Yale University, New Haven, in 1853, and a member of the Connecticut State and Fairfield County Medical Society, died at his home on April 26 from apoplexy, aged 84 years, having been in practice up to the time of his death.

Dr. FRANCIS ALVIN WEIR, of Pasadena, Cal., a graduate of the Rush Medical College, Chicago, in 1879, and a member of the American Medical Association, the Medical Society of the State of California, and the Los Angeles County Medical Society, died at his home on April 15, aged 75 years.

Dr. JAMES B. MCFATRICH, of Chicago, a graduate of the Bennett Medical College, Chicago, in 1884, a former president of the Chicago Board of Education, professor of ophthalmology and clinical surgery at the Bennett Medical College, and president of the Northern Illinois College of Ophthalmology and Otology, died at his home on April 25 from heart disease, aged 52 years.

Dr. WILLIAM JOSEPH O'REILEY, of Boston, a graduate of the Bellevue Hospital Medical College, New York, in 1883, died at his home after a short illness on April 22, aged 55 years.

Dr. HIRAM L. CHASE, of Cambridge, Mass., a graduate of the Harvard Medical School in 1846, and a member of the Massachusetts Homeopathic Medical Society, of which he was president in 1868, and of the American Institute of Homeopathy, died at his home on April 24, aged 89 years.

Dr. OSMORE O. ROBERTS, of Northampton, Mass., a graduate of the Homeopathic College of Pennsylvania, Philadelphia, in 1853, and first president of the Western Massachusetts Homeopathic Medical Society, died at his home on April 26, aged 85 years.

Dr. ELLIOTT E. FURNEY, until recently of St. Louis, Mo., a graduate of the Missouri Medical College, St. Louis, in 1885, and a member of the American Medical Association, the Missouri State Medical Association, and the St. Louis City Medical Society, died recently at St. Petersburg, Fla., aged 66 years.

Dr. ANNIE M. BROWN, of Brooklyn, N. Y., a graduate of the Woman's Medical College of the New York Infirmary for Women and Children in 1880, died at her home, after a long illness, on April 30, aged 72 years.

Dr. EUGENE F. PEARCE, of Brooklyn, N. Y., a graduate of the Long Island College Hospital, Brooklyn, in 1883, and a member of the Medical Society of the State of New York and the Kings County Medical Society, died at his home on April 30, aged 55 years.

Dr. EDWARD MINTURN ASSENHEIMER, of New York, a graduate of the College of Physicians and Surgeons, New York, in 1904, a member of the Medical Society of the State of New York and the New York County Medical Society, and assistant physician to the Cornell Dispensary, died at his home suddenly on April 30, aged 34 years.

Dr. PAUL EHRHART, of New York, a graduate of the New York University Medical College in 1878, and a member of the Medical Society of the State of New York and the New York County Medical Society, died at his home on April 30, following a general breakdown, aged 59 years.

## Correspondence.

### FULL-TIME MEDICAL PROFESSORS.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—In the fact of Dr. Theodore C. Janeway's appointment at Johns Hopkins University as full-time professor of medicine, while we deplore the great personal loss, we should not be unmindful that such a position might not be desirable for New York. Already we have the Rockefeller Institute and Hospital for scientific research. Would it be advantageous to our city to have a university and another hospital with similar objects in view?

To my mind it would not. I believe that any physician is broadened and improved in his pursuit, by having a limited number of patients outside the hospital. He cannot with them, it is true, follow altogether rigid rules of investigation and simple authority must give way, not infrequently, to the humane aspect of things. Symptoms must be treated to relieve pain, distress, and annoyance, though it be not scientific to do so. In thus acting, the attending physician will, however, often accomplish beneficial results which, even from a curative viewpoint, are remarkable.

In my experience, it is the remedy long lost sight of which has occasionally worked wonders, when the one upheld by science has failed. Medicine is, and must be, as much an art as a science. To practise the art successfully, we should recur to wise empiricism. This empiricism, based upon the experience of many practitioners, counts much and endures. Science changes rapidly and what to-day is truth, to-morrow is not. Witness what is said and done with regard to radium and the *x*-ray. On the other hand, alcohol, fifty years ago the recognized dressing of all wounds, banished from surgical practice by carbolic acid and bichloride of mercury, has again come to the front, as the innocuous and effective local disinfectant. In its use, primarily, empiricism ruled.

BEVERLEY ROBINSON, M.D.

NEW YORK.

### OUR LONDON LETTER.

(From Our Regular Correspondent.)

DISTURBANCES OF THE CHEMICAL RELATIONS OF THE BLOOD—HUNTERIAN SOCIETY'S DEBATE ON BLOOD PRESSURE—THERAPY OF POTATO JUICE AND OF PARAFFIN WAX.

LONDON, April 17, 1914.

PROFESSOR F. G. HOPKINS, in his Oliver-Sharpey lectures at the Royal College of Physicians, discussed certain effects which follow "Disturbances in the Chemical Reactions of the Blood." The great progress which has been made in chemistry has enabled us to apply its principles to the interpretation of many changes in living organisms and to more accurately explain the results obtained by observation and experiment. In fact, the whole subject of the chemical reactions in the body has entered on a new phase. Professor Haldane and his fellow workers at Oxford, said the lecturer, had shown that carbon dioxide, in stimulating the nerve center which governed respiration, acted as an acid. That nerve center responded vigorously to a concentration of the gas of such slight degree as would correspond to only a trace of hydrochloric acid—the two-millionth of a milligram in a hundred cubic centimeters of water. Further, there were

reasons for believing that the kidney was no less sensitive. Thus the influence of both the respiratory center and the kidney on the blood is to keep its composition constant. But in addition there are the buffer salts contained, which tend to prevent deviation in the direction of its becoming either acid or alkaline.

The Hunterian Society's annual clinical debate was also concerned with the blood—or rather with a deviation of its pressure—the subject being announced as the "Causes and Treatment of High Blood Pressure." It was opened by Dr. de Haviland Hall, who said the normal pressure varied with age and sex. Putting the figure 1 before the age of anyone under 40, he said, gave in millimeters of mercury his normal pressure. Over 40 the resulting figure would be too high. In woman the figure ranged 10 mm. below that of man of the same age. A strong, healthy man would have 5 to 15 mm. above a weakly one. Active exertion raised the pressure, as did ingestion of much food and liquid, especially beer, onset of fever, severe pain, gastric disturbance, kidney disease, gout, lead poisoning, malaria, oral sepsis, alcohol, mental strain or worry. Other causes were mentioned and some dwelt upon more fully, so that altogether a listener might well conclude that the pressure was affected, as he had been accustomed to regard the pulse. As to treatment, Dr. Hall said, so far from being an enemy, high tension was often the patient's best ally, the very means of maintaining the activity of the kidneys and preserving his life. Disaster might therefore result from attempts to reduce pressure, but, on the other hand, there was danger in stimulating treatment of arterio-sclerotics with high pressure. A pressure of 200 mm., with any sign of cardiac failure, called for absolute rest. The skin required attention, baths of various kinds suited to the cases, Turkish, electric, Manheim, etc. Diet must be regulated, both as to quantity and quality. Alcohol was almost always injurious. Tea and coffee in moderation only should be allowed. Abundant drinking of pure water was indicated. Tobacco most moderately indulged in; with original symptoms, not at all. Of drugs, calomel, blue pill and saline aperients were useful, and iodides in small doses over a considerable time. In Wassermann reaction, mercury, preferably by inunction. Powerful, quickly acting vaso-dilators, as amyl nitrite, nitro-glycerine, erythrol tetranitrate, should be reserved for emergencies. Blood-letting was of greatest service in some cases, as nature often indicates by copious epstaxis.

A number of interesting statements were made in the discussion, of which I can only cite a few examples. Dr. Langdon Brown mentioned the difficulty of securing a correct pressure in nervous patients; a fall as age advanced in men over 80 down to 140 often. He also named some additional causes, as over-action of ductless glands and putrefactive diamens formed in the intestines. Rise of pressure very conservative. If immediate lowering became necessary, as in anginal attacks, amyl nitrite was best, for nitro-glycerine only acted about 40 minutes; erythrol tetranitrate in half gram doses, 6 hours, but was apt to give headache. Dr. Russell Wells urged the recording of the diastolic as well as systolic pressure, and related some experiments he had made. He cautioned against lowering even a very high systolic pressure in arterio-sclerosis. The general condition of the patient was important. One of his with 300 mm. fell off with a dcrease to 250 and improved again on a return to the former level. Dr. O. Williamson insisted on the value of the finger, which he had found at times corrected the sphygmomanograph. He named cases in which the instrument alone would have seriously misled. Dr. Calthrop of Woodhall Spa attributed good effect to the polass. iod. contained in the mineral water, in which, too, the bromide was a valuable adjunct. Dr. Thorne Thorne had become convinced that the record of minimum was almost as important as the maximum pressure. Two distinct classes of hypertension could only be differentiated by comparing the maximum and minimum pressures. In one, both were raised, but the ratio between them also changed from the normal difference of about 50 mm. to over 100 mm., indicating definite vessel degeneration. In the other class both were raised but the ratio unaltered, indicating hypercontractility of arteries and capillaries, a presclerotic condition.

Has the potato become recognized on your side as a remedial agent? I do not mean internally or as seen on the table. Very seldom has it been spoken of here as possessing therapeutic value. But now Mr. Heaton Howard of Clapham tells us in the *Lancet* that for years he has been using it with great success as an external application which gives prompt relief to pain and causes rapid absorption of fluid from inflamed joints. He uses the expressed juice, concentrated (ext. *solani liq.*). Hydraulic pressure of the raw potatoes will give about one-half their weight of juice, which is reduced to one-fifth by heat and a little glycerine added. This can be used pure, as a liniment, or diluted with one-third of *Lin. Saponis;* or an ointment can be made with lard or ampullæ filled, etc. Mr. Howard admits there is no alkaloid in the potato and attributes the efficacy to the salts of potass contained. But if so, why not employ a simple solution of the salts of similar strength? His most striking cases are synovitis of the knee, but lumbago and all forms of rheumatism are quoted. Also the local pain of acute gout in the toe arrested by the liquid applied with hot water as a fomentation. But it is not supposed to have other than local influence.

The potato seem cold comfort for a rheumatic joint compared with an application brought forward by M. Barthe de Sandford at Paris, viz., molten paraffin wax heated to a temperature of 122° F. Of course, heat in some form is in constant use, and every rheumatic becomes expert in the use of hot water. But the wax enclosing the painful part retains the heat a long time. Dr. de Sandford says it will often be found 110° F. at the end of twenty-four hours. Firmly applied, he attributes some effect to the pressure maintained, and he speaks of the "dry heat" as permitting a higher temperature than otherwise. He spoke of having tried the experiment of immersing himself in liquid paraffin wax at 122° F. and letting it solidify on him, describing the effect as exhilarating.

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**Noma and Its Infective Basis.**—Alfonso Montefusco reports two cases of noma in young children, secondary to typhoid fever and diphtheria respectively. He states that many different microorganisms have been isolated from cases of noma, including staphylococci streptococci, leptothrix, and streptothrix. As regards the treatment of noma, although many different methods, including medical and surgical measures, have been tried, all of these have been ineffective. The author believes that noma belongs to the group of diseases caused by the fusiform bacilli and spirilla, and that a true specific should be found in salvarsan.—*Giornale Internazionale delle Scienze Mediche.*

## OUR PARIS LETTER.

(From our Regular Correspondent.)

RADIUM TREATMENT OF CANCER—ITS VALUE IN INOPERABLE CANCER OF THE UTERUS AND IN SUPERFICIAL TUMORS—RADIUM AS A PALLIATIVE MEASURE—TREATMENT OF WOUNDS OF THE HEART—OBJECTIVE SIGNS OF CARDIAC WOUNDS AND TECHNIQUE OF SURGICAL INTERVENTION.

PARIS, March 15, 1914

THE radium treatment of cancer was the subject of a number of interesting communications before the Society of Surgeons of Paris and before the Surgical Society. M. Gazin has obtained encouraging results in inoperable cancer of the uterus. Inoperable cancer of the rectum has also been helped with respect to the pain and the obstructive symptoms. The radium treatment has been effective in suitable cases in sparing the patient the discomfort of an artificial anus. Pierre Delbet and A. Herrenschmidt cite the statistics obtained from the study of fifty cases of cancer in different parts of the body, but chiefly of mammary and uterine tumors treated with the aid of radium. The majority showed regression during the first phase. Some cases were completely cured. Cancers of the neck of the uterus, particularly, have been rapidly improved so far as functional troubles and the general condition are concerned. Locally this method produced as a rule a cicatricial contraction of the tumor and then after a longer or shorter time a renewed development of the tumor, and this time the radium treatment was ineffective. It may be fair to state that the latter treatment has been applied in the case of inoperable cancers, which fact explains the large percentage of relapses following a transient amelioration.

M. Thevenard reported the treatment of a case of inoperable epithelioma of the uterus by means of three applications of radium tubes. He obtained a retardation in such manner that it was possible to perform hysterectomy at a later date. During this operation he observed that the parametrium was of a ligneous character. This action of radium which transforms the uterus and its neighboring tissues into a fibrous mass has enabled Desjardins and Dominici to adopt the following technique in their extensive operation: Two applications of radium were made as a preoperative treatment and then a more extensive intervention was resorted to. The tubes of radium whose rays are well filtered and which are enclosed in No. 20 rubber drains must be kept exactly in the place chosen, and should be removed at the end of forty-eight hours. At the end of two or three weeks the tubes are placed anew in the posterior portion of the vagina. M. Peraire has obtained the best results in the case of superficial tumors. He cites the cure of a case of sarcoma of the vagina, a cure which persisted at the end of three years. In the case of deep cancers he has had nothing but failures.

Georges Luys reported that in a case of atypical pavement-celled epithelioma of the bladder which developed just behind the posterior ureteral orifice he succeeded in making applications of radium at the end of a No. 19 crutch sound and obtained an undoubted amelioration, so far as the general condition was concerned. The hematuria disappeared, the pain diminished, but the tumor continued to increase in size and led to the death of the patient. Legueu and Cherin reported the case of a young woman twenty-six years old affected with an inoperable ureterovaginal epithelioma. Four applications of radium were made within the period of six months. One application was external, one was in the midst of the tumor, and two applications were intraureteral. The growth disappeared completely, but the ureter had been destroyed, allowing a constant extravasation of the urine. At the end of thirty months following the termination of the treatment, the patient died following an attempt at anastomosing the ureter with the intestine. The most careful autopsy revealed no trace of cancer in the body. The short résumé of the above reports enables one to conclude that radium treatment is a good palliative and sometimes a distinct cure of cancer, and it is to be hoped that reports along this line will be continued to be made. The paper by Legueu furnishes the point of departure for an extensive discussion which will be referred to in a later communication.

At a recent session of the Surgical Society there was an important discussion upon the diagnosis and treatment of wounds of the heart. Picque reported three cases of wounds of the ventricles treated successfully by suture. From the viewpoint of diagnosis a majority of surgeons are of the opinion that in cases in which there is a suspicion of a wound of the heart, it is necessary to be as careful as possible in the clinical examination of the patient to avoid moving him. On the other hand, Lenormant believes that the patient should always be completely examined. No accidents are so urgent that one should not take time to make a rapid and complete examination. It is of the greatest importance to establish the diagnosis of wounds of the heart and of the lung, for intervention is necessary in the former case and contraindicated in the latter. As to the symptoms, the immediate subjective signs are of no value. They may indicate a slight injury without any grave omen or they may be associated with the most serious outcome. The objective signs are very important. In the case of hemopericardium these signs consist in the increase in the cardiac dulness together with the signs of the compression of the heart. But these symptoms may be entirely absent, when, for instance, there is a communication sufficiently large between the pericardium and the pleura, which will enable the blood to flow from the pericardium into the pleura.

Robineau regards as a probable sign of wound of the heart a disproportion between the general symptoms which are those of extreme anemia and the absence of a serious internal or external hemorrhage. Riche accords little value of the smallness or frequency of the pulse, but he attributes considerable importance of the irregularity of the rhythm and of the force of the pulse. The extreme pallor of the face coincident with the absence of internal or external hemorrhage is, according to Savariaud, a good sign of compression of the heart. In one case he has seen this pallor disappear with the suture of the heart. This mortal pallor has also been observed by others. The auscultatory signs are useful only in exceptionally rare cases. According to Lenomant the best guide in the diagnosis of wounds of the heart is a progressive aggravation of the general symptoms and especially of the circulatory troubles. In doubtful cases puncture of the pericardium, possibly by the epigastric route, a procedure recently described by Marfan, appears to be more dangerous than useful.

According to Morestin it would be better to make a short incision, opening the pericardium in the region of the xiphoid cartilage. In doubtful cases it is best to follow the course of the original injury, enlarging the wound and cutting away as much of the neighboring tissues as may be necessary. An opening thus made will facilitate exploration and, if necessary, treatment. It suffices to resect the first cartilage and the fifth rib and to fracture the fourth rib after resection of its own cartilage. Robineau in one case found it sufficient to resect the fifth rib. Morestin and Riche are of the opinion that it suffices according to the case to resect one or two ribs.

In the course of the intervention Picque recommends that a search be made for the posterior orifice, which procedure is extremely difficult. Occasionally there is only one orifice, in which case the bullet remains in one of the cavities of the heart, or it may strike the heart tangentially, or cut a groove that opens up a cavity of the heart. If the ball remains in a cavity of the heart it must be extracted. If it lodges in the wall of the heart it may be left there, the heart having a marked tolerance for foreign bodies. In sewing up the heart the operation is facilitated by holding the organ in the palm of the hand. All of the surgeons avail themselves of this method. Two cases in which death followed arrest of the heart upon the operating table are reported by Morestin. This emphasizes the need of handling the heart with great care! As regards the best time to insert the stitches into the heart, whether during systole or during diastole, none of the surgeons makes any distinction. Sometimes it may be better to insert the stitches while the heart is contracted, and at other times while it is realxed. Most of the surgeons close the pericardium without drainage. As to the pleura some surgeons perform drainage, but the general tendency is to close as soon as possible the pleura and the pericardium.

## OUR BERLIN LETTER.

(From Our Regular Correspondent.)

MODERN TROPICAL PATHOLOGY—QUININE-FAST MALARIAL ORGANISMS—DIAGNOSTIC VALUE OF MONONUCLEOSIS IN MALARIA—SALVARSAN IN MALARIA—BLACKWATER FEVER—TUBERCULOSIS IN THE TROPICS—DISEASES OF THE CECUM.

BERLIN, March 15, 1914.

At the Berlin Medical Society on February 11 a very interesting address was delivered by the chief surgeon of the military forces in the German colony of Kamerun on the West coast of Africa. His subject was "Problems and Aims of Modern Tropical Pathology." In the case of malaria the quinine-fast condition of certain parasites is the cause of the relapses which furnish the greatest difficulties in the treatment. The quinine-fast parasites propagate whenever the body for any length of time has passed through a stage of diminished resistance. In the cultures, pictures of which the speaker demonstrated, the end-forms of the parasites were readily studied. The cultivation of the parasites in the test-tube has been effected by means of a modification of the Bass method. We are as yet in the dark as to why at certain times sexual forms arise in the blood.

Perhaps the greater incidence of malaria in Germany during the spring of the year is to be attributed to the fact that at this season the rural population is compelled to work very hard. At any rate one can be certain that the malarial parasites are not able to hibernate in the pupa stage. On this account the diagnosis has hitherto been difficult owing to the fact that it has not been possible to find the malarial organisms. A diagnostic aid is the enumeration of the large mononuclear cells of the blood. For instance, it has been shown that in the case of protozoal diseases these cells are increased to the extent of 12 per cent. or more. If other protozoal diseases can be excluded one can conclude from the presence of such an increase of mononuclear cells that malaria is present. The speaker has attained the best results in the prophylaxis of malaria by administering quinine every third day in doses of 1 gram. The quinine acts upon the plasma of the malarial organisms and is quickly eliminated by the body. Whenever the condition of quinine-fastness arises the administration of salvarsan or salvarsan-copper has proved to be very effective.

In the case of blackwater fever the state of affairs is particularly far from gratifying, inasmuch as it is impossible to diagnose the predisposition to this condition. In the cases that have been observed in the hospital, in which cases anuria did not arise, the prognosis was relatively good. In the cases with anuria the speaker found no benefit in the operation of splitting the kidney, since in spite of the disappearance of the hemoglobinuria the hemolysis became stronger and stronger. One can conclude that a certain ferment is concerned in this process. The administration of cholesterin in no case had any effect upon the hemolysis. Since it has been possible in dogs suffering from piroplasmosis to influence the disease from the viewpoint of immunity by the administration of attenuated cultures of the organism one may possibly obtain good results with the use of this method in human beings.

The speaker's immunization experiments with the *Trypanosoma gambiense* have wholly failed with reference to the prevention of sleeping-sickness. In the beginning good effects are obtained with atoxyl and arsenphenylglycin; later these remedies as well as salvarsan are ineffective, while the efficacy of trixidin and tryasofal is as yet to be determined. Salvarsan has proved to be an ideal remedy in many diseases of the tropics caused by spirochetes. The results in frambesia are marvelous. In some cases the remedy has been efficacious in leishmaniosis. In leprosy nastin was effective at the beginning of the disease in the case of a European leper but in the case of a native leper the remedy, although partly successful in the beginning, was ineffective at a later stage.

Tuberculosis is of special significance with reference to the tropics, for the disease arises in its most severe types among the natives. On the other hand diabetes is almost wholly unknown among the natives. In the Indes this disease is, however, widespread. In spite of the wide diffusion of syphilis among the natives tabes and paresis are unknown. Disease of the cecum is particularly rare among these people. The speaker did not believe that the diet which is poor in meat is responsible for this immunity, nor did he believe that the simple structure of the appendix resulting from the slight mixture of the races serves to protect the appendix from inflammation. In many autopsies the speaker detected changes in the appendix of natives similar to those present in Europeans.

# Progress of Medical Science.

## Boston Medical and Surgical Journal.

*April* 23, 1914.

1. The Treatment of Cases of Mental Disorder in General Hospitals. P. C. Knapp.
2. Medical Inspection of Immigrants at the Port of Boston. A. J. Nute.
3. Ptosis. A Cause of Gynecological Failure. F. S. Kellogg.
4. The Physiological Cost of Insufficient Protective Clothing. G. W. Fitz.
5. Fracture of the Clavicle. F. E. Peckham.

**1. Treatment of Cases of Mental Disorder in General Hospitals.**—P. C. Knapp believes that the mental patient has a claim upon the benefits of a public hospital just as well as the surgical, the gastric, or the renal patient. The reception of such cases means some extra trouble, a few more nurses, and more anxiety for the staff and the administration. The adoption of aseptic methods in the surgical wards means much more trouble and vastly greater expense. There are certain risks involved, but experience has shown that they are not very great. Every good hospital for the insane has its escapes, its suicides, and its acts of violence. The general hospital may expect them as well, but the benefits to the community outweigh these disadvantages. It is not practical to receive and care for such patients in a general hospital unless there be a special service under the charge of a visiting neurologist familiar with mental diseases and their treatment. The average American internist is too ignorant of mental and nervous diseases to deal properly with such cases. Something more is requisite than restraint while in the hospital and commitment at the earliest opportunity. The visiting physician must be able to make a sound prognosis as well as a diagnosis and must be ready to assume risks and take proper precautions. He must have the control of his patients and their treatment without interference from administrative officers, and must be alone responsible for the treatment, the stay in the hospital, the restraint, and the commitment. Only under such conditions can the reception and treatment of cases of mental disorder in general hospitals be of full benefit to the patient and to the community.

**2. Medical Inspection of Immigrants.**—A. J. Nute states that the medical examination is divided into two parts, primary and secondary. In the primary the efforts of the examiner are directed toward segregating those immigrants suspected of having disease, defect, or abnormality of any kind in order to enable the healthy to proceed without unnecessary delay. In the secondary examination a systematic inquiry should be made as to the signs and symptoms in those turned aside in order to determine a diagnosis and proper certification. It is impracticable under the present law and facilities to consider every alien a possible mental defective and subject him to complete examination unless on primary inspection there have been some signs of mental disorder. With the feeble-minded, the facial expression and attitude constitute a valuable index except in the high grade types where these are negligible and are then a matter for the judgment and experience of the examiner to decide how much lower the suspect is in the mental scale, considering all the factors of race, previous environment, and education. The complexion of the Slavish peasant woman would suggest chlorosis if possessed by a Scandinavian or English woman of the same class. On the other hand the red cheek of the Scandinavian would arouse thought of a hectic flush if seen in the Polish woman. The excitability of the southern Italian and the Hebrew are well known. It is easy to excite in them almost maniacal action. The stolidity and indifference of the Slav would suggest melancholia if presented by the Hebrew. The sanity of an Englishman would be questioned if on slight provocation he evinced the external manifestation of emotion that would occur in the Sicilian. The German girl takes her examinations seriously and her sanity would at once be suspected if she saw the same reason for light remark and laughter as the girl from Ireland. Some races are extremely emotional and others are stolid, and unless the normal is known it is impossible to pick the abnormal. In determining mental conditions by inspection the first essential is to determine the race or type of the individual and to have a good knowledge of his racial characteristics.

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## New York Medical Journal.

*April* 25, 1914.

1. The Prophylaxis of Measles. J. Ruhrah.
2. The Value of Cocaine in Disturbances of Metabolism. W. H. Porter.
3. Private Cases of Diabetes and Glycosuria Treated in 1913. L. N. Boston.
4. The Surgeon as the Autocrat of the Operating Room. J. W. Kennedy.
5. Medical Testimony and Legal Supervision. P. Bartholow.
6. The Effects of Alcohol and Tobacco on Life Expectancy. T. D. Crothers.
7. The Army Medical Corps. H. S. Baketel.
8. The Psychopathology of the New Dances. A. A. Brill.
9. A Magnetized Needle Holder. C. M. Stimson.
10. Dangerous Medical Legislation.

**1. The Prophylaxis of Measles.**—J. Ruhräh states that an important point in the prophylaxis of measles is the closing of schools in the face of threatened epidemics. In order to be of any service the isolation should be started early, and in order to do this it is necessary to make at least a tentative diagnosis. If measles is in an institution already, or if there is much just outside of it, and there is reason to believe that infection may occur, the children may be examined with reference to several signs, the first of which is loss of weight. This begins as early as the fifth or sixth day before the appearance of the catarrhal symptoms, and generally amounts to about ten ounces for children up to four years of age, and in some the loss may amount to as much as three ounces a day. The loss is independent of age or the severity of the attack. An examination of the blood will show that during the incubation period there is a leucocytosis. It should be borne in mind, however, that this leucocytosis lasts only into the first day or two of the stage of invasion, when the leucocyte count falls to normal or even below. When the stage of invasion is reached the disease may be suspected if there is fever, especially if accompanied by catarrhal symptoms affecting all or almost all of the mucous membranes. Conjunctivitis, coryza, pharyngitis, and bronchitis are usually all very apparent. In addition, there is almost invariably marked drowsiness. Heim, many years ago, called attention to the odor of measles, which has often been described as like that of a mouse trap, and while there is undoubtedly a more or less characteristic odor about measles patients, this mouse trap odor is usually due to lack of care and cleanliness rather than anything characteristic of the disease. Two other signs are of value; one, the cyanosis of the tongue which is seen a day or two before the eruption appears, and the other, of the greatest possible value, is the presence of Koplik's spots. These spots sometimes may be seen as early as four days before the appearance of the eruption and usually two days or one day before it appears.

3. Treatment of Diabetes and Glycosuria.—L. N. Boston notes that the amount of carbohydrate food that a given individual may take during the twenty-four hours is a most important factor in preparing to treat one suffering from glycosuria. In order that we estimate approximately the quantity that each patient should take daily it is first necessary that he be permitted to eliminate from his system all excess of sugar.

It has been found that a most satisfactory way to accomplish this end is to withdraw as much carbohydrate food as possible, and to encourage the patient to take liberally of liquids, particularly of water. Through this method of treatment an existing hyperglycemia will usually be overcome within the course of seven to ten days. In all cases in which through diet alone it is possible to obtain a negative reaction with Fehling's solution, the first step in the treatment is completed. The second step in this variety of cases is to ascertain how much carbohydrate the patient can take at each of three different meals during the day and his urine still give a negative reaction for sugar. In the event of being able to affect a negative reaction for sugar with the patient's urine through diet alone, it becomes necessary to use certain drugs. Through the use of such drugs together with diet it is commonly possible to accomplish the desired result. At this point the treatment of diabetes becomes vastly different in practically every individual case. In some cases results are obtained through the liberal use of codeine sulphate. In other cases codeine seems to have but limited, if any, influence upon the sugar excreted. Extract of ox gall and pancreatic extract are drugs that often prove most effectual. When using ox gall and pancreatin it is well to direct that they be placed in a pill which is coated with keratin, and which has a second coating of salol. The two substances used for the coating of the pill do not under ordinary conditions dissolve in acid solutions, consequently when taken into the stomach they remain intact and protect the ox gall and pancreatin from being acted upon by the gastric juice. Pills properly coated with salol or keratin become immediately available as soon as they have passed into the alkaline solution in the duodenum. The author has employed the Bulgarian bacillus, with apparently good results.

4. **The Surgeon as Autocrat of the Operating Room.**—J. W. Kennedy refers to certain criticisms caused by the alleged unnecessary exposure and rough treatment of the anesthetized patient. The surgeon is the autocrat of the operating room and is responsible for the anesthetic, nurses, assistants, attendants, and visitors. There is but one solution for the vexed question of the sponge count which is the commonest source of legal complication; the operator must have a definite number of sponges and this number must be counted by the operator before and after each operation. The author's technique is simple. He works with three gauze sponges and three gauze towels. Before beginning the operation these sponges and towels are held to him for inspection, and these are the only ones which are permitted to remain in the abdomen during operation. He can count at a glance the three sponges which are held in a basin for inspection before he closes the abdomen. When the author has finished the intraabdominal work, the nurse counts these sponges by taking them out of the basin one at a time and placing them in another basin, they are then counted back to the first basin and this basin is then held to him for inspection. His final inspection clinches a sacred duty. It is never necessary to use more than three gauze towels and a like number of sponges at any operation. The absorbable ligature is not a necessity. The author notes that nothing but silk and silkworm gut need be used, as the sterilization of these materials depends upon one's self. Some of the most recent foreign textbooks on gynecology have recommended discarding all forms of absorbable ligatures. Kocher uses almost entirely silk and silkworm gut, and many of the leading institutions of this country are using silk and linen in operations for which one has often been criticised in the past.

**Journal of the American Medical Association.**

*April 25, 1914.*

1. Inflammation of the Gall-Bladder. Its Causes, Symptoms and Results. J. Tyson.
2. A Physiologic Treatment of Congestive Dysmenorrhea and Kindred Disorders Associated with the Menstrual Function. Third Note. Clelia D. Mosher.
3. A Case of So-called "Renal Diabetes" Possibly Traumatic in Origin. S. Strouse and A. H. Beifeld.
4. The Roentgen Rays in the Diagnosis of Gallstones and Cholecystitis. An Improvement in Technic. G. E. Pfahler.
5. The Absorption and Tensile Strength of Certain Absorbable Animal Ligatures. A Preliminary Report. W. G. Phillips.
6. A Clinical Method for the Rapid Estimation of the Quantity of Dextrose in Urine. S. B. Kleiner.
7. A New Fluroscopic Sign for the Differentiation of Pyloric Spasm of Extragastric Origin from that Associated with Uncomplicated Gastric Ulcer on or near the Lesser Curvature. F. Smithies.
8. The Effect of Operation on Kidney Excretion as Indicated by the Phenolsulphonephthalein Test. F. B. Block.
9. Form of the Electrocardiogram. Diagnostic Significance of Its Variations. H. E. B. Pardee.
10. Roentgen Ray as a Diagnostic Measure in Tuberculous Lymphadenitis. G. G. Davis.
11. An Extensive Case of Plantar Warts. R. L. Sutton.
12. Cancer of the Splenic Flexure. P. E. Truesdale.
13. Appendicitis Following Ingestion of Shot for "Cuban Itch." F. W. Hitchings and H. G. Sloan.

1. **Inflammation of the Gall-Bladder.**—J. Tyson reports three cases of cancer following this condition. The fulminating form often terminates in abscess and if unrecognized may terminate in perforation. Next to the typhoid bacillus the colon bacillus is a frequent cause. Adhesions are now recognized as a frequent cause of pain in the right upper abdominal quadrant. Other predisposing causes are sedentary habits, lack of exercise, tight lacing, childbearing, and abdominal tumors, which contribute to explain the four times greater frequency of the condition in women. The most important consequence on account of its frequency is gallstones, and the relation of these to cancer is now recognized, hence the necessity of prompt operation. Other results of neglected cholelithiasis are hardly less serious, such as abscess of the liver and biliary fistulas into various organs, including the veins, the intestine, the stomach, the bronchi, and the external integument. Atrophy of the gall-bladder is not infrequent. Tyson believes that in doubtful cases exploratory operation is sometimes justified, the more so since other conditions may be discovered which would also require operative relief. He does not deny that cancer may precede gall-bladder inflammation, but there is as much reason to believe that they were consequences in the cases reported by the author.

3. **"Renal Diabetes," Possibly Traumatic in Origin.**—S. Strouse and A. H. Beifeld report the case of a healthy young man in whose urine glucose was accidentally discovered during a life-insurance examination. The discovery of glucose followed about one year after a cranial trauma, but whether the two are related belongs entirely to the field of speculation. There were never any symptoms of diabetes mellitus. The excretion of dextrose was practically independent of carbohydrate intake. The blood-sugar twice determined in von Noorden's clinic was normal. Furthermore under condition which in a man of his age would certainly intensify the symptoms and increase the severity of a true diabetes mellitus, the patient has continued to remain in perfect health, and the urine has not taken on the characteristics of urine in diabetes mellitus. Not only does the patient meet the standards of renal diabetes, but also the clinical course of the case excludes the diagnosis of diabetes mellitus.

4. **Roentgen Rays in the Diagnosis of Gallstones and Cholecystitis.**—G. E. Pfahler concludes that gallstones can be shown by the *x*-rays only when they are composed of a substance of greater or less density than the surrounding tissues. This will usually mean that they must contain some lime-salts, though this quantity may

be small. The author's records show positive findings in 74 per cent., but in general one cannot count on more than 50 per cent. being demonstrable. A negative diagnosis at present has no value. It is possible that with the improved technique when one finds the gall-bladder small and still finds no stone, the *x*-rays may become of some value in negative diagnosis. The estimation of the value of this method of diagnosis must be based only on the work of roentgenologists who have mastered a good technique and who are thorough in their work. Definite information will be obtained only by continued cooperation of the surgeon and the roentgenologist.

**8. The Effect of Operation on Kidney Excretion.**—F. B. Block reports a series of cases which seem to indicate that the effect of ether anesthesia on healthy kidneys is practically nil so far as reducing the excretory power of these organs is concerned. Traces of albumin in the urine before operation should not give much concern, but clouds of albumin accompanied by casts should be considered seriously before the performance of elective operations. The duration of anesthesia, in any given case, does not in itself signify the amount of injury which the kidney will sustain. The position of the patient on the table, the character of the operation, and the administration of proctoclysis have not shown any effect on the percentage of phenolsulphonephthalein excretion after as compared with that before operation. In at least one-third of the cases, the author says, there is an increased excretion after operation.

**11. Plantar Warts.**—R. L. Sutton states that while the subject of plantar warts has been carefully studied by several authors within recent years, the true nature of the condition is seldom recognized even today. These cases are notoriously resistant to treatment and recurrence frequently takes place after excision. Of all the methods of removal the author gives first place to carbon dioxide snow. Fulguration comes second and Roentgen treatment third. Before the snow or electric current is applied, the epidermal lids of the little tumors should be removed by a 10 per cent. salicylic acid plaster. Roentgen treatment is especially applicable when there are numerous lesions, which frequently disappear as if by magic. In the case reported by the author all three of the methods mentioned were used and the cure of the warts was apparently complete in three weeks.

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### The Lancet.

*April* 18, 1914.

1. Gangrene of the Lung. H. B. Shaw.
2. The Morphology of the External Genitalia of the Mammals. F. W. Jones.
3. Intraspinous Treatment of General Paralysis. E. Mapother and T. Beaton.
4. Tonsils and Adenoids in Children. T. B. Layton.
5. Partial Gastrectomy for Gastric Ulcer Recurring After Gastro-jejunostomy. J. Cunning.
6. Contribution to the Treatment of Duodenal Fistula. C. A. Pannett.
7. Traumatic Dislocation of the Hip-joint Occurring in a Boy 10 Years Old. H. Rischbeith.
8. Plea for an International Anatomical Terminology Based upon the B.N.A. W. C. Morton.
9. Elementary Training of Children to Remove Mental Faults and Lessen Mental Deficiency. F. Warner.

**1. Gangrene of the Lung.**—H. B. Shaw states that this disease is a comparative rarity. Eichhorst has found it to occur in only 34 out of 27,472 cases coming under his clinical observation, i. e., in less than 0.1 per cent. Gangrene of the lung is a very serious malady, for according to Lenhartz 80 per cent. of the cases treated by medical measures die. The author reports a series of seventeen cases in which gangrene of the lung was secondary to hydatid of the lung, a fistula connecting the left bronchus with a tuberculous interbronchial lymphatic gland, traumatism, eclampsia, cylindrical and saccular bronchiectasis, pneumonia, pulmonary tuberculosis, bronchitis, spinal caries, empyema, abscesses of the lung, carcinoma of the esophagus, enlarged interbronchial gland, acute pneumonic tuberculosis, and Litten's traumatic pneumonia. This list is sufficient to show the varied causes that give rise to gangrene, but there are others. Infarction of the lung may be followed by gangrenous changes in the infarcted area, and possibly this was the cause of the gangrene in the case of eclampsia. If the embolus giving rise to the infarction is infected with putrefactive organisms the gangrene will occur at once in the infarcted area of the lung; such is the sequence of events in gangrene of the lung following gangrene of the leg or following endocarditis in puerperal cases. Gangrene of the lung occurs in cases of aspiration of food or other foreign bodies, and then forms a feature of aspiration or deglutition pneumonia, and gangrene has closed the scene in cases of bulbar paralysis and in cases of carcinoma or suppuration about the upper air passages. Aspiration following vomiting after the use of a general anesthetic has also caused gangrene of the lung. Gangrene is a not unusual occurrence in the insane and is associated with the difficulties of feeding these cases. Gangrene of the lung occurs in diabetes mellitus, and in this case the expectoration may be free from offensive odor. It is also met with in diphtheria. Gangrene of the lung occurs in typhus and typhoid fever, and is a well known accompaniment of aneurysm or of growths or strictures interfering with the patency of the bronchus. Lymphogenous gangrene of the lung has been noted in cases of carcinoma of the esophagus occurring independently of direct extension into the lung of the original growth. Subphrenic and hepatic abscesses may also cause gangrenous pneumonia, and operations on the stomach and duodenum may also be followed by it. Alcoholism and renal disease are important as strongly predisposing the individual to gangrenous pneumonia. Gangrene of the lung may be suspected when in the course of some one or other of the maladies above referred to, there is a sudden onset of expectoration of very offensive odor, associated with symptoms of severe toxemia, as shown by rise of temperature, rapid pulse, anemia developing rapidly, anorexia, rigors and wasting. The course of the malady may be very brief (ending in death or recovery) or the symptoms may go on for many months and still not be fatal, as cases may recover after many weeks of illness. Not only may the symptoms cease, but the lesion in the lung may entirely disappear.

**3. Intraspinous Treatment of General Paralysis.**—E. Mapother and T. Beaton report an analysis of their cases and of those treated by other observers, mainly American, which analysis shows little ground for the generally hopeful attitude adopted in regard to the treatment, for in none of the cases did the treatment produce changes in the mental or physical conditions other than such as are to be seen with almost equal frequency during the untreated course of the disease. While in several of the published cases changes in the cellular and globulin content of the cerebrospinal fluid have been noted, in none has any claim been made that the Wassermann reaction has been abolished in either the blood or the cerebrospinal fluid. Even if the disappearance of the Wassermann had been found during the treatment the cure of the disease would be unproven, as periods in which the reaction is temporarily absent have been shown to occur during its ordinary course.

**4. Tonsils and Adenoids in Children.**—T. B. Layton

believes that when the rule is made of having all carious teeth in children attended to before an operation on tonsils and adenoids is done, a very large number of these operations is avoided; this is so, both in the cases seen after an acute attack and in those which come up with slight symptoms of snoring and deafness from adenoids associated with enlarged tonsils. The author emphasizes the importance of breathing exercises. No operation is completed unless those be done regularly and deeply for two or three months afterwards. He believes that in a very large number of cases the operation is unnecessary if the exercises are efficiently done, and that very many operations are useless unless they are done. No operation equally small carries with it so many risks. There is the undoubted risk of the anesthetic. Hemorrhage may be severe. Infection is the cause of the other sequelæ. The least of these is a severe sore-throat which makes the child thoroughly ill for from several days to a fortnight; such a complication is sure to occur in some cases, and it is one's business to make these cases as few as possible. Acute otitis media, pneumonia, and metastatic abscesses are the most serious complications. Measles, scarlet fever, and diphtheria may also be looked upon as postoperative complications. In rheumatism and allied conditions the case is different from the other acute fevers. Here the operation determines the attack. The author has had three cases of attacks of chorea definitely beginning after an operation on the throat; one of these attacks was most intractable and kept the child away from school for somewhat over six months.

## British Medical Journal.

*April* 11, 1914.

1. Three Years' Sanatorium Experience of Laryngeal Tuberculosis. Sir St. Clair Thomson.
2. Tuberculin Treatment as the Essential Method of Dispensing Sanatorium Benefit. W. C. Wilkinson.
3. A Contribution to the Critical Study of Therapeutic Statistics. H. Sahli.
4. Some Observations on Tuberculosis of the Kidney. J. M. Renton.
5. The Surgery of Tuberculous Glands. A. Neve.
6. Multiple Subcutaneous Tuberculosis following Circumcision and Treated by Tuberculin. S. T. Champtaloup.
7. The Possibilities of Domiciliary Treatment in Phthisis. G. Jessel.

**1. Laryngeal Tuberculosis.**—Sir St. Clair Thomson, as the result of three years' sanatorium experience, reaches the following conclusions: The larynx is frequently involved in pulmonary tuberculosis. Even in the selected cases sent to the sanatorium it is met with in 25.6 per cent. A considerable number of cases (102 out of 795) are sent to a sanatorium without their showing active tuberculosis. These cases, if included in statistics, would largely help to invalidate the foregoing conclusion. In patients of the middle class laryngeal tuberculosis may be met with as frequently in females (28.3 per cent.) as in males (24 per cent.). Laryngeal tuberculosis occurs much more frequently (13.7 per cent.) in the early favorable cases of Group 1 than is generally recognized. In the more decided cases of Group 2 this proportion is doubled (27.1 per cent.) and in the advanced cases of Group 3 it is trebled (40.8 per cent.). The expectation of life amongst consumptives is markedly decreased by the complication of laryngeal tuberculosis. As a factor in prognosis the laryngeal condition deserves much more regard than it has hitherto commanded. Laryngeal tuberculosis may not infrequently be present, although the patient may make no complaint of the throat, and although the voice be unaltered. Hence: The larynx should be carefully inspected in every case of pulmonary tuberculosis. Improvement in lung and larynx frequently, but not necessarily progresses pari passu. In certain cases the larynx improves while the lung retrogrades. The converse rarely takes place. Arrest of laryngeal tuberculosis can be effected in a sanatorium in 20.7 per cent. of all cases. Limited and slight laryngeal lesions, particularly in Groups 1 and 2, may become arrested spontaneously with sanatorium treatment. The galvano-cautery is the best weapon we have at present for local treatment. It was only indicated in 20.22 per cent. of 178 cases, and it completed the cure in 40.60 per cent. of the cases in which it was employed. These satisfactory results have not so far been secured by any methods outside a sanatorium. Sanatorium treatment is at present the first and most valuable method we have for arresting laryngeal tuberculosis. Local measures are much more promising under sanatorium conditions. At present, in many cases, the diagnosis of tuberculosis is too long delayed, or the patient is sent to a sanatorium much too late to effect a cure. Hence, with one's present therapeutic resources one must, to get better results, urge the importance of early diagnosis and then prompt sanatorium treatment.

## Münchener medizinische Wochenschrift.

*March* 24, 1914.

**A New Method of Artificial Separation of the Placenta.**—Gabaston of Buenos Aires refers to a method devised in the University obstetrical clinic, the principle of which he terms the hydraulic. Sterile physiological saline infusion is injected into the divided umbilical vein. This problem was naturally first attacked by experiments conducted on ordinary expelled placentæ. The fluid first distends the large placental vessels; then the organ as a whole becomes much larger, suggesting distended erectile tissue. At last the small vessels in the cotyledons are unable to withstand the pressure and rupture and the fluid escapes at the uterine surface. In the natural condition some differences are necessarily present. Thus the uterus has contracted down upon the placenta, an act often held responsible for the normal separation of the latter by contracting the uterine surface at the placental site. The distention with water aids in detaching the placenta. In certain cases a retroplacental hematoma is the cause of premature detachment and this action of a fluid is of the same mechanism as the preceding artificial procedure. There are several advantages in the new method—among the chief of which is that it does away with the introduction of the possibly nonsterile hand. In many cases of puerperal fever, there is a history of manual delivery.

**Pulmonary Tuberculosis in Childhood.**—It used to be taught that up to puberty or thereabouts the average child did not suffer from the adolescent or adult types of pulmonary phthisis. We were to fear chiefly tuberculosis of the bronchial glands, acute miliary tubercle, etc., and especially the meningeal location. To-day Rach, an assistant of von Pirquet shows that such teachings are largely antiquated. Children and even nurslings present lesions which do not differ essentially from those of much older subjects. We are now able to isolate six types of pulmonary tuberculosis in childhood. I. Ghon's primary focus, which may appear anywhere in the lung. II. The intumescent tuberculosis of the bronchial glands. III. The intrapulmonal hilus tuberculosis. IV. Miliary tuberculosis. V. Nursling's phthisis and VI. apex tuberculosis. This classification is largely the result of studying radiographs. Nursling's phthisis includes cavitary lesions and caseous pneumonia. Apex tuberculosis may begin as early as the seventh year.

# Insurance Medicine.

## SUGGESTIONS TO MEDICAL EXAMINERS.

BY THE INSURANCE EDITOR.

### THE MORTALITY AMONG WOMEN.

MEDICAL examiners are apt to approach the examination of women with a feeling of more or less diffidence and nervousness and, consequently, fail to ply some of the pointed questions which appear on the blanks or make a thorough examination. The writer proposes in this and following contributions to show the importance of careful work in examining among this class of applicants.

It was formerly the custom to charge an extra premium to women, or to place them in a special class as to dividends which amounted to the same thing. The custom was justified by the statistics available at that time which showed a higher mortality among insured women than among insured men. The higher rates and the restrictions made it comparatively difficult to solicit insurance among women than men, and the agents preferred to work where their efforts were more likely to meet with success. One of the large companies published a synopsis of its experience several years ago. This company had been insuring women for ten years on the same terms as men, and the results had been fully as satisfactory as among men. The experience of this company, as well as that of others, indicates that, provided sufficient care is exercised in eliminating undesirable risks, the mortality is lower when insurance on the lives of women is actively solicited and the rates are the same as those charged to men. On the other hand, when women were charged an extra premium and were not actively canvassed for, most of them who bought insurance did so voluntarily with the widely extended exercise of self selection that must be expected under such circumstances.

The Medico-Actuarial Investigation Committee have made a study of the mortality among 393,032 women who had been insured in a number of companies, dividing them into four classes: (1) spinsters; (2) married women, beneficiary husband; (3) married women, beneficiary other than husband; (4) widows and divorced. Under-average, impaired or substandard cases were excluded. The great majority of the cases had been accepted under modern conditions, as only one-eighth of the policies had been in force more than ten years and less than one-half more than five years in force.

The general mortality among the 393,032 women studied under the four classes is indicated in the following table:

| Class | Actual Deaths | Expected Deaths | Ratio of Actual to Expected Deaths, per Cent |
|---|---|---|---|
| Spinsters | 3,557 | 4,412 | 81 |
| Married women, beneficiary husband | 3,235 | 2,566 | 126 |
| Married women, beneficiary other than husband | 4,403 | 3,869 | 114 |
| Widows and divorced | 4,312 | 4,124 | 105 |
| Total | 15,507 | 14,971 | 104 |

These tables can give only a general idea, as the lives are classified according to the conjugal condition at the date of the issuance of the policies; a certain percentage of the spinsters and widows marry afterward, and some of the married become widows.

If a further analysis is made according to the age of the policy and the ages at entry, it is seen that the greatest divergences between the ratios of the actual and expected deaths among the four classes are found in the earlier years. The influence of the hazard of child bearing probably accounts for a part of the high mortality at the younger ages of entry.

ALL AGES AT ENTRY COMBINED

RATIO OF ACTUAL TO EXPECTED DEATHS BY M. A. TABLE

| Policy Years | Spinsters per Cent | Married Women Beneficiary Husband, per Cent | Married Women Beneficiary Other than Husband, per Cent | Widows and Divorced, per Cent |
|---|---|---|---|---|
| 1 | 82 | 146 | 135 | 104 |
| 2 | 72 | 143 | 133 | 106 |
| 3 | 81 | 129 | 117 | 108 |
| 4–5 | 85 | 127 | 115 | 107 |
| 6–10 | 81 | 111 | 106 | 104 |
| 11–24 | 80 | 108 | 104 | 102 |

ALL POLICY YEARS COMBINED

| Ages at Entry | Spinsters, per Cent | Married Women Beneficiary Husband, per Cent | Married Women Beneficiary Other than Husband, per Cent | Widows and Divorced, per Cent |
|---|---|---|---|---|
| 15–24 | 100 | 150 | 158 | 210 |
| 25–29 | 83 | 147 | 144 | 129 |
| 30–39 | 73 | 129 | 123 | 109 |
| 40–49 | 70 | 109 | 102 | 104 |
| 50–62 | 68 | 98 | 100 | 103 |

The ratio of 210 per cent. in the case of widows and diverced, ages 15-24, is of little value, as there happened to be only 50 deaths recorded in this class. The deductions regarding these four classes which should prove useful to the examiners, as well as the home office forces, may be summed up as follows:

Among spinsters the mortality is favorable, adverse selection is evidently exercised to only a very small degree, if at all, and the mortality, compared to that of men, decreases with advancing age at entry.

Among married women, the mortality is distinctly higher than that among men and decreases with the advancing age at entry. A powerful self selection against the interests of the companies is indicated by the heavier ratio of actual to expected deaths in the first and second policy years. The aggregate experience is less favorable among married women with husband as beneficiary than with some other beneficiary.

Among widows and divorced women, the mortality lies between that of spinsters and married women. It progresses according to policy year about the same as spinsters and gives no material evidence of self selection.

With the knowledge gained through a study of these tables which point out the cases in which careful examinations and searching selection are especially needed, there is no reason why women in the four classes should not be insured on the same terms as men. Adverse selection must be guarded against and strict attention must be given to the insurable interest of the beneficiaries. The spinsters, for instance, had been in receipt of good incomes and had not followed occupations requiring long hours and hard work, and took out insurance in favor of some dependent. On the other hand, one company reported that married women who paid the premiums out of their own incomes and whose children were the beneficiaries, showed a mortality of 90 per cent. of the standard, while married women with no children and whose husbands paid the premiums and were the beneficiaries, had a mortality of 126 per cent.

# Book Reviews.

PRINCIPLES OF SURGERY. By W. A. BRYAN, A.M., M.D., Professor of Surgery and Clinical Surgery at Vanderbilt University, Nashville, Tennessee. Octavo of 677 pages with 224 original illustrations. Price $4.00 net. Philadelphia and London: W. B. Saunders Company, 1913.

THIS book is written in easy colloquial style with no apparent attempt at imposing verbiage and for this reason is one of the most interesting as well as instructive contributions to this subject that has appeared in recent years. In many ways the style reminds one of that facile writer, the late Nicholas Senn. It is more than a treatise on the principles of surgery, for the author not only presents the results of the latest researches along the lines of surgical pathology and bacteriology and discusses the etiology, pathology, and diagnosis of the various surgical conditions, but also suggests methods or lines of treatment, and that, too, sometimes at great length; while in many instances the author's ideas as to prognosis and after-treatment are freely given. In the first two-thirds of the book surgical bacteria, inflammation, suppuration, gangrene, burns, thrombosis, embolism, erysipelas, tuberculosis, and other subjects usually found under this title are discussed. The final third is devoted to the consideration of tumors and the author brings out very forcibly the need for early recognition and operation when there is any suspicion of present or possible future malignancy.

The frequent overstepping of the bounds naturally imposed by the title adds very materially, in the opinion of the reviewer, to the value of the book, as the suggestions for treatment are based on sound common sense and good surgical judgment. This latter quality is exemplified on many occasions, as, for example, in the recommendation of surgery in cases of gastric and duodenal ulcer during the *first* attack is marked improvement or cure does not result after six or eight weeks of medical treatment; and the further suggestion that "if, after apparent cure, recurrence takes place, the case becomes surgical." Again, recognizing the occasional tendency of sperficial moles to undergo malignant degeneration under the influence of irritation, he says "Deal with them summarily or leave them absolutely alone." Bryan has not hesitated to express his opinions. Thus, in the chapter on Sepsis, we find the following: "There is no place in modern work for the ignorant, heavy handed, careless surgeon." The newest methods of diagnosis are amply referred to and in all departments the book seems up to date. The illustrations, all original, are good and to the point, but their effectiveness is impaired in many cases by poor printing. Occasional slight errors, mostly typographical, have been noted by the reviewer; but one to which attention should be called occurs in the 13th line on page 409. The author advises us that the word "arteries" is intended instead of "veins." The sentence *should* read: "The most common type of the condition (embolism) is that affecting the pulmonary arteries."

The book is full of "meat"; the style is graceful and easy, and the facts are presented in a way that compels the attention of the reader. It is an interesting book—one that will be carefully read and not quickly consigned to the practical oblivion of the book-case.

THE STUDENT'S HANDBOOK OF GYNECOLOGY. By GEORGE ERNEST HERMAN, M.B., F.R.C.P. (London), F.R.C.S. (England); Consulting Obstetric Physician to the London Hospital, Consulting Physician-Accoucheur to the Tower Hamlets Dispensary, late President of the Obstetrical Society of London and of the Hunterian Society, formerly Physician to the General Lying-in Hospital and Examiner in Midwifery to the Universities of London, Oxford, Cambridge, Durham, and the Victoria University, the Royal College of Physicians, and the Royal College of Surgeons. Second Edition. Revised by the Author, with additions by K. Drummond Maxwell, M.D. (London), F.R.C.S. (England), Assistant Obstretric Physician to the London Hospital, and Physician to Queen Charlotte's Lying-in Hospital. With six color plates and 194 figures in the text. Price $2.50 net. New York: William Wood & Company, 1914.

IN this manual the author has taken common symptoms and described under each the principal diseases which cause it. Anatomy, anesthetics, asepsis, and antisepsis are not considered because these subjects are of such vital importance that they could not be compressed into incidental chapters. The book is well illustrated and is to be highly commended. It will appeal to those who wish a comprehensive handbook on gynecology.

THE PATHOLOGY OF GROWTH—Tumors. By CHARLES POWELL WHITE, M.D., F.R.C.S., Director, Pilkington Cancer Research Fund; Pathologist, Christie Hospital, Manchester; Special Lecturer in Pathology, University of Manchester. Illustrated. Price $3.50 net. New York: Paul B. Hoeber, 1913.

WHILE there are many excellent books in German on the subject of tumors, and a few in French, there is a great scarcity of modern material from the English side. The volume under consideration is welcome, therefore, because of the lack of rivals as well as on account of its own real qualities. The writer, well known as a student of the subject with which he deals, has produced a volume of singular freshness and originality of treatment, while still keeping within the standard lines of classification and etiology. The pictures are largely photomicrographs, and, therefore, show what is really in the sections, and not what some artist thinks is there. They are well selected, and the only criticism which can possibly be raised is that the technical part of the half tone reproductions is not of the same quality as the original photographs. The type is good; the book is well bound, and there is a very useful appendix explaining some of the weird Greek compounds used in describing tumors. The volume can be commended, both as a student text for collateral reading and as a book of value to the surgeon.

TROPICAL MEDICINE AND HYGIENE. By C. W. DANIELS, M.B. (Cantab.) F.R.C.P. (London); Lecturer on Tropical Diseases, London Hospital; Formerly Director London School of Tropical Medicine; Director Institute for Medical Research, Federated Malay States. In Three Parts, with colored and other illustrations. Part I—Diseases due to Protozoa. Second Edition. Price $3.00 net. New York: William Wood & Company, 1913.

IT is five years or thereabouts since Dr. Daniels published the first edition of Part I and the marked progress of tropical hygiene and the knowledge gained of the nature and treatment of tropical diseases has rendered the issue of a second edition opportune. The reputation of the author, both from the standpoints of practice and theory so far as tropical sanitation and the treatment of tropical diseases are concerned, stamps a work from his pen as in many respects authoritative. While in the present volume all due attention has been paid to the chemical features of maladies more or less peculiar to the tropics, special prominence has been given to their etiology and prevention. As far as possible the diseases discussed have been grouped according to their known or probable causation, and the author states that experience has justified this method of grouping. In the first part those diseases are dealt with which, like malaria, are known to be due to protozoa and others, such as yellow fever, which are probably due to these organisms. The volume presents in concise form a large amount of information calculated to be of much value to practitioners and students of tropical medicine.

THE INTERVERTEBRAL FORAMEN—An Atlas and Histologic Description of an Intervertebral Foramen and Its Adjacent Parts. By HAROLD SWANBERG, Member American Association for the Advancement of Science. With an Introductory Note by Prof. HARRIS E. SANTEE. Illustrated by 16 full page plates, none of which have ever before appeared in print. Price $3.00. Chicago: Scientific Publishing Co., 1913.

THIS book contains an atlas and histological description of an intervertebral foramen and adjacent parts, with special reference to the relations of the nervous structures. Clear and unique plates are shown of the spinal canal, intervertebral foramen, and portions external to the foramen illustrating the course of the anterior and posterior roots, white and gray rami communicantes of the sympathetic, etc. The relations of the various parts of the spinal nerve and sympathetic fibers to bone, fibrous tissue, fat, muscle and blood-vessels are seen and thoroughly explained. Every effort has been made to give the reader a clear and concise idea of the normal structure and situation of these parts. A study of this work helps to determine whether there is substantial ground for the doctrine that compression in the foramen is the immediate cause of all or of a considerable number of pathological conditions.

# Society Reports.

## MEDICAL SOCIETY OF THE STATE OF NEW YORK.

*One Hundred and Eighth Annual Meeting, Held in New York City, April 27, 28, and 29, 1914.*

(Special Report to the MEDICAL RECORD.)

(*Continued from page* 821.)

### SECTION ON OBSTETRICS AND GYNECOLOGY.

*Tuesday, April 28—First Day.*

DR. ROSS MCPHERSON IN THE CHAIR.

**Sterility in Women.**—Dr. E. WILLIS FORD of Utica read this paper. He called attention to the fact that one marriage out of eight among people who were apparently in good condition failed of offspring. Various theories had been propounded to account for these failures, none of which seemed to be of much value. There were a few cases of young women who were apparently healthy and had never had any serious illness, excepting menstrual pain and generally a troublesome leucorrhea, usually with an undeveloped neck of the uterus. These women were very liable to develop serious uterine disorders later in life and sterility was one of them. In the early stages of scientific gynecology the attention of the profession was largely directed towards conditions of the cervical canal, flexions, versions, and stenoses, that suggested operations upon the cervix and uterus, such as dilatations, divulsions, and the slitting of the lip of the uterus, in the effort to straighten the cervical canal. It was found that the scar tissue after various surgical procedures often contracted and was generally inelastic, and sometimes proved as much of an obstruction as the original deformity. It was later the fashion to dilate and curette the uterus and pack it. In the observation of most men, however, a small contracted uterus with an unhealthy endometrium followed a severe curetting. Hope had been entertained that conservative surgical procedures would relieve many cases of dysmenorrheal sterility, independent of slightly abnormal positions and conditions of the uterus. But the number of cases that afterwards conceived on account of such conservative treatment had been disappointingly small. After hearing Pozzi five years ago, his surgical procedure commended itself to the writer. Throwing out all cases of former infection, or the possibility of irregularities of living, or lesions about the uterus or adnexa, otherwise than what was found by vaginal examination as depending upon the lower segment of the uterine canal, he began the operation on a limited number of cases and now had thirty-five to report. The cases of dysmenorrhea with perverted secretions and sometimes sterility, due to a small conical neck, with a round pinhole opening, could be converted into a normal looking vaginal cervix by the Pozzi operation and the true function of the uterus might be restored in many instances. The operation, it must be confessed, was sometimes difficult to do, and required more time than the average cervical operation. In the opinion of the essayist the entire point of procedure was to cover any raw surface with mucous membrane, so that no scar tissue would follow. In making the slit in either side of the canal the important thing was to have it so that the anterior lip was as nearly as possible the same size as the posterior lip. The removal of a bit of muscle, or even of exudative tissue of each raw surface, so as to give room to bring the membrane over and cover in the spaces, was sometimes difficult to do. Pozzi used a knife, but, in the experience of the writer, sharp pointed scissors were better. The catgut used was chromaticised and very small. But little tension should be put on the sutures. It was usually necessary to use a small sharply curved needle to catch up a bit of muscle at the edge of the open cervical canal in order to make the stitches hold. It was not necessary that the dilatation which preceded this operation should have been extensive. This operation was not of much use in septic cases. If there was a cicatricial band at the internal os, it was incised forward to the anterior lip, and a very little iodoform tape was necessary to hold it open, while the two newly formed lips of the cervix were held apart, and surrounded by small strips of iodoform gauze. Formerly galvanism was used for a considerable period in these cases, and in the history of many of the cases pregnancy followed. This treatment had to be carried on for several months, and the results were good for a time, but they did not compare with the shorter and more simple procedure of Pozzi. The speaker felt convinced that if early and complete drainage was secured by this simple procedure in these cases of cervical deformity, many of the conditions met with in later life could be prevented and sterility might be avoided in many instances.

Dr. A. J. RONGY of New York called attention to the change in our conception regarding primary sterility in women that had come about during the past few years. They had just begun to realize that they were unable to cure every woman who was sterile by some operation on the cervix. A review of the literature strongly impressed one with the fact that the results of the various operations on the cervix were not at all pleasing and that the percentage of recorded cures was small. The confidence of this class of patients had been abused and operations had been performed too often on them. He had not yet seen a woman who had been sterile for a number of years who had not had some form of operation on the cervix. The harmful effects of these operations, especially in the presence of infection, need not be pointed out, for they had all seen them, and knew the great number of cases which developed such severe pelvic infections as to become invalids for life. They must realize that they did not understand every physiological process associated with conception and pregnancy, and therefore it was not in every case that the cervix or the cervical canal was at fault. There was a class of sterile women who showed a train of symptoms denoting lack of ovarian secretion. This class of patients were usually relieved by large doses of lutein extract. This tended to regulate the menstrual flow, lessened the dysmenorrhea, and improved the circulation in the uterus, thus putting the endometrium in a better condition. He had given as much as thirty grains a day of luetin extract in order to accomplish the desired effect. The action of this drug must be watched, and as soon as slight pain appeared in the lower abdomen or in the joints it must be temporarily discontinued to be resumed later. In the study of sterility the male aspect of the subject was frequently overlooked. In some instances where the husband was apparently healthy the spermatazoa were of feeble motility and died before they reached the internal os. In order to overcome this obstacle it had been the custom of the speaker to inject the seminal fluid into the uterus. Two patients were at present pregnant as the result of this procedure. In properly selected cases this method was very useful. It was their duty to point out to the profession that the operative results in primary sterility were not good, so that every sterile woman should not be subjected to one of the accepted operations for this condition.

**Uterine Hemorrhage in Young Girls.**—Dr. HENRY C. COE of New York presented this paper. He declared that the ambition of the gynecologist to vie with the general surgeon in the development of operative technique had led to the neglect of what might be called the scientific side of their specialty. The operating table had always been more popular than the dead house and the laboratory, and thus our foreign confrères, admitting the boldness and originality of our surgical work, had less respect for our scientific observations in the direction of pelvic pathology. Uterine hemorrhage was the most familiar symptom of all and the most significant. The subject of menorrhagia and metrorrhagia at puberty had attracted little attention in this country, though it had been carefully studied abroad. A large number of the causes which operated to produce hemorrhage in older women had been found to be responsible for the hemorrhage of girls at the time of puberty, but it was not of these cases of obvious etiology that he would speak, but rather of those cases in which no discoverable cause, either local or general, could be found. He considered the anatomical, physiochemical, and ductless gland theories as to the etiology of these hemorrhages as too theoretical to bear the clinical test. The statement of Klein that hormones from the internal secretion of the ovary acted directly upon the vasodilators in the uterine mucosa, causing the menstrual flow, was slightly more plausible as an explanation of amenorrhea in poorly developed young girls in whom the ovaries were hypoplastic. Mathes applied the general term asthenia to subjects whose pelvic as well as other organs were not only maldeveloped but did not respond to those stimuli of the sympathetic system which kept them in a state of normal to-

nicity, hence he despaired of the value of local treatment in such patients. It seemed to the writer that the well-known intense pelvic congestion often accompanying early menstruation in perfectly healthy subjects should be considered in the search for unusual and hypothetical explanations of hemorrage in young girls. Every surgeon who was familiar with the appearance of the pelvic viscera during the height of the menstrual wave, as well as every physiologist who had studied sphygmographic tracings, would admit that this condition bordered on the pathological. Lawson Tait had called attention to the extreme congestion of the normal ovary which might precede the flow, at times so extreme that it had been known to result in ovarian apoplexy, fatal in a few instances. It required no stretch of the imagination to conceive of such a pathological degree of pelvic congestion in children who developed rapidly and beyond their years, which, through some impalpable cause, anatomical, psychical, or otherwise, would express itself not only in profuse menstrual flow, but in a more or less constant metrorrhagia. This class of cases should be of special interest to the general practitioner and he should not trust them, as he had too frequently done, to the care of nature. He was the one really fitted to carry out the proper course in such cases. He could regulate the entire life of the young girl at this critical period as to the gastrointestinal tract, education, amusements, athletics, and all conditions, both psychical and physiological. Medication during the establishment of the menses, if indicated at all, would not include any of the drugs which might disturb the equilibrium of the pelvic circulation. When metrorrhagia assumed pathological importance, hydrastin and stypticin might control the hemorrhage. Adrenalin and the other glandular extracts which increased blood pressure had seemed to be of value in certain cases. A combination of strychnine would suggest itself when muscular atony was present. Ergot would not seem to be indicated in the undeveloped state of the uterus. At the best the use of all drugs was empirical. Astringent douches were sometimes beneficial, but there were anatomical reasons why they were distasteful and difficult to apply. Examination of the pelvis, preferably under anesthesia, should not be unduly delayed, and this included diagnostic curettement in most instances in order to clear up the diagnosis. The choice of operation would depend on the severity of the symptoms and the local condition. The writer had not found it necessary to do more than curette. Care should be exercised in making caustic applications to the endometrium, which were not absolutely controllable and might cause irreparable injury to the delicate organ in subjects of tender years. A colleague had met with success in the treatment of obstinate hemorrhage in young women by ligating the uterine arteries *per vagina*, which was practically out of the question in children. There might be cases in which explorative abdominal section might be elected, even when the pelvic examination was negative, but it would be a desperate case indeed in which both ovaries would be removed, not to speak of supravaginal amputation of the uterus.

Dr. Harvey R. Jack of Hornell said that he had had experience in many of these cases. In several of them repeated curettements, hygienic measures, parotid gland, thyroid, and styptol had been administered without relief; those patients seemed scarcely to recover from the exhausting hemorrhage of one menstruation before another began. Thyroid extract long continued in small doses had been of benefit in a few instances, but the thing that had cured every one of these patients so far was calcium chloride. One case in particular had been brought from the condition of a bleached out nervous wreck to brilliant health by the use of this drug alone.

*Wednesday, April 29—Second Day.*

**Retrodeviations of the Uterus in the Puerperium and in Nulliparous Women.**—Dr. Francis C. Goldsborough of Buffalo read this paper, in which he affirmed that the percentage of retrodeviations occurring in hospital patients examined two weeks after delivery was much smaller than in private patients examined at the end of four weeks. This would indicate that the displacement occurred rather late in the puerperium. For several years he had been examining patients at the end of two weeks and again two or three weeks later with the idea of determining what were the points in the causation of the retropositions, and how they could be prevented. The writer's notes on ninety-one examinations made at the end of two weeks and again at the end of a month showed that the predictions made at the end of the two weeks of what the position would be at the end of a month were correct in seventy-six cases; of these in fifty-seven cases it was predicted that the uterus would be in normal position; in nineteen it was predicted that the uterus would be back. This left fifteen in which the prediction was incorrect. From these figures it would seem that in many cases one could determine at the end of two weeks whether or not the uterus would become retroverted or retroflexed. It might be argued that there was no use in examining the patient at the end of two weeks if she was to be examined at the end of four weeks; but this was not the case, as the earlier the displacement was found the easier it was to correct it, other things being equal. At the end of two weeks there was no difficulty in getting the uterus in proper position. The position of the cervix was the best guide as to whether the fundus would go forward or backward. If the cervix was found far back in the pelvis, near the sacrum, as involution progressed the intra-abdominal pressure would cause the fundus to tip slightly forward, whereas if the cervix was about mid-pelvic at the end of two weeks, or a little anterior, the fundus would be on the promontory of the sacrum; in such cases as the uterus became smaller it would be forced backward by the intraabdominal pressure. Here, if a pessary was introduced which would hold the cervix in the posterior part of the pelvis, as the uterus involuted the fundus would not have room posteriorly and would be forced into an anterior position. The amount of relaxation of the vaginal outlet did not seem to play any part in the process, for, in many cases with considerable relaxation, the uterus would be found in normal position, while in others with an intact perineum the uterus would be found retrodisplaced. The length of the anterior vaginal wall seemed to play a part; when this was short the cervix was held near the symphysis and the fundus went back. The amount of relaxation of the uterosacral ligaments probably also played a part. The percentage of cases of retroposition that could be cured by the use of a pessary in the early weeks of the puerperium was quite large. The ordinary pessary served the purpose very well. In the majority of the cases of retrodeviations the malposition of the uterus could have been prevented or corrected during the early weeks of the puerperium. The question as to whether retrodeviation in nulliparous women caused symptoms was open to argument. From his study of the behavior of the uterus during involution the conviction had grown that in many, if not all, nulliparous women with a retrodeviation the position must be considered normal. In nulliparous women a very careful study of a case should be made before attributing symptoms to a retrodeviation.

**The Effect of Subsequent Labors of Operations for Uterine Displacements.**—Dr. George W. Kosmak of New York read this paper, in which he presented certain abnormalities in labor as noted in a series of cases in which various operations for the relief of uterine displacements had previously been performed. He cited several instances where after the Kelly or Gilliams operation there was some difficulty in getting the head to engage; when this was once accomplished there was no further trouble. In these cases no adhesions had resulted, as the uterus was found freely movable through a restricted area after the operation. In another class of cases in which fixation of the fundus of the uterus had occurred either by deliberate intention or from accidental adhesions following Kelly or Gilliam operation, dystocia was somewhat more serious and an operative delivery was often found necessary to avoid dangerous consequences to the mother. After citing several illustrative cases the writer spoke of a third group of cases in which an interposition operation had been done without effective means having been taken to sterilize the patient at the time of operation. Here the degree of dystocia was apt to prove of serious consequence to the mother, and the number of cases of this kind which had thus far been reported constituted a serious warning to those who had done this operation without the precautionary measure referred to. DeLee stated that where adhesions of the uterus to the abdominal wall had resulted from ventrosuspension or fixation serious dystocia was possible, and his own experience had noted the following complication: Abortion, shoulder and breech presentations, obstructed labor requiring cesarean section, placenta prævia, inertia uteri, retention of placenta, and postpartum hemorrhage. He concluded that the frequency of these complications should forbid the practice of any form of ventral fixation in child-bearing

women. The worst forms of dystocia occurred in those cases where the fixation involved the fundus. Vagina fixation he considered equally serious during pregnancy for the thinning of the posterior wall of the uterus and the extreme upward displacement of the cervix might lead to serious interference with the progress of labor and even induced uterine rupture. After quoting other authors to show the deleterious effects on labor of the various operations for the correction of retrodisplacements of the uterus, where this organ was not permitted to enlarge at will during pregnancy, the essayist called attention to the fact that notwithstanding all these warnings one still met operators who did not take into account the possible complications of pregnancy where deformity required operation. The operator was not sufficiently interested in what would happen to his patient later on. In many hospitals the gynecological service was attended by the surgeons who performed the gynecological operations as a matter of necessity rather than choice. Not having a proper obstetrical training they went about their work without a knowledge of what it might entail later. While not condemning the Kelly and Gilliam operations, which the author said had served a useful purpose in his hands, he commended the various operations which plicate the round and broad ligaments, and thought it preferable to resort to these rather than to operations which created artificial supports for the uterus. The various vaginofixation operations should not be resorted to in childbearing women, or, if used, should be accompanied by effective means of sterilization.

**Asphyxia Neonatorum and Its Sequelæ.**—Dr. WALTER P. MANTON of Detroit presented this communication. He regretted that statistics were so deficient that no reliable data could be had as to the frequency of asphyxia and its sequelæ in this country. In the recording of still births, boards of health should insist on the report of causes of death, and no certificate should be accepted unless this was definitely stated. Poppel had estimated that the death rate of asphyxiated children within the first week of life was seven times that of those born normal. The customary division of asphyxia neonatorum into livida and pallida was a very convenient one. The former condition was usually ephemeral but the "blue" variety might pass into the pale anemic form with immediate or near future death. Even resuscitation in such instances did not insure the continuance of life, for a large percentage of these children perished within the first eight days. Among the most important and serious manifestations of neonatal asphyxia were those of cerebral pressure, which must be differentiated from those arising from asphyxia of a purely suffocative type. When death resulted autopsy revealed small punctate hemorrhage into the meninges of the brain and cord. Under timely and proper treatment children survived this state. There might be pressure symptoms showing more extensive and serious involvement of the brain structures. In these cases the face and body surface was extremely pale; there was absence of muscle tonus; the extremities were relaxed, and external reflex excitability was wanting. The heart's action was extremely feeble and rapid, but was sometimes slowed; and respiration, once established, was irregular, spasmodic, and shallow. The pupils were contracted, strabismus might be present, and hemoplegia and convulsions might develop. There were other cases in which the intracranial hemorrhage was slight at birth but gradually increased until the severe symptoms showed themselves and the child succumbed. Alienists had laid special stress on these hemorrhages as causing the paralyses of children. Mendal and Mitchel stated that 4 per cent. of asphyxiated children became idiots from involvement of the frontal lobes. Other authorities had emphasized the relation between asphyxia and subsequent nervous affections. From his own experience he was inclined to believe that these statements had been greatly exaggerated. While not denying the influence of difficult and assisted labor in the production of these post-natal and nervous conditions, Konig had shown that diseases of the individual lues, alcoholism, heredity were really of greater importance. However, the fetal death rate from neonatal asphyxia was large and it seemed that more careful obstetrical supervision could and would reduce the mortality from this cause. After making a plea for the care of the mother during gestation and for the prenatal care of the infant, the writer urged the obstetrician to ascertain the state of the pelvic floor and the parturient canal long before the expected confinement and thought that pelvimetry was too infrequently employed. In elderly primipara and in women whose vaginas had a reduced distensibility from natural conditions or from disease, cesarean section offered the best chance for the child, and was not more serious for the mother than a prolonged and tedious labor terminated by high forceps. With increasing experience he thought that placenta prævia and in suitable cases eclampsia would be placed in the same category. He was also convinced that pregnancy should not be allowed to continue much, if any, beyond its estimated date of termination, while in mild contracted pelves it should be started from two to three weeks before that date in the interests of the child. As protracted delivery was a promoter of asphyxia, the integrity of the membranes must be preserved until their purpose was accomplished. To prevent the head being driven repeatedly against too stiff unyielding tissues the rubber bag dilator should be more frequently employed. Excessive overlapping of the bones and the misuse of forceps were a frequent cause of intracranial hemorrhage and asphyxia. To avoid undue continuous pressure and permit of the readjustment of the circulation in the brain and meninges traction should not be too long continued; the forceps blades should always be locked between pulls, and a sufficient interval allowed for circulatory reestablishment. When properly employed the forceps were valuable preventives of those accidents which led to fetal asphyxia and death. The position of the cord was also given too little attention. In 868 cases of asphyxia studied by Wicke the condition was found to be due to misplaced cord in from 10.7 to 33 per cent. In all cases the fetal heart rate should be watched during the whole of labor and when danger threatened timely application of the forceps should be effected. When the life of the child was threatened ordinary maternal lacerations should not be considered. The immediate aseptic repair of cervical lacerations of moment and perineal tears gave good results and were worth doing to save the life of a live and lusty child. The essayist advocated the gentler methods of resuscitation, as the Ahkfeld bath, Sylvester's, Laborde's, and Bird's methods. In intracranial hemorrhage such rough methods as that of Schultze should be avoided, since nothing could thereby be accomplished except perhaps to increase the hemorrhage. The use of the pulmotor was too recent to warrant positive conclusions regarding its efficiency. In better obstetrics lay to a large extent the prevention of neonatal mortality.

*Thursday, April 30—Third Day.*

**Infection with the Bacillus Coli Communis, Complicating Pregnancy, Labor, and the Puerperal State; Its Medical and Surgical Treatment.**—Dr. EDWARD P. DAVIS of Philadelphia referred to the characteristics of the colon bacillus and stated that its action in pregnancy had been extensively studied in pyelitis. The germ gained access to the kidneys through ascending infection from the bladder, or by its passage from the wall of the bowel through the continuous ureter to the pelvis of the kidney. It might also enter the kidney through the blood current. Appendicitis and cholecystitis had been shown to be due at times to the invasion of the colon bacilli, and colon bacilli infection of the large intestine had been seen complicating pregnancy in women who had neglected hygienic precautions during pregnancy, or who had taken irritant drugs to empty the bowels. It might remain latent during pregnancy and become active after the uterus was emptied and was responsible for many of the symptoms of puerperal septic infection. Colon bacillus infection complicating the puerperal state might be mistaken for typhoid fever or malaria. This organism might also be the cause of septic abortion. In prophylaxis, as the colon bacilli were most abundant in the colon, the parturient woman demanded special attention to the condition of the bowels. The writer had seen fatal infection with this germ follow the use of very irritating purgatives taken by the patient in the hope of producing miscarriage. Laxatives which produce a competent daily evacuation and could be used over long periods should be employed. Such were compound licorice powder, or preparations of olive or petro'eum oil. Where the colon remained persistently distended high colonic flushings with sterile salt solution might be administered. As the colon bacilli were usually destroyed successfully by the resisting properties of the patient's blood, it followed that anemia during pregnancy must be avoided. In the treatment of colon bacillus pyelitis in pregnancy, rest in bed, a diet of

pasteurized milk, or lactic acid milk, the use of mildly saline waters, flushing of the colon, and the application of dry cold for the pain were usually successful. Further treatment if necessary could be carried out by catheterizing the ureters and locating the pyelitis, and then irrigating through the uretral catheter with non-irritating antiseptics. Should all such measures fail operation was justifiable. The writer had treated successfully three cases, removing the appendix and draining the right kidney, without interrupting the pregnancy. It might be difficult to differentiate a right-sided pyelitis from appendicitis, cholecystitis, rupture, ectopic gestation, or salpingitis. Under such conditions where the patient did not improve exploratory operation was indicated. In a colon bacillus cholecystitis pregnancy did not in any way contraindicate drainage of the gall-bladder. Colon bacillus infection of the bowel should be treated by prompt removal of the appendix if tenderness could be located in that region. Where the infection was not severe and the symptoms were those of abortion or premature labor the leucocyte count should be carefully watched, and, if there were no symptoms of tenderness or distention and the bowel did not become paretic, the patients might be treated medically. The writer had seen numerous cases of this condition in which the symptoms did not justify surgical interference and recovery followed medical treatment. Infection of the uterus and appendages by the colon bacilli gave characteristic symptoms and might be diagnosticated by bacteriological examination of the contents of the uterus. The treatment of this condition did not differ from that of uterine puerperal infection of other origin, except that the tendency to mixed infection and pus formation must be remembered. The fact that the *Bacillus coli communis* formed no antitoxin and that it had so far resisted treatment by vaccines did not encourage one to hope for brilliant results by the use of sera or vaccines. The author cited a number of cases and quoted from various authorities to show that the colon bacilli had been found as the active agent of infection in the uterus, tubes, and ovaries. He did not agree with the suggestion so often made that in these cases of colon bacillus infection pregnancy should be interrupted. It was important that the possibility of infection by this organism be kept in mind in dealing with parturient women.

**Puerperal Thrombophlebitis.**—Dr. William M. Brown of Rochester read this paper in which he presented the proposition that there were many cases of puerperal infection that followed a definite course of phlebitic inflammation and thrombosis which could be cured if they were diagnosed and operated on early and before the clot had progressed too far or involved too many branches. He believed that an early operation properly done would in the large total be less harmful than the uncertainties of hesitation. The author related two cases in which the temperature curve showed the irregularity of the infection which to him was suggestive of venous involvement. In neither case was there any abdominal rigidity or tenderness except a slight soreness on deep palpation on the left side low down, and on bimanual examination a small mass was felt to the left of the uterus and high up. It was firm but not hard. Practically the same conditions were found in both cases. The right side of the pelvis was perfectly normal but the left ovary was large and edematous and passing up from the thickened base of the broad ligament was a thick hard mass of thrombosed veins. In one case there were two separate venous trunks running along together and the thrombosis extended much higher than in the other case. Heavy chromic ligature was passed under the vein well above the end of the clot and tied. Drainage was maintained long enough to insure safety before the wound was allowed to close.

**A Consideration of Some Methods in the Treatment of Puerperal Infections Which Have Given Important Results.**—Dr. Raleigh R. Huggins of Pittsburgh, Pa., presented this communication. He called attention to the fact that there might be an infinite series of gradations from a slight infection arising from laceration to an inflammatory process involving the uterus, tubes, parametrium, lymphatics, and ovaries, and extending beyond these into the blood stream, resulting in systemic infection. The writer reviewed the pathology of infection which justified the conclusion that if the zone of reaction was removed by operative measures the chances of the infection spreading were much greater than if the uterus was left undisturbed. If streptococci of the hemolytic type were present in the uterus they might pass directly through the wall of the uterus in spite of any barriers and without local reaction. Local treatment which was done with the idea of cleaning out the uterus removed what little defense there might be and would only expedite the spread. A disposition to ignore the uterus had been cultivated and the results had been much better than when vigorous measures were employed to empty or irrigate the uterine cavity with various antiseptic solutions. It had been learned that a firmly contracted uterus was of as much value in the prevention of the spread of infection as it was in the prevention of hemorrhage. One hundred and twenty-five cases of infection following abortion after the second month, or delivery, had all been treated in a conservative manner as far as the inside of the uterus was concerned, with the exception that where firm contraction of the uterus was not present or where it could not be secured by the use of strychnine, ergot, or pituitrin, the uterine cavity was firmly packed with iodoform gauze. This had been done for the purpose of securing firm contraction, and if the uterus had not been emptied facilitated the expulsion of the contents. Both morbidity and mortality had been less than formerly when the measures were more active. In the treatment of abortion at or before the second month the uterus was emptied at once without the same regard to the danger of systemic infection. Here the infected area was not large and firm contraction was best secured by freeing the cavity of all débris. Cultures from the uterus would show the nature of the local infection and reveal the presence or absence of bacteria in the blood stream. In this series streptococci had been recovered from the uterus in 50 per cent. of the cases. A hemolytic streptococcus had been present thirty times, but the test for hemolysis was not always made. Blood cultures were positive in thirty cases. There were three deaths; one patient was admitted ten days after the onset of symptoms with a complicating pneumonia; a second case was complicated by a general peritonitis, and the third had a very low resistance as a result of profuse hemorrhage. They had learned that the presence of the most virulent bacteria in the uterus did not mean that the infection would spread, and the infection was less likely to spread if the uterus was well contracted. Unless there was hemorrhage or relaxation of the uterus no local measures were employed. When infection spread beyond the uterus attention should be paid to the lymphatics of the pelvis. The majority of exudates disappeared spontaneously, yet many suppurated, and when this occurred drainage should be instituted as early as the condition was recognized. Hysterectomy was indicated when the infective process spread in the form of multiple abscesses in the uterine walls or when a putrid endometritis caused degeneration of myomatous growths within the uterus. All patients with chronic thrombophlebitis drifting from bad to worse should be operated on. This was true especially when the infection involved the ovarian veins. The author had tried magnesium sulphate intravenously and in many instances the results were most satisfactory. At first it was given in a 1 per cent. solution of saline and not more than thirty grains at a time. Later it was found that much greater quantities could be given with safety if administered slowly. They had never given more than 100 grains, but Dr. Harrar had used 250 grains with no alarming effects. Distilled water had been used instead of saline and there had been fewer chills following the administration. Chills were less likely to occur if the fluid was given at the proper temperature. There had been no accidents from its use and they had given it more than one hundred and fifty times. It had been repeated several times at twenty-four-hour intervals in the same patient. Experiments had not explained its action. It had been of undoubted value when administered in the acute stage of streptococcic toxemia before it had been possible to demonstrate the presence of bacteria in the blood. Its use intravenously in pneumococcic and other forms of streptococcic blood stream infection had not met with the same success and this made one doubtful of its value in this form of infection.

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SECTION ON PEDIATRICS.

*Tuesday, April 28—First Day.*

Dr. Thomas S. Southworth in the Chair.

**The Influence of Diet on the Growth and Recurrence of Adenoids.**—Dr. Frank Vander Bogert of Schenectady

read this paper in which he first called attention to the undeniable increase in the frequency of adenoids. While all authorities agreed that the lymphatic diathesis was an important etiological factor, it seemed that the lymphatic diathesis itself must be due to an underlying cause; without some underlying constitutional cause it would be hard to account for the congenital cases. Rachitis seemed to play an important part in the etiology of adenoids, and as a more direct and exciting cause, catarrhal affections of the nose and nasopharynx were accused, though it was impossible to say whether the latter were a cause or an effect. The personal experience of the writer led him to believe that even in cases developing in the early months of infancy dietetic errors and gastrointestinal disorders had some bearing. The author argued that as adenoids did not develop in perfectly normal individuals there must be a lack of vitality or a lack of resistance in the parts involved to account for their presence. This lack of resistance to a cold was found in gastroenterics, and the writer's observations had convinced him that much could be done by dietetic measures in the way of inhibiting excessive growth and preventing the recurrence of adenoids. In his experience the severe cases of adenoid growth had been found in children suffering from the more marked types of chronic intestinal disturbances and the tendency to recurrence seemed more common in this type of cases. It was practically only in those whose dietetic errors had led to distinct catarrhal symptoms of the alimentary tract that large adenoid growths were found. Judging from carefully taken histories the determining dietetic factor seemed in many cases to have originated in early infancy. Irregular nursing and early weaning, as well as prolonged nursing, seemed to exercise a marked influence. In later childhood irregular and between meals eating was exceedingly commonly noted in the histories and the excesses in the direction of starches and sweets were most prevalent. Temporary relief usually followed operation but without appropriate after treatment the general ill health often recurred and it was to the intestinal tract that at least a part of the after treatment must be directed. The essayist cited cases illustrating the three points to which he wished to call attention, namely, bad dietetic histories, failure to obtain by operation relief from general symptoms, and improvement under proper dietetic régime in cases in which the symptoms had persisted or growths had recurred.

Dr. William L. Culbert of New York expressed the belief that in many instances nasal infection was the principal factor in the causation of adenoids. It was important to attend to the digestive tract, but the child lived on air as well as on food and it was also important to direct attention to the respiratory tract. Recurrence was bound to follow operation unless there was proper respiratory development. The nose should be cleansed by spraying and the child taught to breathe properly through the nasal passage, so that the air might be properly filtered, moistened, and warmed before its introduction into the lungs. He strongly advocated breathing exercises for the development of the function of the nose and nasopharynx. Dr. vander Bogert called attention to the fact that adenoids returned oftener in young children than in older ones; this was true because they were not able to develop the respiratory apparatus. When they were three or four years of age they could be taught proper methods of breathing. Breathing exercises might in some cases obviate the necessity for an operation. Children should also be instructed in the proper method of blowing the nose. The speaker also called attention to the deleterious results of thumb sucking and "comforters."

Dr. Emil Mayer of New York said he could not accept in its entirety the statement that errors in diet were responsible for the recurrence of adenoids. In the first place congenital adenoids did exist; he had found them in very young infants. The youngest child he had ever seen operated on for adenoids was seven days old, and surely in this short time errors in diet could hardly have had anything to do with the mass in the pharynx. Dr. vander Bogert's theory should be revised thus: A child with adenoids had masses of catarrhal secretion pouring into the pharynx and thence into the stomach, and this prevented the digestive activity and thus disturbances of nutrition were occasioned. In a long life of observation of adenoid operations, in his experience, recurrences were not the rule but the exception. These recurrences might be due to a lymphoid tendency of hereditary nature.

Dr. Carl G. Leo-Wolf of Niagara said that in the case of congenital adenoids one should always think of syphilis, even if one did not go as far as Neufan who stated that adenoids in children under three months of age were always due to syphilis. Recurrence of adenoids would be obviated by washing out of the nasopharynx. If adenoids were due to the lymphatic diathesis they could be prevented by the vegetarian diet, and this had proved beneficial in a number of cases.

**Some Manifestations of Influenza in Young Children.**—Dr. L. Emmett Holt of New York presented this paper. He emphasized the point that in seeking for the influenza bacilli one should use cultures and not smears. Beginning with the winter 1909-1910 and continuing during each succeeding winter, they had examined 1,650 sputum cultures from 1,053 patients in reference to the presence of influenza, pneumococci, streptococci and staphylococci bacilli. The influenza bacillus had been the predominating organism in 32.5 per cent. of the cases in the winter 1909-1910; in 32 per cent. of the cases in 1910-1911; in 33 per cent. in 1911-1912; in 28 per cent. in 1912-1913, and in 42 per cent. of the cases examined during the past winter. The most peculiar feature of these influenza infections in children was the high, fluctuating, irregular temperature which sometimes went to subnormal, and which was accompanied by few clinical symptoms. Frequently in the intervals when the temperature subsided the child did not seem to be ill. There seemed to be no question that some of these cases were mistaken for recurrent whooping cough. The Pfeiffer and the Bordet-Gengou bacilli had many points in common, but the blood picture in influenza and whooping cough differed. In whooping cough there was a high leucocytosis and the same was true of influenza, but in the latter there was also a high lymphocytosis. The condition was highly infectious and the patients should be isolated. They were seldom improved by cold air, though fresh air was desirable. It was an advantage to send the patient south in some instances. Dr. Holt exhibited temperature charts showing the characteristic fluctuating, irregular curve and compared them with the curve in pneumonia. The influenza bacillus might be a complicating factor, making diagnosis puzzling in a number of conditions. To illustrate this Dr. Holt cited a case of typical tuberculous meningitis in which at autopsy the typical lesions of tuberculous meningitis were found but the influenza bacilli were also found in the brain. These temperatures were suggestive of middle ear disease and were puzzling to the aurist. In one such case, after death the influenza bacilli were found in the lungs but not in the ear or the sinuses.

Dr. Linnæus E. La Fetra of New York said that in the study of catarrhal affections in infants and children there was great difficulty in determining the precise cause of infection, because several germs were usually present and one must judge which was the predominating one. Dr. Holt was particularly fortunate in having been able to study such a large series of cases. For a number of years it had seemed probable that a certain type of fever accompanying catarrhal infection in infants and children was due in many cases to the influenza bacillus. It was characterized by wide vacillations in temperature each day, perhaps ranging from 106° to 94° F. The general symptoms were fever and prostration, the fever being the peculiar hectic type suggestive of deep suppuration. The prostration was quite marked but the child's color did not suggest either suppuration or sepsis, and in the intervals when the temperature was low the child seemed surprisingly well. The blood count with many infants having this peculiar temperature and prostration were the only signs found throughout the course of the disease, there being no catarrhal symptoms and no inflammation of the throat or ears. Such cases were very puzzling and were generally attributed to deep-seated pneumonia. Whooping bronchitis was very interesting and it was certainly due in many cases to influenza. It was exceedingly important to remember the influenzal type of fever since the wide range of temperature might suggest mastoid involvement or the presence of sinus thrombosis. Single blood counts should not be relied upon as to the advisability of operation on the mastoid when there was influenzal otitis media. The leucocyte count might be high, up to 15,000, and the polymorphonuclears might constitute 70 or 80 per cent. without there being any involvement of the mastoid or of

the sinus. Only if and when the local signs in the ear canal and bone tenderness were present should the mastoid be operated on. General symptoms of fever, prostration, and high blood count were not a justification for operation. A frequent manifestation of influenza was involvement of the lymph nodes of the neck. One should be cautious about predicting a termination of the fever so long as the enlarged glands were present. Dr. Le Fetra said he had seen three cases of influenza complicated by meningitis during the last five years.

Dr. William H. Park of New York said that in the mucus of the respiratory tract in cases of bronchitis or pneumonia in uncomplicated cases or in those complicating whooping cough and measles, the influenza bacilli were so abundant that the Bordet-Gengou bacilli were not found. It was difficult in many cases to separate clinically the cases due to the influenza bacilli alone, the pneumococci bacilli alone, or mixed cases.

Dr. Herman Schwarz of New York said that Dr. Park had shown that in measles and scarlet fever the presence of the influenza bacilli in the secretions of the throat was more frequent in the winter than in the summer. It was interesting to note that the culture for the middle ear in cases of influenza did not contain the influenza bacilli. The cases complicated by enlarged glands did not show the presence of the influenza bacilli in the suppurative processes of these structures.

Dr. Henry L. K. Shaw of Albany said that smears of the nasal and tracheal secretions in forty infants with catarrhal colds in St. Margaret's Hospital showed the pneumococci. The reason for this was probably as stated in Dr. Holt's paper; they had used smear and not cultures. Dr. Shaw related the case of an infant recently seen by him with meningitis in whose lumbar fluid was found the pure culture of influenza bacilli. An interesting feature of the case was that there were no previous symptoms of influenza in the baby or any member of the family.

Dr. DeWitt H. Sherman of Buffalo asked Dr. Holt whether the prostration was considered a necessary sequella in influenza. He said that during the past winter they had had a great deal of an infection that seemed to be influenza, but contrary to expectation the patients made a prompt and complete recovery.

Dr. L. Emmett Holt of New York said that the majority of these cases showed comparatively little prostration. The temperature was high, but they were not otherwise ill. There was no local lesion. As to finding the organisms in the culture, they were only important when found in abundance. They had not found the organism in the glands; in glandular and retropharyngeal abscesses the influenza bacilli had not been found.

**Active Immunization in Diphtheria.**—Dr. William H. Park of New York spoke on this subject. (See report of New England Pediatric Society, Medical Record, December 6, 1913, page 1052.)

Dr. Frederick M. Meader of Syracuse related his experience with the treatment of diphtheria carriers and drew the following tentative conclusions: 1. Immunization with diphtheria bacilli would stimulate the body to produce amboceptor-like bodies. 2. These amboceptor-like bodies did not appear to destroy diphtheria bacilli if there was a pathological process. 3. The recovery of carriers under normal conditions was not accompanied by an increase in the amboceptor-like bodies. 4. Carriers that were such by reason of diseased tonsils had the diphtheria bacilli in the squamous epithelium, which epithelium was necrotic. 5. Probably persons became carriers because of abnormal mucous membranes. The abnormality might be due to mechanical irritation as by a foreign body, or diseased processes due to microorganisms, or to faulty structure of the part, as bottle-shaped crypts. 6. The best means of treating carriers seemed to be by stimulating the production of a healthy mucous membrane. Careful examination of the throat to detect abnormalities should be made. If necessary the offending part should be removed so that new mucous membrane might be formed. Attention should be paid to the general health of the patient.

**The Importance of Medical Supervision of Older Children.**—Dr. Edward J. Wynkoop of Syracuse presented this paper. He stated that the public had awakened to the need of carefully supervising the period of infancy and at school age medical supervision was provided for the boy and girl, but that period of the child's life from ten to fourteen years had been neglected. During this period leading up to puberty various nervous phenomena might develop which in themselves were unimportant, but which if left untreated might lead to serious results. Rheumatism, with its various manifestations, chorea, and many other diseases were apt to appear at this period. Late hours were a cause of an enormous amount of damage. It seemed almost incomprehensible that the matter of sleep was so disregarded by parents. The nervous child constantly on the go and craving more and more excitement soon had a nervous system that fell an easy prey to almost any vicious habit. At this age the rapidly growing boy or girl needed every bit of nourishment possible to furnish fuel for the rapidly growing structures, and too little time was given to explaining this necessity and in demonstrating what was meant by proper food and correct preparation of the same. Probably there was no condition more common among girls than constipation; its prevention by proper supervision of the diet, exercise, and habits would eliminate one of the greatest evils with which medicine had to contend. It was the exception for children at the period under consideration to be brought to the physician for physical examination and a good wholesome talk on health matters. The child was advised to seek the advice of the dentist at frequent intervals, why not the physician, to see that the heart, lungs, blood, and urine were normal, and that there was no tendency to disease or deformity? Would anyone gainsay the value that this might have on our anemic and constipated girls and our rapidly growing boys? A closer relationship between the physician and these children would give the physician many opportunities to advise the parents in regard to the needs of their children.

Dr. Robert J. Johnson of Syracuse said the Section would be fortunate, indeed, if they had presented to them any paper which in its possibilities for good surpassed this one. Prevention, not when ignorance, neglect, and disease had made the task largely impossible, but in the plastic growing period of youth, when it was easy comparatively to correct and mould into health—this should be our effort. The medical supervision of older children was a matter of education. The parent naturally resented the idea of the child being subjected to a physical examination unless acutely ill, yet many serious ailments of childhood were unrecognized by the parent, no matter how intelligent or watchful. Proper oversight could not be effectively given *en masse;* individual instruction and examination by the physician in the home or in the office alone was lasting, as one thereby gained the child's confidence. The medical school inspector should be a specialist in his line, devoting his entire time to the work, and should be paid accordingly. This plan was meeting with success in certain localities. There should be a closer relation between the parent, the growing child, and the physician. This closer touch would mean better morals, a deeper regard for the known laws of hygiene, and in the end a higher civilization.

**The Causes and Treatment of Eczema in Infancy and Childhood.**—Dr. Rowland G. Freeman of New York read this paper. He declared that eczema being a disease of the skin, might seem in a city like New York to be a disease which should always be treated by the dermatologist. This disease occurring in infancy needed a pediatrician more than a dermatologist, for while the applications to the skin were important, the regulation of the diet and the daily régime were of far more importance. There was a popular idea, in which some physicians shared, that the cure of eczema might be followed by sudden death, and this might well be the case if one attempted to cure eczema of internal origin by external applications only. Acute eczemas frequently developed during the first weeks of life in children fed at breasts which produced much more milk than was required for the nourishment of the child. These cases often gave a fairly typical history. They might be gaining from ten ounces to a pound a week, and having from five to six movements a day which contained curds and mucus. Suddenly the skin of the face and body became red and soon assumed the typical dry scaly appearance of eczema. On weighing the infant before and after feeding it would be found that the child was getting much more food than it was entitled to, while the examination of the breasts would show a milk of a normal or rich quality. These babies were readily cured by reducing the time of nursing so as to limit the baby to the proper amount of milk. Many of the eczemas in older children were more difficult to treat, especially if the child had been

on a normal amount of a well balanced ration. In such cases considerable information might be obtained by a careful analysis of the urine directed particularly to the detention of marked acidity, to the presence of acetone and diacetic acid, or evidence of intestinal intoxication as shown by the presence of indican and phenol. Examination of the stool would furnish indications for the dietetic treatment. Local sources of irritation must be removed, especially, pediculi capitis, plugs of wax in the ears, adenoid obstruction, or the irritation from an adherent foreskin. If there was excessive acidity of the urine it might call for the use of saline laxatives and alkalies, or an intestinal intoxication might indicate a putrefactive process in the intestine which might be relieved by the administration of lacto-bacillary culture. Excess of fat or carbohydrate in the stool should direct attention to the reduction of these elements in the food. In many cases the trouble was too much food; in others a badly balanced ration, and in still others irritating food, such as eggs, oatmeal, stewed fruit, cake, candy, preserved fruit, jam or marmalade. In these cases was found one of the most important uses of caloric feeding. The external treatment must be learned from the dermatologists. In order to get the most prompt results the application must be kept in constant contact with the diseased skin. Lassar's paste made from one part zinc oxide, one part starch, and two parts vaseline, was altogether the most useful application for the skin, especially for the face. It might be rendered somewhat antiseptic by the addition of resorcin or eurosal. For the dry chronic eczematous patches on the body or limbs of babies Dr. Freeman had found one part zinc ointment to seven of Lassar's paste most useful. For the scalp a diluted sulphur ointment was useful.

Dr. Frank vander Bogert of Schenectady reported a case of eczema in a breast-fed infant in which examination of the mother's milk showed a fat percentage of 10 per cent. in one breast, while in the other breast the fat percentage was subnormal. This case was cured in one week by prohibiting the use of the high fat breast and regulating the mother's diet and exercise. Two other cases were cited in which the use of citrate of sodium with the food was effective in clearing up the eczema.

Dr. George W. Crary of New York believed that it was possible to put too much emphasis on the internal treatment in exclusion of the external. The external element in the disease should be considered as well as the internal. It was not advisable to say that any one article of food was bad and should be prohibited; whatever disagreed with the child laid the skin open to attack as well as other organs of the body. Overfeeding was a very important etiological factor and here the skin trouble might be looked on as an effort at elimination to dispose of the over-feeding. Seborrhea in the child's attendants might be a factor in the production of eczema, and he had seen the condition cured in a child by attention to those about it. Zinc ointment should be used with care; one got better results with Lassar's paste.

Dr. L. Duncan Bulkley of New York said that he endorsed all that Dr. Freeman had said in regard to the internal causes of eczema, and the absolute necessity of regulating the diet and attending to the secretions of the bowels and kidneys, in infants as well as in adults. For the general eruption on the body nothing was more efficacious than the following: Carbolic acid, one-half dram; calamine, prepared, one dram; zinc oxide, two drams; glycerine, three drams; rose water, four ounces. This sopped on freely served the best purpose in generalized eczema of the body and extremities. Lotions were preferable to ointments.

*Wednesday, April 29—Second Day.*

**The Effect of Sugars on the Gastric Secretions of Children.**—Dr. DeWitt H. Sherman of Buffalo presented this communication which embodied the results of gastric analyses showing the effect of the three sugars, milk, cane, and malt, on the gastric secretions. Fifteen babies were used and each baby was tested on each of the three sugars. The sugars were all in six per cent. solution, in a similar barley water mixture. As in other series of tests the gastric contents were withdrawn one hour from the middle of the taking of the meal. The amount of the three sugars ingested averaged exactly the same. The amount recovered varied some. The amount ingested in each case was 144 c.c.; the amount recovered averaged 23.40 c.c. for milk sugar, 34.40 c.c. for cane sugar, and 33.40 c.c. for the malt, using Mead's dextrimaltose. Whether they could infer from this that the milk sugar passed more quickly they were unprepared to say. They doubted it, for did the milk sugar solution stimulate to greater activity the motor function of the stomach, one would also expect it to stimulate to greater activity the excretory function. This it did not do. They were naturally pleased to see how closely their second series compared with the first series of analyses made three years ago. The only difference in the two series lay in the combined hydrochloric acid. The average of the two series showed free hydrochloric acid, 2.20 c.c.; combined hydrochloric acid, 4.75 c.c.; total acidity, 8.85 c.c. They found that the cane or granulated sugar stimulated gastric solution a little more than the milk sugar solution, and that the malt sugar solution in the form of dextro-maltose was more than twice as stimulating as the milk sugar solution. This last fact might be of more importance to remember in infants with hypersensitive stomachs. The infants tested averaged about seven months. The very youngest ran an average a little higher than the standard and the older ones ran an average a little lower.

Dr. T. Wood Clarke of Utica said this paper was a valuable contribution to their knowledge of infant feeding. The infants who vomited hard curds were usually cases of hyperacidity. It had been found that the addition of lime water to the milk increased the gastric acidity and the firmness of the curds. Sodium citrate on the other hand reduced the hydrochloric acid content and prevented curd formation. Practically this had given him very good results until recently when he had not obtained the expected results from the citrated milk. Dr. Sherman had explained this. It was because he had been using more malt sugar than formerly. Apparently the malt sugar by stimulating hydrochloric acid secretion made it necessary to increase the amount of citrate used in the milk.

Dr. DeWitt H. Sherman of Buffalo stated that the discussion had demonstrated that the rapidity of the passage of the sugars and the size of the curds was in direct proportion to the acidity. They had also learned that lime water was a gastric stimulant. The speaker said he did not often give alkalies, but if he did do so it was in the form of a citrate in the food or a small amount of alkali between meals.

**Antityphoid Vaccination in Children.**—Major F. F. Russell, U. S. A. Medical Corps, Washington, D. C., presented this communication. He stated that antityphoid vaccination had been introduced into the army in 1909, and at that time they had vaccinated a few children. They had been vaccinating more and more each year since. Typhoid fever was a disease of young persons; of 1,000 deaths from typhoid fever collected in the registration area of the United States one-third occurred in persons under twenty years of age. Antityphoid vaccination was very satisfactory in children because they stood it better than adults and there were few reactions. They had collected statistics from all parts of the United States of the children in the army posts and the families of officers, which included data regarding both the general and the local reaction. Less than 2 per cent. of the children showed a temperature of 103° F. or more. As a rule they did not have to remain home from school or indoors after vaccination. For these reasons vaccination among young people was increasing rapidly. They never took the risk of vaccinating a sick child. A trivial indisposition, however, was not a contraindication to vaccination, but one must use discretion in such cases and also be governed by the immediate danger of contracting typhoid. Among the children vaccinated no harmful effects had been noted. Revaccination should be performed more frequently in children than in adults. The dose was regulated according to the weight of the child. It was better to give a little more rather than a little less in proportion to the weight. If the child gained rapidly in weight it might be advised to repeat the vaccination. The duration of immunity was thought to be about three years; as yet there had been no falling off of immunity in the men in the army. In the antityphoid vaccination it was a good plan to follow the method used in smallpox and vaccinate once in infancy, once in childhood, once in youth, and once in adult life. This would probably give good protection. The results of antityphoid vaccination in the army were most convincing as to the value of this measure. In the year 1913, in the entire army

of 90,000 men, there were only three cases of typhoid fever and no fatalities. These three men had not been protected, two being new recruits who came down with the disease before the vaccination was completed, and the other had never been vaccinated. The elimination of typhoid fever from the army greatly lessened the morbidity so that there was a great saving of time. In the present state of our knowledge no school or institution should run the risk of an epidemic of typhoid fever when it could be prevented without risk. The injection should be given subcutaneously and never deep into the muscles. It was desirable to have a slow absorption. With a deep injection one was more liable to have a severe reaction and this would arouse an altogether unnecessary opposition to the measure. In the army the second injection was given after an interval of ten days, while in civil life the interval was seven days. Saturday was chosen so that if there was a reaction the patient could lay off on Sunday. A fear had been expressed that antityphoid vaccination might light up a latent tuberculosis, but the statistics in regard to the incidence of tuberculosis in the army since the introduction of antityphoid vaccination showed this fear to be entirely unfounded. In the annals of medicine there was only one campaign that could be compared with this one and that was the practical extermination of smallpox by vaccination.

Dr. Morris L. Ogan of New York related the experience of the New York Health Department with antityphoid vaccination. Since the beginning of 1913 some 2,000 persons had been injected with complete immunity. It was well-known that typhoid fever was a disease of youth and childhood. A comparison of the statistics of the Health Department with those of Osler showed that in their experience typhoid fever had occurred oftener between the ages of fifteen and twenty years than in Osler's series. The statistics of the Health Department showed that the disease was at least as liable to attack children as adults. In a series of 1,700 non-immunized children 2.8 per cent. contracted the disease, while in a series of 5,000 adults 2.1 per cent. became infected; thus it seemed that children contracted the disease easier than adults. Physicians had been advising against antityphoid vaccination and gave as their reason that children did not often contract the disease. This idea should be combated. Of 318 exposed children who were vaccinated but four contracted the disease, and these were mild cases without any deaths. In the actual presence of typhoid fever vaccination was not only justifiable but advisable. As to the severity of the reactions, they had not been able to follow up their subjects as carefully as could be done in private practice; frequently they only saw the case when a visit was made for further immunization. About 73 per cent. of the reactions were very mild. They had found the reactions to be more severe during the first six years of life than during the next six year period. This might have been because they had given a slight overdose, as they had given more than the average dose in proportion to the weight of the child. They had had severe reactions in only five cases and in one of these the child was coming down with the disease. In only one instance did the temperature reach 103° F. Their experience was extremely favorable and they had found with others that children bore antityphoid vaccination better than adults.

Dr. Godfrey Pisek of New York said that this paper was very important just at this time when so many parents were asking as to the advisability of antityphoid vaccination for their children. Each member of this Section should constitute himself a committee of one in urging the adoption of this measure. All children attending boarding school or traveling, or exposed to infection should be vaccinated. Dr. Russell's point in regard to making a subcutaneous injection and not a deep injection should be strongly emphasized. The opposition of many practitioners to antityphoid vaccination was very discouraging and it could only be accounted for by the fact that they had never heard Major Russell.

Dr. Walter Lester Carr of New York said that his experience had been chiefly with boys in boarding school and he had used a dosage relatively greater than that mentioned; in strong boys he frequently gave full dosage. He advised general antityphoid vaccination in children at boarding school, traveling, or in any manner exposed to infection. Physicians were more frequently diagnosing typhoid fever in childhood and this might account for the relatively greater number of cases reported to the New York Board of Health.

Major F. F. Russell of Washington, D. C., said he was glad that Dr. Ogan spoke of the vaccination of contacts. They vaccinated against all contacts and had seen no bad affects. In order to avoid severe reactions, instead of giving the full dose and repeating at the end of ten days, one might give half the dose and repeat at the end of five or six days.

Dr. Lillian H. South of Bowling Green, Ky., said that in her work as State Bacteriologist of Kentucky she had distributed 15,000 full immunizing doses of antityphoid vaccine. Owing to floods they had had several epidemics and in one town of one thousand population five hundred were down with the disease. Their inspectors were all immunized. They had built the "Kentucky sanitary toilet" and this had helped to stamp out the disease. The prevalence of typhoid had been due to the bad sanitary condition in rural districts and this sanitary toilet had been the great factor in eliminating the disease. It consisted of a miniature septic tank, and the only attention it required was about one bucket of water once a week. In giving the immunizing dose of vaccine they injected it under the skin of the abdomen. If there was a reaction they postponed the administration of the second dose for fifteen days. A small preliminary dose might be given to see how the organism would react. In their work they realized that vaccination to be effective must be accompanied by instruction in other sanitary precautions. The sanitary toilet referred to was not only effective in conquering typhoid fever but was equally effective in eliminating dysentery and hookworm.

Infant Welfare Work in New York State.—Dr. Henry L. K. Shaw of Albany gave this talk which was accompanied by a lantern slide demonstration. He stated that in New York State outside the City of New York there were only thirty-two milk stations in twelve localities; in only three places were these stations open all year and in only two were they supported by the municipality.

In New York City during the year 1913 the death rate of infants under one year of age was 101 per 1,000 births, while in the remainder of the State it was 120. This could not in any possible way be assumed to be accidental, but was due to various causes. The statistics of New York City showed that the drop in the death rate was coincident with the establishment of the milk stations. A comparison of the mortality rates of the cities of the different classes showed that this rate was least in the cities of the first class, where the most infant welfare work was being done. The death rate was highest in cities of from 10,000 to 15,000 population, then as the size of the towns decreased the death rate among infants decreased, until in rural districts there was a rate of 103 deaths per 1,000 births in the year 1912. It had been somewhat higher than this during the year 1913.

The mortality for the first month of life was from 30 to 40 per cent. of the total mortality of infants under one year of age. This was probably because outside of New York City they had not reached the supervision of the first month of life or the antenatal work. The antenatal work of the New York Milk Committee had reduced the mortality for the first month of life 18 per cent., and 95 per cent. of the supervised cases were breast fed. The cities of the second class were badly in need of housing laws which would do away with the present deplorable insanitary conditions. In Utica a school room had been used for a welfare station during the summer. This was mentioned to throw out a hint as to the use to which the school house might be put during vacation. Dr. Shaw said that as the State Health Department was initiating a campaign throughout the State to lessen the infant mortality he wished to tell how a milk station could be equipped for less than $100. There was such a model station in the Welfare Exhibit. Though the milk stations throughout the State were supported largely through philanthropy the State Board of Health kept a supervision over them requiring them to send in a weekly report. Dr. Shaw also suggested that the day nurseries be turned into infant welfare stations.

Dr. T. Wood Clarke of Utica said that the smaller cities of the State needed an awakening on the subject of infant hygiene and they were going to get it. He related the history of the work in Utica since its inauguration two years ago. In that city the death rate among infants in 1911, before the welfare work was begun, was 158 per 1,000 births; in 1912, with one welfare station in operation, the death rate had been 143, and in 1913, with two welfare stations in operation,

the death rate was 138. It seemed worthy of note that immediately on closing the station in September the death rate rose.

Dr. Joseph C. Palmer of Syracuse told of the infant welfare work that was being done in his city. He believed that whatever the plan of work adopted the essential feature of the work should be educational. He urged antenatal instruction for the mothers, believed that the stations should be kept open during the entire year, and that they should never tire of teaching the old sermon over and over again on cleanliness, fresh air, bathing, proper food, care of milk and utensils, and exclusion of flies.

Dr. Charles Herrman of New York said that at the beginning the physicians might be willing to conduct the work without recompense, but late competent pediatricians would have to be paid for their time and trouble. The distribution of milk in small bottles, each sufficient for one feeding, or even in quart bottles, added greatly to the expense of the station and was not absolutely necessary. The control of the attendance at the station depended on the physician and especially on the visiting nurse.

**The Health Program of the Physical Training Department of the Board of Education, New York City.**—Dr. G. Ward Crampton made this address and had some of the children under his care give a demonstration of the exercises used in the schools. He declared that the style of teaching hygiene up to two or three years ago had been a farce, based on the assumption that by teaching a child all about anatomy and physiology you would have a basis upon which to give instruction in practical hygiene. Now they started out in a much more direct way by giving practical object lessons in personal hygiene. The old idea that for four or five hours daily the child should sit quietly, that he was a receptacle to be filled with extract of textbook, was all wrong. Such immobility was unnatural. In the attempt to find the proper method of procedure they followed the thesis that they should provide such exercises as the child would ordinarily do under normal conditions. Normal physical play was necessary to mental, moral physical, and social development. They had developed class gymnastics on the functional basis. They wanted from the exercise a stimulation which would give an increased heart beat and change the stasis of the blood. They aimed at exercises that developed mental activity and gave an education in accuracy, alertness, precision, and inhibition. They used also an entirely different kind of exercises which were given at a different time and in a different way, and these were the hygienic exercises. The good posture exercises illustrated this point. Bad posture was a ptosis and they aimed at its correction. Some of the exercises advocated for boys were light gymnastics, mimic discus throwing, fencing, etc. For the girls there was folk dancing, basket ball, hockey, and walking. Dr. Crampton said that girls did not need the same kind of training physically as the boys. He felt sure that the training they were getting promised well for the future of the race.

Dr. George Dow Scott of New York asked Dr. Crampton whether he used rope jumping for the girls. In his experience in training boys for the football squad he had found this form of exercise admirable in cultivating the quick start.

Dr. C. Ward Crampton of New York replied that he had not been using rope skipping very much, but would use it more in the future. He expressed himself as opposed to the excessive development of muscles. The individual of the present day did not need large muscles; what they aimed to secure was a well-balanced organic development.

Dr. Joseph C. Palmer of Syracuse entered a plea for the more intimate association of the Physical Training Departments and the Departments of Medical Inspection of School Children. They were interdependent and should cooperate in every way. Children with various defects should have exercises suited to their special needs. Cases of scoliosis and kyphosis should be most carefully studied and should receive training in classes and groups with care to avoid any violent strain. The speaker had visited a class of this kind conducted by Dr. Werndorff in the Lorenz Clinic where forty or fifty Austrian girls came twice a week for exercises and to receive stretchings and kneadings suited to their conditions. They should create a public interest that would furnish a swimming pool and a gymnasium in every school. They should do all in their power to extend the physical training and medical inspection to the rural districts. An investigation by the National Council of Education and the American Medical Association had shown that city children were from 10 to 20 per cent. healthier than country children. In districts chosen at random it was shown that 25 per cent. of city children suffered from poorly nourished bodies, while 31 per cent. of country children were thus handicapped. Heart trouble was twice as frequent among country as among city children, and lung disease three times as frequent. It was no longer city life against country life but city oversight against rural indifference and neglect. Perhaps by recognizing these facts and rehearsing them some little aid might be given in improving the conditions of both city and country children.

Dr. C. Ward Crampton, closing the discussion, said that in reply to the question about competitive exercise, he wished to say that he had no use for athletes but much use for athletics. The athlete had only one use and that was to arouse the interest and enthusiasm of boys in athletics. The boys in the public schools of New York did not compete against one another but against a standard. When a boy reached a certain standard he received a certain kind of medal and when he reached a higher standard a different kind of medal, etc. They were using much less apparatus in the schools now than was used six years ago. There were special classes for crippled children and special exercises and plays; the girls had exercises with the emphasis on the abdominal muscles especially directed against ptosis.

**Record Charts for the New Born.**—Dr. Walter Lester Carr exhibited charts which he had found suited to his needs in keeping the histories and directing the management of his patients. The essentials which he regarded as of greatest importance were in reference to the care of the eyes of the newborn infant and the method of dressing the cord. The second chart was used in fixing the time of nursing and assisting the nurse or mother in establishing a routine.

Dr. Charles Herrman of New York said that these charts were important in view of the great mortality during the first month of life, and the care during the first two weeks was a large factor in determining this mortality. The care during the first month was much more important than the care after that time. By keeping such a chart one was not so apt to overlook anything that it might be desirable to know later.

Dr. Walter Lester Carr of New York said he wished again to emphasize the points in regard to the care of the eyes and the cord. The latter was important because infection in a distant part of the body might be dependent on cord infection. Proper attention during the first few days of life was very important in determining the later history of the child.

*(To be continued.)*

**Congenital Heart Disease; Probably Pulmonary Stenosis with Incomplete Ventricular Septum.**—W. Essex Wynter reports the case of a man aged 26 who suffered from pains in both elbows and knees at the end of September, 1913, this being the only occasion on which he could recall anything of the nature of a rheumatic attack. On account of the loud cardiac murmur he was kept in bed for several weeks, and finally sent to the hospital. The apex beat was just within the nipple line, and pulsation, with dullness on percussion, extended one inch to the right of the sternum. A loud systolic murmur could be heard over the precordia, the point of maximum intensity being in the fourth space near the sternum. It was so loud that it could be heard for some distance radiating from this point, but was best conducted toward the left clavicle in the course of the pulmonary artery. It was inaudible in the carotids and posteriorly. The second sounds were distinct, but not increased, and there was no diastolic murmur. The pulse was normal in character, neither small nor collapsing, and regular. Blood-pressure, 170 mm. of mercury. There was no enlargement of the liver, no edema, nor any cyanosis, except during rare attacks of cardiac disturbance, and there was no clubbing of the digits. The patient had always suffered from shortness of breath on exertion; was never able to play games, and could not perform any arduous work. Blood count: Red cells, 6,512,000; white cells, 6,400; hemoglobin, 100 per cent.; index, .08. The *x*-ray screen disclosed an enlargement of the right ventricle and a limited bulging of the conus arteriosus to the left.—*Proceedings of the Royal Society of Medicine.*

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## Original Articles.

### THE VALUE OF POLYCYTHEMIA FOR THE DIAGNOSIS OF DUODENAL ULCER, BASED UPON SIXTEEN OPERATIVELY DEMONSTRATED CASES.

By G. A. FRIEDMAN, M.D.,

NEW YORK.

ATTENDING PHYSICIAN IN DIGESTIVE DISEASES, VANDERBILT CLINIC.

In two papers recently published I[1-2] have stated that the blood of patients suffering from non-bleeding duodenal ulcer differs from the blood of patients ailing with gastric ulcer. Further studies indicated that while in gastric ulcer and in chronic appendicitis moderate anemia is the rule and polycythemia the exception, in duodenal ulcer just the reverse occurs; polycythemia is frequent and anemia rare. As the discussion of the morphology of the blood in gastric ulcer and in appendicitis has been left for another paper, it is only necessary to mention here that Smithies[3] in an analysis of one hundred and forty cases of gastric ulcer from the Mayo clinic stated that in the average gastric ulcer a mild grade of secondary anemia is present.

There is not a single symptom or sign pathognomonic for duodenal ulcer. As in many patients the organic lesion (duodenal or gastric) is frequently associated with functional disturbance, it is in some cases hard to separate the nervous symptoms from the sole cause of trouble. If one is successful in doing this and duodenal ulcer is suspected, the differentiation between the latter and gastric ulcer and especially appendicitis is often difficult. The history of a patient with interpretation of gastric analysis and feces was of no value for diagnosis of uncomplicated duodenal ulcer until eleven years ago, as according to Mikulicz the condition was never correctly diagnosed before operation until that time.

In regard to the value of laboratory findings, from gastric analysis Mikulicz's[4] statement I believe holds good at the present time. But owing to the works of American and English surgeons and especially of Moynihan[5] the history of the patient became the predominant aid for diagnosis.

Moynihan's symptom-complex is as follows: Hunger pain, from which patient obtains relief immediately after ingestion of food; late pain, a pain experienced several hours after meal, from three to six; and night pain, by which patient is waked up and has to take milk and crackers for relief. If all of the above symptoms are complained of the diagnosis of duodenal ulcer can be made correctly according to Moynihan in 95-100 per cent. of the cases. Moynihan does not pay attention to the localization of pain, which in ulcer of the duodenum is mostly to the right of the epigastrium. Laboratory findings are not much considered by him in general, as the presence of occult blood was demonstrated only in 30 per cent. of his cases.

One must admit, as seen from Table 1, that although not all of his stated symptoms are met so frequently as he leads us to believe, hunger pain is a very valuable symptom in the diagnosis.

Notwithstanding the fact that hunger pain is occasionally complained of by patients ailing with gastric ulcer and appendicitis, the frequency of this symptom in ulcer of the duodenum is very evident.

For drawing attention to hunger pain in connection with duodenal ulcer Moynihan deserves great credit.

A far superior aid to the diagnosis is the correct interpretation of radiological findings. I must admit that I have never been convinced of changes in the duodenal cap, as being of value for diagnosis. But what is true is that an ulcer or a scar from healed ulceration causes irritation of the nervous apparatus and this irritation leads to excessive peristalsis. Truly, there are no rules without exceptions. Hyperkinesis of the intestines without the presence of duodenal ulcer may be found occasionally in neurotics. Such individuals, who show on *x*-ray examination excessive peristalsis and on physical examination other nervous manifestations, as loss of pharyngeal reflexes, relative eosinophilia, have been called by Eppinger and Hess,[6] "vagotonics," as these authors became dissatisfied with the common name of gastric or intestinal neurosis. But they also state that "vagotonia" may be associated in the same patient with gastric ulcer.

I had two personal cases of operatively demonstrated ulcer at the lesser curvature of the stomach in which there were no nervous symptoms or signs and still on *x*-ray examination excessive peristalsis was demonstrated. However nothing was found in the duodenum. In one of my patients in whom at operation carcinoma of the head of the pancreas was found by Dr. Gerster, the *x*-ray findings of hypermotility pointed to duodenal ulcer. This patient was not icteric and his history was rather suggestive of ulcer.

Last, but not least, should be mentioned the occasional findings of hypermotility in chronic appendicitis.

But all these facts do not lessen the value of *x*-ray findings for the diagnosis.

Let us not forget the relationship between clinical signs and symptoms of appendicitis and duodenal ulcer. Many of us have probably more than once diagnosed duodenal ulcer, where appendicitis was found at operation, although the reverse occurs less frequently. The reason is that the symptoms and physical signs are often alike in both conditions. A diseased appendix may cause duodenal irritation, which may lead to excessive peristalsis, as the ulcer or scar itself. There is therefore no

reason to reject the opinion that an ulcer at the lesser curvature may cause an irritative condition in the duodenum, as to simulate the ulceration caused by the ulcer itself.

Speaking for myself I must say, as seen from Table II, that radiological findings have given me the greatest satisfaction in the diagnosis.

But, as every little helps, I offer to the profession a new diagnostic aid—polycythemia, which, when confirmed by a large number of cases, may turn out to be even of greater value than *x*-ray examinations, as many a patient cannot stand the expenses of radiological work. The diagnosis of duodenal ulcer was made in most of our cases before we learned about *x*-ray interpretation.

Material. In the practice of a physician who is not a surgeon, it takes years to obtain a large material of operatively demonstrated cases, for the following reasons: Many ulcers do not require surgical interference, especially where symptoms disappear time after time upon dietetic and medicinal treatment. Although one can speak of the precancerous stage in gastric ulcers there hardly exists anything like it in duodenal ulcer, as the development of malignant growth in the usual seat of ulcer is extremely rare in the duodenum.

Some of our patients refused operation, not only through fear of the knife, as for any other operation, but also because they had learned from their friends, who had been operated upon for ulcers (gastric or duodenal), that the operation did not benefit them. And we physicians, to whom through kindness of the surgeons the postoperative patients are referred back, can frequently sympathize with our preoperative patients.

The surgeon nowadays skilfully performs gastroenterostomy, pylorectomy, and so on, but the medical man often sees the sufferings of the patient later, especially in those in whom the ulcerative process is associated with a considerable functional element or in persons past middle age.

I am always in the habit of explaining in my own way to the would-be sceptics, provided I do find a strict indication for operation. As many of my patients belong to the poor my explanation must be simply illustrated. I say: "Look, here, Mr. X., your fellow countryman arrived from the old country many years after you did. He became rich while you are still poor. Why is it? Your friend has quickly learned the language; he adapted himself rapidly to the customs of the land, and you did not." And so with the operation. The operation creates a new condition in the stomach. In some individuals the stomach adapts itself to new conditions, in some it does not.

However, as long as surgery remains, in the present state of our knowledge the only palliative for a large number of cases, the material should be chosen for the surgeon with the greatest care. The chief indication for operation in patients with duodenal ulcer is severe pain, which does not respond to any medical treatment. The indication for surgical interference in intestinal hemorrhages from ulcer is disputable. All of our patients who came to operation were previously under all kinds of treatment and only such were referred to the surgeon in whom pain could not be checked by the usual dietetic and medicinal treatment.

Our material consists of eleven additional cases, eight males and three females. Five with operative evidence have already been published, making a total of sixteen for the year 1913.

As the additional cases present in one way or in another interesting features, abstracts of histories are given. For statistical purposes in reference to the frequency of polycythemia the five already reported cases, marked with stars in Table VII, have been added.

Case I.—M. K., aged forty-three, tailor, referred by Dr. Rayevsky from Liberty Sanatorium, June 11, 1913. History given by Dr. Rayevsky: Patient suffers from constant pain in epigastric region for several years. Operation performed (appendix removed). Adhesions were found extending from gall-bladder to stomach. On the stomach wall something was found which resembled an ulcer. The adhesions were released, stomach explored. Patient left hospital three weeks after operation, apparently cured. His tuberculosis developed later. The abdominal pains reappeared two months after he had left the hospital. History taken June 11: Patient complains of severe abdominal cramps from three to five hours after meals. He has to wake up at night and to apply a hot waterbag to the belly in order to obtain relief from cramps. He is never relieved from pain after ingestion of food. Patient has never vomited, nor has he noticed blood in his stools. Appetite very good. No loss of flesh. Bowels regular. Complains of nervousness, cold hands, and cold feet. He uses neither liquor nor tobacco. Past history: Never had any diseases. Family history negative. Physical examination: Looks dried out; lungs show signs of incipent tuberculosis of both apices; heart normal; abdomen, border of liver, and kidneys not palpable; spleen not enlarged; great tenderness in epigastric region, and somewhat above navel to left, where rectus muscle is slightly rigid; kneejerks greatly exaggerated. Operative findings (July 1, 1913): Numerous adhesions between first portion of duodenum and gall-bladder; broad cicatrix in first portion of duodenum; stomach normal; no gallstones found; gastroenterostomy performed. Patient, as I learned from his physician six months later, was perfectly well in regard to his abdominal symptoms.

Case II.—W. D., aged forty-three, cigarmaker, entered the Beth David Hospital, August 20, 1913. Five years ago patient began to have sharp, cutting pain in right lumbar region, which radiated to left of abdomen, chest and back. The pain used to last from one-half to two hours. Pain never came on late after meals and never at night. He was always relieved after food. For last two years pain is continuous. During his illness he was on several occasions free from pains for one month. He vomited only twice since his present illness started. Never hematemesis, nor melena. Has to pass urine twice at night. He had never had any complaints of indigestion. Appetite very good. Bowels regular. No loss in weight. Complains of a feeling of heaviness in the precordium and nervousness. Past history: Had diphtheria at age of six years. Tonsillar abscess twice. Five years ago was operated upon for hemorrhoids. Denies lues. Uses tobacco moderately; liquors not in excess. Family history: Mother died from gallstones. Physical examination: Looks dried out; corneal anesthesia; complete loss of pharyngeal reflexes; slight tenderness around navel to right side; no muscular rigidity. Operative findings: Extensive induration found at the pylorus, extending to the lesser curvature, and down into the duodenum. Pylorectomy decided upon (September 15). Patient discharged well October 15.

Case III.—R. B., aged fifty, watchman; was first seen November 2, 1913. Patient has been ailing with indigestion for fifteen years. Since last year symptoms became aggravated. Sharp pain in the pit of stomach from one to one and one-half hour after ingestion of food. Pain is so intense that it doubles him up. Pain lasts for several hours, and he is never relieved after food; on the contrary, pain is frequently more severe immediately after meals. Has pain at night. Four weeks ago he vomited first since his illness has begun, but feels like vomiting whenever he has pain. Three weeks ago he had noticed blood in his stools. Sour eructations. Heartburn, for which he uses frequently bicarbonate of soda. Appetite poor. Constipated occasionally. Has lost in weight. Never icterus. No nervous symptoms. Past history: Pneumonia thirty years ago; no venereal diseases; smokes nine cigarettes a day; uses no liquor. Family history: Father died from Asiatic cholera in Russia; one sister died from gastric tumor, another died suddenly after having been ill for many years with attacks of abdominal pain and

indigestion. Physical examination: Looks rather anemic; signs of pulmonary emphysema; slight murmur at the mitral valve; great tenderness in epigastric region, more to right, and somewhat above navel; slight muscular rigidity in this region; no tender spots to left of spine, nor tender spots characteristic of gallstone disease. Operative findings: Mass of dense adhesions found all around stomach, binding it to gall-bladder, under surface of liver, colon, and intestines; adhesions separated and then a hard indurated ulcer discovered posteriorly in the first portion of the duodenum; pylorus found to be patent; presence of stones noted in gall-bladder; posterior gastrojejunostomy performed; two stones removed; bile fluid is normal in appearance. November 7, 1913, patient died from pneumonia.

Case IV.—G. K., aged thirty-four, teacher, was first seen at the Vanderbilt Clinic, November 13, 1913. Patient has complained of gnawing abdominal pain for five years. Pain starts in the epigastric region and radiates to back, sides, but especially to right hypochondrium and back. Pain comes on occasionally from two to five hours after meals, but most of the time independently upon ingestion of food. Pain is always relieved after drinking milk. Has pain at night, applies frequently hot-water bag to the abdomen. Attacks of pain became more frequent lately. He feels relieved from pain during day, when in recumbent position and after rest. He was free from abdominal pain and from all symptoms at one time for five months. Never vomited, nor has he noticed blood in his stools. Patient complains of heartburn, especially after eggs, and occasionally of nausea. Appetite very good. Has never been constipated, and therefore as far as his memory goes has never used any cathartics or enemas. No loss in weight. Complains of nervousness. Past history: Fourteen years ago had malaria, never icterus; denies lues; five years ago his physician in Russia suspected gastric ulcer and attended to him accordingly; smokes fifteen cigarettes a day; used liquor in excess until his present illness began. Family history: Mother died from blood poisoning after childbirth; brother died from typhoid fever. Physical examination: Healthy looking man. There is great tenderness in epigastric region, more to right. Weight, 168 pounds. Blood pressure, 115. Operative findings: Indurated ulcer in first portion of duodenum posteriorly; pylorus, patent; stomach, normal; no stones in gall-bladder; gastroenterostomy. Patient discharged well.

Case V.—H. S., aged fifty-two, teacher, was seen first November 10, 1913. Paatient has had indigestion twenty-three years. Attacks of gnawing and sharp pain in the abdomen, and across. Lately paroxysms of pain are becoming more frequent and more intense (every ten days). He is relieved from pain immediately after food. Has never had any pain at night. Pain is more intense four to five hours after meals. Feels like vomiting, but actual vomiting occurred only once, two months ago. Never melena. Has frequently heartburn. Appetite is capricious; lately anorexia. Lost in weight for past few months eight pounds. Constipated. No nervous symptoms. Past history: Lues denied; never had any serious diseases; never icterus; smokes ten or fifteen cigarettes a day; uses no liquor. Physical examination: Looks robust; tenderness in epigastric region, right hypochondrium, and right parasternal line, somewhat above navel; muscular rigidity in this region; blood pressure, 140. Operative findings: Ulcer at anterior wall of duodenum found; stomach normal; gall-bladder normal. Gastroenterostomy. November 26, 1913, patient well.

Case VI.—H. I., aged twenty-eight, housewife, was first seen March 10, 1913. Patient has complained of indefinite abdominal pain for ten years. Two and one-half years ago was operated upon on account of pain for appendicitis. She was not relieved for a single day after appendectomy was done. She felt practically worse than before. Patient has to wake up at night on account of pain. Lately pain lasts all day long, and feels relieved from one to two hours after meals. In the first years of her illness pain used to come on four hours after meals, but since the operation pain is rather continuous except shortly after ingestion of food. After drinking hot water she felt at the beginning of her illness as if the water would come in contact with a wound in the stomach. Injections of morphine given by her physician do not give her much relief. Never vomited, never melena, never icterus. Appetite very good, but afraid to eat, especially her supper. Has lost very much in weight. Constipated. No nervous symptoms. Physical examination: Great tenderness around navel to right, marked muscular rigidity; otherwise negative. Operative findings: Gallstones found in gall-bladder, adhesions between gall-bladder and first portion of duodenum; scar at first portion; stomach normal. Cholecystectomy, May 1, 1913.

Case VII.—G. J., aged twenty-three, working at flowers, was seen first November 27, 1912. Patient complains of a choking sensation in the throat. Since several months she has pain all over the body, but pain is more intense in right lower abdomen, especially in walking. Insomnia, cold hands and cold feet. Sour taste in the mouth. Food does not leave the stomach at all. Rumbling of gases in the abdomen. Has lately abdominal cramps at night, relieved after passing flatus. Occasionally indefinite abdominal pain in the abdomen several hours after luncheon and after supper. No hunger pain. Never vomiting, never bloody stools. Has lost somewhat in weight. Bowels slightly constipated. She was seen by a number of physicians and nearly every one considered her as a neurotic only. Past history: Had typhoid fever at age of twelve; nine weeks ago was operated on for appendicitis. Appendix was found to be diseased. She had chills and fever soon after she left the hospital. Family history: Negative. Is a healthy looking girl. Face rather flushed. Loss of pharyngeal reflexes. Right floating kidney. Hyperesthetic zones in different parts of the body. Highly exaggerated knee-jerks. There was on many examinations only slight tenderness in the region of navel, more to right. Operative findings: Broad adhesions between gall-bladder and first portion of duodenum; gall-bladder thickened, but no stones; stomach normal. Gastroenterostomy, December 27, 1913.

Case VIII.—M., aged twenty-one, operator, was seen first June 12, 1913. Patient was never troubled with indigestion or pain until six months ago. Since that time she complains of pain in abdomen and chest. Pain comes on from five minutes to two hours after meals. Pain is sharp and localized around navel and pit of stomach, and radiates to the back. He was not free from pain for a single day since illness began. Pain is most intense after stooping or coughing, and is never relieved after ingestion of food. No vomiting or melena. Sour eructations. Appetite poor. Has lost in flesh. Obstinate constipation (uses magnesia or enemas for bowels). Very nervous. Cries occasionally, when free from pain, without any reason. Past history: Was operated upon for glands in the neck; typhoid fever twelve years ago (ten weeks in bed); menstruation regular but painful. Family history: Negative. Physical examination: Rather pale looking; loss of pharyngeal reflexes; spastic abdomen; great tenderness in epigastric and in appendicular regions. Patient was under Lenhartz diet for two weeks, and later until September 9 under soft diet and the usual medicinal treatment for ulcer and nervousness. She did not obtain any relief from treatment. Operative findings: Duodenal ulcer adherent to the gall-bladder; no stones; stomach normal. Gastroenterostomy, November 29, 1913. Patient was free from abdominal pain two months later.

Case IX.—L. S., aged fifty, locksmith, entered Beth David Hospital, August 27, 1913. Patient had four months ago on one day diarrhea (four movements), with blood of chocolate color, and fainted four times. He had no cramps or any abdominal pain at that nor at any time before the incident. Only two weeks later he began to complain of sharp cutting pain in the right and left hypochondriac regions. Simultaneously he had also pain in the back, coming on two to three hours after dinner, and lasting until 2 A. M. No hunger pain. Appetite good. Has lost ten pounds in weight. Bowel slightly constipated. Uses no tobacco nor alcohol. Past history: Negative. Family history: Negative. Physical examination: Looks anemic, but fairly well nourished; loss of pharyngeal reflexes; lungs, heart, normal; abdomen, lax, tympanitic; tenderness in epigastric, right, and left hypochondriac and in appendicular regions (practically tender all over abdomen). Patient was under Lenhartz diet for two weeks and until October 11 under the usual ulcer therapy. Discharged October 12 considerably improved. Reentered the hospital, November 5, on account of severe abdominal pain. Operative findings: Soft ulcer in first portion of duodenum; pylorus patent; stomach normal. Posterior gastroenterostomy, November 10, 1913.

Case X.—Z. P., aged fifty-two, restaurant keeper, was first seen November 29, 1913. Patient has been apparently well until one week ago, when he began to have pain in the pit of the stomach and chest. Drinks much milk in order to obtain relief from pain. Pain comes on fifteen to twenty minutes after food. Has abdominal pain at night. Never vomiting, nor melena. Anorexia since nine days. Has lost in flesh. Constipated. Past history: Three years ago he had a similar attack of pain, which lasted for several weeks; otherwise no diseases; denies lues; smokes six pipes a day; uses liquors moderately. Family history: Negative. Physical examination: Abdomen tympanitic; lower liver dullness cannot be made out on account of tympanites; great tenderness at navel, to right, and slight tenderness in appendicular region; blood pressure 120. Patient was seen once more and escaped from observation. About one month later, on December 27, Dr. Luria asked me to inform him about my findings, as the patient entered his service at the Jewish Hospital, Brooklyn. From Dr. Luria I have learned that the patient vomited in the hospital several times, and had chills and fever. Operative findings: Perforation in first portion of duodenum. Near the perforated area a fishbone was found. Liver showed necrotic areas. December 27, 1913, gastroenterostomy done. Patient died.

Case XI.—K. A., aged forty-five, traveling salesman, was first seen September 27, 1913. Patient has been well until several months ago, when he began to complain of slight difficulty in swallowing solids. He had never had abdominal pain, never vomited, nor had noticed tarry stools. Appetite good. Never any dyspeptic symptoms. Bowels regular. Has lost considerably in flesh. Past history: Negative. . Family history: Negative. Physical examination: No tenderness anywhere in the abdomen. An obstruction of the esophagus was found at a distance of 12½ inches from the incisors. On esophagoscopic examination, which was made by me later in the hospital, a cancerous looking growth could be demonstrated in the esophagus at the mentioned distance from the teeth. Patient was referred to the surgical side for gastrostomy, which was supposed to precede radical operation. Operative findings: Stomach normal; soft ulcer of first portion of duodenum found; stomach opened. Unsuccessful attempt made to pass stomach tube through esophagus in reverse direction. Impossible obstruction encountered a few inches from cardia. Large probe passed and unsuccessful attempt made to pass tube alongside. Several months later the radical operation could not be made, as the cancerous mass of the esophagus was adherent to the aorta.

I am indebted for the reports of operative findings to the following doctors: A. A. Berg (Cases 2, 3, 6, 9, 11), Charles Peck (Cases 4 and 5), Charles Dowd (Case 1), A. G. Gerster (Case 8), G. D. Stewart (Case 7), and W. Linder of Brooklyn (Case 10).

*Discussion of Cases.*—Case 11 is most interesting. As seen from Table V the presence of occult blood was found twice on routine examination of the stools. The cause for the positive guaiac tests was not clear at all. After introducing many times bougies of different caliber and after esophagoscopic examination not a drop of blood could be detected on the instruments. However, at the operation a soft ulcer was discovered in the duodenum. The finding of an ulcer in this patient was a surprise, as he did not present a single sign or symptom pointing to this condition. He came originally to operation for carcinoma of the esophagus. This case therefore proves once more the latency of duodenal ulcer and also the immunity at least of the first portion of the duodenum to malignant growth, as cancer had developed, but not in a locality where a predisposition had been created by an ulcerative process. It is a well-known fact that the soil of the duodenum, with the exception of the papilla of Vater, is not favorable to cancer. The cause of polyglobulia in this patient was possibly starvation, as I had found it in two other patients, suffering from esophageal carcinoma. But on the other hand, the latter patients had considerable difficulty in swallowing, and of course the polyglobulia in them was clear, while this patient had practically slight disturbance in deglutition he took during his stay in the hospital enough eggs and milk, and other foodstuffs in semisolid form. Starvation polycythemia was not evident in this case.

The diagnosis in Case I was difficult. The patient had been operated upon about three months before he was seen first for appendicitis. From the medical man who referred him to me I did not obtain any information as to whether or not the appendix was really diseased. From the report of the appendectomy operation it is evident that the surgeon manipulated in the neighborhood of the duodenum (adhesions were mentioned from gall-bladder to stomach, and so on). As second operation has revealed a broad scar in the duodenum, is it hardly conceivable that in a period of two months an ulcer developed which led to scar formation? Therefore, one can assume that the ulcer or scar was overlooked at the first operation. Elsewhere I have pointed out that an ulcer may not be seen at operation and later be discovered at autopsy. The diagnosis would have been easy if not for the confusing report of the previous appendicitis operation. The findings of polycythemia in the blood in three counts, the average of which is given in Table VII, was the chief support for the diagnosis. The *x*-ray findings in this instance could not have been so valuable, as the patient presented many nervous symptoms.

There was not a single hitherto known factor explaining the high count of red cells. Patient had a very good appetite and for this reason starvation polyglobulia could be ruled out. Vomiting, as in the majority of patients with duodenal ulcer, was not complained of, and therefore the polyglobulia was not due to concentration of blood. Higher counts are sometimes met with in gastric dilatation. There was no stagnation of food on fasting stomach and on *x*-ray examination the stomach was found about 3 inches above navel.

Case II.—This patient presented also many nervous symptoms. Objectively corneal anesthesia and loss of pharyngeal reflexes were found. Except hunger pain, which could be associated in this case with neurosis, patient did not give a "Moynihan's" history. The *x*-ray findings, as seen in the table, were negative.

It was therefore difficult to persuade the surgeon to operate upon this patient. The preoperative diagnosis was duodenal ulcer. At operation an extensive induration was found in both organs, stomach, and duodenum. The pylorus was found to be patent. The question in which of the two the ulcer started remains open. As polycythemia was found on many examinations, I believe that the beginning of the ulcer was possibly in the duodenum.

Case III indicates the association of duodenal ulcer with gallstones. As there was no history of gallstone disease and rather a history of gastric ulcer, the formation of concrements in the gallbladder was probably secondary. The adhesions between duodenum and gall-bladder caused probably a pulling upon it. The emptying power of the gallbladder became reduced. Hence stasis of bile was possible and as a consequence formation of stones.

Cases IV and V did not present any difficulty

to the diagnosis. In case V it is worthy to note the long duration of illness—twenty-three years. Cases IV and VI were the only two in which a full "Moynihan's" history was obtained. Note again in Case VI the association of duodenal ulcer (scar) with gallstones, and a previous appendectomy as in Case I. Patient did not feel much relieved many months after cholecystectomy. I believe that she would have been better off if gastroenterostomy had been performed.

The patient in Case VII was a young girl, upon whom appendectomy was done nine weeks before she was first seen by me. She gave a most typical history of a neurosis. The girl was under my observation on and off about one year, and in the intervals of her absence she would visit other physicians and surgeons occasionally, only with my consent. It would not be an exaggeration on my part to state that she was seen by a dozen of the best consultants in town. No one, except Dr. Gerster, to whom I referred her for advice, would agree to an organic element in this patient. Her blood was examined several times. Anemia was found only on one occasion, on the second day of her menstrual flow. The diagnosis was duodenal ulcer. At operation, which was performed by Dr. Stewart (St. Vincent's Hospital) broad adhesions were found between first portion of duodenum and gall-bladder. No stones. Stomach normal. Gastroenterostomy was done. An ulcer too small to be seen must be granted.

Case VIII was another instance of duodenal ulcer in a young girl with many nervous symptoms. The history of the patient rather pointed to gastric ulcer. The *x*-ray findings favored duodenal ulcer. Blood indicated anemia. The preoperative diagnosis was gastric ulcer.

A correct diagnosis could have been made in this case if history and blood findings had not been overestimated and radiological findings underestimated.

Case IX was somewhat similar to Case II in regard to latency of duodenal ulcer. The intestinal hemorrhages and fainting spells occurred in the first case suddenly, without any premonitory sign or symptom; only several weeks later patient started to complain of pain. Ulcer therapy could not check his pain. Operation was advised. However, gastroenterostomy did not benefit him, as several months after operation the attacks of pain were more intense than before. This patient did not complain of nervous symptoms, although on physical examination loss of pharyngeal reflexes was demonstrated. His age, sixth decade, did not favor a good postoperative prognosis. As it was stated, the stomach does not seem readily to adapt itself to new conditions in older people.

In Case X the patient gave a history of having been ill one week, but admitted after cross-examination that he had a similar attack three years ago. It is possible, therefore, that the fishbone favored the perforation of an old ulcer. However, Dr. Linder, who operated upon this patient, believes that the sole cause of trouble was the fishbone incident, as the ulcer did not have the characteristics of an old callous ulcer.

Table I indicates that the full Moynihan's symptom-complex was present in 20 per cent. of the cases; hunger pain in 50 per cent.; late pain in 60 per cent.; night pain in 80 per cent.; hunger pain and late pain in 10 per cent.; hunger pain and night pain in 10 per cent.; night pain and late pain in 30 per cent. Presence of symptoms in regard to frequency: Night pain and late pain.

TABLE I

| No. | Hunger Pain | Night Pain | Late Pain |
|---|---|---|---|
| 1 | 0 | + | + |
| 2 | + | 0 | 0 |
| 3 | 0 | + | 0 |
| 4 | + | + | + |
| 5 | + | 0 | + |
| 6 | + | + | + |
| 7 | 0 | + | + |
| 8 | 0 | + | 0 |
| 9 | 0 | + | + |
| 10 | + | + | 0 |

Table II indicates that of eight cases examined satisfactory results were obtained in six—75 per cent. of cases examined with *x*-rays.

TABLE II

| No. | | Reported |
|---|---|---|
| 1 | Hypermotility of intestines | Dr. Hirsh |
| 2 | Normal findings | ..... |
| 3 | Hypermotility | ..... |
| 4 | .... | Dr. Leaming |
| 5 | | ..... |
| 7 | | Dr. L. Weiss |
| 8 | | ..... |
| 10 | Normal findings | Dr. Luria |

As in all cases at operation the pylorus was found to be patent, the findings of food retention in Cases 2, 3, 9 and 10 do point to a condition of pylorospasm (40 per cent.).

In 40 per cent. of the cases the patency of pylorus was demonstrated before operation by the color of contents; bile tinged. Gastrosuccorhea was absent in most cases.

TABLE III.—GASTRIC ANALYSIS ON FASTING STOMACH

| No. | Amount in C.c | Color | Visible Stagnation | Microscopical Stagnation |
|---|---|---|---|---|
| 1 | 13 | Normal | Absent | Absent |
| 2 | 30 | .. | ..... | A few starch granules, fat globules and cellulose |
| 3 | 50 | . | Present | Many sarcinæ and starch granules |
| 4 | 0.5 | Bile tinged | Absent | Absent |
| 5 | 25 | Blood tinged | | ..... |
| 6 | 0 | ..... | | ..... |
| 7 | 16 | Bile tinged | | |
| 8 | 0.5 | | | |
| 9 | 50 | Normal | Present | Sarcinæ and starch granules |
| 10 | 40 | Bile tinged | Absent | A few muscle fibers and cellulose |

From table IV is evident that of nine cases examined hyperchlorhydria was present in eight, hyperacidity in one. Average acidity for hydrochloric acid, 46; total acidity, 77.

TABLE IV.—GASTRIC ANALYSIS AFTER EWALD TEST-BREAKFAST

| No. | Amount in c.c. | Volume of Solids | Volume of Fluids | Acidity |
|---|---|---|---|---|
| 1 | 120 | 90 | 30 | 64/100 |
| 2 | 240 | 120 | 120 | 40, 62 |
| 3 | 50 | 40 | 10 | 48, 82 |
| 4 | 0 | 0 | 0 | 0 |
| After 45 min. | 40 | 30 | 10 | 50/74 |
| 5 | 150 | 90 | 60 | 30/80 |
| 6 | 0 | 0 | 0 | 0 |
| After 30 min. | 40 | 10 | 30 | 34/92 |
| 7 | 130 | 100 | 30 | 34/92 |
| 8 | 50 | 50 | 0 | 14 42 |
| 9 | 210 | 70 | 140 | 65 81 |

In two cases the emptying power of the stomach was found to be normal (50 c.c.), in five reduced motility, and in two hypermotility, as no food was obtained in the usual time and smaller than normal amounts after aspirating before one hour. The

volume of solids was found to be larger than the volume of fluids in five cases; in Case II equal amounts were obtained; in eight cases there were only solids; in the remainder the volume of fluids was larger.

TABLE V

| | Feces for Occult Blood | Urine |
|---|---|---|
| 1. | – | – |
| 2. | –, –, – | – |
| 3. | + | Indican in excess |
| 4. | –, –, – | Indican in excess |
| 5. | – | – |
| 6. | – | – |
| 7. | –, –, – | – |
| 9. | +, +, +. | – |
| 11 | +, +. | – |

Of nine cases, as seen from Table V, examined for occult blood in the feces, the guaiac test was positive in three, or in 33 per cent. This figure does not differ much from the 30 per cent. given by Moynihan for a large material. The table therefore tends to show that statistics from a small material may be also of value. The results of urine examination do not require any comment.

TABLE VI—TRYPSIN UNITS IN THE FECES

No. 1. 50,000; 3. 25,000; 4. 25,000; 5. 5,000; 6. 25,000

The findings in this table are very interesting. The feces of five patients examined after the method of Gross-Fuld quantitatively for trypsin, showed high values from 5,000 per cent.—50,000 units against normal 500. As in gastric ulcer, I have found lower than normal values, these findings in duodenal ulcer tend to show possibly hypersecretion of the pancreatic gland due to irritation from the duodenum.

Table VII indicates that the average hemoglobin of fifteen cases of non-hemorrhagic ulcer was 90 per cent. The average number of red cells, 5,921,000, or close to six millions. Polyglobulia, as seen from table, was found in thirteen out of sixteen cases, or in 81 per cent. White blood cells: Leucopenia was found in one, leucocytosis in two cases; in perforated ulcer, and in Case II, where duodenal ulcer and gastric ulcer were found. In the remainder normal counts were found.

TABLE VII.

| No. | Percentage of Hemoglobin (Sahli) | R. B. C. | W. B. C. |
|---|---|---|---|
| 1 | 95 | 6,700,000 | 8,740 |
| 2 | 90 | 6,576,000 | 14,960 |
| 3 | 82 | 5,660,000 | 7,600 |
| 4 | 112 | 6,510,000 | 9,000 |
| 5 | 100 | 5,730,000 | 8,800 |
| 6 | 80 | 5,580,000 | 9,100 |
| 7 | 90 | 6,000,000 | 8,920 |
| 8 | 85 | 4,300,000 | 4,500 |
| 9 | 55 | 4,473,000 | 7,600 |
| 10 | 94 | 5,130,000 | 21,000 |
| 11 | 86 | 5,800,000 | 6,000 |
| *12 | 92 | 5,600,000 | 9,000 |
| *13 | 100 | 6,400,000 | 8,060 |
| *14 | 120 | 5,700,000 | 8,060 |
| *15 | 70 | 6,630,000 | 9,940 |
| *16 | 90 | 6,500,000 | 9,800 |

Polymorphonuclear, moderate increase in Cases IX and X; small lymphocytes, decrease in Cases V and IX; small mononuclear, increase in cases V, VIII, and IX; large lymphocytes, increase in two cases where ulcer was complicated by gallstones; eosinophiles, relative eosinophila (4 per cent.) in Case VIII; transitional, an increase in three cases, III, V, and VI.

TABLE VIII

| No. | Poly. Per Cent | S.L. | S.M. | L.L. | L.M. | Eos. | Bas. | Trans. |
|---|---|---|---|---|---|---|---|---|
| | | | | | | 0 | | |
| 1 | 57 | 41 | 1 | 0 | 0 | 0 | 0 | 1 |
| 2 | 63 | 33 | 0 | 2 | 0 | 2 | 0 | 0 |
| 3 | 64.5 | 25.5 | 0 | 3.5 | 0 | 1.5 | 0 | 4.5 |
| 4 | 69 | 2.5 | 4.5 | 0 | 0 | 3 | 0.5 | 0.5 |
| 5 | 65.5 | 17.5 | 10 | 0 | 0 | 1.5 | 1 | 4.5 |
| 6 | 54 | 33 | 1 | 7 | 0 | 1 | 0 | 4 |
| 7 | 65 | 30.5 | 1.5 | 0 | 0 | 0.5 | 0.5 | 2 |
| 8 | 52 | 35 | 7 | 1 | 0 | 4 | 0.5 | 0.5 |
| 9 | 73 | 17 | 7 | 1 | 0 | 3 | 0 | 0 |
| 10 | 75 | 16 | 2.5 | 0 | 0 | 2 | 0 | 2 |

This table shows that polycythemia was found in four patients examined in shorter or longer intervals after gastroenterostomy was done.

TABLE IX.

| No. | Date of Examination After Operation | Hemoglobin | R.B.C. | W.B.C. |
|---|---|---|---|---|
| 4 | December 24, 1913 | 112 | 6,600,000 | 6,900 |
| 5 | 26 | 106 | 6,100,000 | 7,800 |
| 14 | November 17, 1913 | 100 | 7,390,000 | 6,900 |
| 16 | September 2, 1913 | 108 | 7,100,000 | 8,880 |

From the various points made by the author in this and in the two other papers on the same subject, he feels justified in bringing forth the following conclusion in regard to the diagnosis of duodenal ulcer:

The physical and chemical data obtained by means of analysis of gastric and even duodenal contents are of secondary importance. They are very variable and, of course, depend as much and more on the functional condition of the stomach than upon that of the duodenum. Good evidence of that is found in the fact that the fairly frequent diagnoses of duodenal ulcer are events of most recent years, notwithstanding the fact that a good idea of gastric function has been known over a generation.

That the history interpreted from the viewpoint of recently discovered facts is of value is best seen from the work of Moynihan, whose operative experience is probably exceeded by no one. His observations have proved that a great part of what were earlier looked upon as neuroses of the stomach and intestines—marked by hypersecretion, gastralgias, abdominal pain elsewhere, etc.—is really due to a definite physical lesion, that is to ulceration of the duodenum. In our opinion, however, he lays too much stress upon history alone. It is true that a good Moynihan complex can usually be elicited in cases of duodenal ulcer, but it is also true that a similar complex is present in cases where no ulcer has been found, and what is more important, duodenal ulceration may exist without giving any very typical symptoms. This statement is of course almost an axiom in medical knowledge. Pathognomonic symptoms, exclusive of all other conditions, and always present, are described in textbooks, in this or that disease, but they alone cannot always be depended upon. The periodic paroxysms of malaria the initial chill, fever, and cough of pneumonia, the abdominal pain and local tenderness of appendicitis are frequently enough observed, yet numerous instances of these conditions fail to show these symptoms. This is even more true in abdominal conditions, where any one of the so many organs or tissues may be physically and functionally at fault, and be responsible for very similar symptoms.

*X*-ray findings are of great value. That they are not exclusive is shown by the great difference of opinion among *x*-ray workers themselves, or, in-

deed, the very existence of hypermotility, etc., in duodenal ulceration has recently been seriously questioned. The fact is that the observations in duodenal disease have been only very recent, and while much is to be expected in the future from this method of diagnosis, at the present time it is of limited though distinct value. The author has endeavored to show that polycythemia is almost a constant accompaniment of duodenal ulcer. The occasional case of gastric ulceration or of other abdominal diseases accompanied by this finding in the author's experience, has given clear indications for the proper diagnosis. The exceptional blood findings will be considered by the author in connection with the study of the blood in gastric ulceration.

The polycythemia of duodenal ulceration remains after an operation. In many cases it has been the only distinctive feature, and has enabled the author to make diagnosis in spite of atypical history and indefinite *x*-ray findings.

This symptom is one that is easily enough determined, certainly so in hospital cases and in private practice as well, for of course a microscope and a hemocytometer should be common equipment of the modern physician. In calling attention to this symptom the author believes that he has facilitated the diagnosis of this important condition, and he is very anxious to have his findings gone over by other men having the proper facilities and material at hand. In the meantime, he can state from both his hospital and private practice experience that no symptom has been found as helpful in the diagnosis of duodenal ulcer as the symptomatic polycythemia discovered by him. Since his two papers have appeared he has had reports from several surgeons regarding the correctness of his statement. Dr. Gerster, Dr. Peck, Dr. Stewart, and Dr. Goodman have operated upon their own patients with duodenal ulcer in whom polycythemia was found.

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## NOTE ON MECHANICAL SUPPORT FOR THE FEET IN LOCOMOTOR ATAXIA.*

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WHEN standing, the ataxic tabetic rotates his feet outwards in a horizontal plane, around a vertical axis, which passes through the ankle joint, to such an extent that the distance between the great toes may be several times that which separates the heels. These abducted feet are sometimes overpronated, and in such cases both the anteroposterior and transverse arches usually yield. Such a foot affords a wretchedly inadequate support. The only stable element in it is the os calcis. The foot moves as a flail attached to the ankle and in front of the os calcis is a flabby conglomeration of bones. The muscles of such a foot are lengthened, and hypotonic. The ligaments are stretched perhaps beyond functional utility. In some cases we have examined, an increase of an inch in length and of an inch in breadth occurred when the body weight was placed upon the foot. We might as well expect the tabetic to walk easily on stilts as expect him to walk easily upon these abducted, pronated, formless feet. In his necessity, the tabetic makes a simian use of his toes, for the joint sense in his feet is usually lost to a greater degree than either common sensibility or sensitiveness to scratching. Indeed, common sensibility in the tabetic foot moy be wholly normal and the perception of scratching may be increased. The ataxic, using these senses to compensate for his lost joint sense, clings to the ground with his toes. During this toe action, which is to a certain extent a reflex expression of fear, the middle joints are arched up against the box of the shoe. The ataxic, moreover, often dorsiflexes his foot and toes as a prelude to the movement of flexion at the hip joint.

Sometimes the abducted feet are supinated, the patient walking on the os calcis and base of the fifth metatarsal. In such feet the clutching with the toes is even more marked than in the pronated feet; and although both arches suffer the displacement of the tarsal bones is less constant.

The clutching of the ground with the toes and the excessive dorsiflexion of the foot cause blisters and callous formation on the tips of the toes, where they rub against the sole of the shoe, and over the dorsal aspect of the middle joints of the second and third toes, which come in contact with the box of the shoe.

Ataxia may be alleviated or even cured by appropriate motor education. If blindness occurs in an ataxic tabetic, the ataxia may improve. From hour to hour, ataxia varies with the calmness and the excitement, the fatigue and the freshness, the despondency and the cheerfulness, the confidence and the fear, of the patient. These temporary psychic states cannot possibly alter the structural defect which is the fundamental basis of the ataxia, but they undoubtedly enhance or minimize the influence of that defect upon the function of coordination. Psychic processes are thus all-powerful in the ataxia of tabes. Upon the psychic element, motor education depends. The first step in treating ataxia is therefore to take such measures as will minimize the mental influences which aggravate incoordination. Fear, fatigue, pain, depression, and excitement are the chief of these incoordinating influences; and the greatest of these is fear. The lack of support which his feet afford to the swaying tabetic creates in him, not merely uncertainty as to the outcome of every step, but even a lively fear. The instability and fear result in prodigal expenditure of muscular and nervous energy for balancing purposes, and contribute thus to fatigue. Fear and fatigue increase ataxia, and ataxia increases the fear and fatigue. So the troubles of the ambulant

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ataxic multiply. In the twenty-four or forty-eight hours, which elapse between the lessons in coordinate movement, the physician should not allow the patient to stagger a whit more than is unavoidable. Staggering, uncertainty, fear and fatigue can be relieved by appropriately bracing the foot and by carefully planning the shoe. The correction of the mechanical defects of the tabetic foot is an essential preliminary to the motor education of the ataxic. If the fear and fatigue are alleviated, the ataxia diminishes.

When the feet are separated so that each external malleolus is in the plane of a line dropped vertically from the great trochanter, and the long axis of each foot is directed forward so that the feet are parallel, the feet are in the position which confers the greatest amount of stability in standing. In this position, the weight bearing on each foot is distributed across the longitudinal and transverse arches, and is directly transmitted to the ground by a tripod, consisting first of the internal tubercle of the os calcis; second, of the sesamoid bones and the head of the first metatarsal; and third, of the base of the fifth metatarsal.

Our efforts were directed to bracing the tabetic foot in such a manner that in this proper position, the full weight would be borne on the natural tripod in standing and in walking. In order to do this precisely, it was necessary, in addition to the usual procedure of recognizing a diminution in the longitudinal arch, and correcting this along the lines indicated by a cast of the foot taken in a position of rest, that we should obtain a cast of the foot in the act of bearing the full weight of the body. A comparison of this cast with that taken of the foot at rest shows exactly the points on which the weight is falling, the degree to which the natural arches have given way, and the amount of spread in all directions, which has resulted from the overstretching of the ligaments, and muscles.

To obtain the cast of the foot in action, we proceed as follows: Two tin plate boxes, fourteen inches long, and seven inches wide, with removable sides two inches high, are half filled with dental wax, which has a melting point of 110° F. The boxes are so constructed that they accommodate any size of foot, and they may be fixed parallel to one another, at a desired distance, by means of rigid connecting rods. The boxes are placed in hot water, which is allowed to heat to about 116° F., until all the wax is thoroughly softened. Then the wax is carefully kneaded, into a smooth layer of uniform thickness, covering completely the bottom of the box. The patient is shown how to stand with the feet parallel, and separated by a distance equal to the width at the hips. Then he practises placing one foot, say, his right, squarely upon the ground, meanwhile resting his weight upon the physician; next placing his left upon the ground parallel with the right; and then, supported by the physician only enough to prevent swaying, allowing his weight to be borne wholly upon his feet. After two or three trials, this maneuver is easily accomplished. The two boxes are lifted out of the hot water, braced together at the desired distance, and placed in front of the patient. The patient, leaning upon the physician in the manner in which he has been instructed, places first his right foot squarely upon the wax in the right box, and his left foot squarely upon the wax in the left box. Then he allows all his weight to rest upon his feet, and in doing so he is still supported by the physician sufficiently to prevent swaying. In about two minutes, the temperature of the wax in the box falls below the melting point, the wax solidifies, and the patient, once more leaning his whole weight upon the physician, then removes his feet from the boxes. In each box there now remains, deeply impressed in the solid wax, the imprint of the patient's foot as it was when his weight was fully upon it. Into this mold, fluid plaster-of-Paris is poured and allowed to set. Then by placing the boxes again in water above 110° F., the wax softens, and the plaster casts can be lifted out.

If the temperature of the water be allowed to rise too high, and then to cool too suddenly, the wax becomes hard and brittle. It can be restored to its original plastic state by being again heated, and very slowly allowed to cool. For heating purposes, we use the ordinary water delivered from the hot water faucet, and regulate the temperature with the aid of a bath thermometer. The only precautions necessary in choosing the wax are, first, that the wax be solid at body temperature; and, second, that its melting point be within a few degrees of the body temperature, so that a patient may not require to step into wax which is uncomfortably hot.

Plaster casts are now taken of the foot at rest, in the usual way—the leg crossed upon the opposite knee and supported in the position of least constraint, while the cast is being taken.

We are now provided with a plaster cast of the foot in action and a plaster cast of the foot at rest. With these two casts as guides, we build a third. In building this third cast, our effort is to utilize the normal pressure points in the foot and to restore as far as we can the normal bony arrangement of the foot, the pressure tripod. For this purpose, we use a replica of the cast of the foot at rest; add plaster to it at points where we wish to avoid pressure, and scrape away plaster at points where we wish to allow pressure. This third cast is the model of the foot upon which the brace maker fashions the plate. Instead of using a replica, the cast of the foot at rest may itself be used, but this gives a less accurate result.

The cast of the foot in action shows usually that the faulty position assumed throws the weight on the posterior and outer limb of the tripod. Sometimes, all the weight is borne on the heel; sometimes, on the heel and the internal limb of the tripod; and sometimes on the heel and outer limb of the tripod. In a condition such as the last the weight falling on the os calcis and the base of the fifth metatarsal and the foot supinated—the following are the main points which guide us in constructing the model for the brace maker. The posterior part of the longitudinal arch between the tubercle of the os calcis and the base of the fifth metatarsal is increased sufficiently to throw the foot inwards, and by diminishing the convexity of the heel across the tubercle of the os calcis, the foot is thrown forward, both planes converging on the inner limb of the tripod, until the weight falls squarely on each. Our aim is to pronate the foot without pressing on the inner side more than is needed to guide the supinated foot into the proper degree of pronation. The model is made more wide than the cast at rest, but less so than that in action, so as to limit the spread and yet not compress the tissue unduly. The lengthening of the foot is, of course, diminished by the longitudinal arch support. The spread of the transverse arch is also

diminished by increasing the concavity between the two anterior limbs of the tripod, and extending the brace completely across the space.

The type of brace used is a modification of the Whitman brace—the inner lip being curved below the level of the scaphoid. The outer flange is lower and does not extend so far forward; and the support of the transverse arch extends outwards beneath the four inner toes. When the spread is very great, the inner lip is extended forward to include the first metatarsophalangeal joint, surrounding it completely on the inner side.

No two pairs are exactly alike, each being built on its own model constructed from the casts of the foot at rest and in action.

The brace is light, accurately applied, and efficient. It supports the foot in action. This support is obtained as the result of study of the foot in action, which has shown us the distribution of the pressure upon the foot. Braced by this plate, the foot is no longer a treacherous, structureless prop, but sustains pressure on the normal pressure points, and affords reliable support from every part of its surface.

Maloney endeavored further to increase the foot support by means of a high shoe or boot, especially strengthened on the outer side of the ankle, to increase the support at the ankle and prevent the foot turning in. This shoe had a low heel, which was wedge shaped, the base of the wedge being on the ground, and this heel was continued along the outer side of the shoe. A welt as broad as the patient would permit projected around the sole, and a steel plate was placed in the sole to prevent bending. When this shoe was on the ground, it rested with its whole bearing surface, and the patient got support from every part of this extended surface, simultaneously. To overcome the tendency to grip with the toes, Maloney raised the anterior part of the sole so as to hyper-extend the toes. But this shoe was heavy. The shoe we have now designed is made for us by Mr. Max Deutsch of New York. A straight last is used. The sole projects three-eighths of an inch all around the upper. A hickory wood filler extends from the heel through the shank to the front of the sole, rendering it rigid and unbending. The heel, wedge-shaped, with the base of the wedge on the ground, is seven-eighths of an inch high, has its inner and outermost layers of leather, and the two intermediate layers of cork, enveloped in leather. On the inner surface, the heel extends forward as far as the astragalus; on the outer surface, it is continued forward to about the middle of the cuboid. A special feature is made of the snugness of the fit in the longitudinal arch. The box is high. The upper is made of calf leather. Around the ankle, between the lining and the upper, is a small reinforcing leather brace. A thick, soft tongue enables the shoe to be tightly laced. The total weight of a shoe (size 8, on an A last) is just less than fourteen ounces.

The special features of this shoe are, first, its rigidity; from the moment the foot is put flatly upon the ground, all movement ceases, there is no more oscillation, the foot has an unbending support; second, it is lighter than ordinary shoes, hence the tabetic can walk more with less fatigue; third, the increased ground area of the heel and of the sole augment the foothold; and, fourth, the ankle support prevents the ankle from giving. A patient, thus shod and braced, can use his whole foot instead of his heel, as a support. The foot in front of the os calcis, instead of being an unknown quantity to him, is now a rigid support. In feet so braced, local and remote pains diminish, and disappear. Shooting pains in the legs, we think, decrease both in severity and in frequency. Apparently these pains can be, to a certain extent, reflexly initiated by local irritation in the foot, and the removal of that local irritation diminishes them. Blisters and callous formation disappear. The patient now does not oscillate every time the foot is put down. He walks on a secure, rigid base. He is more stable. He feels more stable. He fears less, and as fear begets ataxia, and ataxia begets fear, his increased reassurance greatly improves his gait. The patient, thus supported, is soon weaned from the straddle-legged attitude which in tabetics renders coordinate walking so difficult. He is launched successfully upon the way to the cure of his ataxia.

This method of treating the foot is essentially temporary. By means of exercises, we increase the tone of the hypotonic muscles until the muscles themselves are capable of maintaining the bones in the correct position. Our efforts in mechanically supporting the foot are directed solely towards maintaining the foot in a correct position, and supporting it there until such time as the muscular support may be sufficiently developed to fulfill this function unaided.

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## PROPHYLAXIS OF LARYNGEAL TUBERCULOSIS.*

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There are few diseases in which the modus operandi is so well understood as in pulmonary tuberculosis, and perhaps none which have created such general interest. But it is to be regretted that the same interest has not been manifest in its most frequent complication, which we know not only adds largely to the mortality, but also increases infinitely the suffering of the patient and the dangers of contagion. If it is true (and I suspect it still is) that this indifference is due to the belief that little can be done to avoid this complication, and still less when it has occurred; that all has been done when efforts were made to improve the general condition; then the laryngologist has an urgent duty to perform; for he is, I believe, now in a position to dispel this error.

I think, therefore, I need offer no apology for the choice of this subject at this time, the less, too, because of the conviction I have that prophylactic work on the part of the laryngologist has not been at all commensurate with the means now in his hands. Even if the laryngologist can justly plead the lack of opportunity, that he does not usually see the cases at the logical time for the most effective prophylactic work, even so his duty is none the less clear; for it is then that his co-operative relation as a teacher to the internist, should become more aggressive.

As above noted, the general tuberculous process is exceptionally well understood. To understand how this process invades the larynx we need but observe the structural and functional relation which

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this organ sustains to other centers of infection; for there are so few cases on record of apparently primary infection of the larynx that we may proceed with the etiological part of our study on the hypothesis of the secondary nature of the infection.

Of course it would be helpful to know just how this secondary implantation of the germ takes place. The weight of evidence seems now to be that it is most frequently submucous[1], that even when the greyish yellow spots or colony of spots are seen the tiny tubercle is still under the mucosa. It is really seen *through* the transparent mucosa. If it is seen *on* the mucosa the tubercle has already broken down, or, if a group is seen the slight ulceration is the result of their coalescence. We know also that the germ may come from without and from within; through the atmosphere direct; from the bacillus-laden sputum; also through the lymph channels, and perhaps through the blood. These, at least, are the avenues of infection which most interest the laryngologist.

As noted we do not see the infectious germ in transit. We will always see what will, perhaps, ever appear to be certain gaps. We see only its footprints; but, like life itself, the tuberculous process has its continuity, and so in the case of the tuberculous larynx we may, I think, plainly see the disease circle and the causative vicious circle. We may, therefore, logically begin our study of the prophylaxis of laryngeal tuberculosis with the consideration of those conditions which predispose to this complication. This, I admit, would lead us to recognize many of the causes which predispose to general tuberculosis. But let us see how they bear on laryngeal tuberculosis alone.

It will suit our purpose to begin at the end of our subject for we will thus enter at once upon the real practical problem of laryngeal tuberculosis as it unfortunately confronts the laryngologist to-day. When a case of laryngeal tuberculosis comes into the hands of the laryngologist the latter usually finds the following conditions: phthisis, without physical signs in the lungs possibly, but usually more or less active chronic inflammations general throughout the head; loss of, or perverted secretions of the three kinds of glands in the nose and throat; and destruction for the most part of the ciliated epithelia. One or all of these conditions are present in every case.

Diseased faucial tonsils, diseased lingual, and pharyngeal tonsils; enlarged cervical glands, and diseased bronchial glands—all these are very frequently found. Less frequent, but not at all uncommon, are chronic inflammations of the nasal sinuses; ulcers in the nasal fossæ; nasal septal deformities and enlarged, not to say diseased, lymphatic tissues in the nose, all more or less obstructive to ventilation of the air cavities of the head, and often sufficient to destroy the equilibrium of nasal respiration and, in not a few cases, to cause mouth breathing.

Now these associate conditions (not to speak of the lungs) not only constitute ever active predisposing causes of laryngeal tuberculosis, but are a veritable handicap in the treatment of the laryngeal lesion; for they are now, in turn, also a real complication of the laryngeal lesion and make its prognosis much more grave. Of these predisposing causes in the order of their perniciousness I would place all those pathological conditions which cause mouth breathing, creating a direct impact of air upon the larynx. Recent observations show ever more convincingly a large number of consumptives who are mouth breathers. It has been noted that such are not only liable to laryngeal complications but also to involvement of the bronchial glands.[2] Next, I would place chronic inflammation of the nasal accessory cavities when these cavities constitute pus reservoirs. Chronic follicular inflammation of the lingual tonsils (not so rare as we were wont to suppose), because of its intimate structural relation with the epiglottis, frequently, I am convinced, passes from a predisposing to an exciting cause of laryngeal infection; and so does the diseased pharyngeal tonsil when it exists; though, perhaps, in a lesser degree.

The diseased faucial tonsil, however, because of its general frequency and also its intimate anatomical relation to the larynx, must be given a unique place among the predisposing causes. They, too, I am convinced, frequently become the real purveyors of the bacillus to the larynx.[3] To see just how they come to have this dual causal relation would necessitate a complete review of what we now know of the causative relation of the diseased cervical glands to the tonsil and to pulmonary tuberculosis. Briefly, however, we may find the very probable answer by inquiry as to the cause of the infection of the cervical lymphatic glands. It is now well established that a large number of these diseased glands are tuberculous. Schlenker[4] and Kreukman,[4] I think, are right in their conclusions that the infection of these glands is caused by a thrombosis of the efferent lymph vessels of the lungs or to a similar thrombosis of the efferent lymph channels of the tonsils. These investigators frequently found these thrombi. But we need not entirely count on their existence in every case. We need only know that the lymph glands by the very nature of their structure and function, fall an easy prey to infectious germs. If the thrombi are present they will naturally act in a retrograde way of infection upon the tonsils, larynx, and, indeed, upon all the segments of the Waldeyer ring which are rich in loops of lymph vessels. Thus the gap of infection between these centers and the larynx seems to fill up: we see the infected lymphatic thrombi above it and the infected lymphatic thrombi below it. We see certain areas in the larynx rich in lymphatic tissue and we see that these areas are those which are the earliest and most frequently infected. As above stated, we know the nature of the lymph structure. It has a weak organization, in consequence of its weak innervation; it has an extreme liability to stagnation of its fluids, and of all the tissues of the body it furnishes the soil most susceptible to infection. Indeed, evidence, both chemical and laboratory, is constantly accumulating in proof of the frequent infection of the various segments of the Waldeyer ring which infection frequently seems primary or exists before any physical signs can be detected in the chest.[5] Viewed then, as *predisposing* causes, we see the gap filling in completely. The vicious circle, also, is complete.

And thus in our prophylaxis work, if it is to be efficient, we should proceed on the supposition that when any of these segments become diseased they may become at least transmitters of the bacillus to the larynx.

*Remedial Prophylaxis.*—In our remedial prophylactic measures we think at once of its twofold nature in point of time: First, before the larynx is involved. Second, after the involvement. To the

laryngologist there need hardly come any lesson with respect to the part that surgery must play. He is now fairly busy in clearing up the diseased segments of the upper half of the circle. To him, however, still belongs the duty of insistently teaching the internist to diagnose earlier these predisposing conditions so that the remedy may be applied before they have become causal disease transmitters.

But one duty of infinitely more importance comes before this. I believe if there were time that nowhere more than here could so logically, so scientificially, be made a plea for prophylactic work in childhood. I have in mind not only laryngeal tuberculosis but general tuberculosis with all the predisposing causal conditions which lead up to it. I have in mind the lymphatic system only; the beneficent rôle it plays in health, the pernicious part it plays in disease and when it becomes diseased itself. I have for a long time been convinced, and my conviction has grown, with the growth of our knowledge of the far-reaching function of the lymphatic system, that the external lymph glands, no less than the internal, have an important function to perform.* Our prophylactic measures should, more largely than they are now, be directed toward the creation and maintenance or a robust lymphatic system in both childhood and adolescence. I believe we will in the future make greater efforts to combat those influences which weaken the lymphatic system and restore it to health when diseased. This may be the work of the long to-morrow, but it is wisdom to begin now to heed the warning, which we ever see, in the way nature has of doing things. We will not infinitely prosper if we disturb too much the balance of nature even in the least of her workings. But until the long to-morrow comes it is always good science to surgically remove tissue which has lost its function, which at best can only be a hindrance to other tissue which is fitter to survive.

But how can this be done safely in the presence of active infection of an organ which has such intimate structural relations with other infected organs —without danger of dissemination? Surely here are surgical procedures which require the highest judgment and discrimination. Nowhere does one thing balance so delicately another. Perhaps nowhere does experience count for more.

But, if the laryngologist is on the alert he will usually find a time in the general condition of the patient when, by well selected surgical methods he can safely, for instance, eradicate diseased tonsils, restore equilibrium of nasal respiration by correcting nasal septal deformities; or drain a pus reservoir in a nasal accessory cavity. I have for a number of years applied radical measures to these serious handicaps, not only before the presence of laryngeal lesions, but during their presence, with results that have been uniformly gratifying; that is, I have not seen any spread of the disease on this account. Obviously all surgery should be held in abeyance when there are any signs of approaching laryngeal involvement, and when there is an incipient involvement. The specific feeders to such processes should be treated temporarily, medicinally; nor would I resort to surgery when trying to resolve an infiltration, or when trying to secure the fibrosis of a tumor, and, of course, not when there is what is understood to be an active tuberculosis of the lungs.

As to surgical methods and procedures my experience is in agreement with that of Mermod, that whenever the galvanocautery can be used it is much the safest. Lactic acid, if applied, must be more or less continuous and is thus, on the whole, more painful than the permanent burn of the cautery. We all know with what frequency and success Mermod' has used the galvanocautery in the larynx. That I have not seen any extension of the infection where I have used cold instruments may be due largely to the systematic use of iodine, both before and after the operation, and painting the parts with a strong solution of lugol in the after treatment; also using dusting powders with 20 per cent. to 40 per cent. iodine containers, diluted with anesthetic powders in the case of tonsillectomies. Routine gargles of iodine, with or without hydrogen peroxide, in all throat operations, I believe to be very effective.

The next consideration in our prophylactic study would naturally be that of the early signs of laryngeal involvement. Of first importance is the question: are there any early signs which are useful to the general practitioner without the use of the laryngoscope? Unfortunately we must say there are very few. So it bears repeating that if ever the time is to come when the most efficient prevention work shall be done the phthisiologist must train himself to the *diagnostic* use of the laryngoscope. The great mass of the tuberculous will be always too far removed from the laryngologist to secure an early diagnosis. Not even those now resident in the ever increasing number of sanatoria are receiving this attention; except, perhaps, those located in the larger cities. It is self-evident, also, that the physicians in charge of those sanatoria which cannot meet the cost of a resident or visiting laryngologist should also be skilled in the prophylactic work in incipient cases.

But what are the approaching or incipient signs? They are of some value to the physician who has to rely only on the symptoms elicited from the patient. He will see them in the mere weakening of the voice; in vocal fatigue on talking; in hoarseness, a sense of dryness in the throat; troublesome localized tickling; a lump-like tickling on swallowing; pain, a feeling of languor and debility, and increased dry cough. He should also see them in the symptom complex of every attack of acute laryngitis. These signs no doubt often herald the approach of the disease and should always be an indication for speedy laryngoscopic examination. But they are also signs of actual involvement. Sometimes nearly all these external signs are absent in the process of involvement even to the point of disintegration. We also know that the invasion of the tubercle bacillus is frequently insidious.

Can this plea, then, be too insistent for the early and constant use of the laryngoscope wherever and whenever the subjective signs appear? And I am not speaking now of the numerous cases where the laryngoscope may be the first to detect the presence of general tuberculosis. Such cases are now becoming more and more a matter of record. Probably the most convincing proof of this is found in the investigations of Hughes of Melbourne.* Hughes saw a score of cases which came to him for slight throat symptoms. He saw "raised ridges or elevations" that always occurred at the same spot, viz., "in the center of the sulcus, between and below the arytenoids." About one-half of these cases did not show any physical signs of tuberculosis at the time but developed them later. Then he looked further and found a much smaller infiltration in

two cases which proved to him to be an earlier one; for he saw them develop into the "raised ridges." The tuberculin test was positive and tuberculosis developed later in these cases. From these findings and others Hughes, very naturally, raised the suggestive hypothesis whether laryngeal tuberculosis, after all, may not frequently be the earliest manifestation of general tuberculosis. Whatever we may think of Hughes' hypothesis the methods of his findings will, I think, lead to much closer and earlier observations and would greatly help the work of prophylaxis.*

In passing now to the laryngoscopic signs or those of actual involvement, we would look for the earliest ones in that part of the larynx where, as above noted, the lymphatic tissue is most in evidence in the mucosa of the interarytenoid fold, in the mucosa of the posterior third of the vocal processes in the mucosa of the arytenoids themselves; in the mucosa of the rim and underside of the epiglottis. We do not now rely on pallor, except when it is seen on the palate; even then it is more likely to be only a part of the general anemia, hence is pathognomonic of an advanced condition. Localized hyperemia is much more pathognomonic and at one time, in the early stages, it frequently is for a time diffuse, and it is only when this clears up that the infectious focus is seen. But more frequently the inflammatory process is circumscribed *ab initio*, depending, I think, upon whether there was a previous chronic laryngitis and also whether the lesion is purely tuberculous. Of course it cannot be expected that the phthisiologist thus trained in the use of the laryngoscope should make differential diagnoses. This would be entering upon the most advance work of the laryngologist. Fortunately, this is seldom necessary for a basis of practical prophylactic work. If he sees an inflammation in the larynx, localized or localizing; unilateral or becoming so; limited to one cord or one arytenoid; and if in the more advanced lesions the infiltrated areas are found in the "elect" tissues, and if they show the well known conventional appearance—if he sees these in a tuberculous patient he may safely pronounce his findings tubercular.

It will not be necessary to describe further the topography nor yet, the geography, of these incipient lesions. To the laryngologist they are alphabetic; but the phthisiologist should learn to see these pictures clearly. Many laryngologists have in recent years most clearly and faithfully portrayed both their nature and their appearance, and none more truthfully than Lockhart[9] in his recent book, Levy[10] in a series of brochures, and Minor,[11] in his paper read before the recent Congress of Tuberculosis at Washington.

What I would emphasize here is the rationality, the practicability, and the absolute need of including in the field of prophylactic work, also all the more advanced lesion of swellings, infiltrations, and tumofactions; for despite the fond hope that the cooperation of the laryngologist and phthisiologist will be very largely effective in securing the diagnosis and treatment of predisposing and earlier lesions, these second stage lesions will still constitute much the largest field of prophylaxis. Only those who have the immediate care of the tuberculous can fully appreciate how fortuitous a circumstance is the resolution or fibrosis of a laryngeal tuberculous tumor, for they only know what a dire circumstance is its disintegration. I am aware that the pessimism of the general profession would include also these so-called second stage involvements as well as the stage of ulceration.

We cannot hold strictly to any classification when we consider the prognosis; for there are too many modifying and extenuating factors, both local and constitutional, entering into each individual case. Locally, for instance, the broken down lymphatic tissue in the posterior commissure is more amenable to treatment than a nest of bacilli still encapsulated in the joint of the arytenoid. Some deep ulcers heal more benignly than superficial ones. The prognosis of a third stage lesion on the vocal processes or on the inner aspect of the arytenoids is always better than one farther out toward buccal and atmospheric exposures.

Briefly, we can lay down here only this principle which should guide us in our prophylactic treatment: locally, to so disinfect the tuberculous nidus; to so nourish it; to so stimulate phagocytosis as in each host the guest needs; which can usually be fairly well clinically estimated by the degree of heat and cold or the degree of activity present. One modifying corollary should be attached to this, which, if disregarded, would more than wholly negative any benefit from local remedial measures: viz., that the disinfection, the stimulation, etc., should never reach the point of *irritation;* otherwise the old dictum "nole me tengere" had better remain in force. I would add a secondary corollary, which is more in the nature of a definitive of the second stage lesion, viz., that very rarely should a wound be made in these lesions; the exception should be made only in the use of the medicated or hot needle in cases where the tumors will not resolve or fibrose in capsule by external measures. This, of course, leads up to the necessity of a pathological definition of the second stage lesion.

In conclusion I would emphasize what I trust has been faithfully reflected, but in what I fear has been an all too general plea for prophylaxis of laryngeal tuberculosis, the one matter of primary importance, viz., that the laryngologist should take a position vastly more insistent and aggressive as a teacher of prophylaxis. His pupils should be not only the phthisiologist and the pediatrist but the general practitioner; indeed, all who assume the responsibility of the care of the tuberculous patient —to secure the most intelligent and effective cooperation in prophylaxis.

The laryngologist has written quite enough, but it may be necessary to more frequently extend his teaching to the medical forum.

*Since the presentation of this paper, Hughes has made further investigations and has reported his findings in the *Australian Medical Journal*, March, 1913. He found so many cases presenting these involvements, some showing definite, and some very slight and others, no signs of pulmonary affection, that he now makes a summary submission: (1) That slight but definite change in the larynx is found in every case of pulmonary tuberculosis. (2) That it is constantly present in cases applying for treatment of purely throat symptoms and then he gives his differential diagnosis of tubercular and chronic laryngitis.

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## CHRONIC PROSTATITIS.*

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It was no less distinguished surgeon than Freyer of London who in his admirable textbook on "Surgical Diseases of the Urinary Organs" said: "The disgusting practice of massage of the prostate, advocated by some surgeons in America and on the Continent, should never be had recourse to. It is useless and has grave objections attached to its employment." It is the purpose of this paper to invite to the members of the society a renewed interest in this often overlooked disease, chronic prostatitis, and to detail some of the brilliant results obtained by this "disgusting and dangerous practice," prostatic massage. No practice which affords relief to distressing symptoms can possibly be disgusting and I am still looking for immediate or remote dangers from this important addition to therapeutic measures.

The name, chronic prostatitis, implies its own definition but is also usually understood to include chronic catarrhal processes in the seminal vesicles and ampullæ of the vasa deferentia. The most potent etiological factor is gonorrheal infection. This is the probable cause in a majority of cases. A study of 50 cases in my practice has shown a history of gonorrhea in 32 or 64 per cent. and no history of gonorrhea in 18 or 36 per cent. This is, I believe, closely in accord with the observations of others. A further study of my cases has convinced me of the growing importance of other factors, notably, masturbation and long continued sexual excitement without intercourse. A study of the gonorrheal cases impresses me that in many of them a chronic catarrhal process had been existent before the invasion by the gonococcus and that in these cases gonorrhea runs a more protracted and severe course. Other causes of less importance are injury, descending infection, and excessive intercourse.

A recent communication by Hichens and Brown of the Mulford laboratories has given us our most exact information on the bacteriology of chronic prostatitis. The decreasing importance of the gonococcus and colon bacillus and the prominence of the various staphylococci, streptococci, and bacilli of the diphtheroid type are strikingly illustrated by their work. It is undoubtedly true that the prostatic mucous membrane is an excellent host for a great variety of organisms.

The essential tissues of the prostate are the glandular and the muscular tissues, the stroma, nerves, blood-vessels, and lymphatics. The stroma and muscular elements arise from the capsule and ramify around the gland acini. The glandular arrangement has all the complexity of the acinous and tubular types. It is only natural that infections of the posterior urethra must invade the prostatic ducts and this practically always occurs. The infection may travel to any or all parts of the gland and give rise to various degrees of inflammation. Young, Geraghty, and Stevens have described the tissue changes as involving both the parenchymatous and periacinous elements, the periacinous infiltration appearing to be most prominent. The gland acini may in some cases be dilated and filled with desquamated epithelium and leucocytes, in other cases only vestiges of the gland elements remain, the predominant tissue here being of a fibrous nature. The muscular elements are thinned out from pressure by the dilated gland sacs. Grossly the gland may appear normal in size and appearance or show enlargement and irregularities. Palpation may reveal areas of induration or softening. Associated with these changes are found various degrees of inflammation in the seminal vesicles and ampullæ of the vasa deferentia. The normal secretion of the prostate consists principally of lecithin and this in chronic prostatitis is largely or wholly replaced by pus.

The nerve elements in the prostate command the greatest attention. Sensory fibers reach the prostate from the tenth and eleventh dorsal, the five lumbar, and the first, second, and third sacral nerves. The secretory fibers come from the sacral plexus of the sympathetic. Large ganglionic areas are found underneath the capsule. The reason for this remarkable and abundant nerve supply is not understood. Undoubtedly it concerns in large degree the sexual function and plays an important part in the various sexual disturbances of the male. Certain it is that inflammatory disturbances in the prostate gland may cause most remarkable symptoms.

The symptoms of chronic prostatitis are usually classified as urinary, sexual, and referred, following the designation of Young, Geraghty, and Stevens. While most cases may be grouped under these headings I have frequently encountered cases which had no other complaint than a urethral discharge, and others which had no signs or symptoms whatever of chronic prostatitis and which on rectal examination and examination of the expressed secretion showed marked inflammation of the gland. The sexual symptoms are usually closely identified with disease of the colliculus or verumontanum. Space will not permit a discussion of this interesting and important condition.

In detailing the symptoms of chronic prostatitis the author asks the reader's indulgence in an analysis of 50 cases gathered from his practice. Although the number of symptoms appears large it will be noticed that there is a similarity in distribution and character and one soon learns to suspect the existence of this disease when a new symptom presents itself. An example of this occurred recently:

Case I.—J. H. O., aged 25. Had gonorrhea five years ago and eight months ago. Complained of intense itching of the skin over hips and thighs. The history suggested chronic prostatitis, the patient also inquiring about his urethral condition. The prostate revealed a marked degree of chronic inflammation. In-

*Read before the George Washington University Medical Society, January 17, 1914.

durated areas were scattered throughout the gland and strong adhesive bands bound the prostate and vesicles to the pelvic wall. The secretion was full of pus. The gland was massaged thoroughly at the first visit and the patient instructed to apply no local treatment to the skin. The itching entirely disappeared in a few hours and has not returned.

What has been of great interest to me are the symptoms for which the patients sought relief. Of the 50 cases referred to above, 2 had no signs or symptoms whatever and were discovered on routine examination. One had severe pain at the perioneoscrotal junction, 1 had a feeling of heaviness and weight in the perineum, 4 complained of irritable urethra, 2 of suprapubic pain, 4 of pain in the back identical to lumbago, 1 pain in both inguinal regions, one pain and soreness in bladder, 1 irritation of the neck of the bladder, 1 itching of skin over hips and thighs, 2 pains in the lower limbs, 2 pains in the testicles, 2 had difficulty in starting the urine stream, 3 frequency of urination, 3 failure of erections, 2 precocious ejaculations, 1 seminal losses, 1 prostatorrhea, 1 loss of sexual pleasure at intercourse, 14 had a urethral discharge of varying degree and 1 had insomnia.

Summarizing the symptoms noted in the histories of these 50 cases there occurred: complete loss of sexual power once, night emissions seven times, failure of erections five times, precocious ejaculations ten times, poor erections four times, painful erections once, painful ejaculations once, hypersexuality once, sluggish emissions once, prostatorrhea three times, coldness of the external genitalia once, frequency of urination eight times, slowness and difficulty in starting the urine stream four times, dribbling at end of urination five times, irritability and burning during and after urination six times, occasional incontinence once, urgency once, hematuria once, history of hematuria once, urethral discharge twenty times, perineal pain four times, sensitive penis twice, suprapubic pain six times, pain in lower limbs seven times, scrotal pain three times, testicular pain four times, sensitive testicles once, history of attack resembling renal colic three times, uneasy sensations in the perineum twice, one-sided lumbar pain twice, herpes preputialis once, headache once, headache during ejaculation once, pruritis ani four times, suicidal despondency once, insomnia twice, loss in weight once, neurasthenic symptoms four times.

It will be noticed that these symptoms are almost constantly referred to the lower segment of the body. Calling attention again to the extraordinary nerve supply of the prostate it will become apparent why we have such a wide distribution of these pains. Fibers come to the prostate from segments in the cord corresponding to the nerve supply of the body from the diaphragm to the feet. Sensory stimuli proceeding from the prostate undoubtedly suffer misinterpretation, the impressions being received by nerve cells corresponding to areas in the body other than the prostate. You are all familiar with the psychic error which occurs in anginapectoris where sensory stimuli proceeding from an overtaxed heart cause extreme pain in the hand and arm and shoulder. Here the impressions are picked up by nerve cells corresponding to these parts. This is fundamentally what takes place in the referred symptoms of chronic prostatitis. It has been my observation that inflammation in the seminal vesicles and indurations in the upper poles of the prostate are most inclined to be associated with pain in the back and the renal colic type of symptom. Young of Baltimore has reported itching of the soles of the feet. A deep and enduring sciatica should at once call for an examination of the prostate.

There is an obstructive type of chronic prostatitis with definite obstruction to urination which is in no way analogous to the senile hyperthrophy of the aged. This type presents definite contraction of the vesical orifice, small contracted bladder, residual urine and other symptoms of urinary obstruction. Two such cases under my care gave histories of long and severe attacks of posterior urethritis.

The diagnosis rests on palpation of the prostate per rectum and examination of the expressed secretion. The patient urinates in three glasses after which a gloved finger is inserted into the rectum and the prostate systematically examined. The size, contour, irregularities in outline, indurations and presence of adhesions are all noted. The finger is passed up over the vesicles and ampullæ of the vasa and notes made of the conditions found. I have been in the habit of diagraming accurately the conditions found. The prostate is then thoroughly massaged and the expressed secretion which hangs from the meatus caught on a slide and examined microscopically. The presence of lecithin, motile or nonmotile spermatozoa and pus cells is noted. The degree of inflammation can often be gauged by the amount of pus present and the comparative amount of lecithin. More than five or six pus cells present in a field using the sixth inch lens and No. 2 eye piece indicate prostatic inflammation. Frequently it happens that the first examination discovers no pus and a massage two or three days later brings an abundant amount. Here the pus has been located in the peripheral gland acini and did not get into the excretory ducts during the first massage. Very large amounts of lecithin indicate little pus and vice versa. In cases with a gonorrheal history application of the complement fixation test will quickly reveal the presence of the gonococcus. It is no longer necessary to be in doubt about the presence of the gonococcus. Increasing use of this test convinces me more of its value. Inflammations of the verumontanum are readily diagnosed with aid of the urethroscope. I have been struck with the frequency of diseases of this organ and make it a routine to urethroscope all patients at some time during the course of the treatment. The presence of stricture should be ruled out as it is useless to attempt treatment of the prostate when this complication is present.

Massage of the prostate is the bulwark of treatment. No other measure we have can approach it in efficiency. The prostate is so constructed that inflammatory products within the gland acini and tubules drain very poorly and these products accumulate, dilate the acini, injure the muscular tone, and make pressure on the various nerve ganglia situated in the gland. Massage is the great assistance we can offer nature in the correction of this defect. Under massage we can hope also for an increased blood supply and a beneficial action on the muscular elements. Attention must be particularly directed toward indurated areas which should receive the greater part of the treatment. Immediately after the

massage the urethra and bladder must be irrigated with some mild antiseptic solution preferably potassium permanganate 1-6000. Occasionally when the urethra is irritable I apply 15 per cent Argyrol to the prostatic urethra through an Ulzmann syringe. The treatments are repeated on an average of every four days. Several cases have been greatly benefited by the application of 2 per cent. carbolic-lanolin ointment to the prostatic urethra immediately after massage. Through the straight urethroscope appropriate applications are made to the verumontanum when examination has revealed evidence of disease in this organ. The benefits of massage are usually observed early in the treatment. On the clearing up of the condition it will be observed that the pus cells grow less in number and the lecithin bodies return or increase. Occasionally in the type with urinary symptoms the Kollman dilator has been of great service. Dilatations up to 35 or even 40 on the French scale can be borne without much discomfort. I have frequently observed that a massage several days after a dilatation is rewarded by an abundant amount of secretion in cases that showed a sparse amount before.

Results of treatment: Of the 50 cases reported above the results of treatment to date are as follows: Number cured, 27; number improved, 9; number unimproved, 3; number discontinued treatment, 5; number improved and still under treatment, 5; number unimproved and still under treatment, 2. I have not estimated the average length of time required for treatment but would judge it at about two or three months. Several cases have shown marked chronicity and several with a decided tendency to relapses.

The following cases are illustrative of different types of the disease:

Type with pain in the back:

Case II.—Physician, age 23. Consulted me in April, 1913. No history of gonorrhea. Never masturbated but frequently became violently sexually excited. He never, however, allowed himself sexual gratification. About two years ago he sprained his back lifting a heavy weight. Since that time he has complained of intermittent attacks of dull aching pain in lower part of back. Attacks come on at short intervals and last from a day to several weeks. Is not troubled while exercising but attacks come on while quiet in his home. More recently the pain has been unendurable and incapacitates him for work or study. He has been advised by several physicians during the past year but has had no relief. Examination of the prostate revealed a moderate degree of chronic prostatitis with small areas of induration in the upper poles. The secretion contained a moderate number of pus cells, many lecithin bodies and no spermatozoa. Relief by massage was very prompt. In less than a month he was free from all pain and discomfort and it has not returned after a lapse of eight months.

Type—Urinary and referred.

Case III.—E. H. S., age 77. Very robust and vigorous old man. No history of gonorrhea. Consulted me in May, 1913. Three months ago complained of pain and soreness in bladder, with frequency of urination day and night, slowness in starting the urine stream, painful urination and occasional pains in the scrotal and pubic regions. Has been getting progressively worse. Examination: Voided a small amount of clear urine. The catheter passes easily, finding 40 c.c. residual urine. The prostate was difficult to reach but showed no palpable signs of chronic prostatitis. The secretion contained a large amount of pus, many lecithin bodies and many actively motile spermatozoa Massages were instituted immediately and carried out over a period of several weeks. During this time he received several dilatations with the Kollman dilator. All pains and urinary symptoms had disappeared at the end of this time and the catheter found an empty bladder. The patient voided a good stream and could propel it a distance of four or five feet. Cystoscopy of this patient revealed no intra-vesical enlargement of the prostate. He recently reported to me that he is perfectly well.

Type—Verumontanum, unusual.

Case IV.—Physician, aged 40. Consulted me in April, 1913. Gonorrhea with left-sided epididymitis fifteen years ago. No recurrences or sequelæ. Masturbation in boyhood well up to two years ago. Thinks his present trouble started with a slight cold in the bladder which lasted three or four days. Noticed that he had lost all pleasure and satisfaction with sexual intercourse although erections and ejaculations were normal. Took a course of prostatic massages about eighteen months ago but received no benefit whatever. I regarded this as a pure verumontanum case before examination. A very light degree of prostatic inflammation was discovered. The urethroscope elicited the most extreme pain, this patient having the most sensitive urethra I have ever encountered. The verumontanum was found to be enlarged, congested and edematous and bled profusely. It was cauterized with the silver nitrate stick. Four weeks later the same treatment was applied. Three weeks after this he reported himself as perfectly well, and very recently reported the same.

The Cecil.

## BACTERIA AND BACTERIAL PROLIFERATIONS IN DAIRY PRODUCTS, RELATED PROBLEMS, AND THEIR SOLUTION.

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After reading Dr. Charles E. North's article in the Medical Record of November 22 last, I have been speculating as to what proportion of the medical profession has a definite, up-to-date idea of bacteriology as related to the present general character of dairy products. "A frank confession is good for the soul." Although I have been engaged in experimental dairying for thirty years, and thought I had a working knowledge of this matter, I confess that on December 1, 1912, I had a very inadequate idea of the serious nature of the situation as it now seems clear, does exist. Since that date I have been giving my best investigative study to the subject, and with the editor's permission will give my view of the situation, much of which view is based upon a collation of the research publications of the past several years by the national government and other investigators. Dr. North's article opens up a subject which should be further elucidated.

In order to bring out the points I want to make I will have to repeat some matter that Dr. North well presented in his article. The investigations of the national government and others during several years past, have thrown much light on what before was obscure and dark. The government has arrived at conclusions and made recommendations, but has not made clear how those recommendations can be carried out.

The teachings of the past quarter of a century in regard to the desirability of cleanliness in milk production are now generally well accepted, but there is much more that must be still accepted, in advance of the mere ideas of cleanliness and medical supervision of production; and there are some very difficult problems connected with this desirable advance, as to which there has been very little public discussion.

Some time after Pasteur's work became known, investigators began to suspect that the something that was apparently wrong with milk was probably due to bacterial infections. I have not been

able to determine if there were any specially definite ideas held at that time, and it is a question if there is not still a great deal of indefiniteness of view still held in this connection. Witness the monoworship of the bacterial count, which has practically no relation to pathogenic quality in milk. At that time began the campaign for clean milk, with a coincident development of the certified, high-cost milk dairies, approved by the medical milk commissions.

This activity has been of undoubted benefit to the public through the development of higher ideal standards; but directly, has not greatly protectively benefited over 99 per cent. of consumers. Of course no one questions the value of cleanliness in milk; but the fact is obvious that ideal conditions for securing cleanliness are practicaly impossible of attainment in connection with producing the greatest bulk of the dairy products consumed. The result is that pasteurization is more and more looked upon as an essential sanitary performance. Just how much pasteurization is now practised by dealers for the purpose of destroying disease germs, and how much for the purpose of preventing the souring of milk through the destruction of lactic acid bacteria, is difficult to say. The latter object started the practice. So far as I am able to judge, dealers at the present time sell to the public what the public demands, while the demands of the public are determined by a colossal, widespread ignorance, indifference, and even prejudice as to what constitutes sanitary safety in dairy products. Apparently no one is adequately educating the consuming public; and yet the solution of the problem depends almost entirely upon educating the public. The real basic problem at the bottom of this matter is, how is it possible to educate the public?

During several years past, thousands of folios of printed matter have been published relating to various branches of this subject; but very little of that matter has gone into the hands of those most needing information. Furthermore, this printed matter is in such form that it cannot be understood by the general reader. Without question millions of lives have been sacrificed from lack of knowledge on this subject, and millions more will be sacrificed.

Here is the situation as it exists to-day: Probably two million cows in the United States are tuberculous, and there is much pathogenic infection of milk, cream, and butter. Notwithstanding that such conditions exist, very little physical inspection or tuberclin testing of cattle is done. Some cows do not react to tuberculin and may pass myriads of tuberculous germs through the intestine and even through healthy udders, which germs may infect the milk of the whole dairy, without anticipation or perception. Inspecting and testing officials are few in number, and some of these officials are incompetent and even criminally negligent of their duties. Politics is not unknown in this branch of service. New York City I understand has only one inspector for every thousand dairies.

The action of municipal, State, and national government is absurdly inadequate to meet the situation. The experimental stations and breeding associations are steadily advocating the high-power cow, whose high productivity, which is really a condition of galactorrhea, is, through weakening effect, one reason for the increase in the prevalence of bovine tuberculosis. The danger from typhoid infections, from contaminated dairy water supplies, and from other infections, including diphtheria, scarlet fever, influenza, septic sore throat, etc., is an almost continual menace due to working attendants, flies, dust, imperfectly sterilized bottles, and filthy purveyors. Such dangers are on the increase with the increase of population. As the cities grow in size, and the supplies are received from greater distances, the time of holding between production and consumption increases. We know that bacteria proliferate at temperatures much below those at which lactic acid bacteria flourish, and wherever bacteria proliferate they excrete effete matter that may be toxic. Certainly we know of very poisonous ptomaines being produced in very cold milk and there are proliferations occurring producing excretionary matters that give no sign to sight, smell, or taste. Just what amount of damaging excretions the various varieties that gain entrance to milk may produce, is of course impossible to say; but it is at least reasonable to suspect that such materials accumulating in milk may have had an important etiological influence in inducing infant disease and mortality. In nature, the time intervening between mammary production and infantile digestion is very short, and although it is considered that for several hours after bovine milk is produced, an antiseptic or at least deterrent action against bacterial growths exists in it, and which is probably due to a transfusion of the germicidal constituents of the cow's blood; still there is but very little of the market milk consumed by infants that does not undergo a long stage of waiting before consumption. Hence, as a mere matter of precaution, it would seem to be a very important matter to consumers that the treatment of the milk during the *entire* time it is held should be such that all bacterial growths should be prevented in the milk.

It is probable that the preservative element in new milk that disappears within from six to twelve hours, or more quickly if heated, but not so quickly if cooled, may have some digestive influence; but the fact has to be considered that it is not practical to preserve that element beyond a very limited time. It is, however, very easily possible to practically stop all bacterial action in market milk if the milk is cooled to a sufficient temperature before the so-called antiseptic quality of the milk disappears. The almost universal practice in handling milk is only to refrigerate it to 55° or 60° F. before shipping to market, and then holding it during transportation at the moderate temperatures secured by icing, which does not refrigerate sufficiently. It would seem that a very important improvement in milk and butter transporting methods will be the early deep mechanical refrigeration of milk at the shipping station.

This should be at or close to a temperature of 29° F., and such low degrees of refrigeration should be maintained during transit by the use of mechanical refrigeration developed on the milk train. A further refrigerative treatment at the delivery station in insulated sheds should be practised. The milk should also be conveyed to the distributing plants in insulated vehicles. This general idea could be further elaborated in connection with the distributive handling of milk, cream, and butter. All dairy products should be sufficiently aerated to free them from objectionable flavors and odors. Inasmuch as this may require considerable time the process should be performed in a germ-free atmosphere of a nonfermentative temperature either

above or below the temperature required to support germinal proliferative action.

This is particularly necessary in the winter season when owing to lack of free ventilation the odors given off from the bovine hide, impregnating the atmosphere of the cow stable, is breathed in and otherwise transmitted through the general animal fluids of the cow to the milk being produced. I have no positive proof that such excretory matters are damaging other than through perceptive smell and taste, but I believe such volatile matters are objectionable. In face of the fact that all the cleanliness in the world may not prevent damages due to unforeseen or unanticipated sources of infection, there seems to be no question but that all milk and butter that is open to suspicion of being dangerous should be pasteurized. Milk, preferably, should be pasteurized in the bottle after sealing. A good many medical men still hold to the idea of raw milk for artificially fed babies, and so hold, although the bulk of authorities of eminence now say not to use raw milk, and cite clinical experiences of unquestionable value to defend their position, and notwithstanding that the government's experimentation tends to show that no change in taste or in chemical composition occurs in milk that is pasteurized at moderate temperatures under the holding method.

I feel sure from my own experiments that one cannot make as superior a quality of butter edibly from heated cream as from the raw article. Furthermore, an expert can detect some slight change of taste in milk and butter that have been pasteurized if part of the milk or cream has been brought into immediate contact with very hot heating surfaces. The idea that heating milk destroys some vital quality in it, has apparently no foundation in fact. All that the heat can do besides destroying the living bacteria would be to eliminate the enzymes produced by bacterial growths, and which are not normal constituents of milk, they being products that are formed *after* the milk has been produced. No important evidence appears to be existing that the nutritive value of milk is damaged by any ordinary degree of heating, or is rendered less valuable in any particular that cannot be counteracted by the addition of fruit juice or other food constituents.

It seems that there is a question, though one of small moment, as to whether the young of the human race should be exposed to the infection of bovine tuberculosis with a view of cutting out those unfit to survive, and of accustoming those individuals to the influences of mutable forms of the parasite later in life. It may be noted that some people have queer views, but most people will probably agree that there are very few cases indeed, in which the medical adviser would be warranted in subjecting his infant charges to the dangers of milk infections that may occur at any stage in the handling of milk. I fully agree with the preponderance of medical authority of eminence, who teach that *all* milk should be pasteurized, and that it should be pasteurized in the final container before its sealing.

All should agree also that butter that is not produced from the milk of absolutely healthy cattle should be pasteurized, and that preferably it should be pasteurized by the commercial handler under intelligent municipal oversight at, or near to, the point of distribution. The question of how the consuming public is to be educated to demand safe products is a very difficult one to answer, inasmuch as the consuming public, besides being ignorant, objects to the slight increase of cost that is essential in securing that safety. Dealers supply what patrons demand, while the ignorance, indifference, and even prejudice of the consuming public is appallingly great.

The municipal adoption of high ideal standards will be helpful, especially in smaller communities under municipal educational efforts such as have been adopted in Montclair, N. J.; but such municipal action is difficult to secure in opposition to vested trade interests in the hands of those who are ignorant, selfish, and even criminally negligent of duty to patrons.

Apparently the most helpful possibility lies in the organization of new purveying companies whose patronage and commercial prosperity would depend on an educational propaganda carried out in securing commercial advancement. In smaller communities, such new enterprises might well take the shape of consumers united dairy companies. In larger communities new companies could be started, at first by the aid of humanitarian effort; or possibly, by inconspicuous dealers who would wish to advance through adopting the highest ideals. In all events, the adoption of right municipal standards should be backed up by the existence of establishments prepared to carry out standard ideal requirements. In all such cases, the application of new capital is required, as well as applied intelligence, and it may be assumed that the problem is solved whenever an up-to-date commercial enterprise is successfully launched in any community that is honestly based on the principle of "safety to the consumer." In every such instance competing concerns will have to fall in line, or else lose their business. To gain an initial momentum, this reform apparently must be backed by combined commercialism and humanitarianism.

The following questions may be pertinent to this matter:

1. In view of the fact that some of the milk supply is more or less infected with bovine bacilli, has it been good practice to stuff our tuberculous patients with raw milk that may have contained the same germs that have already invaded the patients?

2. If a heavy dose of ptomaine poison resulting from food fermentations may result in weeks of weakening diarrhea in an adult, why may not a continual repetition of small doses of bacterial excretory matters given in milk to infants, be a cause of the intestinal derangements which have killed so many babies?

It seems obvious that whatever will prevent the formation and accumulation of bacterial excretions in food is of sanitary advantage. Bacteria may be necessary in securing the dissolution of solid food matters in the alimentary tract, but it is at least a question whether their aid is necessary.

It is very certain that babies' milk at least should be very clean milk. It is reasonable to think that the sale of very dirty milk should be prohibited, no matter how well it may have been handled by the dealer. Stated concisely, the solution of the great milk question depends on educating the consumer to understand what constitutes safety in dairy supplies and in securing willingness to pay about a cent a quart extra to secure safety and high edible excellence.

# THE X-RAY TREATMENT OF MYOMA.

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THE *x*-ray treatment of myoma can no longer be looked upon with skepticism by the well-informed physician. Over a thousand cases thus treated have been reported in the literature and at the last International Medical Congress one entire session of the Gynecological Section was devoted to its discussion. The enthusiasm displayed by the gynecologists was even greater than that of the roentgenologists.

The ovary is more susceptible to the action of the *x*-rays than any other tissue in the body with the exception of the testicle. This has been amply proven by experiments on rabbits and on human beings. When the ovary is exposed to the *x*-rays the ripe and ripening follicles are first affected, next the prefollicular cells and last the interstitial tissue. If the application is not carried too far, the follicle undergoes regeneration, that is, the atrophy is overcome and a restoration of function results. If treatment is continued a permanent atrophy occurs. Coincident with this is a gradual lessening of the menstrual flow until amenorrhea occurs. This amenorrhea may or may not be permanent, depending on the intensity of the irradiation and the age of the patient. The nearer the patient is to the menopause, the more rapidly and effectually will the amenorrhea be produced, as at this period the ovaries offer much less resistance to the rays. In women under the age of 40 the *x*-ray treatment is not the form that should be selected.

It is thus clearly shown that the menstrual flow depends on the activities of the ovaries, and as the tumor also diminishes in size even though it receives no direct irradiation this reduction must be a result of the decreased congestion and nutrition. But the rays also have a direct effect on the tumor tissue.

The first change noted is a decrease in the amount of the menstrual flow, which also becomes lighter in color. The atrophy of the tumor is the last thing noted. There is no decided change in size before complete amenorrhea has been produced. These atrophic changes will continue for months following the cessation of treatment, until the tumor can no longer be palpated. The entire disappearance of the tumor has been noted in about 75 per cent. of the cases reported. Symptoms, such as hot flashes, fleeting perspirations, etc., that are associated with the normal menopause, also occur, but as a rule, only in the cases in which the amenorrhea has been rapidly produced. Pain, if present, and produced by hypersensitive ovaries, will be immediately relieved, but if caused by the pressure of the tumor, it will of necessity not be relieved until the tumor has sufficiently decreased in size. Hence, when pressure symptoms are alarming Roentgen treatment should not be used. Climacteric hemorrhages, when not malignant, are beneficially influenced by Roentgen treatment.

*Indications and Contraindications.*—Subserous, submucous, and pedunculated fibroids should be treated surgically. Cases associated with marked anemia, nephritis, diabetes, organic heart disease, or exophthalmic goiter should be given Roentgen treatment. The treatment is contraindicated in patients under the age of 40 and in those cases in which serious pressure symptoms are present. Fibroids that have undergone malignant degeneration or become gangrenous should not receive Roentgen treatment.

The question of subsequent malignant degeneration of the fibroid has been raised. The answer to date is that no such sequela has as yet been reported. The percentage of cases undergoing malignant change with no treatment at all is but from 1 to 2 per cent., thus giving another good reason for the selection of the Roentgen treatment. An argument raised against Roentgen treatment is that it is more expensive than operation. This may possibly be true but is more than counterbalanced by the fact that it is free from danger. The treatment covers a period of from three to six months, according to the technique employed. This is another argument used against the method, but when one considers that complete convalescence from the surgical operation cannot be looked for under three months, and that with the Roentgen method the patient is at no time prevented from attending to her usual duties, the argument cannot be sustained by the facts.

The following statistics recently compiled by Dr. Arthur Holding of New York City, which he took from the available literature on the subject, amply demonstrate the success of this method of treatment.

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| Number of cases treated..... | 794 | |
| Number of cases still under treatment .....60 | | |
| Number of cases which continued treatment .....27 | | |
| Number of cases lost track of..40—127 | | |
| Number of cases treated in which results are known.... | 667 | |
| Number of cases cured..... | 376 | 56 per cent. |
| Number of cases improved.... | 208 | 31 per cent. |
| Number of cases unimproved.. | 74 | 11 per cent. |
| Number of cases lapsed..... | 7 | 1 per cent. |
| Number of cases dead..... | 2 | .03 per cent. |

CASE I.—Miss L. J., age 35. Had been treated for myoma for the previous four years (1902-1906). The treatment consisted of galvanism, one pole in the vagina and the other over the fundus. Ergotin in 1 grain doses, three times a day was also administered. At the end of ten days the ergotin was discontinued for ten days and again resumed. The patient complained of severe backache, bearing down pains in abdomen, indigestion, and vertigo. Menorrhagia was very profuse at the menstrual periods and continued during the interim. Patient was weak and unable to attend to her duties as a cook. An examination revealed an intramural fibroid about ten inches in diameter. An immediate operation was advised and refused. *X*-ray treatments were then suggested though at that time little was known concerning the therapeutic action of the rays in this condition. Treatments were given twice weekly. An *x*-ray erythema was twice produced which caused considerable delay. The menorrhagia showed a decided improvement, the hemorrhages being less profuse and of shorter duration. At the end of six months the menstrual periods were normal. She was able to resume her duties. The tumor still measured about ten inches in diameter. At the end of another six months amenorrhea had been produced and the tumor was about four inches in diameter. Owing to the condition of the skin, treatments were discontinued. I did not see the patient then for five years, when she came to consult me on another matter. At my request an examination was made and no evidence of the tumor could be found. The technique employed in this case was crude but was the best we knew at that time. This in part accounts for the length of time required to produce a complete amenorrhea. The age of the patient was also a factor.

CASE II.—Miss C., age 40. Complained of profuse

and prolonged menstruation, extreme physical weakness, palpitation of the heart, sense of weight and pressure in the abdomen, backache, and, what she termed, bloating. The heart action was weak and the pulse was rapid. There was no organic heart lesion. A mass in the abdomen extending half way to umbilicus was easily palpated. This proved, on further examination, to be an intramural fibroid. X-ray treatments were advised. In this case, the abdomen was divided into three fields for exposure, one field over each ovary and one over the uterus. Each field received a separate exposure during the same treatment, the two fields not under treatment being covered with lead foil to prevent their receiving a double dosage. A tube of medium penetration (about 6 Benoist) was employed. The quantity of rays absorbed at each treatment was measured with a radiometer. A filter of heavy sole leather was used to protect the skin. A dose sufficient to produce a slight redness of the skin was given to each area, though not all at one exposure. The treatment was then discontinued for four weeks until all danger of a reaction had passed. Four series of this nature were given. At the end of this time menstruation had ceased. The tumor was two-thirds its original size. No further treatments were given. The tumor continued to decrease in size for the next six months at which time it was so small that the patient was not conscious of its presence. At the present time she is well and attending to her duties as a cateress.

Case III.—Mrs. M., age 45, married, four children, all living. Last child born three months previous. At time of labor the attending physician suspected twin pregnancy. This proved to be incorrect, as an examination after the delivery of the child revealed a large fibroid. The same technique was employed as in Case II. Amenorrhea was produced at the end of the third series. The patient was approaching the menopause, which probably accounts for the shorter time required in this case. The reduction in the size of the tumor was not marked and a fourth series was given. Four weeks later, at which time she had been told to return, the tumor was about one-half its original size. Treatments were then discontinued and the patient returned to her home in a neighboring city. No later examination has been made but she writes me that she is feeling fine.

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# VOICE AND MANNERS IN MEDICAL PRACTICE.

By T. D. CROTHERS, M.D.,

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The president of a great university, when asked why it was that some of his teachers showed such irregularities of thought and manner, replied, "cultured men are abundant, but gentlemen with cultured manners, trained voices, and common sense are very rare." To a certain extent, this is true among physicians. Common sense and gentility are acquired after a while, but voice culture is wanting. Both the legal and clerical professions show the same weakness. Attempts to cultivate the voice are considered superfluous and of no value, and manners are a question of the individuality of the person, and of minor importance.

This is a delusion and a stupid idea that is startling to the last degree. Professional men of all others should recognize and cultivate voice and manners, the same as a musician. It is possible to possess all the finest musical instruments made, and through want of technic be utterly unable to bring out the sounds and melodies. It is possible to possess a range of knowledge in science that is encyclopedic and exhaustive, and yet be utterly unable to express it, or make it available for others. The voice and manners are the technic, to a very large degree, of a successful physician. Numerous illustrations confirm this. One is that of a very learned physician whose scientific knowledge embraced several languages, and whose memory and judgment were excellent; yet he was a failure as a practitioner. He repelled his patrons. He antagonized people who consulted him. His manners were bad, his voice was wretched and discordant, and his whole life was a struggle with debts and efforts to secure a living. His friends said he lacked personal magnetism. This was true, but there were so many other things he lacked that it was doubtful if any one was the sole cause of his failure. Another doctor in the same town was credited with being a great surgeon. He had coarse, ungainly manners, a scowling face, and a harsh, discordant voice. While he was a sensible man, and undoubtedly a good mechanical surgeon, he lacked every essential to make him attractive to his patients. As a teacher in a medical college he was cold, formal, and supposed to be very learned, but he was unpopular with the students.

How often one notes the popular doctors of the city or village or town, the doctors who are praised by their patrons everywhere, and command the respect of all classes, who are scientifically very mediocre men. The inquiry is, how is it that they have such a large patronage and are regarded as such high authorities? One man of this class had a very musical, trained voice. His mother had been an actress in early life, and she insisted that her son should have exact ways of expression and pronunciation, and with them natural and attractive manners, and this culture had continued all through life and was one of the largest assets in his professional work. He was a man of good sense and quick to profit by the experience of others, and he knew how to express himself in the most excellent and pleasing way. This very power of expression brought conviction and confidence. Illustrations similar to the above will be found almost everywhere. In practical life they explain the difference between failure and success in many cases.

A young man who spent five years in the great medical centers of Europe came back with coarse mannerisms and harsh, abrupt tones. He had imbibed the very worst manners and coarseness of expression of his teachers. This was his downfall. He was disappointed at his failure to win and became an inebriate. He was a very highly trained man, but the very essentials to make his training effective were wanting. The thoughts and impulses of the mind and its comprehension of the things of life should be expressed in the very best way possible, and the voice should be trained for this service. It is a grave question whether training of the voice and manners should not precede the acquisition of knowledge. Everyday experience shows that knowledge is useless unless it can be conveyed in the most effective manner to others. The greatest musical composition in the world, if presented on broken, discordant instruments, would utterly fail; but when rendered on good instruments, with skill in technic, it would be very pleasing and delightful.

The human voice is capable of as high a development as the intellect. The human voice out of tune, broken and jarring, is unfit to set the facts and the

conclusions of science in any proper way. There is no organ in the human body so full of possibilities, through training and culture, as the human voice, and yet it is practically neglected, and often made more discordant by a great variety of weaknesses, of which smoking is one. Hundreds of persons graduate every year, from the best schools and colleges with a high degree of intellectual learning, and with voices untrained, whose manners and expressions have been entirely ignored. They talk in broken, discordant notes, in bronchial tones and nasal inflections that are jarring and unpleasant, combined with awkward facial expressions, stilted manners, untrained control of the body, and often a very low sense of the art of dress and personal appearance. They literally follow the medieval theories that the voice, like the stomach and other organs, needs no care or training, but will take care of itself. How often graduates from literary colleges exhibit this weakness and want of culture! How often in medical societies quite learned men read papers, showing the worst possible neglect of the voice, or the common-sense manners and powers of expression! The annual meetings of the American Medical Association furnishes many good illustrations, both in the public exercises and the sectional meetings. It is rare to hear any one who has any conception of the power of voice and expression. In everyday life the quack, with his polished manners and trained voice, makes a profound impression, while the highly trained doctor without this is unnoticed. There is nothing more important in medical colleges, and the training of medical students, than voice culture. In many respects it is one of the most valuable modes of training possible for future success.

A musical voice, free from discords and harsh notes, with proper inflections and harmonious tones, gives power and strength to the expression of the simplest thought. If to this is added manners, expressions, and poses that are natural and free, there is a certain superiority that is recognized by all. This is seen so often in the sickroom, where a doctor with a musical voice is so warmly welcomed. How often his soft tones and clear methods of expression bring renewed courage and strength to the patient. Like the harmonious tones of music, they strike responsive cords in the brain and nervous system. How often children recognize the tones of the physician and are attracted to him! In other cases they are repelled. How often the discordant, nasal voices, the lack of expression and grotesque facial twitchings and the general absence of sympathetic culture are positive obstacles in the treatment of disease! Physicians wonder at their failures, and while they are not employed by families who are satisfied by weaker medical counsel, they never realize that their voice and manners are their greatest obstacles. Occasionally a physician recognizes this fact.

A physician at a banquet said, "I cannot smoke. It would destroy my power of speech. I must not use alcohol because it will injure the tone and manner of expression, and the harp that I depend upon to bring out the melodies of thought, counsel, and advice will be marred and broken." How often physicians exhibit catarrhal affections in the nasal tones and feeble voice! How often physicians are unable to express themselves in an impressive way because they are out of tune! They have done those things which will destroy the very powers which are necessary to command attention and help others. Physicians should exercise extraordinary care to keep the voice clear and resonant and prevent congestion which centers in the nasal passages and vocal cords. They should cultivate the most natural polished manners, so that the persons who appeal to them for help can be impressed by something more than the drugs they give or the operations they perform. Physicians should represent the highest types of culture; culture that is real, apparent and genuine, not superficial and transient. They should exhibit voice culture and body training in its fullest sense. These are the most essential things in the sickroom, and in company with invalids and weaklings who are ever looking for strength.

In one of the large eastern cities many years ago there was a physician of unusual vigor mentally, and a man of considerable genius, a teacher. He had coarse manners, a bronchial voice, and used explosive exclamatory expressions. It was said of him that he destroyed more students than any other man. Students who copied his manner and tone, as those of an ideal hero, suffered in all after life from the diminished respect and want of confidence of their patrons. Many of them grew discouraged, went out of business, became pessimists, and condemned the profession when the fault was in themselves. On the other hand, I have seen ideal teachers in medical colleges who unconsciously inspired their audience and cultivated them along higher lines than had been done by any of the facts that they were mentioning. Their tone of voice and manners made an impression far more enduring than the facts they were teaching. In my experience covering nearly half a century with the borderliners I have noted, among the active causes of failures in professional life, a lack of voice culture and training. Lawyers, clergymen and doctors all fail to secure the influence with the people with whom they come in contact because of inability to express their thoughts in an impressive way. Had the voice been trained the same as the eye and the intellect, had the exterior qualities been trained to express like the voice the best and the clearest facts they would all have been successes.

A noted revivalist who screamed and yelled his thoughts in the most vociferous way, disgusting some and frightening others, wondered why he did not make a more profound impression. The real fault was his gormandizing habits and his discordant bronchial and nasal tones. The melodious voice of Henry Clay always charmed his audience everywhere. Wherever he went people flocked to hear him, while the heavy bass tones of Daniel Webster failed to attract, and actually drove people away. They preferred to read what he had to say, but wanted personally to hear Clay's pleasing voice.

Asylum and hospital physicians furnish innumerable instances of the power of the voice to alter the course of disease and to change the atmosphere of the patient's mind in the most helpful way. We all recognize the power of the mind over the body in many wonderful and unknown ways, but it will be new to most readers that the voice, if properly cultivated and trained, would be equally powerful and effective in producing what is practically unknown now. Books have been written showing that music has a peculiar power in diminishing the irritation and nervous disorders of individuals, and that many times it is a veritable remedy, but so far no one has pointed out the power of the human

voice to do far more than any mechanical instrument and vibratory sounds.

Every medical student should be taught voice culture and general manners; how to conserve the voice and develop it so that it will express thought in its most powerful form. Professional training in the future will give far more attention to the voice, and its practical character will be recognized in every circle.

## Medicolegal Notes.

**Malpractice—Contributory Negligence.**—In an action for malpractice in the course of removing a spur from the plaintiff's nose, the plaintiff's evidence was held to reasonably support his theory that the defendants negligently failed to remove a cotton tampon from his nose, thereby causing the injury. It was held that the question of whether the defendants were guilty of such negligence as constituted malpractice was for the jury and not for the court. The fact that the plaintiff did not return for further treatment as soon as he discovered that he was not getting along as he should did not bar his right to recover, even though it were probable that had he promptly returned the defendants would have discovered and remedied the results of the negligence. It is true that if a patient employs a physician to treat him for a malady and receives careful and skillful treatment at his office, but fails to return to the office for further treatment before he is discharged by the physician, and in consequence suffers an injury, he is not entitled to recover against the physician for such injury. It is also true that a physician's liability ceases the moment his patient dismisses or discharges him, if his treatment of the case has been proper until that time. But these principles have no application where the physician's treatment of the case has been improper.—Williams vs. Wurdemann, Washington Supreme Court, 128 Pac. 639.

**Care of Destitute Sick: County's Liability to Physician.**—Under the provisions of section 14, chapter 67, Nebraska Compiled Statutes, 1911, if any person, not coming within the definition of a pauper, shall fall sick within any county of the State, not having money or property to pay his or her board, nursing and medical aid, it is the duty of the overseers of the poor of the precinct where such person shall be to furnish such assistance as they shall deem necessary. This gives the overseer full authority to provide the necessary medical aid to such sick person. Where a physician is employed by an overseer of the poor to give medical aid to a destitute person who has fallen sick, and the service required is performed, the fact that the overseer has not made a written report of his doings thereon to the county board cannot defeat the liability of the county for the services rendered under such employment.—Meyers v. Furnas County, Nebraska Supreme Court, 140 N. W. 633.

**Value of Medical Services for Jury.**—In an action by a surgeon to recover $187.50 for his services in performing a surgical operation on the defendant's foot the defendant admitted the performance by the plaintiff of the services, but denied they were of the value alleged. The plaintiff and his assistant testified that the value of the services rendered and medicines furnished was $187.50. There was no evidence for the defendant to contradict this, and the court directed a verdict for the plaintiff for the full amount of his claim. It was held on appeal that, notwithstanding the fact that the plaintiff's evidence was undisputed, the question was still for the jury. "It is said by [the plaintiff] that the case is an exceptional one; that plaintiff is a specialist at Milwaukee, Wis.; and that the jury could know nothing of the value of such services. We would not be justified in changing the rule because the case is exceptional, if it be such. Cases may arise where the appearance of the witness, his reasons given as a basis for his opinion, the character of the injury or disease, the length of time taken to perform the operation, and like matters, would justify the jury in not finding the exact amount stated by the witness. All the facts and circumstances, together with the opinion, should be placed before the jurors, who must be permitted to exercise a judgment founded on the common knowledge of mankind. Experts may give their opinions, but they may not usurp the functions of the jury." But the testimony of the experts may not be arbitrarily rejected by the jury. Without expressing an opinion as to the reasonableness of the charges, the court reversed the judgment and remanded the case for submission to a jury. —Fowle v. Parsons, Iowa Supreme Court, 141 N. W. 1049.

**Representations—Malpractice—Examination Before Trial.**—In an action for compensation for an operation upon defendant's wife, and for the medical services of two others, a physician and surgeon, who had assigned their claims to the plaintiff, the defenses were that the plaintiff had represented that the patient would recover within two weeks, which was untrue, that the plaintiff was not a surgeon, and that the defendant's wife had died, and also want of good judgment and reasonable care on the plaintiff's part. It was held that, as the alleged misrepresentations could not be regarded as representations of fact, the defendant was not entitled to examine the plaintiff before trial on that issue, but was entitled to examine him on the issue of malpractice.—Storer v. Harris, New York Appellate Division, 141 N. Y. Supp. 897.

**Medical Books as Evidence.**—A physician testifying as a medical expert in a personal injury case did not base any of his opinions upon medical works, but confined his testimony to his experience. It was held improper to cross-examine him by asking him if he agreed with the writings of any medical author, unless he had first testified that he had read such author and regarded his works as of sufficient merit upon which to base his opinion. Medical works, by the great weight of authority, are not admissible as independent proof of the opinions therein expressed. "While the reasons given are not altogether satisfactory," the court said, "nor wholly unanswerable and conclusive, yet they have survived the lapse of time, and neither the encroachments thereupon nor the criticisms thereof have lessened their value." In U. P. Ry. Co. v. Yates, C. C. A., 79 Fed. 584, Thayer, Circuit Judge, said, "One objection to such testimony is that it is not delivered under oath, a second objection is that the opposite party is thereby deprived of the benefit of a cross-examination; and a third, and perhaps more important reason for rejecting such testimony is that the science of medicine is not an exact science." The court in the present case added two more reasons. Without the introduction of the entire work, the exact views of the author and his reasons for the same cannot be definitely ascertained from mere extracts, and if one book be admitted, or any extracts therefrom, another should be admitted on the other side, and there would be no end to the record that would follow in such cases. "Furthermore, considering the technical terms that are frequently used by medical authors, which often conceal rather than disclose the meaning, the ordinary juror would not be very much enlightened by the introduction of such testimony." Even in states where there is a statute providing that historical works and books of science or art are presumptive evidence of facts of general notoriety or interest, the courts have refused the admission of medical books. In Ashworth v. Kittridge, 66 Mass., 193, it is said: "Medical science has its own nomenclature, its technical terms and words of art, and also common words used in a peculiar manner, distinct from their received meaning in the general use of the language. From these and other causes, a person not versed in medical literature, though having a good knowledge of the English language, would be in danger, without an interpreter, of misapprehending the true meaning of the author; whereas a medical witness would not only give the fact of his opinion and the grounds on which it is offered, with the sanction of his oath, but would also state and explain it in language intelligible to men of common experience." Professor Wigmore has said that "scientists have none of the temptations in their writings to prevaricate and to conceal which surround the expert testifying for a particular purpose." The court said that the answer to this might be that if their writings were universally admitted, as the testimony of an expert now is, and if it be true that experts do "prevaricate for a particular purpose," then, as a scientist is nothing more than an expert, he may be, once his writings are universally held to be admissible in evidence, surrounded with just as many and as great temptations as Professor Wigmore intimates that experts are now, to prevaricate and conceal. Scientific writers, might, it was said, become as numerous and as varied as experts, and their writings could be made to fit either side in certain litigations.—Denver City Tramway Co. v. Sawley, Colorado Court of Appeals, 129 Pac. 258.

MEDICAL RECORD.

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## THE NATURE OF ACHONDROPLASIA

THE achondroplastic dwarfs whose stunted and deformed bodies are not unfamiliar objects on the streets, in the museums, and on the stage, have given rise to considerable speculation as to the cause of their peculiar anatomical formation. These dwarfs have been known from earliest antiquity. The God "Ptah" of the ancient Egyptians showed the typical stunting of micromelia, and "Bes," their god of sexual intercourse, was modeled after the dwarf, whose genitalia of apparently exaggerated proportions suggested a fitting prototype for this idol. The Pharaohs were evidently the first monarchs to place a premium upon dwarfs as court fools, a practice which had a rational basis in the unusual degree of intelligence exhibited by these individuals.

Scientific interest in these short-limbed, stocky, and deformed curiosities of nature was aroused when Parrot in 1876 recognized them as constituting a distinct clinical group. The pathology of this condition was first worked out in 1892 by Kaufmann, who distinguished three varieties, which he named chondromalacia fetalis, chondrodystrophia hypoplastica, and chondrodystrophia hyperplastica. All of these forms are congenital, although the lesions may not be apparent until some time after birth. The disease was described as essentially one of cartilage, with a resulting impairment of bony formation. Bones that develop in membrane are apparently not affected. In chondromalacia fetalis the fetus is almost always born dead, with soft pliable limbs. This is the class of cases that has hitherto been termed "fetal rickets," but which bears absolutely no relation to rickets. This class represents, likewise, the majority of the cases, for practically very few of the cases of chondrodystrophy survive birth. In the hypoplastic variety the chief characteristic is the arrested growth of the diaphysis, which is likewise variously deformed; there is an absence of normal compact bone, whose place is taken by a spongy bone with irregular Haversian systems and with varying thickness throughout the shaft. The epiphyses are irregular in their shape and in the period of their ossification. In the hyperplastic variety there is an enormous overgrowth of the epiphyses. The joints are variously distorted. In some of the cases of chondrodystrophy there is practically no distortion of the skeleton, whose principal lesion is the arrested development of the long bones; in other cases there are pronounced deformities, consisting of bowlegs, coxa vara, scoliosis, kyphosis, lordosis, etc.

The most important and the most intensive study of achondroplasia that has as yet been made is that which is contributed by Murk Jansen,* the orthopedic surgeon of Leiden, Holland. He points out that the shortness of the extremities is not the result of any crookedness or bending of the bones, as in rickets or osteomalacia; or of multiple fractures, as in osteogenesis imperfecta. It is not due to absence of the proximal parts, as in phocomelia or congenital deficiency of the femur; nor of the distal parts, as in congenital amputations and in hemimelia. The shortness affects the proximal more than the distal parts of the extremities and is called rhizomelic micromelia. Jansen notes also that the condition reminds one of the proportions of the normal fetus, in which, also, the extremities are short in comparison with the other parts. The pelvis likewise lags behind in development, being small in proportion to the rest of the body. In the vertebral column it is noted that the size of the vertebral bodies gradually diminishes from neck to sacrum. The chest is shortened and is too small for the proper accommodation of the vital organs. As the result of the accurate observation and measurement of dwarf skeletons, the author came to the conclusion that in them the degree of retardation of growth of the various parts of the skeleton is determined by the time of their primary formation. Achondroplasia is a symmetrical, disproportionate dwarf-growth. The skeleton is more affected than other parts of the body. The bones formed in cartilage are affected to a degree which is determined by the time of their scleroblastemic formation: the oldest formation being affected least, the latest most. The slightest forms are those in which even the extremities are but little checked in growth.

The mechanical malformation characteristic of achondroplasia suggests to Jansen the idea that the embryo, between the third and eighth weeks of its intrauterine life has been bent, infolded or "coiled up" like an anchor-rope. The source of the deforming forces is found by exclusion in the amnion. The amnion is known to cause indentations on the body of the fetus, fractures of its limbs, and actual amputations of the latter. But neither amniotic bands nor the magma reticulare can produce that equal pressure against the head and tail of the embryo which is responsible for the stunting and malformations of achondroplasia. Hydramnion and smallness of the amnion are the next two alternative causes. Hydramnion is excluded by the facts that the rapid growth or distention of the amnion might soon put an end to the abnormally high pressure and give the embryo an opportunity of re-

*"Achondroplasia—Its Nature and Its Cause." A study of the stunting of growth in embryonic cell-groups caused by amnion-pressure in the different stages of the development of the skelton (anencephaly, achrondroplasia, cacomelia). By Dr. Murk Jansen, lecturer on orthopedic surgery, University of Leiden, Holland. London: Baillière, Tindall & Cox, 1912.

suming the normal attitude before injury has been inflicted; and that when the abnormal increase of liquid in the amniotic sac begins only after the amnion has been lifted from the surface of the embryo, the abnormal axial pressure need not be exercised. It is concluded, therefore, that too small an amnion is able to compress the fetus. This smallness of amnion is the result of an insufficiency of its growth in relation to that of the embryo. Smallness of amnion produces other phenomena of pathological embryology besides those of achondroplasia; sometimes the vertebral column is curved and the development of the brain is disturbed; sometimes the injury is restricted to the extremities and allied deformities result. Clubfoot may be the sole manifestation. In four of seven clubfooted children there was a marked brachycephaly agreeing with that of achondroplasia. Amnion pressure, if exerted during the first and second weeks, is able to cause a wrinkling of the embryonic axis, with destruction of ecto- and mesodermal elements (anencephaly). If the abnormal pressure is operative from the third to the sixth weeks it gives rise to infolding of the embryonic axis and stunting of growth (achondroplasia). If the abnormal pressure arises from the sixth to the eighth week it causes cacomelia in which bones are lacking (hemiectromelia, oligodactyly) and other deformities, or cacomelia with the normal number of bones, as in clubfoot.

Jansen's theory is based upon careful embryological and clinical studies, and is apparently the most ingenious that has yet been advanced to explain the origin of achondroplasia and other congenital malformations.

## STREPTOCOCCUS TRANSMUTATIONS.

THE transmutation of bacteria is certainly not nearly as fanciful a subject as the transmutation of metals but it has proved as attractive to bacteriologists for many years and until recently has been nearly as unsuccessful. In view of the probable evolutionary development of the microorganisms, such transmutations have generally been considered possible, but the difficulties in their production and determination have been great. It has been possible by means of prolonged animal passage to change the tubercle bacillus from the bovine type into the human and back again, but that is comparatively a small change. Several investigators have claimed to have effected transmutations among the members in the streptococcus group, but the changes thus produced have been largely subtractive, such as the removal of the power to form capsules or hemolyze blood, rather than additive, and cannot be considered in any way conclusive. Practically no satisfactory work has been done upon altered immunity reactions which constitute the only true biological test.

Recently, however, success in this direction has been attained. E. C. Rosenow (*Jour. Infect. Dis.*, 1914, xiv, 1) has been able to convert hemolytic streptococci into *S. viridans*, typical pneumococci, and *S. mucosus*, and to change these about almost at will. The exact details of his methods are too long to repeat, but he employed animal passage, growth on ascites-dextrose-agar, both in air and in an atmosphere of pure oxygen, growth on blood-agar in symbiosis with *B. subtilis*, and growth for a prolonged time on rather dry blood-peptone-agar. The change effected was apparently complete so far as bacteriological methods enabled him to determine it. Rosenow says, "The transformation of some of the strains has been found to be complete by every test known. Thus the morphology, the presence of capsule, the fermentative powers, the solubility or insolubility in bile and in sodium chloride solution, the behavior toward the respective broth culture filtrates (Marmorek's test), the specific immunity response, as manifested by the production of opsonin and agglutination by antipneumococcus and antistreptococcus serum, and the more or less specific pathogenic powers have been studied. Strains that correspond to hemolytic streptococci have been converted into typical pneumococci as determined by all the above tests and vice versa."

At first sight this might appear rather discouraging. No sooner do we convince ourselves that microorganisms have each a specific action and are constantly associated with certain diseases than an author tells us that these bacteria are not constant, but change one into another. It must be remembered, however, that in each instance the organism retains its characteristics under all ordinary conditions and that our present knowledge of the bacterial association with disease will be widened rather than altered. The streptococcus group is one of immense importance. Among its members are found the etiological factors of endocarditis in all its forms, lobar pneumonia, septicemia, certain kinds of sore throat, erysipelas, rheumatism, and many other conditions as well as numerous complications of diseases caused by other bacteria. Rosenow is of the opinion that these transformations may take place in the body and that "focal infections are no longer to be looked upon as merely a place of entrance of bacteria, but as a place where conditions are favorable for them to acquire the properties which give them a wide range of affinities for various structures." Especially in the frequent association of rheumatism, tonsillitis, and endocarditis he sees in the tonsil "a place where the organisms acquire the peculiar properties necessary to produce the disease known as rheumatism."

Rosenow's interesting results have, of course, not yet been confirmed, but his various recent reports on the subject are of such a nature as to force their acceptance and confirmation may confidently be expected. Clearly this constitutes an exceedingly important contribution to scientific medicine and one that should aid materially in the solution of many pressing clinical problems.

## COMMON SENSE IN PUBLIC-HEALTH ADMINISTRATION.

THE exercise of common sense is an essential factor in the successful issue of any undertaking, and is especially so in public health affairs. Brilliant

conceptions unless in their carrying out common sense is employed are lamentable failures. Attention is drawn to this fact in Reprint No. 173 from the Public Health Reports, published March 20, 1914, by W. C. Rucker, Assistant Surgeon-General U. S. Public Health Service, who states as a prelude to his remarks that the amazing fact of epidemiology is its extreme simplicity. That is to say, when the cause of a disease is accurately known and the factors concerned in its dissemination have been determined the measures to be taken to prevent or eradicate the disease are relatively simple. In proportion to our lack of knowledge regarding the cause and transmission of a disease, the more complicated are our theories as to its epidemiology.

Accordingly, public health administration in order to be of practical value must be conducted along logical lines, that is, common sense lines. Carrying this argument to its ultimate issue, results of practical value cannot be obtained if the men in whose hands are placed the management are not themselves thoroughly competent. Which is to say that inadequately trained public health administrators are comparatively useless and may even do more harm than good. Rucker points out that a great wave of enthusiasm for public health reform is now sweeping over this country, and in consequence much legislation is proposed which is contrary to common sense.

It is well to remember, however, that a little learning is a dangerous thing, and while it is quite necessary that the man in the street should be interested in questions that concern the public health, it must be left to the trained men to draft laws leading to reform. It is sufficient that sanitarians should popularize the tenets of preventive medicine and inculcate in the rising generation the principles and practice of personal hygiene. On the other hand it is harmful that a mass of undigested and impractical measures should be placed on the statute books to serve as boomerangs to the public and health officers.

The present agitation over track pollution by interstate carriers is cited by Rucker as a case in point. Enough is not yet known exactly as to the amount of disease spread by this means, and until we have obtained this exact knowledge it would be futile and foolish to exact laws with a view to preventing spread of disease by this agency. Public health laws enacted with the best intentions by States and municipalities are criticised in a kindly and discerning manner by Rucker, who also deprecates the arbitrary enforcement of the exact letter of the law instead of its application with common sense to meet the situation. Such a procedure frequently defeats the purpose for which the law was created.

The author concludes by saying that common sense in public health administration comprehends the employment of well trained, full time health officers, at adequate salaries, the appropriation of sufficient funds to enable such officials to administer the laws, and the enactment of specific legislation having as its foundation the basis of fact and practicability.

### The Pollution of Tidal Waters.

In "Public Health Reports" for April 10, 1914, Hugh S. Cumming, Surgeon, U. S. Public Health Service, publishes an address on the pollution of tidal waters, read by him before the Maryland Conservative Association at its first annual meeting held in Baltimore, Feb. 25, 1914. Summarizing, Cumming points out that there is found in tidal waters (1) Comparatively concentrated areas of pollution; (2) Decreased destruction by oxidation; (3) Increased nuisance from putrefaction in consequence, and (4) Not much difference in viability of disease germs. As for the bearing of sewage pollution on health, Fuller is quoted as saying that there are two principal nuisances which are conspicuously due to sewage. The first is caused by the conditions that are offensive to the sight and smell. The second class of nuisance is associated with the disease germs contained in sewage and which are transmitted to neighboring communities through the water of the stream into which the sewage empties or through shellfish. The menace of polluted tidal waters so far as shellfish are concerned is a grave one, although the danger from this source has been considerably exaggerated. As for the regulation of pollution of tidal waters Cumming directs attention to the fact that by an Act of Congress the Public Health Service was authorized to study the diseases of man and conditions influencing their propagation and spread, including sanitation and sewage and the pollution direct or indirect, of the navigable waters of the United States. Under this act the Public Health Service is now planning a systematic study of the more important industrial wastes, of their effect upon navigable waters, and of remedial measures. Undoubtedly a careful study should be made of the effect of polluted water on shellfish and the investigations about to be undertaken by the Public Health Service should solve the problem. The United States has long lagged behind Europe with regard to supervision of water supplies, and it is high time that the blot should be removed from her sanitary escutcheon.

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### The Chemotherapy of Infectious Diseases.

The good results obtained in the treatment of various protozoal diseases by the use of salvarsan, have led to the employment of this agent in a number of diseases whose infectious agent is unknown or in those caused by bacteria. Klemperer and others have recently reported that scarlet fever is favorably influenced by salvarsan. The latest investigation along this line is that recorded by Orlovius in the *Beiträge zur Klinik der Infektionskrankheiten und zur Immunitätsforschung*, Vol. 2, No. 2. He treated his cases of puerperal sepsis by means of intravenous injections of neosalvarsan. In about half of these cases he observed a prompt improvement resulting from this method of treatment. The drug was employed only in those cases in which a bacteriemia was demonstrated. If there were local purulent foci or metastases the treatment was ineffective. It is necessary to inject the neosalvarsan under the strictest aseptic precautions as early as possible or just after the onset of the fever, and before local complications such as parametritis, thrombophlebitis, etc., have arisen. The author's cases were those of infections by streptococci and staphylococci and by colon bacilli. In the cases in which neosalvarsan was injected at an early stage

there was noted one-half hour after the injection a chill which was followed by an immediate rise in temperature. This would drop to normal the following day, on the evening of which it would rise slightly. It would then drop to normal again, and would remain at this level provided that no new bacterial invasion of the blood occurred. In the latter event a second injection of neosalvarsan was required.

### Penile "Menstruation"

Rare cases of apparent menstruation through the penis—escape of blood for two or three days with succeeding leucorrhea—however suggestive of menstruation in the female, cannot be hastily assumed to be a form of hermaphroditism. At a recent meeting of the Verein Deutscher Aerzte in Prague (*Münchener medizinische Wochenschrift*, April 7), Lucksche was able to exhibit the genitals, internal and external, of a man who in life, since his eighteenth year had "menstruated" until his death at 25 of phthisis. The patient, of male habitus, showed certain secondary sexual characteristics approximating the female type; while some parts of the genitals showed a tendency to atrophy. But every portion of the male genital system was present, while there were no rudimentary female organs. It was decided that such a subject was no hermaphrodite, and that the periodical escape of blood from the urethra could possess nothing in common with menstruation from a uterus. The patient's periodical loss of blood was evidently an independent phenomenon, devoid of any sexual stimulus.

## News of the Week.

**New Dispensary.**—Plans have been filed with the Building Department for a four-story dispensary building to be erected at the northeast corner of Gouverneur Slip and Front street, New York. It will be known as the Gouverneur Dispensary and will be maintained by the city. The cost is estimated at $200,000.

**Wood Alcohol Law.**—Dr. Charles Baskerville of the College of the City of New York has prepared a model for a uniform State and municipal law governing the sale and use of wood alcohol, as follows: "No person shall sell, deal in, supply or give away, any article of food or drink or any medicinal or toilet preparation intended for human use internally or externally which contains any wood alcohol, otherwise known as methyl alcohol, either crude or refined, under or by whatever name or trade mark the same may be called or known. Traffic in the drug is legal if the container in which the same is sold shall have affixed thereto a label containing the following words: 'Poison—Wood Alcohol. It is unlawful to use this fluid in any article of food or drink or medicinal or toilet preparation, for human use internal or external.'"

**Long-lived Missourians.**—The Bureau of Vital Statistics of the State of Missouri has recently reported that during the year 1913 there occurred in the State the deaths of thirty-four men, all of them one hundred years of age or over, and that 393 persons died between the ages of ninety and ninety-nine years.

**Child Labor Law.**—An effort to amend the Massachusetts State law regulating child labor, so that children between fourteen and sixteen who had passed a physical test might be employed in textile industries, was defeated in the legislature on May 6. The bill was favored by representatives of the textile centers, who contended that the present law forbidding the employment of children under sixteen years of age was too severe.

**Yellow Fever in Brazil.**—A yellow fever epidemic at Bahia, Brazil, was reported to Washington on April 29. It is said that lack of funds handicaps the work of preventing the spread of the disease.

**Smallpox in City.**—Another case of smallpox in the city was reported to the Department of Health of New York on May 5, making the fifteenth case since the first of the year. Commissioner Goldwater has issued a strong appeal for a general vaccination.

**City Death Rate.**—The death rate in New York City for the week ending May 2, 1914, was 14.89 per 1,000 of population, the total number of deaths being 1,593, as compared with a rate of 14.88 and a total of 1,532 deaths for the corresponding week of last year. This shows an absolute increase of 61 deaths, and an increase of 0.01 in the rate, which is equivalent to a relative increase of one death. The causes showing an increased mortality were measles, scarlet fever, whooping cough, typhoid fever, diarrheal diseases under five years, and pulmonary tuberculosis. The mortality of infants under one year was approximately the same, while that between one and five years was considerably below the mortality for the corresponding week of 1913. A considerably increased mortality was recorded for the age period of over sixty-five. For the first eighteen weeks of 1914 it was 15.43 per 1,000 of population as against a rate of 15.63 during the same period of 1913.

**Hospital Dedicated.**—St. Anthony's Hospital, Richmond Hill, Long Island, was dedicated by Bishop McDonnell of Brooklyn on May 5. The hospital will be open for public inspection on May 30 and 31.

**The Egbert Le Fevre Deanship Fund.**—The widow of Dr. Le Fevre, late Dean of the University and Bellevue Hospital Medical School, has given to the University the sum of $10,000, to be known as the fund above named, the income to be applied toward the salary of the dean of the medical school.

**Surgeons' Tour.**—In connection with the fifth annual session of the Clinical Congress of Surgeons of North America to be held in London from July 27 to August 3, 1914, arrangements are being made for the American Surgeon's Clinical Tour. The first meeting place will be Baltimore, where a clinic will be given by Dr. H. A. Kelly; the next day will be spent in Philadelphia, and the next three in New York, the party sailing from this port on the Oceanic on June 13. In Europe the tour will include Paris, Bern, Zurich, Munich, Vienna, Berlin, Leipzig, Jena, Frankfort, Heidelberg, Brussels, and Amsterdam, in all of which places important clinics will be given. The party will reach London in time to attend the sessions of the Congress. The secretary of the American Surgeons' Clinical Tour is Dr. R. M. Harbin, Rome, Ga., from whom further particulars may be obtained.

**Measles in Orphanage.**—An epidemic of measles in the Brooklyn Orphan Asylum has been controlled by strict quarantine of the children affected. In

all forty-seven cases developed and were treated in the hospital ward of the asylum.

**Calcutta School of Tropical Medicine.**—The foundation stone of the new School of Tropical Medicine at Calcutta, India, was laid recently, the government having appropriated $195,000 for the site and the erection of laboratory buildings. The school will accept students from all over the world.

**Work for Convalescents.**—The Trade School for Cardiac Convalescents, which aims to provide work for patients recovering from heart disease and unable to resume their former occupations, reports great success during its first year of operation. Last July a home for such patients was opened at Sharon, Conn., and there they receive care and treatment while learning a trade. A workshop is also maintained in New York. The making of concrete flower pots has been found to be a suitable and profitable trade, and is now being pursued by a number of men who without it would be financially dependent.

**Aid for Defectives.**—The State Charities Aid Association and the Association for Improving the Condition of the Poor are making an attempt to induce the Legislature at its special session to appropriate $500,000 for additional beds at Letchworth Village, Craig Colony, and Rome. Each legislator has been sent a list of 1,000 feeble minded persons who experts believe should be cared for in an institution, and the Clearing House for Mental Defectives in New York has on file 3,000 additional names of persons who need institutional treatment. It is probable that if no appropriation is made a bond issue will be authorized.

**State Insane Hospitals.**—Startling conditions in the New York State Hospitals are said to have been uncovered by the investigators of the Commissioner of Efficiency and Economy during the last two months. It is charged that of the appropriation of $8,000,000 made by the Legislature for the maintenance of institutions with 30,000 inmates, one-half was spent on salaries of superintendents and employees, and that for the care of these 30,000 patients, 11,000 employees, including superintendents, doctors, stewards, and attendants, are engaged. A full report of various sorts of graft discovered during the investigation will soon be issued.

**Call for Hospital Corps Enlistments.**—The Surgeon-General of the United States Army has authorized the Department Surgeon at Governor's Island, New York, to enlist an unlimited number of men for the service in the hospital corps of the army.

**Changes at College of Physicians and Surgeons.**—At a meeting of the Board of Trustees of Columbia University on May 2, announcement was made of the acceptance of the resignations of Dr. Frederick Peterson, professor of psychiatry at the College of Physicians and Surgeons, and of Dr. J. Ramsay Hunt, associate professor of neurology, and of the appointment of Dr. Frederick Tilney to succeed the latter. The resignation of Dr. Theodore A. Janeway, Bard professor of medicine, was also accepted. As previously announced, Dr. Janeway has accepted the appointment as professor of medicine at Johns Hopkins University.

**American Gynecological Society.**—The thirty-ninth annual meeting will be held in Boston on Tuesday, Wednesday, and Thursday, May 19 to 21, 1914, under the presidency of Dr. J. Whitridge Williams. The scientific session on Wednesday will be held at the Country Club, Brookline; on the other days at the Boston Medical Library; and the headquarters of the society during the convention will be at the Harvard Club, 374 Commonwealth avenue. Dr. Leroy Broun of New York is the secretary of the society.

**Society for Sexual Research.**—Preparations are being made for the first congress of the International Society for Sexual Research, which will be held in Berlin on October 31 to November 2, 1914, under the presidency of Geh. Reg. Rat Prof. Dr. Julius Wolf. The congress will cover the entire field of scientific sexual research, and will probably be divided into a biological-medical, a sociological, a legal, and a philosophic-psychologic-pedagogical section. Proceedings will be conducted in German, English, and French. Participation in the congress is free to members of the society, and for non-members the registration fee is 10 marks. Further particulars may be obtained from the second-secretary, Dr. Max Marcuse, Berlin W. 35, Lützowstr. 85.

**Obituary Notes.**—Dr. Charles F. Wainwright, until recently of New York, a graduate of the Bellevue Hospital Medical College, New York, in 1889, formerly professor of internal medicine and dean of the University Medical College, Kansas City, Mo., and later instructor in internal medicine at the New York Post-Graduate Medical School, died at his home in Englewood, N. J., on May 6, aged fifty-five years.

Dr. John William Dowling, Secretary of the Faculty of the New York Homeopathic Medical College and Flower Hospital, died in Middletown, N. Y., of apoplexy. He was born in 1869 and received his B.A. degree from Columbia University in 1883, and three years later was graduated from the New York Homeopathic Medical College. Soon after graduation he was appointed professor of physical diagnosis at the college and was also an attending physician at the Flower Hospital. He was a member of the American Institute of Homeopathy and the State Homeopathic Society.

Dr. Harry A. Smith, of Boston, a graduate of the Medical School of Maine, Portland, in 1890, and a member of the Massachusetts and Suffolk County Medical Societies, died at his home, after a short illness on April 27, aged 47 years.

Dr. John B. Lewis, of Hartford, Conn., a graduate of the New York University Medical College in 1853, a veteran of the Civil War, and a member of the Connecticut State and Hartford County Medical Societies, died at his home, after a long illness, on April 26, aged 82 years.

Dr. Oliver I. Halbert, of Waco, Tex., a graduate of the University of Louisville Medical Department in 1876, a member of the State Medical Association of Texas, and a member and for many years president of the McLennan County Medical Society, died at his home after a long illness, on April 22, aged 64 years.

## GENERAL MEMORIAL HOSPITAL FOR THE TREATMENT OF CANCER AND ALLIED DISEASES.

The recent gifts of Dr. James Douglas, aggregating nearly half a million dollars, to the General Memorial Hospital, places this institution in the front ranks of those devoted to the study and treatment of cancer. The conditions of the gifts are that the entire medical staff as well as the research staff shall be under the control of the Medical De-

partment of Cornell University in New York City, thus insuring the closest cooperation between the clinical and laboratory investigation of cancer problems. This recent gift has fulfilled to a striking degree the purposes and hopes of the founders of the Hospital. In this connection, a brief history regarding the foundation and evolution of the Hospital will be of interest:

The Institution was started largely through the influence and efforts of John E. Parsons, Esq., who was the first President and who still holds the office of President. The founders of the Hospital, Mr. and Mrs. J. J. Astor, and Gen. and Mrs. Cullum, held the first meeting for organization on February 7, 1884. The purpose of the Hospital is clearly shown in the following paragraph from the minutes of that meeting: "A hospital, with clinics for outdoor patients, for the treatment of cancer exclusively, in all its forms, is a much needed charity in this city. There is no such hospital in the United States. An institution of this kind would not only accomplish the cure or relief of many sufferers from cancer, but would afford invaluable opportunities for the study of disease and the advancement of medical science."

The corner stone was laid May 17, 1884, on which occasion Dr. William H. Draper, who took part in the ceremony, stated in his address: "I trust I shall not shock the prejudices of any of my hearers when I say that the highest object with which a Hospital can be founded is not simply to provide for those whose means are inadequate to command them the benefits of the best medical and surgical skill and the best nursing. * * * I believe I am stating truly the motive which led to the munificent endowments by which this Hospital is to be established, when I say that it was the intelligent conviction of this truth,—that while it was desired to confer the blessings of the best Hospital treatment upon the sufferers from the dread disease to which it is to be devoted, the higher purpose was to give the best possible opportunity for the scientific investigation of the causes and the treatment of a disease which has thus far baffled human insight and human skill."

These prophetic words of Dr. Draper have now been realized. In 1899, by an act of Legislature, the name of the Hospital was changed from the New York Cancer Hospital to the General Memorial Hospital for the Treatment of Cancer and Allied Diseases. The first research work in cancer in this country was done at the New York Cancer Hospital in 1892, in a systematic trial of the effects of the living cultures of the streptococcus of erysipelas upon inoperable malignant tumors. The building and funds for carrying on this work were provided by Archer M. Huntington now Vice-President of the Hospital.

Almost the first scientific laboratory research work in cancer in this country was done at the General Memorial Hospital under the auspices of the Collis P. Huntington Fund for Cancer Research. This Fund, which originated from the gift of $100,000 by Mrs. Huntington, in 1902, was turned over to the General Memorial Hospital under certain conditions, the principal ones being: (1) The $100,000 to constitute a special fund to be designated The Collis P. Huntington Fund, and to be invested and kept invested, the income only to be used. (2) The income to be applied to the study of cancer and malignant tumors generally, and to research in the direction of a remedy or remedies for the disease. (3) The use of the income shall be under the direction of a Committee of Five, of which, Mr. Archer M. Huntington and Dr. William B. Coley shall be permanent members.

The work was begun in 1903 at the Loomis Laboratory of Cornell University Medical College, under the direction of Dr. B. H. Buxton, who was later appointed Professor of Experimental Pathology at Cornell. In addition to the income of the Fund, considerably larger amounts have been given annually by Mrs. Huntington for carrying on the work. The resources of the Huntington Fund have been devoted practically entirely to laboratory investigations, lack of funds making it impossible to conduct side by side the clinical and laboratory studies, which is so essential in the study of the difficult problems in cancer.

The general plan adopted is similar to that of the Middlesex Hospital in London in which a pavilion of six wards has recently been devoted exclusively to cancer. In the new institution all modern methods of surgical and medical diagnosis and treatment of cancer will be developed to the highest degree possible. Owing to the growing importance of post-operative treatment by physical agents, which the hospital is fully prepared to supply, it is believed that the operative service should attract a large number of advanced cases in which operation alone is unsuccessful or uncertain. The physical agents of recognized value include fulguration, *x*-ray, and radium. The hospital has at present a moderate supply of high grade radium and a larger amount of low grade from which the emanation is used. The most approved apparatus for the collection of emanation has been installed and this work is in charge of a physicist. A further supply of radium up to 3 gm. is expected from the Colorado mines of Dr. Douglas. The *x*-ray department of the hospital is fully equipped with the latest apparatus for irradiation, diathermia, and desiccation. A chemical laboratory has also been installed and chemical studies have been in progress for a year past. The pathological service is in charge of the University staff. The affiliation with the University places at the disposal of the hospital the services of the laboratory staff of the Huntington Fund as well as those of the staffs of the various scientific departments of the University. The Huntington Fund for Cancer Research was one of the pioneer endowments for this purpose and it is to the existence of this Fund that the Hospital owes its present fortunate position. Through this Fund, administered by Cornell University, a staff of workers has long been maintained in the field of cancer research. This staff now finds an enlarged opportunity in the problems suggested by the cancer patient. The field of experimental laboratory studies remains intact and these will be pursued, with the support of the Huntington Fund, as before, and even with increased activity owing to the many new problems which the clinical material provides. The laboratory staff has long felt the need of association with a cancer hospital and Dr. Douglas' endowment is provided to supply this need and to bring about a combination of laboratory and clinical investigation.

The present plans therefore provide for a type of organization which has received world-wide approval. In it the Memorial Hospital enters its chosen field under University auspices, and the Huntington Fund reaps a just reward for consistent support of cancer research over many years.

## Correspondence.

### FAILURES IN TYPHOID VACCINATION

To the Editor of the Medical Record:

Sir:—Cases of typhoid fever occurring in patients vaccinated against the disease within a few months of its development are so rare that the following three cases which have come recently under my observation should be recorded.

Case I. was that of a woman 30 years of age who lived with a large family in a tenement house in New York. In August, 1913, her brother, mother, and sister all had typhoid fever. The patient was vaccinated at that time by agents of the Health Department and escaped the disease for the time being. Eight months later she entered Bellevue Hospital in the third week of typhoid fever, together with her four children, all of whom had the disease. She was very ill on admission with typical symptoms of typhoid fever, and a temperature which reached 105 F. daily for eight days, when she died with hyperpyrexia (106 F.), nephritis, and pulmonary edema. Four days prior to death she miscarried, the infant being six months old. Through the cooperation of Dr. Goldwater a Coroner's autopsy was secured which revealed typical swelling, induration, and ulceration of the Peyer's patches of the ileum. There was no hemorrhage or perforation.

Case II. was that of one of the above-mentioned four children. This child had been vaccinated at the same time with the mother in August, and was treated upon another division of the hospital, having definite symptoms of typhoid fever. This patient recovered. A blood culture gave a positive typhoid test.

Case III. was that of a young man seen in consultation, who was a student in Yale University, where he had received antityphoid vaccination last autumn. He presented in January of this year a mild case of typhoid fever from which he recovered.

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### OUR LONDON LETTER.

(From Our Regular Correspondent.)

PREVENTION OF SHOCK AFTER OPERATIONS—HOSPITAL SATURDAY—SCARCITY OF NURSES—FAMILY ENCYCLOPEDIA OF MEDICINE—BLUE BEAD NECKLACE CHARM—NATIONAL MEDICAL UNION—OBITUARY.

London, April 24, 1914.

Shockless surgery has become a rather more familiar term since last month William de Courcy Wheeler brought before the Dublin Academy of Medicine his experience of Crile's method of preventing shock, anoci-association, as it is called. He made no extravagant claim, but his own cases supported the view that a considerable advance has been made in the direction of rendering operations less formidable by making shock a less frequent sequel. Crile's experimental investigations are held to show that the essential lesion of shock is in the brain cells in which potential energy is changed into kinetic energy—probably at the expense of certain chemical compounds stored in the cells. This stored energy is discharged in response to a stimulus—say trauma or emotion—and that whether the person be conscious or unconscious. To prevent the effect of trauma on the brain cells local anesthesia is employed to intercept the stimuli. This is therefore combined with general anesthesia, and is the combination of the two which constitutes anoci-association. Mr. Wheeler, who illustrated his paper with lantern slides, has become convinced of the great value of Crile's work, and while admitting that there might be more to learn about anoci-association held it to mark a new era in surgery comparable with the antiseptic system in importance. He gave details as to the preparation of the patient for operation and his management after it, comprising the use of narcotics and other adjuvants. There was but slight discussion—certainly less than the paper deserved, considering the prior endorsement of Moynihan and other able observers of Crile's method.

Mr. Stoney, though he confessed he had no practical experience of the method, said many operations were not usually followed by a great deal of shock, some of them being among Mr. Wheeler's cases. Emergency and abdominal operations were of the most importance, but he suggested in some it would not be possible to avoid handling the intestines.

Mr. McConnell had seen Crile himself operate with his method. He objected to cases of ether anesthesia five or more years ago being used for comparison as Crile had used some. He was sorry Mr. Wheeler used etherization and thought nitrous oxide would be better. It was difficult to prove whether anoci-association prevented shock because many operations were done in the ordinary way without causing shock.

The annual meeting of the Hospital Saturday Fund was held at the Mansion House on the 18th inst. when a decrease of income had to be reported. This was attributed to the working of the Insurance Act. Some persons seem to have thought that act would render this fund unnecessary, but Sir T. V. Strong, who moved the adoption of the report, declared there was no room for doubt that there would always be need for generous voluntary assistance. Last year's receipts were £40,403 as against £45,118 the previous year. The benefits distributed included 8,200 surgical appliances supplied at half the cost, 33,543 dental wants, besides assistance toward cost of the treatment in convalescent homes and sanatoria. The distribution to hospitals and institutions amounted to £28,401.

A scarcity of nurses is being complained of. Sir V. Horsley, speaking at Leeds last week, said the country ought to have 50 per cent. more trained nurses than it had and they should be registered and made a profession. He was of the opinion that registration had conferred many benefits on the medical profession, but one meets with very few who agree with him. It is a common complaint with many that the nurses are apt to intrude in the sphere of the doctor instead of implicitly following his directions, and registration might increase their self esteem.

The "Family Encyclopedia of Medicine" continues to appear in instalments and the list of medical men who have assisted in its production is again issued with their qualifications and addresses, to the indignation of the man of the profession. One may say that everyone outside that list condemns the open breach of the long established ethical rule. The pretense that these socalled authorities are not responsible for this advertising is comparable to the various excuses and evasions of certain politicians. The only punishment the general practitioners can inflict is to refuse to call in or meet in consultation any one of the offenders.

On Wednesday Mr. E. Lovett gave a lantern lecture on the "Folk-lore of London," in which he said many children of the poorest people wore a necklace of common blue beads as a charm against colds and bronchitis. He had himself gathered sixty-seven independent records of this custom in all parts of London. The beads were worn under the clothing, put on in infancy and not taken off throughout life. He had seen several old women over 60 years of age who had worn the blue bead necklace from infancy. It must never be taken off on any account day or night. He suggested that this custom might account for the great number of beads often found in ancient tombs.

The National Medical Union was formed, according to *The Hospital*, which is its organ, at a conference of delegates of Non-Panel Societies last November. The title was taken over from one of these societies which had been formed the previous year at Manchester. The Edinburgh Guild and London Committee of Non-Panel Doctors also united. The union is absolutely hostile to the Insurance Acts and the first condition of membership is that the candidate be not on the panel directly or indirectly.

Dr. T. D. Griffiths of Swansea died on Friday last aged 77. He was M.D. Lond. with high honors, after a brilliant college career, taking amongst other distinctions the Atkinson Morley Scholarship and the Filliter Exhibition. He settled in South Wales and maintained a high position in public estimation throughout his life, as shown by his being made D.Sc. Oxford (honor's causa). He was president of the B.M.A. in 1903.

## Progress of Medical Science.

**Boston Medical and Surgical Journal.**

*April* 30, 1914.

1. The Art of Companionship in Mental Nursing H. R. Stedman.
2. Certain Aspects of the Medical History of Exophthalmic Goiter. R. Fitz.
3. The Demonstration of Gallstones by the Roentgen Ray. A. W. George and I. Gerber.
4. Intracranial Hemorrhage in the Newborn. R. M. Green.
5. Some Present Problems in Tuberculosis. P. C. Bartlett.
6. The Tuberculous Child. C. Floyd.
7. The Social Worker's Educational Influence in the Community. G. B. Underwood.
8. The Field of Work of the Antituberculosis Association. S. H. Stone.

**1. Companionship in Mental Nursing.**—H. R. Stedman enumerates a few of the daily duties involved in the private work of the expert mental nurse who is alive to her patient's needs. She reads to her charge systematically. She also sees that the patient reads, even training her to read aloud regularly for a definite time each day. Systematic occupation goes a great way toward distracting and engrossing a patient's thoughts. Almost all available kinds are helpful, according to the age, strength, and sex of the patients, from embroidery and arts and crafts work to wood cutting and chopping, provided it be free from drudgery and is varied and shared in by the nurse. The nurse will also often have to help in a patient's correspondence and to urge her to write to her relatives or friends. The accomplished companion-nurse will also have as a part of her armamentarium some proficiency at games of various kinds, indoor and outdoor. The mental nurse would suffer no loss of efficiency and have more time to get closer to her patient if such branches as bacteriology, uranalysis, gynecology and obstetrics, and much of the anatomy taught, were in some cases omitted altogether and in others materially curtailed. This done it might be possible to substitute with still a good margin of time, a "current events" class, for example, a lecture or two on the means for diverting the single patient, reports of personal interviews with patients and their domestic and other troubles, which might have a bearing on their condition and their future needs, etc.

**2. Medical History of Exophthalmic Goiter.**—R. Fitz states that the names of three men stand out above all others in connection with the medical history of exophthalmic goiter. These names are Caleb Hillier Parry, Robert James Graves and Carl Adolphus von Basedow. All three of these observers lived within fifty years of one another, all three recognized the symptom-complex which bears their names, all three described the disease from entirely different points of view and for entirely different reasons. Parry was born in 1755 and practised in Bath, the medical center of the most fashionable English society. His first case of exophthalmic goiter was described in his "Posthumous Papers" in 1825. Graves was born in Dublin in 1797. His original paper on exophthalmic goiter was published in 1835. Von Basedow was born in Dessau in 1799. His article on exophthalmic goiter appeared in 1840, and is the first complete monograph on this subject. Parry lived in the center of fashion, and his interests were associated with those of the people with whom he came in contact. Graves lived in a university town, where scholastic success represented the pinnacle of greatness. As a result the practice of medicine became to him of secondary importance. Von Basedow lived in a small German town. He was uninfluenced by the cares of a lucrative practice or the responsibility of a university professorship. Whether exophthalmic goiter be called Parry's disease, or Graves' disease, or Basedow's disease, all three of these physicians deserve places in the history of medicine. It is difficult to find more perfect models of the practitioner of medicine, the teacher of medicine, or the student of medicine.

**3. The Demonstration of Gallstones by the Roentgen Ray.**—A. W. George and I. Gerber point out that the demonstration of gallstones by the Rœntgen ray has already reached a position in this country that warrants its more general use as a dependable aid to diagnosis. It is advisable to examine the gall-bladder region for stones prior to every bismuth examination of the alimentary tract. The authors believe that gallstones can be demonstrated by the Rœntgen ray in nearly every case of gall-bladder disease of long standing where stones are really present. The chief sources of error are renal calculi, calcified mesenteric glands, and costochondral ossification. These can be differentiated by proper technique.

**4. Intracranial Hemorrhage in the Newborn.**—R. M. Green concludes that intracranial hemorrhage may occur in the newborn either from the trauma of operative or normal labor or in association with hemorrhagia neonatorum. It does not often present the typical clinical picture of increased intracranial pressure. Its presumptive diagnosis depends on the early recognition of refusal to nurse, pallor, and slight facial edema, which may be confirmed by the appearance of more classical signs. The diagnosis may be positively established and some therapeutic relief afforded by lumbar puncture (when the hemorrhage is infratentorial), or by cranial puncture (when the hemorrhage is over the cerebral convexity). If these measures give relief, operative decompression by craniotomy is indicated. The majority of intracranial hemorrhages in the newborn are subdural, but intraventricular hemorrhages may also occur. The source of bleeding may be from laceration of the tentorium, of the choroid plexus, of the longitudinal sinus, or of the pial vessels.

In cases associated with hemorrhagic disease preliminary transfusion may be indicated before craniotomy. The gravity of the prognosis demands an enlightened prophylaxis by avoiding all unnecessary occasion for fetal trauma.

5. **Present Problems in Tuberculosis.**—P. C. Bartlett points out that there are still altogether too many patients with active disease that are not recognized as tuberculous until their disease is moderately advanced or worse. Another problem is to find suitable employment for the arrested or partially arrested case of the disease. There is also a problem of duplication of effort. The local boards of health, the various tuberculosis societies and various other health agencies should realize that only through the most complete cooperation can the best results be obtained.

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### New York Medical Journal.

*May 2, 1914.*

1. The Different Theories of Aphasia. C. K. Mills.
2. The Clinical Interpretation of Aphasia. F. X. Dercum.
3. Tuberculosis of the Right Testicle Secondary to Removal of the Left Testicle for Tuberculosis. V. C. Pedersen.
4. Cerebrocerebellar Diplegia. L. P. Clark.
5. Dermatitis Exfoliativa in an Insane Patient. R. M. Alexander.
6. Laryngeal Cancer. H. Smith.
7. Pituitrin. A. J. Rongy and S. S. Arluck.
8. A New Urethroscope. G. MacGowan.
9. Complete Inversion of the Uterus Following Delivery. J. H. Telfair.
10. Variation in Drugs. W. M. Gregory.

1. **Theories of Aphasia.**—C. K. Mills states that the three theories regarding aphasia are: (1) The so-called classical view based on the discoveries of Broca, Wernicke, and others; (2) the mental deficit theory of Marie; and (3) Liepmann's doctrine of apraxia as applied to aphasia. The diaschisis of von Monakow must also receive consideration. The older or so-called view of aphasia is one that recognizes a subdivision of the cerebral zone of speech into at least two subareas, the one sensory and the other motor. According to some authorities, a third area, which might be called conceptual, although the term is open to objection, is intercalated between the sensory and motor speech regions. Accepting the subdivision into sensory and motor areas, the sensory region has generally been recognized as subdivided into at least two parts, one auditory and the other visual, these being respectively places of concentration or storage of auditory and visual images. The views of Marie are, in the first place, that auditory, visual and motor speech centers in the sense usually accepted do not exist, that aphasic phenomena are not due to interference with auditory, visual or other images, but to intellectual deficit, this deficit causing difficulty in the comprehension of speech and interfering with numerous didactic processes. Marie also holds that Broca's convolution takes no part in the function of speech, nor its lesions in the production of aphasia. The apraxia theory of Liepmann has lately come into much prominence. The movements concerned with phonation, enunciation, and articulation cannot be so made as to yield intelligible speech, although the patient may be able to use the musculature, out of tune as regards speech, for other purposes, like chewing, swallowing, or breathing. According to the diaschisis doctrine enunciated by von Monakow, circumscribed lesions give rise to symptoms-speech disturbance, paralytic phenomena, etc., much more marked than one would expect considering what is regarded as the special function of the part affected. Groups of associated neurons are injured and functionally affected because of the destruction of some important part of the system. The disturbance of function is widespread as the connections of the part affected are widely situated. Restoration in whole or part may take place as structures are released or new paths are formed. One important fact emphasized by von Monakow and others is that lesions of the brain are rarely purely cortical.

6. **Laryngeal Cancer.**—H. Smith observes that in a man past fifty years, with a history of hoarseness extending over a long period of time, with slight localized discomfort or pain, occasionally referred to the ear, with decreased movement of one side of the larynx, with a wartlike tumor, where the base is well supplied with bloodvessels which radiate from it toward the outer side, one may reasonably conclude that one has cancer to deal with. In the author's particular case the laryngoscopic image indicated syphilis, and a correct diagnosis was still further delayed by the microscopical findings in the first piece which indicated papilloma. If the patient had not had heart, kidney, and arterial complications and could have stood a general anesthesia, laryngectomy in the first instance would probably have proved successful. Under cocaine anesthesia it is difficult to remove the larynx, although there are a number of successful cases on record where local anesthesia alone has been employed. In subsequent cases the author has made deep injections into and around the laryngeal structures, of novocaine solution, before any cutaneous incision was made. In this way the deeper parts can be more successfully anesthetized than when the injections are made superficially and at varying times during the process of the operation. While radium has benefited many superficial epitheliomata, it has not been definitely determined that radium will materially affect deep-seated laryngeal cancer.

7. **Pituitrin.**—A. J. Rongy and S. S. Arluck conclude that pituitrin does not induce labor pains. It should not be used in the early part of the first stage of labor, for its action is too transient. It should not be used in complete inertia because of the danger of rupture of the uterus. It is contraindicated in cases of dystocia due to malposition or contracted pelves. It should never be used in cases in which a sudden rise of blood pressure may prove dangerous. A single dose of pituitrin may be used as an adjuvant in cases where pregnancy is interrupted, either by catheter or bag, and only when contractions of the uterus have already set in. It should be used only in cases in which the cervix is dilated or dilatable and the presenting part engaged in the pelvic outlet. It should be used cautiously in cases in which the fetal heart sounds are feeble or irregular. It should never be used unless a general anesthetic is within easy reach, for the contractions may become so violent that rupture of the uterus becomes imminent.

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### Journal of the American Medical Association.

*May 2, 1914.*

1. Antityphoid Vaccination in the Army During 1913. F. F. Russell.
2. Drainage Versus Immediate Suture of the Common Duct. G. W. Crile.
3. Man, the Principal Etiological Factor in the Perpetuation of Malaria, with Special Reference to the Endemicity of the Disease in the Temperate Zone. G. E. Henson.
4. The Cultivation of the Tissue Cells in Vitro and Its Practical Application. H. F. Smyth.
5. Benzol in the Treatment of Polycythemia Rubra. J. S. McLester.
6. Extraperitoneal Cesarean Section. S. J. Druskin.
7. A Comparison of the Onset and Character of the Apoplexy Caused by Cerebral Hemorrhage and by Vascular Occlusion. W. B. Cadwalader.
8. Technique for Arthroplasty of the Shoulder-Joint. W. L. Brown and C. P. Brown.
9. The Effect of Injecting Collargol into the Renal Pelvis. D. N. Eisendrath.
10. Argyrism following the Use of Collargol. A. M. Crispin.
11. A New Technique of Roentgen-Ray Examination for Early Diagnosis of Cancer of the Esophagus. A. Bassler.
12. Treatment of Infected Wounds. T. J. Watkins.
13. Quinine Poisoning. E. C. Underhill.
14. A Simple and Reliable Method of Staining Spores. F. M. Huntoon.
15. Boils. J. L. Dryer.

1. **Antityphoid Vaccination in the Army During 1913.**—F. F. Russell states that the best record obtained by sanitary measures alone is noticed in the year 1908; vaccination, beginning in 1909, has steadily diminished the number of cases, until in 1913 the rate was reduced to five cases per hundred thousand men. What this signifies may be appreciated when one realizes that the civil death-rate (not case-rate), in the registration area of the United States, was 16.5 per hundred thousand of population for the year 1912, the last for which the statistics have been published by the Census Bureau. As regards the death-rates for typhoid fever, one can see that the best record previous to the introduction of vaccination was 0.19 per thousand, made in 1907; this has now been far surpassed by the truly remarkable record of no deaths whatever from this disease in 1913. In the annals of preventive medicine there is only one other campaign with which to compare this, namely, the practical extermination of smallpox by vaccination.

2. **Drainage Versus Immediate Suture of the Common Duct.**—G. W. Crile states that drainage of the common duct presents three dangers: much bile is lost, cicatricial contraction occasionally occurs, and should the drain-tube be occluded, or even if it be not occluded, bile may escape into and infect the peritoneal cavity beyond the field of operation. Owing to an interesting physiological fact, the loss of bile may become a serious danger—a danger which is usually overlooked—as normally the bile passes through the intestinal tract, and the bile-salts are reabsorbed, return to the liver, again become a constituent of fluid bile, and thus continue their circuit. The continuous loss of bile by drainage in a good risk patient may cause no apparent damage, but in elderly subjects and in poor risks from any cause, the steady loss of bile-salts and of fluid may prove fatal. In gall-bladder drainage the bile can be collected and, as Yates has suggested, may be returned to the bowel; but in drainage of the common or hepatic duct much bile is sure to be lost beyond recovery. Occasionally also the bile may leak into and infect the abdominal cavity beyond the field of operation—a circumstance that may prove fatal despite the greatest experience and care. A third danger is also important: the presence of a drain-tube in a bile-duct may of itself cause a partial or a complete stricture of the duct. The author asserts that if a thousand normal common ducts were considerably traumatized and then drained by close-fitting drainage-tubes snugly sewed in and left for a considerable time, there would result a certain number of partial or complete strictures, just as strictures in the cystic duct are produced by the lodging of a stone and just as any other duct may be occluded by the effect of the presence of a foreign body. The common duct is drained as a matter of routine because the duct is handled in a needlessly rough manner when the stone is extracted. To overcome the needless local injury, and to reduce the necessity for drainage to a minimum, the author has evolved a sharp dissection technique. To accomplish the bloodless innocuous dissection which is the goal of the anoci technique, all adhesions are carefully divided with a sharp knife, the dissection being rigorously confined to the bloodless hair-line between the peritoneum and the adhesion. No bloodvessel ever crosses this white line. The whole line of dissection is therefore bloodless, no sponging is needed, and every tissue is accurately identified.

5. **Benzol in the Treatment of Polycythemia Rubra.**—J. S. McLester notes that the use of benzol as a medicinal agent was suggested by the observations of Selling, who studied its influence in the anemia of certain factory girls whose occupation led to the inhalation of benzol gas. His subsequent experimental work on animals showed that benzol caused, first, a marked reduction in the white blood-cells, and later a diminution in the red blood-cells. Examination of the tissues of animals thus poisoned indicated a selective action on the bone-marrow. Von Koranyi was the first to make practical use of these observations. Stimulated by Selling's work he administered benzol to a patient with splenomyelogenous leucemia and produced a remarkable fall in the leucocyte-count as well as reduction in the size of the spleen and improvement in the patient's general condition. He recommends its use in leucemia and also suggests that it might be of value in polycythemia. Numerous other observers have subsequently attested the value of this drug in leucemia. In the literature of polycythemia there are a number of instances of benzol administration. The author's case showed a slight fall in the number of red cells just before benzol was begun. It might be surmised that the subsequent fall to normal was due to natural causes rather than to the drug. On the other hand, such small fluctuations in the red cells are frequently seen in the polycythemias, while no case reported has without benzol shown the steady and complete decrease to normal which immediately accompanied the administration of this substance. The experimental and clinical experiences of various observers quoted, together with the improvement in the author's case, justifies the conclusion that benzol is a valuable therapeutic agent in polycythemia. At the same time in the author's case the ultimate result is as yet a matter of conjecture.

6. **Extraperitoneal Cesarean Section.**—S. J. Druskin discusses the advantages of the extraperitoneal section over the classical operation. In patients with contracted pelves with a conjugata vera measurement of 8¼ centimeters from 65 to 70 per cent. of cases of labor terminate spontaneously, and one cannot with tape and pelvimeter determine beforehand what the outcome of such cases will be. In primiparæ in particular the indication to operate must be exceptionally clear. Nothing but a fair trial for natural labor and careful observation on the part of the attendant during that time can determine whether labor will not terminate without operation. The advantages of the extraperitoneal cesarean section are : (1) Lessened bleeding; (2) non-exposure of peritoneum; (3) lessened danger of postoperative hernia, and (4), most important of all, the fact that the operation can be performed at a time when it would no longer be safe to do the classical operation. (1) Lessened bleeding: In cervical cesarean there is very little bleeding; first, because the lower uterine segment is distended and thinned out, the muscle often being of the thinness of paper; secondly, because no large sinuses are located there; thirdly, because the placenta is not encountered. (2) Non-exposure of peritoneum: The peritoneum remains sealed to infection. No blood or questionable liquor amnii can enter the peritoneal cavity. The intestines do not come into the field of operation. There is no cooling or lesion of the abdominal contents. The operative shock is reduced to a minimum. (3) Exclusion of postoperative hernia: In spite of the fact that the wound is drained, there is no tendency to postoperative hernia, first, because the abdominal wound can be sutured in layers except at the lower angle, and, second, the part drained is outside of the abdominal cavity in the space of Retzius. (4) Time of operation: The operation can be performed when it would no longer be safe to do the classical operation. In fact it is generally performed after the woman has

been in labor a considerable time, long after the membranes have ruptured and after repeated vaginal examinations by physicians and midwives.

**7. A Comparison of the Onset and Character of the Apoplexy Caused by Cerebral Hemorrhage and by Vascular Occlusion.**—W. B. Cadwalader concludes that spontaneous intracerebral hemorrhages are apt to be large; very small hemorrhages are rare. Of seventy-two specimens examined, only four measured less than 4 centimeters in their broadest diameter. It is certain that large hemorrhages are always fatal, and it is also certain that small hemorrhages may be fatal, and it even seems probable that hemorrhages are always fatal, no matter whether small or large. When repeated attacks of apoplexy with hemiplegia occur in the same patient at different times, the final or fatal attack may be due either to softening or to hemorrhage, but the former non-fatal attack is invariably caused by vascular obstruction and softening and not by hemorrhage. Repeated attacks of intracerebral hemorrhage are not compatible with life. Small and moderate sized lesions within the brain, generally described as cysts, are apt to be considered the result of vascular occlusion, but in some instances such lesions may be produced by hemorrhage which has become healed. Their true origin in some cases seems uncertain, but they have been classified here as softenings. The duration of life is generally longer with small hemorrhages than with large ones. Sudden death within a few minutes after the onset of apoplexy does not occur, even though the lesion is a large one. It is remarkable that fairly large hemorrhages may not in all instances cause rapid death. Spiller has recorded a case in which a clot was found partly encapsulated and measuring 7 by 2.5 centimeters, yet the patient lived almost two months. The type of apoplexy produced by hemorrhage and by vascular obstruction is not of a distinctive kind. The onset and character of the apoplexy may be exactly alike, though the lesion is entirely different. But a sudden onset with rapidly developing and persistent coma usually indicates hemorrhage. A slow onset with premonitory symptoms without profound coma may be due to hemorrhage or to softening, but the less severe the disturbance of consciousness the more likely that it is caused by softening and not by hemorrhage. Premonitory symptoms are not characteristic of the lesion; as a general rule they are recorded in the milder types of apoplexy in which the onset is not abrupt. Slowly increasing loss of consciousness ending in profound coma, known as ingravescent apoplexy, is generally due to hemorrhage. It is doubtful if hemorrhage ever occurs without causing very distinct disturbances of consciousness, but it is certain that many softenings do occur without producing distinct apoplectic attacks. Most non-fatal cases of hemiplegia are caused by vascular occlusion and subsequent softening. The mere fact that life is preserved is in itself indicative of the absence of hemorrhage. The type of apoplexy probably depends more on the size of the hemorrhage than on its situation, but with softening the rapidity with which the vessel is occluded may influence the rapidity of onset of the attack as well as the extent of the lesion.

## The Lancet.

*April* 25, 1914.

1. Some Modern Theories Concerning Hysteria. J. A. Ormerod.
2. Intestinal Toxemia. D. C. Watson.
3. The Drainage-tube in Abdominal Surgery. J. E. Adams.
4. The Wild Monkey as a Reservoir for the Virus of Yellow Fever. A. Balfour.
5. Vaccination Against Hay Fever. J. Freeman.
6. The Use of Ommopon-Scopolamine Combined with Local Anesthesia in Ophthalmic Surgery. A. M. Ramsay.
7. Extraperitoneal Uretero-Lithotomy Through a Median Suprapubic Incision. G. Whitehead.

**1. Modern Theories Concerning Hysteria.**—J. A. Ormerod states that there are two groups of very common nervous affections concerning the bodily nature of which one knows so little, that a tendency has now arisen to neglect this aspect of them and to study them chiefly from the side of psychology. These two groups are hysteria and neurasthenia: the first recognized from the early days of medicine and the second modern in name but as is supposed not in reality. These represent two distinct types of disease, though, of course, there may be cases in which they overlap. In hysteria one expects to find, at some time in the course of the disease, outward and visible symptoms, such as fits, paralysis, anesthesia, and the like, which are objective at least in this sense that they force themselves on the attention of the physician, whereas in neurasthenia the symptoms are subjective and cannot be verified by observation. The patients have a different mental outlook: to the neurasthenic his symptoms are always a source of distress and may be a burden to his whole life, whereas the disabilities of the hysterical patient (perhaps the author should say the confirmed hysterical patient) tell far less upon her, and she may even bear her cross with complacency, in short, the reality of the disease appears in the one case greater to the observer, and in the other to the patient. Many of the common and well-known symptoms of hysteria may reasonably be interpreted from the psychological point of view. This indeed is the kind of interpretation which most modern theories on hysteria employ. But there is another class of symptoms which are by no means easy to interpret in this way: the rarer class known as vasomotor and nutritional symptoms. Examples of this class are fever, muscular atrophy, certain skin affections, edema, congestions, not to mention obscure affections of secretion and excretion as of sweat, milk and urine. One can readily understand that hysterical convulsions may be produced by the overwhelming power of some terrible memory, that pain and loss of sensation (which after all are but modifications of consciousness) may be produced by affections of the mind, that paralysis or prolonged contractions of voluntary muscles might be due to some perversion of volition. Moreover, all these things may be artificially produced by skillful hypnotism. But it is difficult to see how such outward and visible signs as edema, congestion, or ecchymosis can be produced by purely mental agencies. One hardly knows as yet how much emotion may do towards modifying bodily states. And emotion is certainly an important factor in hysteria. Secondly, the same physical symptoms sometimes appear and disappear in a way that seems to suggest that they depend upon the patient's state of mind.

**3. The Drainage Tube in Abdominal Surgery.**—J. E. Adams notes that in recent years the value of drainage in the treatment of peritoneal infections has been very seriously called in question. There is much truth in the saying that it is better to drain than not to drain. The following conclusions appear to the author to be justified. (1) Owing to the adhesions which rapidly form around drainage-tubes their value is distinctly limited in the treatment of peritoneal infections. (2) Since the tissues of the abdominal wall possess a much lower degreee of resistance than the peritoneum, drainage of the former may frequently be called for where drainage of the peritoneum is not necessary. (3) The presence and pressure of the drainage tube in peritonitis may determine the transudation of organisms from the lumen of the gut to the peritoneal cavity. With regard to the last observation this secondary infection is of less

serious importance than might be supposed owing to the fact that the wound area has usually been cut off by surrounding adhesions before this occurs. To prevent adhesions between drainage-tubes and adjacent structures the tube should always be rotated whenever the dressing is done, and its gradual withdrawal from the wound should be begun from the third day after operation.

**5. Vaccination Against Hay Fever.**—J. Freeman concludes that hay fever treatment by active immunization with a pollen vaccine, whether judged by statistics or by the experimental method, has succeeded, and the immunity thus acquired seems to last for one year at least after treatment has been discontinued. Patients with marked constitutional disturbances, including asthma, do better than patients with slight and local symptoms. Patients with an inherited tendency do better than people without such tendency. Age makes no difference to the benefit derived from treatment.

## British Medical Journal.

*April* 18, 1914.

1. Some Diagnostic Failures. H. B. Shaw.
2. A Comparison of Inflammation and Tumor Formation. C. F. M. Saint.
3. Three Cases of Traumatic Rupture of the Small Intestine. F. Radcliffe.
4. Rupture of Duodenum Caused by a Blow. Major C. Maddock.
5. Condensation Obstruction in Relation to Pericolitis and Intestinal Kinking. S. Mort.
6. Fatal Case of Veronal Poisoning. E. Russell and G. Parker.
7. Veronal Poisoning. J. M. H. Munro.
8. Case of Veronal Poisoning. M. I. Dick.
9. The Results of Mephropexy. W. Billington.
10. Heart-Block in a Case of Pneumonia. R. R. M. Porter.
11. Two Cases of Diphtheria with Unusual Complications. J. Jervis.

**2. A Comparison of Inflammation and Tumor Formation.**—C. F. M. Saint states that inflammation may be either acute or chronic, though all gradations are met with. Both varieties may be produced by the non-infective or infective irritants. When due to the non-infective irritants, the type is determined by the severity of the irritation, whereas, when due to the infective irritants, it is generally determined by their nature—for example, acute inflammation is most commonly produced by the pyogenic bacteria, while chronic inflammation is usually dependent upon tuberculous or syphilitic infection. The degree of inflammation depends, in the non-infective variety, upon the quantity of the causative stimulus, whereas in the infective it depends mainly on its quality. In acute inflammation the blood changes are at a maximum, while the local cell proliferation is, speaking roughly, just sufficient for the repair of the tissues damaged in the process. In such a case the cell proliferation may lead to the regeneration of the tissues destroyed, or, as more usually occurs, the damage is repaired by the development of fibrous tissue—that is, a scar. In chronic inflammation the blood changes are less marked, while the cellular proliferation is increased and usually in excess of that required for repair. The result of this is the production of tumor-like formations, the granulomata, which are responsible for the frequent difficulty in distinguishing between tubercle, syphilis, and malignant disease. Inflammation, however, is not the only response to irritation which is met with. Some tumors are undoubtedly the direct outcome of irritation, others present indications of their dependence on such a cause, while in a large proportion of them no evidence is at present to hand as to their mode of origin.

## British Medical Journal.

*April* 25, 1914.

1. The Therapeutic Value of Gases Introduced into the Pleural Cavity. H. M. Davies.
2. The Need for Research in Antenatal Pathology. A. Routh.
3. Pituitrin in Labor. P. A. Hendley.
4. Two Cases of Pregnancy in Uterus Subseptus. R. C. Buist.
5. Carcinoma of the Stomach; Gastrectomy. R. Jamison.
6. The Association of Erythema Nodosum and Tuberculosis. J. O. Symes.
7. The Experiences of Surgeons in Sclerocorneal Trephining. R. H. Elliot.
8. On the Multiplication and Infectivity of *T. cruzi in Cimex lectularius*. B. Blacklock.

**1. Therapeutic Value of Gases Introduced into the Pleural Cavity.**—H. M. Davies discusses the merits of nitrogen displacement (artificial pneumothorax) and oxygen replacement. As regards nitrogen displacement in the treatment of pulmonary tuberculosis the author states that many people are of the opinion that nitrogen displacement should be reserved as the last resort in the treatment of tuberculosis, an opinion formed probably from an erroneous impression that the collapse of the lung is permanent. This is a great misfortune, as it deprives the patients of the treatment while they are in a position to benefit by it, and tends also to bring discredit to the method. No case, so long as it is progressive, can be regarded as too early for treatment by nitrogen displacement. There are three types of cases, however, in which this form of treatment is particularly suitable: (1) In which there is a persistent rise of temperature. (2) In which there is profuse or repeated hemorrhage. (3) In which there is cavity formation in one lung. Acute miliary tuberculosis when confined to one lung is no contraindication.

**3. Pituitrin in Labor.**—P. A. Hendley notes that pituitrin is a very valuable aid towards shortening the long and often exhausting first stage of labor, especially in those cases in which the membranes rupture early and a "dry labor" results. It has proved in the author's hands to be a powerful remedy in cases in which shock and collapse have supervened on prolonged chloroform anesthesia, not infrequently inseparable from a difficult case of contracted pelvis. In patients of a nervous temperament pituitrin has also a great influence and the excitement is frequently calmed in an extraordinary manner. Recovery is almost invariably hastened and patients who have previously had pituitrin nearly always ask for its repetition. As a controller of hemorrhage pituitrin ranks very highly in the author's estimation. He worked out the following technique as the best routine method for the administration of pituitrin. When the os admits one or two fingers but not before, the author injects into the gluteal muscles from 0.75 to 1.0 c.c. of pituitrin; if the child is not born within fifty minutes he gives a second injection of from 0.5 to 0.75 c.c. and repeats this dose if necessary. If postpartum hemorrhage supervenes a further injection will almost always control it. Care should be taken, however, the author says, to make quite certain that the syringe and needle are entirely free from any trace of alcohol before filling with the pituitrin, as alcohol is said to interfere with its action.

**6. Erythema Nodosum and Tuberculosis.**—J. O. Symes believes that the association of erythema nodosum with tuberculosis is not merely accidental. This association is far more convincing than the evidence formerly adduced to prove that the disease is of rheumatic origin—a view that is now rapidly disappearing. The author is convinced that erythema nodosum is a distinct clinical entity, probably a specific infective fever, but it seems likely that there have been included under the same name other erythematous nodular rashes, some of which should be classed as rheumatic, some as erythema multiforme, and others again as a tuberculous manifestation, the last named being evidence of the presence of a widespread and not infrequently fatal septicemia.

### Berliner klinische Wochenschrift.

*April* 6, 1914.

**Headache and the Eye.**—Jess enumerates many conditions of the eyes, mild and severe, which give rise to headache. Anatomically only about 25 per cent. of all eyes are normal, so that the neuro-muscular tissues may or may not be subjected to constant overwork. The results may be complex headache being one of a number of intracranial symptoms. The view that these disturbances tend to occur by preference in neuropathics is not completely borne out by facts. The disappearance of intracranial disturbances after wearing glasses is a very common phenomenon, but is by no means confined to connection of simple refractory errors. It is the use of prisms for muscular asthenopia, or of hyperopic glasses for accommodative asthenopia which relieves the average eye headache. Naturally astigmatism may be an additional factor. It is a peculiarity of hyperopia that it readily sets up blepharitis and conjunctivitis which aggravates the already present eye weakness and fatigue. Some bacterium is present if a true conjunctivitis develops, and special asepsis becomes a part of the treatment. While epileptics and other neuropathic degenerates do not suffer especially from eye headache the reverse is true in the case of simple neurasthenia, and these patients are subject to constant headache which cannot be traced to the eye. If a headache be unilateral it is especially prone to be associated with eyestrain, and it occurs as a rule in paroxysms. As a prodrome of both kinds of glaucoma we see headache and facial neuralgia of the severest types. A darkness before the eyes, followed by the appearance of colored rings about a light, after eye strain from near work suggests a fundal examination for glaucoma. Headache frequently acompanies choked disks, and of course any of the diseases which raise the intraocular tension. The author discusses headache and retinitis as they are associated in toxemia of pregnancy. The omission of migraine and its prominent eye symptoms is noteworthy.

**Rectal Feeding.**—D'Ayata discusses this subject thoroughly with especial reference to operations in the mouth and pharynx. The metabolism of these patients was carefully studied before the operations, and rectal feeding had already begun one day before operation. The bowels were rendered as empty as possible before the first enema was given. This consisted of 200 c.c. broth, two egg yolks, 25 c.c. Marsala wine, and a teaspoon of salt, and was given every six hours. The unabsorbed fluid was meanwhile withdrawn, when the bowel was being cleansed, and analyzed. During this period of feeding the entire ingesta and egesta were measured, the number of calories, the behavior of the N, the urinary and fecal discharges, etc. The logical conclusions are by no means final. There was naturally no nitrogen retention, but the loss was slight. Patients felt well throughout. It has been repeatedly shown that patients can be kept alive indefinitely by rectal feeding, and no further proof of this is necessary.

### Berliner klinische Wochenschrift.

*April* 13, 1914.

**Therapy of Syphilitic Nervous Diseases.**—Oppenheim has in the past two years treated from 130 to 135 cases, chiefly of metasyphilis, a minority representing cerebrospinal syphilis in the narrower and older significance. The latter comprise 20 cases of cerebral lues. But eight showed under salvarsan pronounced favorable results; nine showed no improvement; three became worse. There were four cases in which the disease followed upon the treatment, two of which improved under the continuation of treatment. There were 15 cases of lues spinalis (including a few of socalled cerebrospinalis). Six showed great improvement, seven no improvement, and two became worse. Fifty tabetics were treated with salvarsan, and 10 showed improvement in some respects. In 11 no amelioration of any sort was noted and some of the symptoms seemed greatly accelerated. In the remaining 29 there was no real improvement, nor was the rate of progression increased. Improvement in one quarter was offset by aggravation in another. In two special cases it was quite apparent that salvarsan properly used in early syphilis did not prevent an early development of tabes. In 24 cases of paresis there were but two of improvement. Fifteen were uninfluenced and six were rapidly made worse. The author also tested a number of miscellaneous cerebral and cerebrospinal diseases in syphilitics but without obtaining any positive results (save in one case which was shown later to be lues spinalis). The author warns against the unconditional adoption of his conclusions, because his control of the cases was incomplete—the drug having been administered by others, and many of the cases were seen first in consultation, after having been under treatment. Dreyfuss, Citron, and others, claim a greater degree of success from pushing salvarsan, *i. e.* increasing the dose at even intervals. The author, as one of the most experienced of neurologists, states that allowance must be made for the spontaneous improvement which occurs in tabes. Spontaneous arrest is by no means infrequent. In regard to untoward effects of the drug the author has fortunately seen no fatalities, but aside from the cases of acceleration of the disease process already mentioned he has seen two cases of encephalomyelitis gravis. One in a young, beautiful and accomplished actress was a tragedy. She had had intercourse with an infected man, and although there was no evidence that she had contracted the disease (Wa R doubtful) she was given salvarsan. She developed complete paraplegia, paresis of bladder and rectum, bed sores, affection of optic nerve, etc. For the past year, however, the author has not seen a single case of this character. In regard to the Wa R diagnosis (blood and cerebrospinal fluid) as advocated by numerous syphilographers, the author holds skeptical views. One count deals with the association of the latter fluid with the disease tabes. To be logical the investigators are pushing salvarsan until the cerebrospinal fluid in tabes shall give a negative Wa R. This suggests the cure of epilepsy by continuously giving bromides. The author feels scruples at opposing his clinical experience with the results of more rational methods. But when he recalls the number of ex-tabetics now useful members of society who once gave a positive Wa R yet received no salvarsan, he wishes to insist on this feature of the disease, without at all antagonizing the scientific work of Ehrlich.

### Münchener medizinische Wochenschrift.

*March* 31, 1914.

**Treatment of Delirium Tremens.**—Scharnke discusses this affection as one of relatively small mortality—in other words, a benign disease. Much confusion arises between this viewpoint and that which makes of it a deadly affection in which 50 per cent. die irrespective of treatment. The latter type was but recently discussed by two psychiatrists of Boston. The present author, a military surgeon, deals presumably with cases in troops, a class of subjects which by the very nature of things could bear little resemblance to old.

drunkards no longer able to "assimilate" spirits. Despite the great variation in material there is doubtless on the surface more or less resemblance between the two aspects of the disease. That is, the victim of a mere prolonged spree, himself sound at the outset, may develop the phenomena seen in the "terminal" delirium tremens of the chronic alcoholic. The author assumed charge of a psychopathic ward over a year ago. Many cases of delirium tremens were received here, and nearly all showed rapid pulse (up to 180), profuse sweating and marked weakness, coupled paradoxically with tireless activity. The chief treatment consisted of digitalis, with veronal as a sedative. Baths are absolutely contraindicated. Patients showed great aversion toward these remedies, and sherry or some other alcoholic was needed to disguise them. Milk is freely given, perhaps with a little brandy or sherry to give it zest. Rapid recovery is the rule. The Massachusetts men found it necessary to use opiates, bromides and chloral to control their cases, and even then half were lost—this mortality showing the great difference in delirium tremens material.

**Attempted Suicide from Digalen.**—Krönig believes that the following case deserves interest, because probably the first in which the above substance was used. The attempted suicide was a merchant of 33. While in the army he developed some cardiac lesion as a result of drilling, and was said to have an impure second sound. After his discharge and while engaged in business he developed an acute heart lesion with enlarged liver and edema. This attack yielded to digitalis and rest in bed. Later, after much physical exertion, he had what was doubtless cardiac dyspnea, for which he was given digalen. The patient then consulted the author, who found evidence of early intercurrent syphilis. All the organs seemed negative, save the heart, which was the seat of mitral stenosis of a serious type. On account of the recent lues salvarsan was considered, but rejected by reason of the cardiac lesion. Mercury was given in inunction and intramuscular injection. The patient gave the disease to his wife, who was treated both with salvarsan and mercury. The accident of a venous thrombosis in connection with the use of salvarsan led to a quarrel, as a result of which the husband drank 15 c.c. digalen. He was found in an agitated state, but with good pulse and heart action. He was induced to drink cognac and coffee. Aside from a drop in the pulse rate to 52 and profuse diuresis there was nothing further to record. In a few days patient resumed his occupation.

## Deutsche medizinische Wochenschrift.

*April* 2, 1914.

**Studies of the Spirochete in the Paralytic Brain.**—Forster and Tomasczewski give an excellent summary of our knowledge on the subject including their own contribution. About one year ago Noguchi first made the discovery of the spirochete in the cerebral cortex of a paralytic. Their number was found to be considerable, while the type was that which occurs in ordinary syphilis. Anatomically the case was one of typical paresis. The first obstacle was the inconstancy of the finding, for only in a minority of cases was the germ discoverable (Noguchi, 24 per cent. in 200 cases, while in the material of others this percentage was much lower). As the great preponderance of negative finds should have been due to defects of technique the authors in a material of sixty-one cases sought to improve the latter and succeeded to such a degree that 44 per cent. positive finds were obtained. The authors, unlike their predecessors, worked with small bits of tissue. It was apparent, however, that the absence of the spirochete was often genuine and not due to careless technique. There is a certain ill-defined relationship between the clinical type or stage of disease and the frequency of spirochete finds. Thus in juvenile and pure dementia forms they seem to be numerous. Aside from certain tinctorial peculiarities these spirochetes cannot be shown to differ from the ordinary type. Noguchi first succeeded in inoculating matter containing spirochetes into rabbits, with transmission of the parasite. Others also succeeded in inoculating puncture material into rabbits and apes. There was nothing learned here, however. Successful inoculations were infrequent, the lesions were insignificant; in fact it appeared that the spirochetes' sojourn in the cortex had brought about a biologic alteration.

**Twilight State with Successive Amnesia after Slight Commotio Cerebri.**—Kirschgässer refers back to a case which was not long ago reported to the *Wochenschrift*. The original reporter, Dr. Meyer, believed the case to be one of epilepsy. The woman committed a crime during this supposedly irresponsible state and was placed under the observation of Dr. Kirschgässer. The latter regarded the woman's case as primarily one of hysteria aggravated by her husband's neurasthenia. There was general disharmony between the couple. On a Sunday morning the wife lay abed because of an ulcus cruris. The stepdaughter then had to prepare a breakfast before churchgoing. The fact that she cooked bacon infuriated the husband, who was vegetarian. He and his wife began to quarrel and at last he beat her badly. The quarrel was renewed off and on during the day, the wife submitting to physical abuse, but continuing to preside over the household. During the entire day the husband ordered her to leave the house and threatened divorce proceedings. Fearing for her own children she drowned them, an act which she seemingly failed to remember. Kirchgässer repudiated the idea that the beatings given the woman contributed in any direct way to her lack of responsibility; that is, there was no material lesion present like commotio cerebri. The entire process was psychic, a mental trauma produced upon a hysterical subject possessed of intense egotism. The beatings, threats of divorce, commands to leave the house, etc., caused a state of mind which led to infanticide.

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**Lichen Planus Hypertrophicus.**—D. Corbett reports the case of a girl aged fifteen years who came under observation a fortnight ago with this condition which had started six weeks previously. The patches had a linear distribution on the anterior aspect of the right arm, extending to and involving part of the thenar eminence. The lower patches were raised above the level of the surrounding skin and were covered with a dense layer of horny epithelium. The patch of the upper arm was of more recent origin and it could be seen that the process had started in the hair follicles. Pigmentation was evident in the older lesions, being of a bluish red color. There were no other lesions on the body. The patient had had two one-third pastille doses of *x*-rays at an interval of a fortnight, which had altered the appearance of the lesions considerably, all the hyperkeratosis had disappeared, and the patches were now level with the surrounding skin. No other treatment had been used and no arsenic had been given. The condition at first sight resembled a unilateral nævus, but closer inspection, and the fact that improvement under *x*-rays had been so rapid, showed that it was a hypertrophic lichen planus with a linear arrangement. The age of the patient and the unilateral distribution marked this as an unusual case.—*Proceedings of the Royal Society of Medicine.*

## Insurance Medicine.

**Mortality of War.**—Florschütz's paper on this subject is naturally very largely statistical, and he brings the disease mortality as far as the War of Insurrection in Austria, in 1882, going back as far as the Crimean war, 1854. The gross mortality includes the consequences of fighting and disease combined, and this is brought down much later. The net mortality does not include remote deaths from injuries. The table of mortality from disease shows plainly the great part played by the folk plagues. In the Franco-Italian war of 1859 "typhus" and dysentery prevailed alike in the French army, and the same disease caused much of the mortality among the German troops in the Franco-Prussian war, 1870-1, dysentery being a minority factor. Also in the Russo-Turkish war (1877-8) the Bosnian occupation (1878) and the Austrian war of insurrection (1882), the same affections were chiefly in evidence in such bodies of troops as furnished statistics. The mortality from dysentery as contrasted with that of typhus appears to have fallen off considerably as a whole. Cholera was the chief cause of mortality in the Crimean war (1854-6) and in the conflict between Bohemia and Prussia in 1866. In regard to "typhus" the author makes no distinction between the exanthematic and abdominal forms, but he clearly refers to the latter (typhoid fever) as the army plague.

A study of the infectious diseases from the Crimean war to date shows that, in the order named, five of them are to be reckoned with as causing mortality; these are typhoid, dysentery, and cholera, with a much smaller contingent of smallpox and malaria. These would be scourges to-day had not the recent marvelous advances in prophylaxis come into practical usage. In the most recent wars, notably the Russo-Japanese, the author gives only the relative mortality from warfare and disease, the latter not being analyzed. While in the Spanish-American war the loss from disease was far greater than that from warfare, the later conflict shows a marked reversion of percentages; the Russians lost about 34 men in battle to 9 killed by diseases, and the Japanese about 60 men from wounds to 37 from diseases. In the Turko-Bulgarian war cholera was fairly jugulated after it gained some foothold. The authors only conclusion is that in future wars the mortality from pestilence is bound to decrease progressively.—*Blätter für Vertrauensärzte der Lebenszersicherung*, Vol. V, No. 1, January and February, 1914.

**Effect of Alcohol on Longevity.**—In an address given by Arthur Hunter, actuary New York Life Insurance Company, at the Conference on Race Betterment, a synopsis of which is published in *American Medicine*, February, 1914, the effect of alcohol on longevity is considered. It is pointed out that the results of various tests made by Kraepelin and others into the effects of small doses of alcohol on muscular power, indicate that it has a detrimental effect. Opinions from famous soldiers like Kitchener and Roberts show that in warfare abstainers stand more hard work than those who drink in moderation. The popular opinion that more work can be done with alcohol than without it is not supported by the facts, and is doubtless due to the pleasant feeling of buoyancy which alcohol produces. As for mental efficiency, tests of translating from one language to another, of adding, of writing, of memory, etc., show a marked loss of efficiency through small doses of alcohol. The Rosanoffs contend that "alcohol impairs every human faculty that has been tested; the higher and more complex the faculty, the more pronounced is the effect." The opinions of the medical profession are in the main in the same direction, although attention is drawn to Col. C. E. Woodruff's paper on the beneficial effect of alcohol in the tropics. In order to demonstrate the effect of alcohol on mankind statistics are given of the mortality of men engaged in the manufacture and sale of alcohol. These men were insured by forty-three of the leading life insurance companies, and their habits at the time of application were considered satisfactory. The mortality shown in the following tables represents the extra mortality over the normal experience of these companies:

Liquor and Beer Saloons—Proprietors and managers not attending bar, extra mortality, 82 per cent. Proprietors and managers attending bar, extra mortality, 73 per cent. Hotels with bar—Proprietors, superintendents, and managers attending bar, extra mortality, 78 per cent. The following deals with men who do not attend bar, although liquor is served on the premises: Hotels with bar—Proprietors, superintendents, and managers not attending bar, extra mortality, 35 per cent. Restaurants with bar—Proprietors, superintendents, and managers not attending bar, extra mortality, 52 per cent. Statistics were also supplied of persons in two other branches of the liquor business as follows: Breweries—Proprietors, managers, and superintendents, extra mortality, 35 per cent. Wholesale liquor houses—Proprietors and managers, extra mortality, 22 per cent. With regard to the formerly intemperate it was shown that the life insurance companies had experienced about 50 per cent. extra mortality among men who occasionally drank to excess more than five years prior to date of application, and had been temperate up to that time. The steady so-called moderate drinkers, men who were considered average lives by the insurance companies, were found to have a very considerably higher mortality rate than among the more abstemious class.

A prominent life insurance company divided its policy holders into four classes, depending on the extent to which they used alcohol. The following table gives the percentage of the mortality on the basis of the American table: Total abstainers, relative mortality, 59 per cent.; rarely use, relative mortality, 71 per cent.; temperate, relative mortality, 84 per cent.; moderate, relative mortality, 125 per cent.

In a table is given the extra mortality in the non-abstainers over the abstainers' section. United Kingdom—Temperance and General Provident Institution, extra mortality of non-abstainers over abstainers, 35 per cent. Scottish Temperance Life Assurance Company, extra mortality of non-abstainers over abstainers, 40 per cent. Sceptre Life Assurance Company, England, extra mortality of non-abstainers over abstainers, 50 per cent. Australia Temperance and General Life Assurance Society, extra mortality of non-abstainers over abstainers, 60 per cent. Manufacturers' Life Insurance Company, Canada, extra mortality of non-abstainers over abstainers, 75 per cent. The author is satisfied from a study of the foregoing statistics that total abstainers live much longer than non-abstainers.

# Book Reviews.

DENTAL ELECTROTHERAPEUTICS. By ERNEST STURRIDGE, L.D.S. (England), D.D.S., Fellow of the Royal Society of Medicine, Member of the British Dental Association, Member of the British Society for the Study of Orthodontics, Associate Member of the American Dental Society of Europe, Member of the American Dental Society of London, Contributor on Dental Electrotherapeutics in "The Science and Practice of Dental Surgery," etc. Illustrated with 154 engravings. Price $2.75 net. Philadelphia and New York: Lea & Febiger, 1914.

THE scope of this volume as outlined by the author includes a concise exposition of the fundamental principles of dental electrotherapeutics. Particular emphasis is placed upon the value of ionic medication in the treatment of periodontal diseases, which form of treatment is within the reach of every dentist. Part I deals with electrophysics, including chapters on frictional or static electricity, galvanic electricity, cells, magnetic field, dynamo currents, batteries, battery accessories, dental electrical apparatuses and appliances, and the Roentgen rays. Part II takes up the subject of electrotherapeutics and includes chapters on electrophysiological effects, physiological effects of current, electrotherapeutic effects, technique of ionic medication in dental operations, high frequency and static currents, electrotherapeutics in dentistry, treatment of pyorrhea alveolaris, and anesthesia, bleaching, and neuralgia. The book is well written, contains a large number of excellent illustrations, and should prove of eminent practical value to the dental student and dental practitioner.

A REFERENCE HANDBOOK OF THE MEDICAL SCIENCES. Embracing the entire range of scientific and practical medicine and allied science. By various writers. Third edition, completely revised and rewritten. Edited by THOMAS LATHROP STEDMAN, A.M., M.D. Complete in eight volumes. Volume three. Illustrated by numerous chromolithographs and six hundred and sixty-five half-tones and wood engravings. Price $7.00 net, cloth. New York: William Wood & Company, 1914.

IN these days of pet theories and fluctuating standards, with the vast accretions of knowledge from the outlying domains of research, the need of an authoritative work of reference such as this, that mirrors the essential facts of medical progress, is more urgent than it has ever been. In previous reviews it has been pointed out that the student and practitioner may use this work in the systematic study of certain topics, or they may use it solely for reference. The present volume admirably illustrates this dual character. Some of the articles of unusual interest are the following: Congenital family cholemia is described with full reference to the most recent knowledge of this subject. In the article on Huntington's chorea the eugenic studies of Davenport, Muncie, and Jelliffe are alluded to and the fact is pointed out that the study of one thousand cases of this disease shows that the condition appears at earlier years in succeeding generations. The question of heredity is again discussed in the article on the chromosomes, in which it is shown that there is a remarkable parallel between the behavior of the latter and the distribution of the unit characters. A series of articles on the physiology and pathology of the thoracic duct and of its tributaries throw considerable light upon this very much neglected subject of medical study. In the article on chylangioma it is noted that this condition is not synonymous with chylous cyst. There is a special article on chylous accumulations, including mesenteric cysts, chylous ascites, chylocystocele, chylothorax, chylopericardium, and chyluria. The last is also discussed in a separate article. Fourteen pages are devoted to the subject of climate. Climatotherapy is also discussed in its general aspects, in addition to the separate articles on the various health resorts. Color perception is treated in full detail, nineteen pages being given to this subject. There is an interesting historical review of the various international congresses of medicine, from the first congress held in Paris in 1876 to the seventeenth congress held in London in 1913. The various other national and international congresses are also described.

The article on diseases of the conjunctiva is illustrated by an excellent colored plate showing the different types of this disease. The biological and legal aspects of consanguinity provide an interesting topic. It is pointed out that consanguineous marriages if properly safeguarded are capable of insuring an unusual degree of mental and physical excellence in the resulting progeny. In the article on disorders of consciousness there are discussed such subjects as somnambulism, nightmare, catalepsy, compulsion neuroses, etc. A very useful article of six pages on cosmetics contains a large number of prescriptions. The subject of cough is discussed in its general aspects and the principles that govern its treatment are presented in detail. The article on coxa vara contains a number of excellent illustrations. A section of eighteen pages is devoted to the cranial nerves and one of five pages to cranioencephalic topography. A timely article is that which deals with the asexualization of criminals and defectives. Criminology is also dealt with in its modern aspects. The care of cripples is discussed from the viewpoints of history, statistics, systems of care, principles of care, primary education, industrial education, and American and foreign institutions. This article is an eminently practical one, as is also that which is devoted to the subject of deaf-mutes. Death is dealt with from the viewpoints of certification, modes, physiological theories, and signs. There is an excellent and timely article on demography.

The subject of diabetes mellitus is discussed with reference to the latest methods of treatment. Of special interest is the fact that there are given definite directions as to where the various forms of diabetic bread and biscuits may be obtained. Physical diagnosis is discussed in satisfying detail with the aid of two excellent colored plates. The diseases and injuries of the diaphragm are dealt with in an interesting manner. Diathermy is one of the recent therapeutic methods that comes in for its proper attention. There is an article of twenty-one pages on the digestive tract. The article on diphtheria presents all the latest facts in connection with this disease, particularly with reference to the use of massive doses of antitoxin and the question of anaphylaxis. There is a table showing the comparative germicidal powers of various disinfectants. Thus, bichloride of mercury has a germicidal power of four hundred while that of carbolic acid is represented by the figure 1 and formaldehyde by the figure 0.70. Disinfection is discussed in its most practical phases. There is an elaborate and well illustrated article of thirty-four pages on dislocations. The article on dreams contains an exposition of Freud's theory of their interpretation. The subject of the ear, including its anatomy, the diagnosis, and the general therapeutics of its diseases, the intracranial complications of otitis media, syphilis of the ear, and tuberculosis of the ear, comprises a section of nearly one hundred pages. There is a rather extensive article of twenty pages on eczema. Among the concluding articles of this volume may be mentioned those on electricity, including discussions of the destructive effects of high-pressure currents, electrocoagulation, electrodiagnosis, electrolysis, and electrotherapeutics. Among the large number of illustrated biographical articles in this volume may be mentioned those on Sir Andrew Clark, Credé, Jean Cruveilhier, Charles Robert Darwin, Nathan Smith Davis, and Wilhelm Ebstein. The descriptions of health resorts are particularly complete, that on the city of Denver being a good example.

HANDBUCH DER SPEZIELLEN CHIRURGIE DES OHRES UND DER OBEREN LUFTWEGE, Herausgegeben von Dr. L. KATZ. Spezialarzt für Ohren, Nasen- und Halskrankheiten in Ludwigshafen A. Rh.; Dr. H. PREYSING und Dr. F. BLUMENFELD, Prof. der ohren, Nasen, Kehlkopfheilkunde; ord, Mitglied der Akad. für Prakt. Medizinzu Cöln A. Rh.; Spezialarzt für Nasen, Hals- und Lungenkrankheiten in Weisbaden. Price 3 marks. Würzburg: Curt Kabitzsch, Kgl. Univ. Verlagsbuchhandler, 1914.

THE subject of the present installment of this comprehensive work on the special surgery of the ear and of the upper air passages is the functional testing of the organ of hearing. The article is written by Gustave Bruhl of Berlin. All of the modern developments in this important field are represented in fullest detail. The various appliances employed in this rather difficult field of diagnosis are illustrated with the aid of many drawings. There are illustrations of the different tuning forks, of Pulitzer's akumeter, of Struyken's monochord, of Buys' nystagmograph, etc. The subject of otocalorimetric investigation is presented in minute detail. The modern otologist cannot dispense with a volume of this kind.

# Society Reports.

## MEDICAL SOCIETY OF THE STATE OF NEW YORK.

*One Hundred and Eighth Annual Meeting, Held in New York City, April 27, 28 and 29, 1914.*

(Special Report to the MEDICAL RECORD.)

(*Continued from page 867.*)

### SECTION ON SURGERY.

DR. LUCIUS W. HOTCHKISS OF NEW YORK, CHAIRMAN.

*Tuesday, April 28—First Day.*

**Exophthalmic Goiter; Its Treatment.**—Dr. JOHN ROGERS of New York presented this subject. He said that there were three stages of thyroid disease; the first simple hypertrophy; second, following or alternating with this, hypothyroidism; third, exophthalmic goiter. The first stages might persist indefinitely; the disease might retrogress and the symptoms disappear. If hyperthyroidism persisted a gradual rise of arterial tension occurred. Only a small proportion, 25 per cent., became exophthalmic. This might develop slowly or suddenly. High pressure accompanied this symptom. In the chronic condition disturbance of the heart, lungs, kidney, digestive tract, etc., followed. The disease terminated with toxic symptoms and the patient died of myxedema. In some cases there was no thyroid enlargement, but the nervous symptoms were very marked. In these the prognosis was bad. Others showed considerable exophthalmos but little tachycardia. In these cases radical operation was uncertain. Deaths were more frequent in the exophthalmic stage. Grouping was important on account of the treatment. In young, undeveloped girls operation was contraindicated as the disease might recur. In older women hemithyroidectomy gave good results. In small, symmetrical enlargements ligation was the safer course. The history of cases showed characteristic symptoms of fatigue; sleep was disturbed; in the hypothyroid cases sleep came early in the night and the patient woke early, in the hyperthyroid, sleep came late and lasted late. The pathology of the disease showed proliferation of the alveoli; in toxemic cases changes in the colloid; in chronic cases there were sclerotic lesions in the heart. The physiological importance of the gland was in its production of secretion. It aided in oxygenization, and its content of nucleoprotein and of iodine was large. This was decreased in the more serious disease. The cause of hyperthyroidism was fatigue of the gland. The demand of the system was greater than it could supply.

Dr. M. B. TINKER of Ithaca said that if the disease were recognized early enough many patients might be saved, and some cases of insanity prevented. Physicians failed to give proper treatment simply because exophthalmos was absent. It was a mistake to suppose that patients suffering from goiter had too much thyroid secretion. They had not enough, because the normal substance of the gland was crowded out.

Dr. EMILY BARRINGER of New York said that in girls and young women suffering from thyroid disease there was a very frequent history of overwork. This was a more frequent cause than fright. There was often a history of infectious disease, causing lowered resistance; various disorders of menstruation played a part—this was delayed rather than profuse; or anemia (with low hemoglobin and a lymphocytosis) was found. Many cases which she classed as incipient exophthalmic goiter cases were in school girls, college girls, or shop girls. These cases responded to rest, iron, and general tonic treatment. Fatigue seemed to be the chief causative factor and early treatment was of the highest importance.

**The Present Status of the Surgery of Spastic Contractures.**—Dr. A. S. TAYLOR of New York read this paper, in which he considered only those procedures which depended upon the central nervous system rather than upon orthopedic measures. There were three methods of attack: upon the peripheral nerves, upon the posterior spinal roots, and upon the cranium. In the former the nerve trunks running to the spastic groups of muscles had been isolated and dissected out and injected with 50 to 80 per cent. alcohol, causing complete paralysis of the muscles. During the period of flaccid paralysis the antagonists were exercised in order to balance up the function. Satisfactory results had been reported from this method. It had also been demonstrated that the spastic condition depended on exaggerated condition of the spinal reflexes and damage to some part of the tract removed inhibitory control and caused excessive reaction of the muscles. The activity could be diminished by breaking the reflex arc, and the balance could be restored. This was shown in spastic paraplegiacs who had developed locomotor ataxia. Development of the ataxia, which was a disease of the posterior spinal roots, caused disappearance of the spasticity. In Dr. Taylor's experience cases of spastic paralysis of the upper extremity could be relieved by this operation but the functional results were not good. The results were far better in the lower extremity. The after treatment in these cases was as important as the operation. It required intelligent co-operation on the part of the patient. These cases were often mentally defective, but the patient must have the mental capacity of four years, to grasp the necessary muscular movements. Education in these, and massage and passive exercises constituted the correct after-treatment. Often a child who would otherwise have been a hopeless cripple, could get about fairly well. In cases with marked intercranial pressure the pressure must be determined by the eye grounds and a subtemporal decompression made. The treatment was recent, but the operation was simple and free from danger and the results so far had been good.

Dr. E. BEER of New York said that in 1904-5 he was doing some work with Dr. J. Fraenkel of this city. He thought that by cutting the posterior nerve roots flaccidity might be produced, basing his conclusions upon cases where the lateral tract was involved and locomotor ataxia developed. A series of injections were done by them at the Montefiore Home, using eucain or tropocain; one worthy of comment was a child with bilateral spasticity of all extremities. He developed hemianesthesia with relaxation on one side, on the other (non-anesthetic side) spasticity continued. In Dr. Beer's experience the cases were not so satisfactory as at first reported. It might be that the Stoffel operation would replace the cutting of nerve roots. One important point was that only cases should be tried in which the spinal lesion was not progressive; if progressive spasticity would recur.

Dr. TAYLOR, in reply to Dr. Beer, said that as regarded results one did not hope to get a perfect child, but if anything could save the child from being a hopeless cripple it was worth while, even if the results were not brilliant. In the class of people from which most of these children came it was hard to get the mothers to give them the necessary after treatment.

**The Value of the Various Tests for Determining the Functional Activity of the Kidney before Operation.**—Dr. JAMES N. VANDER VEER of Albany said that he considered it would be valuable to present the section with the relative value of various reactions of the kidney. He had written 150 letters to various genitourinary surgeons as to the importance of tests. The genitourinary men were more in touch with these tests of kidney function. We could not compel the general surgeons to use laboratory evidence. They preferred to take the case as a clinical entity. In a large number of cases the patient was hurried to the operating table without complete examination. This added to the death ratio, but it half an hour were given to examination, death might be averted. A case which recently came to his attention was one in which the patient was told she had carcinoma of the breast and that there was no time to be lost. Although the urine contained large quantities of albumin she was hurried to operation, put under ether anesthesia and 36 hours later she died. In another case the surgeon took the precaution to make a preliminary examination, and, finding the kidney condition bad, kept the patient in hospital till it cleared up. Ether was not used, but some other anesthetic, and the patient came through well. No doubt death might have occurred in the first case in any circumstances, but the second case also would have died, if examination had not been made. Objection had been made to the various tests—study of sodium chloride excretion, the phloridzin test, the methylene blue stain test, the phthalein test, etc., that they were too long and too difficult. The phenolsulphonephthalein was the simplest and was of great value. The diastase test was complicated and required technical work. Each test, however, had its importance, and his plea was that some test or tests be used before

operation to reduce the ratio of deaths that occurred from too hurried examination.

Dr. E. WARE of New York said that his criticism was destructive rather than constructive. Now and then a doctor would say he wished he had done tests but the statistics showed that those who did got no better results than those who did not. No man living knew what the function of the kidney was. The latest definition of the function of the kidney was the excretion of solids in solution, and no one knew more than that. More evidence could be obtained clinically than functionally. A surgeon who had a case of anuria with two stones could not stop to take a phthalein test. Many men were opposed to them.

Dr. GIBBONS of New York said he had 40 years' practice of general surgery. He had never lost a patient on the table or from operation. It was a matter of common sense not to operate when a person was dying. He called it "surgical cunning." There was a saying that if the pathologist said "cancer" the patient was safe; if he said "non-malignant" the patient was doomed. There were as many new-fangled tests 40 years ago as there were today.

Dr. PILCHER of Brooklyn said that urologists were earnest men and trying to accomplish something. We did not know what the function of the kidney was, but if it failed the patient must die. In some cases it was necessary to know which kidney was functionating the best. It was worth while to work on the tests and save the life of the patient.

Dr. E. BEER of New York said he was absolutely of the opinion of Dr. Vander Veer and Dr. Pilcher. Much loose thinking went on in this field. It was not logical to conclude that because a patient excreted much phthalein that the kidney was good. He might excrete a quantity and yet have uremia. Each test had its own indication. Tests required interpretation and a minimal "combined excretion" of these various test substances in symmetrical supravesical disease spelt disaster. In asymmetrical supravesical disease it might be ignored as due to inhibition.

Dr. VANDER VEER agreed with Dr. Beer as to the loose thinking that prevailed. He did not agree with Dr. Gibbons that "surgical cunning" was sufficient. A man with "surgical cunning" might operate on the wrong kidney.

**Transfusion of Blood, Direct and Indirect; A Consideration of the Technique and Relative Value of Different Methods.**—Dr. JOHN A. HARTWELL of New York gave this paper. He said that his viewpoint of the subject might possibly be considered a destructive one. A broader aspect of the subject of blood transfusion was essential to advance. The methods of transplant and the avoidance of coagulation had been chiefly considered. The blood had not been considered in the light of homologous transplant of tissue but simply as the infusion of chemical substance. Important points to be studied were: Was the tissue transplanted so that it could live; was the pathological condition of the host favorable to the life of the tissue; did any condition exist in the new tissue that was deleterious to the host? The recent literature showed the trial of this remedy to be based largely upon speculation. Only in the condition of loss of blood by hemorrhage was there direct evidence of service to the patient. Provided no hemolysis occurred the new blood met the requirements. Anemia without hemorrhage was a symptom, not a disease, and nothing could be gained by adding new blood unless the disease were controlled. In the case of hemophilia and hemorrhage the indications were not only to infuse blood but to alter the disease as well. Blood serum might do as well. In infectious diseases we might expect some help from transfusion, from the bactericidal activities of the serum, but experience had not realized this hope. The chief methods were the direct transfusion, advocated by Crile and Carrel, and the indirect, or syringe-cannula method of Lindeman and others. By the latter 1000 c c. of blood might be passed from donor to recipient in 15 minutes. The cannula did not pass through any traumatized tissue. Simplified technique in these two methods would afford opportunity for further study.

Dr. G. CRILE of Cleveland said that there was no question that in surgical shock transfusion was of the greatest benefit. Anastomosis could be made before operation and as much blood given as was necessary to keep up normal pressure. Direct transfusion became easier with practice and with a well-trained staff. To measure the blood was unnecessary. Enough should be given to make the patient safe. In pernicious anemia, where chemical change had taken place in the recipient's blood, transfusion could do no good.

Dr. D. KALISKI of New York said it was important to do preliminary tests to ward off accidents due to hemolysis and agglutination; also a Wassermann test was important.

Dr. E. LINDEMAN said the advantage of the indirect method was that it was done without skin incision. The length of time the blod was outside the body was 6 seconds. Hirudin was not necessary. In less than 15 minutes 1000 c.c. of blood had been transfused.

Dr. R. DAWBARN of New York said one could get the same results by infusing hot saline, on the operating table. Intravenous or hypodermic doses of ergot, .5 to 200 of saline, gave excellent results.

Dr. HARTWELL said Dr. Crile had been very fortunate in his staff. In New York one could not get donors to take to the direct method. They did not like the incision and they would not come back. Dr. Crile could make them do as he wished in Cleveland, apparently.

*Wednesday, April 29—Second Day.*

**The Surgery of Cranial Fractures, with a Brief Consideration of the Results, Immediate and Remote, of Fractures of the Vault and Base of the Skull.**—Dr. CHARLES A. ELSBERG of New York read this paper. He stated that fractures of the skull formed 5 per cent. of all fractures treated. Their essential difference from other fractures was that the injury to the bone was unimportant. The importance lay in the injury to the brain and nerves and vessels surrounding it. There were two types of cranial fractures, and treatment depended upon the type. First were those caused by direct impact in which the injury occurred at point of impact; second, those where the injury occurred at a distance from the blow. The direct fractures called for operation, but in the indirect the indications for operation were much less. Conservatism in treatment of fractures was important. The patient should be watched and diagnosis should decide whether the lesion was stationary or advancing; if stationary, operation was not indicated. With increasing signs of cranial pressure in fractures of the base, careful examination of the eye grounds by an ophthalmologist should be made; temperature, pulse, and respiration should be taken every ten minutes. If signs of paralysis or convulsions occurred an exploratory puncture under local anesthesia should be made into the subdural space. If no blood was found the patient should be still further watched before attempting decompression. In fractures of the vertex, with partial loss of consciousness and exaggerated reflexes, there was often marked depression of bone with collection of blood in the subdural space. The bone frgaments should be removed and reimplanted. In hemorrhage of the brain the vessel must be found and tied. In cases with marked cranial pressure a neurologist should be consulted. A subtemporal decompression was required. The clots must be washed out with saline. Dr. Elsberg showed a number of lantern slides, illustrating different types of fractures, and showing where operation was indicated.

Dr. L. W. HOTCHKISS of New York said that this was an admirable presentation of a subject which concerned every hospital surgeon. Very careful examination of the fundus of the eye was necessary to determine whether operation was indicated or not.

Dr. W. H. STEWART of New York said that the location of the fracture in relation to the injury was most important. He asked what was the proportion of cases with traumatic epilepsy and what proportion recovered. Dr. Stewart showed a number of lantern slides illustrating fractures of the skull.

Dr. C. A. ELSBERG said as many cases developed epilepsy among the operated as among the non-operated patients. It was due to injury to the brain substance. It could not be prevented by fresh operation. Epilepsy might stop for a while and then redevolp. Extreme conservatism was necessary in operating for traumatic epilepsy.

**The Surgery of Compound Fractures of the Extremities.**—Dr. WILLIAM L. ESTES of South Bethlehem, Pa., read this paper. He said that he presented the general management of fractures rather than any particular kind. With compound fractures there was always great traumatism, with dislocation of bone and wound of soft tissue and skin. The treatment was for an infected wound. Important considerations were the general condition of the patient; his habits and general health; whether or no he had to pursue an active call-

ing; whether amputation of limb would be quicker and better in the end; whether the limb should be saved, and, if saved, whether it would be of use to the patient. His surroundings were important, as it was better to risk a few hours' travel and treat the patient in a first-class hospital than to have him treated uncomfortably at home. The first question was to relieve suffering and control hemorrhage. Next a thorough physical examination should be made to ascertain amount of injury, blood pressure, degree of shock, etc. If great exhaustion was present operation should be delayed. A general anesthetic was often necessary to avoid pain, and thorough cleansing and disinfection of the wound was imperative. For the latter tincture of iodine was most valuable. Amputation was indicated where severe annular crushing of tissue had occurred. In fixation of fragments instruments should be used and the fingers kept as much as possible out of the wound. Plates were better than wiring, and silver and copper plates had been found to be actual inhibitors of bacterial growth. After fixation, ends of soft tissue should be joined by vascular anastomosis. Arteries should be ligated and divided nerve trunks, fascia, muscles and tendons should be sutured. Drainage should be thorough and, where much blood supply had been cut off, multiple incisions should be made. A dry sterile dressing should be applied and should be left for three weeks. The plate could be removed at first dressing.

Dr. William Darrach of New York said the life of the patient was the first consideration. It was better to wait 24 to 48 hours before fixation, to give the body time to recover from injury and to get ready to stand additional trauma. Bone might be attacked through a clean incision apart from the original wound, leaving the first wound open for drainage. When internal fixation apparatus was used it was wiser to remove it when the purpose had been served. Three weeks was rather early. Open repairs were slower than closed ones.

Dr. J. M. Hitzrot of New York said that the worst thing that could be done was to immediately reduce a fracture. The end of the bone was infected and carried infection inward. Iodine was valuable in increasing serum reaction which tended to wash out the wound.

Dr. Tinker of Ithaca said that iodine would not kill spore-forming bacteria. Pure carbolic acid or formaldehyde was preferable. Dead tissue could be cut out and the wound closed without drainage. If the wound was clean any method would give good results.

Dr. R. H. M. Dawbarn of New York said that if the treatment of fractures was delayed to the second week the leucocytes would give help. He had recently tried aluminum plates and screws as the alkalinity of the blood destroyed the plates in time.

Dr. Hotchkiss of New York said that one had to depend upon phagocytosis in complicated, infected wounds. Treatment should be given at a time most convenient to the patient.

**Conservatism in the Operative Treatment of Simple Fractures.**—Dr. G. Woolsey of New York said that for generations fractures had been treated in the same way. Surgeons were slow to use innovations. The *x*-ray showed that methods were responsible for poor results. With new methods the pendulum swung to the opposite extreme and many cases were uselessly operated upon. The proper course was to judge each case by itself. Open operations were too frequent. The *x*-ray led to closer study and good function was more important than position of fragments. A careful diagnosis was necessary, as the public and employer were more alert in regard to treatment. Reduction should be attempted early; it should be made under anesthesia, and if not successful a traction apparatus, such as the Steinman nail, should be used. Traction should be tried before the use of the Lane plate was resorted to. Fractures of the shaft required special treatment. Metal plates should be avoided on bone covered only by skin. Fragments should be held with bone splints which would not act as a foreign body. Important points were perfect asepsis and the avoidance of foreign bodies.

Dr. Darrach of New York said that now more reasons were given for not operating than for operating. The pendulum had swung too far. We had learned, however, that operation on fractures needed special technic and special instruments. Without this infection was a real danger. As regards screws, they would withstand a severe strain, but not a long-continued, slight strain. Machine screws were better than wood, and steel plates better than Lane plates. In the last seven years at Roosevelt there were 4,000 cases of fractures, of which 200 had been operated upon, a proportion of 5 per cent. Operation should be decided upon early, if at all. The less foreign material left in the wound the better.

Dr. J. M. Hitzrot of New York said that if transverse fractures were reduced within 48 hours under anesthesia the results were excellent in both children and adults.

Dr. William L. Estes said that employers had made the results of fractures a bugbear to the surgeon and that some definite standard of results should be established, so that requirements might be met.

Dr. R. H. M. Dawbarn of New York advocated his method of "osteophonic percussion" to determine whether it was necessary to operate or not. By comparing the percussion sound of whole bone with the injured portion of bone a note could be obtained which would be a definite guide.

**Nonoperative Treatment of Fractures of the Neck and Upper End of the Femur in Adults.**—Dr. John B. Walker of New York read this paper. He said that while brilliant advances had been made in surgery of the gastrointestinal tract, the treatment of fractures, unfortunately, remained where it was generations ago. In no fractures was the disability so great or of so long duration as in those of the neck of the femur. Scudder reported from the Massachusetts General Hospital that in 12 per cent. only of cases treated did patients regain functional use of the leg. Of 112 cases at Bellevue, from 1906-10, 15 per cent. made full recovery. British statistics showed 19 out of 91 cases, or 20 per cent. of cures. Two important observations should be made on these results: first, the inefficient reduction of the deformity; second, too early attempts at walking. The aim in treatment should be the normal restoration of function of the leg to secure which a normal anatomical function must be restored. Methods which were necessary to secure good results in other fractures must also be employed here. Longitudinal and lateral traction—methods used by Maxwell and Whitman—were both necessary to overcome displacement of the fragments. Treatment should begin immediately after the injury before the muscles had had time to contract and displace the fragments. The method was to carefully examine the patient to determine the wisdom of giving an anesthetic for 20 minutes, for the application of a plaster bandage. Under anesthesia the patient was lifted to a pelvic support, with a perineal bar for counter pressure, the extended limbs being supported by assistants. The extended limb was flexed to disengage soft parts between the fragments; it was then completely extended and the assistant overcome the shortening by direct manual traction. The limb was then abducted, the pelvis being level, the extended limbs in exact correspondence; a plaster spica was then applied, being carefully adjusted over the pelvis and trochanter. This maintained complete immobilization during period of repair. Abduction for 4-6 weeks was important in aiding patient and sparing unnecessary pain. In treatment of late fractures, those cases which were not brought at once to the surgeon, deformity had been reduced, but shortening persisted. Even under anesthesia a great deal of force was necessary to overcome shortening. A traction apparatus was here necessary. Dr. Lemon's extension apparatus had been found of the greatest possible help in these late cases and relieved anxiety as to displacement of fragments when lifting patients from the table. In many of these late cases the joint was affected by traumatic arthritis. There was unusual strain upon the slender femoral neck. In such cases a Taylor splint was of great service to relieve the neck of the femur from the strain of the weight of the whole body.

**Diagnosis by the X-Rays in Case of Fracture, Based on the Records of 10,000 Fractures in Bellevue Hospital.**—Dr. Isaac S. Hipsch of New York in this paper said that statistics of hospital records were not always correct because patients with fractures did not always seek hospital care. Combined hospital and dispensary records were also erroneous because of the differences of occupation and mode of life of patients. He had thought, therefore, that records of an *x*-ray laboratory would contribute data as to the frequency of fractures of the various bones. The results which they had gotten from this, however, were at variance with those of other writers, the percentage of 19 per cent. was obtained, instead of 6 per cent. elsewhere. This was per-

haps because Bellevue received many fracture cases from other hospitals. The fracture service at Bellevue was constantly on the increase, so it was hard to tell in which month fractures were most prevalent. The data from several *x*-ray laboratories would have to be compared to get accurate results. Some surgeons placed too much reliance on the *x*-ray while others relied entirely on clinical diagnosis. The proper course was between the two, using the *x*-ray to check off and correct clinical results. The *x*-ray, it had been said, was impartial, it could not lie; but the results were often entirely misinterpreted. Correct interpretation was essential. The *x*-ray had modified our ideas of frequency of various fractures and had given accurate determination of trauma to various parts of the body. It had shown that absolutely accurate restitution of the parts was desirable, but not essential for function. The *x*-ray distinguished between fractures and dislocations as in epiphyseal separation. Criticism had been made that the *x*-ray method was inaccessible and unreliable and that the clinical method was always handy; but the advantage of the former lay in the fact that it prevented unnecessary meddling with the injured part. Some fractures, of course, were more easily diagnosed clinically, such as fractures of the skull and of the ribs. Sometimes even with the *x*-ray the diagnosis had to be delayed; there was no indication in the plates until callous formation denoted the site of the injury. In some compound fractures the *x*-ray showed comminution of the fragments which might otherwise be overlooked. The plates should be as carefully studied as the patient was by the surgeon. Dr. Hirsch showed a large number of plates illustrating fractures in various parts of the body, lower end of fibula, lumbar spine, skull, pelvis, clavicle, scapula, etc.

(*To be continued.*)

## NEW YORK ACADEMY OF MEDICINE

*Special Meeting, Held April 6, 1914.*

THE PRESIDENT, DR. WILLIAM M. POLK, IN THE CHAIR.

**A Study of the Movements of the Intestines Under Artificial Circulation; Demonstration by Motion Pictures.**—Dr. GUSTAVE T. MONOD of Vichy, France, said that he was sent by the French government to report on the organization of graduate study in the United States and to see by what means the American and French profession could be brought into closer contact. In fact, it was under the guidance of Sir William Osler that he had been working to determine how to bring the medical profession of various countries into closer relation. For three years he had been working in England and, at the end of that period, through the influence of Sir William, he had been made a member of the College of Physicians, the first time an honor of this kind had ever been conferred upon a French confrère. Why were there fewer and fewer visitors to medical colleges in Paris? That was a question the dean had asked him. He believed that the reason was that the science of medicine had developed in America to such an extent, and in such a marvelous way during the last few years, with its college equipment, organization, etc., that nothing new could be shown the students, especially as regards teaching. So soon as he landed in this country he said that he had found this out. In Paris they really had nothing new to offer the student but the French point of view—l'ésprit français. He said that the question of to-day was how to send their best young men to America. What held the French students back was that they were called to military duty at the age of twenty; he worked hard till that age, became enthusiastic in his work, and then had to give up to assume military duty, and go to the barracks. It was so different in America, where no such calls were made upon the student. France had three things to offer its visitors—university organization, specialized schools in Paris, and its friendship. He emphasized the importance of doing postgraduate work in foreign countries. Some said they would not go abroad because they could not speak the language, but that he believed was the reason why they should go; the study of a foreign language was important. The dean thought that he should offer prospective students lectures; but he thought that if they came to Paris they should come to work with their fingers and with the eye at the microscope, and not to listen to lectures. The actual organization in Paris was such that visitors might just drop in and follow the work. They did not believe in giving special courses as they did in Germany and Vienna. They had organized a little society to make things easy for their visitors and he asked them to inquire for Dr. Monod, Vichy, Hon. Sec. As soon as the visitor landed they wished to make him feel at home and establish a friendship. He wished the visitor to get in touch with men privately, and advised him to go to see the head man of any department; decide upon the work to be done, and the wards wanted for the pursuance of the work. He said they were thinking of sending French medical men to America. The French Government extended a friendly invitation to Americans to visit France. Every country had had its turn as regards medicine and now the American era had begun.

The first film showed the work of Carnot and Glénard in transfusing the intestine of a cat. It demonstrated the following: (1) Normal peristalsis. (2) Peristalsis increased by heat. (3) Peristalsis increased by warmth. (4) The action of hormones, *i.e.* the serum of a cat purged with senna had acquired the power of starting in another organism, marked peristalsis. (5) Intestine of a rabbit. (6) Action of serum (ring contraction). (7) Study of the movements of the cecum and especially the rhythmic movement of every "pouch." Not only did the pouches bulge, but there was also a decided movement of the appendix. The cecum of the rabbit was immensely developed.

Dr. Monod took up the subject of enteroptosis as seen by a Vichy doctor. It seemed probable that incompetence of the intestinal wall led to a lowering of the intraintestinal tension, and to the visceral prolapse. The prolapse began with the intestines; then followed in the order of their descent the right kidney, stomach, liver, and spleen; for these organs were interdependent both as regards their suspension in the abdomen and as regards their functions, circulation, and innervation. Intestinal prolapse, which was pathogenic, was rarely primary, but was secondary to causes which were either infective or toxic; and the malady of which movable kidney was nothing more than a frequent symptom was enteroptosis. He wished to point out that British treatises labelled as enteroptosis (or as Glénard's disease) only cases of dislocation of all the abdominal organs; this was, according to Glénard's teaching, the last and most severe phase of the disease, and was a very rare occurrence. The common form was marked by one or two symptoms only, *e.g.* coloptosis and nephroptosis. Exactly in the same way "floating kidney" had for long been the only recognized form of movable kidney. Glénard classed this malady in the large family of "Hepatism." The Galenic teaching was thereby modernized. This view was supported by the fact that the etiology, symptomatology, and treatment of enteroptosis, on the one hand, and the inadequacy of the bile function on the other, authorized by their similarity this doctrinal theory. Enteroptosis was a malady of nutrition. The subjective symptoms of enteroptosis were general weakness, intestinal troubles, and disturbances of sleep, all of which were periodic in appearance, closely following the periodicity of meals; these symptoms were aggravated by the ingestion of acids, of fats, and more particularly of milk. The most conspicuous objective symptoms were a delimitable and palpable cecum (an early sign of enteroptosis), the great relief that occurred when the abdomen was mechanically supported (*épreuve de la sangle*), and perhaps, and very often, a movable kidney. But the movable kidney was nothing more than an epiphenomenon. They were still waiting for a single case in which the movable kidney syndrome could be demonstrated to be due to movable kidney alone. On the other hand, they were prepared to show scores of cases in which they could demonstrate that movable kidney was not the cause of the symptoms observed; and these were the cases in which all troubles disappeared, and the kidney remained unfixed. In the latter cases, careful investigation would always find some other cause which accounted for the troubles; most often gastrointestinal atony, frequently more or less visceroptosis, sometimes unsuspected lithiasis. Dr. Monod called attention to a new syndrome which he had discovered clinically while Crile found it out by experimental work, namely, insufficiency of liver, suprarenal gland, and brain together. This was a question to be studied.

Dr. JACOB KAUFMANN said that since Glénard first published his paper on enteroptosis there had ap-

peared an enormous amount of literature upon the subject and yet they must confess that in spite of this there was a great deal of confusion as to the meaning of enteroptosis. In France they explained it as caused by "hepatism," a term with which they were not familiar in America. The prevalent idea in America was that there was more of a mechanical derangement which was paramount in the production of enteroptosis. Dr. Kaufmann said he did not believe that any abdominal displacement constituted disease; abdominal displacements did not necessarily produce symptoms. The stomach and colon might be deeply situated and yet perform their functions in a perfectly normal manner. Enteroptosis in the majority of cases was found in people who showed other traits as well; they were subject to certain functional disturbances. He believed that the best definition of this condition was "a general congenital asthenia." These patients developed neurasthenia as well. There was a marked tendency to an atonic condition of the gastrointestinal canal associated with secretory disorders, but also some functional derangement of the liver caused by some disturbance of the internal secretions. The blood pressure was usually low in the development of this atonic condition. This tendency to develop asthenia of various organs, especially of the digestive apparatus, was the paramount factor of the condition, not the displacement of the abdominal viscera. In speaking of the treatment he thought that the application of the belt was helpful, but these patients should be treated as general neurasthenics not only by dietetic means but medically, too.

Dr. Max Einhorn said that as early as 1889 or 1890 he demonstrated this condition by gastrodiaphany, a method now used less since the advent of the *x*-ray. As to the conception of enteroptosis Stiller considered it a congenital disease and Dr. Einhorn believed that while this might be true it might be an acquired disease as well. It was interesting to note that the causes which produced gastroptosis might be removed by the application of methods which were apt to produce reversed conditions. A man weighing 150 or 160 pounds might have typhoid fever, pass through his illness, and then not pick up. In such a condition he was apt to develop enteroptosis. Any thing that caused a loss of fat or other tissue, with the usual change in configuration, was apt to be followed by enteroptosis. Again, after childbirth, when the woman got up to early and not bandaged properly, after four or five months enteroptosis would develop as a rule. This proved that enteroptosis was not always congenital, but could be acquired. By building up the body and putting on flesh one could cure the condition. He had demonstrated that many times and described it years ago. When enteroptosis was associated with cardioptosis, if one built up the body, the heart would return to its normal position quicker than any other organ. In four or five weeks after the patient had gained from ten to twelve pounds one would find a change in the position of the heart as demonstrated by means of percussion and the *x*-ray. If this was purely a congenital affair it would be impossible to so alter the position of the heart. Was enteroptosis a disease or not? In his paper, written in either 1889 or 1890, he stated that he found prolapsed kidneys, liver, stomach, and other organs at times without any symptoms whatever. That was not saying that it was a normal condition; it was not; it was an abnormal condition giving rise to the development of abnormal changes and functional disorders. With regard to the treatment Dr. Einhorn said he was in accord with the teachings of Glénard, who laid stress upon certain points which he, Dr. Einhorn, considered important. A sufficient diet, ample amount of food, and building up was what these patients needed. One should try to increase their size by building them up, not alone increasing the amount of fat, but the muscles as well. He considered the use of the bandage as of secondary importance. The bowels should be regulated. The aperient and alkaline waters at the spas did not play a great part. He had had success without giving these waters at all. Dr. Einhorn then requested Dr. Monod to demonstrate an *x*-ray photograph, which showed the course of that small intestine for about two meters beyond the papilla of Vator. The picture had been taken by Dr. Stewart, radiologist of the German Hospital, on one of Dr. Einhorn's patients with the intestinal delineator inserted.

Dr. George R. Lockwood said that the condition of enteroptosis was interesting from a geographical standpoint and appeared to differ when considered in various countries as, for instance, in Budapest, France, or England. It seemed to him that the whole proposition of enteroptosis might be simplified by simple rules. Mankind could be divided into two classes: (1) those with broad costal angles and with transverse stomach, robust individuals; (2) those with narrow costal angles and vertical stomach, the thin nervous individuals. Such a condition of ptosis suggested a reversion to the embryonic type. Gastroptosis produced no local gastric symptoms until the stomach became atonic, to which condition it was predisposed by reason of the nervous instability of that type of case, and when atony advanced symptoms of alimentary toxemia usually intervened.

Dr. J. W. Draper said that from the standpoint of surgical therapeutics the alimentary canal was divisible into three regions: (1) The duodenum and oral portion of the jejunum, bacterially dead, biochemically alive. (2) The aboral and terminal ileum. (3) The cecum and colon, biochemically dead, bacterially alive. The duodenum, preeminently the vital part of the gut, the seat of unknown biochemical reactions, was first demonstrated by Roger, the gifted and far-seeing countryman of the essayist, and was destined to yield to future research students knowledge which would profoundly alter our present conceptions and improve our therapy. This organ concerned them for two reasons: First, because of its ulcers, the prevalence and importance of which had been surgically known for several years, but the etiology of which was still unknown. Second, because of its enzymes, hormones, and other biochemical bodies which bore so striking a relation to the cause of death in intestinal obstruction, and which stood, furthermore, in significant relation to the etiology of duodenal ulcer. Undoubtedly Patterson of England, Kanavel of Chicago, and others were right in teaching that in their dealing with the oral part of the gut, as, for instance, in the creation of a gastroenterostomy for the relief of duodenal ulcer, they were altering the subtlest biochemical relations and this alteration effected the cure rather than the much overrated gastric drainage, thought by some to result from the operation. Again the aboral ileum was of great physiological surgical interest because of the new knowledge which scientific surgery had added to the physiological knowledge of the region and because of the relation of the terminal ileum to the fecal storehouse, the colon. Likening the small gut, according to the familiar simile, to a test tube, the fiery biochemical reactions of the duodenum might be said to cool in the jejunum and to chill in the ileum. Terminally, they were *nil*, and the chief, if not only gut function, was conduction. Jerome Lynch, working in Lusk's laboratory at Cornell, had shown in human beings that the stream of chyme passing to the cecum was not continuous, but intermittent, strongly suggesting the rhythmical squirting of stomach contents into the duodenum; that the ileal contents were solid or fluid, depending wholly upon the diet. On a nitrogenous diet the ileal contents were always fluid. On a mixed diet, with carbohydrates in excess, the ileal contents were well formed, often solid. Lynch further showed that the reaction of the ileal contents was always acid, that of the mucous membrane always alkaline or neutral. Significant corroboration of these nutritional studies was found in the field of applied surgery. Ileostomy was always followed by a gain in weight. The cecum and colon being biochemically dead and bacterially alive held an interest equal to and in inverse proportion with that of the duodenum. Where one might be looked upon as dead the other was very much alive and *vice versa*. The therapy of this part was concerned with its evacuation. Walter Cannon had well said that surgeons operated upon the human alimentary canal as though it were a simple system of rubber tubes in which holes could be bored at will, rather than an indescribably complex physiological mechanism. In no part of the canal was the truth of this saying better shown than at its termination. In their extreme ignorance of its functions, the colon had been excised, it had been twisted and contorted into bizarre shapes, in well-intentioned but ill-directed efforts to hasten or complete its emptying. The whole question of the surgical therapy of the colon hinged on the little understood problem of anastalsis. George D. Stewart had recorded what was probably the most direct and amazingly interesting proof of human colonic anastalsis. The patient, a constipated carpenter, while engaged in removing, as was his custom, impacted feces from his rectum with his pencil, suddenly

felt it gripped by the bowel and the next instant it was lost in the rectum. Three days later Dr. Stewart was unable to find the pencil by the proctoscope and opened the abdomen. It lay not in the sigmoid or colon, but in the cecum. This was to be explained only by anastalsis. LeWald, Cannon, Case, Lyman, and others agreed that anastalsis was normal to the human colon. It was no exaggeration to say that in excess it might be a predominant factor in certain types of constipation.

Dr. Lewis Gregory Cole said that a stomach, although greatly prolapsed, might continue to functionate well. What he wished to especially emphasize, however, was the relation between the level of the chyme in the stomach and the position of the cap (first portion of the duodenum). This he considered a very important factor, because if the pylorus as well as the stomach were prolapsed gastric evacuation would take place on scheduled time. If, on the other hand, the pylorus were high and the stomach prolapsed, gastric retention might result.

Dr. Monod closed the discussion. He said that the methods in the diagnosis of Glénard's disease, as well as in the treatment, were based on the physical signs and these signs were brought forth through Glénard's technique and no other. He agreed with Dr. Einhorn that the waters played but a secondary part. They had the waters at hand and they used them. In making a diagnosis of these cases one should forcibly lift with both hands and then suddenly let the parts drop; if the pupils dilated the patient should be treated. This phenomenon was due to the influence on the nervous system. The pulse went up as well. Dr. Monod threw upon the screen a slide loaned him by Dr. Einhorn showing distinctly a thread which had passed through the whole intestine. He said that he had never seen anything so good in *x*-ray work. The radiograph was taken by Dr. W. H. Stewart of the German Hospital.

# State Medical Licensing Boards.

## STATE BOARD EXAMINATION QUESTIONS.

### New Hampshire State Board of Medical Examiners.

*January* 6 and 7, 1914.

#### ANATOMY.

1. Classify joints and give illustration of each.
2. Give origin and complete course of the nerve that has most to do with respiration.
3. How is the heart itself nourished?
4. Give the anatomical relation of the small intestine to the other abdominal viscera.
5. Describe the perineum.
6. Place and describe the nasal bones.
7. Describe the internal jugular vein.
8. What do you understand by the mesentery?
9. Place and describe the thyroid gland.
10. Describe the axillary space and give its contents.

#### PHYSIOLOGY AND HYGIENE.

1. What is the difference between lymph and serum?
2. What causes an extremity to go to sleep?
3. What is the result of injury to or removal of the semicircular canals?
4. What different vascular conditions may lead to a paling of the face?
5. What changes are produced in milk by boiling?
6. What is the function of the pancreas?
7. Describe locomotor ataxia.
8. (*a*) Upon what does the clotting of blood depend? (*b*) What is the cause of this conversion?
9. (*a*) What do you consider the best method of heating a dwelling, and (*b*) give the reasons for your answer?
10. What is the best method of ventilating the plumbing system?

#### MATERIA MEDICA, THERAPEUTICS, AND THE PRACTICE OF MEDICINE.

1. Describe angioneurotic edema.
2. Name the principal causes of pleuritis.
3. Outline the treatment of pneumonia.
4. Define bronchopneumonia and give its etiology.
5. Give a clinical description of pericarditis with effusion and name some of the diseases with which it is associated.
6. Give the physical signs of exophthalmic goiter and discuss its treatment.
7. Name the principal causes of chronic nephritis.
8. Describe diabetes mellitus, name its complications and discuss its treatment.
9. Describe tetany and give its etiology.
10. Name the exanthematous diseases and give the period of incubation of each.

#### CHEMISTRY.

1. What is a chemical salt?
2. How is nitroglycerin prepared?
3. From what is phenacetine derived?
4. What are the chemical properties of radium?
5. In what is phosphorus the most readily soluble?
6. Urine sediments are how classified? Give example.
7. What are enzymes? Give some of their chemical characteristics.
8. Name an efflorescent salt, a deliquescent salt, a hydroscopic liquid.
9. Where is sulphur found in the body, and under what form? What is its function?
10. In a systematic examination of stomach contents, what are the physical properties and normal constituents?

## ANSWERS.

#### ANATOMY.

1. Varieties of Articulation. 1. *Diarthrodial*, or freely movable; as hip and knee. 2. *Amphiarthrodial*, or slightly movable; as symphysis pubis and joints between bodies of vertebræ. 3. *Synarthrodial*, or immovable; as ethmoid with vomer and parietal with frontal.

2. *Pneumogastric nerve. Superficial origin:* Groove between restiform and olivary bodies. *Deep origin:* Nuclei in floor of fourth ventricle. *Course:* Outward across the flocculus, to jugular foramen through which it passes, where it is joined by the accessory portion of the spinal accessory nerve. As it goes down the neck, it lies in front of the rectus capitus anticus major and longus colli muscles. It passes in the carotid sheath behind and between the artery and vein. In the thorax the nerve on each side runs a different course. The *right* passes between the subclavian artery and vein, by side of trachea to root of lung, behind esophagus, through esophageal opening in diaphragm to posterior surface of stomach. The *left* passes between the subclavian and carotid arteries, in front of arch of aorta to root of lung, along anterior surface of esophagus, through diaphragm, to anterior surface of stomach. *Distribution* is shown by the names of the branches: Meningeal, auricular, pharyngeal, superior and inferior laryngeal, cardiac, pulmonary esophageal, and gastric.

3. The heart is nourished by the right and left coronary arteries.

4. Relations of duodenum. *First part: In front*—Liver, gall-bladder. *Behind*—Bile-duct, vena portæ, hepatic artery, gastroduodenal artery. *Below*—Head of pancreas.

*Second part: In front*—Hepatic flexure of colon. *Behind*—Right kidney, suprarenal capsule, renal vessels, and inferior vena cava. *Left side*—Head of pancreas, common bile-duct, and pancreatic duct. *Right side*—Hepatic flexure of colon.

*Third part: In front*—Superior mesenteric vessels and plexus of nerves. *Behind*—Aorta, vena cava, crura of diaphragm, and left psoas. *Above*—Pancreas.

The *jejunum* is in relation with the under surface of the pancreas and the transverse mesocolon.

5. *The perineum* is a diamond-shaped space corresponding to the inferior aperture of the pelvis. It is bounded in front by the symphysis pubis and the subpubic ligament; behind, by the coccyx; and on each side by the rami of the pubis and ischium, the tuberosity of the ischium, and the great sacrosciatic ligament. It is generally divided into two parts by an arbitrary line drawn between the ischial tuberosities, just in front of the anus; the anterior triangle is called the urogenital triangle, and the posterior the rectal triangle. The floor of the perineum consists of: Skin, fascia, triangular ligament, superficial perineal vessels and nerves, accelerator urinæ, transversus perinei, sphincter ani, erector penis, compressor urethræ.

6. The *nasal bones* are situated about the middle and upper part of the face, the two together forming the bridge of the nose. They are small oblong bones and articulate with the frontal, ethmoid, superior maxillary, and with each other. They are generally described as having two surfaces (an outer and an inner), and four

borders (superior, inferior, external and internal).

7. The *internal jugular vein* commences at the jugular foramen, and is formed by the junction of the lateral and inferior petrosal sinuses; it passes vertically down the side of the neck on the outer side of the carotid artery, and at the root of the neck it unites with the subclavian vein to form the innominate vein. It collects the blood from the interior of the cranium and from the superficial parts of the face and from the neck. Its tributaries are the facial, lingual, pharyngeal, and superior and middle thyroid veins.

8. The *mesentery* is a broad fold of peritoneum which connects the jejunum and ileum to the posterior abdominal wall.

9. The *thyroid gland* is situated on the sides and in front of the upper part of the trachea, and extends upward on each side of the larynx. The *thyroid gland* consists of two lateral lobes and an isthmus: it is situated at the front and sides of the neck. The lobes extend from about the middle of the thyroid cartilage to the fifth or sixth tracheal ring; the isthmus generally covers the second and third tracheal rings. The lobes measure about 2x1¼x¾ inches; the gland usually weighs about one ounce. *Blood supply:* Superior and inferior thyroid arteries, with thyreoidea ima; and superior middle, and inferior thyroid veins. *Nerve supply:* Branches from the inferior laryngeal nerve, and from the middle and inferior cervical ganglia of the sympathetic.

10. The axillary space is *bounded: Anteriorly,* by the clavicle, subclavius, pectoralis major, costocoracoid membrane, pectoralis minor; *posteriorly,* by the subscapularis, teres major, and latissimus dorsi; *internally,* by the first four ribs, first three intercostal muscles, serratus magnus; *externally,* by the humerus, coracobrachialis, and biceps.

*Contents:* The axillary vessels and brachial plexus of nerves, with their branches, some branches of the intercostal nerves, and a large number of lymphatic glands, all connected together by a quantity of fat and loose areolar tissue.

PHYSIOLOGY AND HYGIENE.

1. Blood serum is practically the same as blood plasma, except that serum contains no fibrinogen, but more fibrin ferment. The following figures (from Hammarsten) show the differences between lymph and plasma:

| | | |
|---|---|---|
| Lymph contains: | Water | 939.9 |
| | Solids | 60.1 |
| | Fibrin | 0.5 |
| | Albumin | 42.7 |
| | Fat, cholesterin, lecithin | 3.8 |
| | Extractive bodies | 5.7 |
| | Salts | 7.3 |
| Plasma contains: | Water | 908.4 |
| | Solids | 91.6 |
| | Total proteids | 77.6 |
| | Fibrin | 10.1 |
| | Fat | 1.2 |
| | Extractive substances | 4.0 |
| | Soluble salts | 6.4 |
| | Insoluble salts | 1.7 |

2. An extremity may go to sleep from pressure on a nerve; as when the hand goes to sleep after pressure on the ulnar nerve at the elbow, or the foot goes to sleep from pressure on the sciatic nerve when the legs are crossed. A poison circulating in the blood may also irritate the peripheral nerves and cause a similar sensation.

3. "The *semicircular canals* are, through the vestibular nerve and the cerebellum, the most important agents in the preservation of equilibrium. When in a pigeon the horizontal canals are divided, the head moves from left to right and from right to left, with nystagmus and a tendency to revolve on its vertical axis. When the inferior vertical or posterior canals are divided, the head oscillates from front to rear; the animal has a tendency to fall backward. A section of the superior vertical canal causes the head to oscillate from front to rear, with a tendency to fall forward. A section of all the canals is followed by contortions of the most bizarre nature. After a destruction of all the canals the animal cannot maintain his equilibrium. Similar phenomena have been observed in man in disease of the semicircular canals, known as Menière's vertigo. In the fixed position of the head there is equilibrium, but with each movement the varying tension of the liquid in the ampulla changes and irritates the hair-cells."—(Ott's *Physiology.*)

4. Paling of the face may be caused by spasm of the arterioles, increased vasoconstriction, or defective action of the heart.

5. When milk is boiled, a thin scum of albumin appears on the surface, it takes longer to coagulate, and also longer to sour; the taste is changed; the color is also changed, and various bacteria and fungi are destroyed. The digestibility and rate of absorption of boiled milk and raw milk do not differ materially.

6. The *function of the pancreas* is to provide the pancreatic juice, which changes proteids into proteoses and peptones, and afterward decomposes them into leucin and tyrosin; converts starches into maltose; emulsifies and saponifies fats; causes milk to curdle. It also supplies an internal secretion.

7. *Locomotor ataxia* is a disease of the spinal cord, characterized by loss of coordination, characteristic and unsteady gait, a tendency to stagger when standing up with the feet together and the eyes closed, sharp and paroxysmal pains called *erises,* girdle sensation, Argyll-Robertson pupils, and loss of knee-jerk and other reflexes. In locomotor ataxia the posterior columns of the spinal cord and the posterior nerve roots are involved. The process is destructive and progressive; it is not a simple wasting, although the nerve fibers are atrophied, but it is characterized by irritation, changes in the axis cylinders, overgrowth of the connective tissue, and sometimes congestion. The spinal ganglia may also be affected, and the membranes over the affected parts are adherent and opaque.

8. In the plasma a proteid substance exists, called fibrinogen. From the colorless corpuscles a nucleoproteid is shed out, called prothrombin. By the action of calcium salts prothrombin is converted into fibrin ferment, or thrombin. Thrombin acts on fibrinogen in such a way that two new substances are formed: one of these is unimportant and remains in solution; the other is important, viz., fibrin, which entangles the corpuscles and so forms the clot.

9. "*Hot-water heating.*—This is regarded as the best form of central heating for small dwellings. Instead of an air jacket over the combustion chamber, there is provided a water receptacle, from which a continuous pipe ascends through the house to its uppermost part, whence it returns by a continuous descending pipe and connects with same water receptacle. The water being heated, circulates freely throughout the system of pipes and the radiators attached thereto, and by heating of pipes and radiators warms the air of the rooms. Between the ascending and descending pipes there is usually placed an expansion tank to allow for the expansion of the water by heat. This system of heating is simple, needs little attention, produces a pleasant and not too high temperature, is not subject to sudden variations, and consumes a relatively small amount of coal.

"*Steam Heating.*—In this system the pipes are filled with steam instead of with hot water, and the water in the boiler is converted into steam. The temperature of the pipes and radiators is higher, their size correspondingly smaller, more fuel is needed to convert the water into steam, a higher pressure gained, more expert attention necessary, a greater degree as well as variation of heat reached. This system is especially suitable to large houses. Steam-heating plants may be located outside of the house and convey the heat by means of underground steam pipes."—(Price's *Essentials of Hygiene*).

10. "The whole plumbing system is ventilated by vertical pipes led through the roof and left open to the outside air, while air from the outside is provided by means of the 'fresh-air inlet,' which, beginning with an air box in the sidewalk, runs into the house drain, inside of the main trap, and by a 4-inch iron pipe. The vent pipes also aid the ventilation within the pipes."—(Price's *Essentials of Hygiene.*)

MATERIA MEDICA, THERAPEUTICS, AND THE PRACTICE OF MEDICINE.

1. "*Angioneurotic edema* is a neurotic condition in which transient circumscribed, edematous swellings appear on the skin, and sometimes on the mucous membranes, and disappear after a variable period without leaving behind any structural alterations. It arises usually without obvious cause and is in all probability a vasomotor neurosis. Certain drugs in susceptible individuals may induce it. Recurrences are frequent, and when the larynx is involved the affection assumes a grave aspect."—(Hughes' *Practice of Medicine*).

2. The *Principal Causes of Pleuritis* are: Exposure

to cold or damp, tuberculosis, pneumonia, pulmonary abscess, bronchitis, nephritis, cancer, various specific fevers, traumatism of the chest; the microorganisms usually found are the pneumococcus, tubercle bacillus, and streptococcus.

3. The *treatment of pneumonia* "consists in fresh air, good nursing, rest in bed, milk diet, and the administration of fractional doses of calomel followed by a saline in the early stage. The nervous symptoms and temperature may be controlled by applying ice-bags or compresses wrung out of cold water (60°-70° F.) to the chest or by the use of the warm or cold wet-pack. The heart and pulse should be sustained by the administration of alcohol, strychnine (gr. 1/60-1/20), atropine, caffeine, strophanthus, and nitroglycerin. Digitalis may also be employed. Inhalations of oxygen afford temporary relief when the dyspnea and cyanosis are extreme. In young, vigorous, and plethoric adults, with hyperpyrexia and a high-tension pulse, bleeding may be beneficial in the first 48 hours. Convalescence should be guarded, and tonics, stimulants, etc., will be found very useful in this period of the disease."—(*Pocket Cyclopedia.*)

4. *Bronchopneumonia* is an acute inflammation of the bronchioles and the alveoli of the lungs. It may be due to a bronchial catarrh, one of the infectious fevers, influenza, heart disease, uremia, nephritis, diabetes; the microorganisms generally present are the *Micrococcus lanceolatus, Streptococcus pyogenes, Staphylococcus aureus* and *albus*, Friedländer's bacillus, and occasionally the colon bacillus, typhoid bacillus, Klebs-Loeffler bacillus, or bacillus of pneumonia.

5. *Pericarditis with effusion.*—"The symptoms are somewhat obscure and may be masked by previously existing disease. Taking a typical case as it occurs in the course of rheumatic fever, we usually find precordial distress; sharp pain is rare, but when present it is most marked at the lower end of the sternum. Moderate fever, or exacerbation of already existing fever, at the onset; dyspnea, and dusky appearance of the face; rapid action of the heart, sometimes with feeble pulse; symptoms due to pressure by the fluid on the neighboring organs (trachea and esophagus, etc.); great restlessness. The physical signs are: Marked increase of the cardiac dulness; displacement of the apex beat; muffling of the heart sounds; displacement of other organs (if effusion is great). The shape of the dulness is characteristic. It is conical, the apex of the cone being truncated, and situated at the level of the second rib, owing to the close attachment of the pericardium to the great vessels at this point. The apex beat is generally pushed upwards and to the left. It lies, when it is palpable at all, distinctly within the left border of cardiac dulness, not, as in enlargement due to valvular disease, in close relationship to it. The marked distention of the pericardial sac surrounds the heart limits of the organ itself. The amount of bulging and displacement of organs will, of course, vary with the amount of fluid present. As resolution takes place the friction returns, and may be very coarse in character. Muffling of the heart sounds is not always present, and is not entirely due to the presence of fluid. The muffling is therefore due mainly to weakness of the cardiac muscle from accompanying myocarditis, although where the quantity of fluid is very great, in serous and chronic pericarditis, this may in part account for it."—(Wheeler and Jack's *Handbook of Medicine*).

6. The *physical signs of exophthalmic goiter* are: Exophthalmos, goiter, tachycardia, and muscular tremor; anemia, hemic murmurs, cardiac hypertrophy or dilatation, palpitation of the heart; there may be a systolic thrill over the goiter. The *treatment* demands rest, fresh air, and light but nutritious diet; digitalis, bromides, iodides, arsenic, and electricity have all been recommended; partial thyroidectomy, section of the cervical sympathetic, and ligature of the thyroid arteries have been advocated; the newest remedy is probably antithyroidin.

7. The *principal causes of chronic nephritis* are: Arteriosclerosis, alcoholism, gout, lead poisoning, syphilis, acute nephritis, malaria, excess of nitrogeneous diet.

8. *Diabetes mellitus* is a constitutional disease, characterized by polyuria, excess of sugar in the blood and excretion of the same in the urine, and accompanied by severe emaciation. It generally occurs after the fortieth year, but may come on at any age; it is more common in males, among Hebrews, and in the well-to-do classes. The direct cause is not known. *Complications* are: Pruritus, eczema, boils, cataract, retinitis, neuritis, albuminuria, cirrhosis of kidney, acidosis, and tabes. *Treatment* consists in a quiet, regular mode of living, without worry; gentle exercise; daily bathing in lukewarm water; flannel underwear; the carbohydrates in the food should be cut down until there is no sugar in the urine or a non-carbohydrate diet is reached. Codeine, morphine, antipyrin, arsenic, and strychnine have been recommended.

9. *Tetany* is a condition characterized by tonic muscular spasms of the extremities, which occur at intervals, are painful, and usually bilateral. The *cause* is unknown; toxins acting on the peripheral motor neurons, removal of the thyroid gland, rickets and hysteria are said to be etiological factors.

10. *Exanthematous diseases.*—Cerebrospinal meningitis, incubation period is unknown; erysipelas, a few hours to 3 or 4 days; measles, 10 to 12 days; rotheln, 8 to 16 days; scarlatina, 1 to 21 days; typhoid, 5 to 30 days; typhus, 4 to 12 days; varicella, 4 to 14 days; variola, 7 to 14 days. The figures are approximate.

CHEMISTRY.

1. A *Salt* is a substance derived from an acid by substituting a metal (or its equivalent) for part or all of the replaceable hydrogen of the acid.

2. *Nitroglycerin* is prepared by the action of a mixture of sulphuric and nitric acids upon glycerin.

3. *Phenacetine* is derived from para-phenetidin, which is derived from phenol.

4. *Chemical properties of radium.*—"The emitted rays convert oxygen into ozone and change yellow phosphorus to red. The alpha rays immediately coagulate a sensitive solution of globulin. The beta and gamma rays liberate iodine from iodoform in the presence of oxygen."—(Holland's *Chemistry.*)

5. Phosphorus is soluble in carbon disulphide, and in the fixed and volatile oils.

6. *Sediments in the urine* may be classified according to their presence in *acid* urine, and in *alkaline* urine. In *acid* urine, are found: Uric acid, urates, calcium oxalate, cystin, and calcium phosphate. In *alkaline* urine are found: Phosphates, calcium carbonate, and ammonium urates.

7. *Enzymes* are organized ferments produced by living cells; they cause definite chemical changes in certain substances. They are capable of causing change in a large amount of material, and they themselves remain unaltered; they only act in a medium of certain reaction, some in an acid medium, some in an alkaline; for each enzyme there is a certain temperature at which its action is the most energetic; the products of their activity must be removed, or the accumulation of these products will hinder further activity.

8. An *efflorescent salt*, sodium carbonate; a *deliquescent salt*, calcium chloride; a *hygroscopic liquid*, alcohol.

9. Sulphur occurs in the body chiefly in the hair, nails and epithelium, but it is a constituent of most proteids. It is found as hydrogen sulphide and as sulphates.

10. *Gastric juice* is a liquid, slightly cloudy, almost colorless, acid, with specific gravity of 1001 to 1010; it deposits a sediment which may contain food particles, gland cells, nuclei, epithelium, and mucus. It consists of water and solids, and free hydrochloric acid; pepsin, chlorides of sodium, potassium, and calcium; phosphates of calcium, magnesium, and iron; mucin, a thiocyanate, and nucleo-proteid.

(*To be concluded.*)

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**Deformity of the Spine Possibly of Congenital Origin.**—L. E. C. Norbury reports the case of a girl aged five and a half who was brought to the Belgrave Hospital with history of pain beneath the left costal margin of some two or three weeks' duration. On examination: Healthy-looking child. Prominence of lower dorsal and first lumbar spinous processes. Slight mid-dorsal lateral curvature with convexity to the left. Movement of spine good. No pain elicited on "jarring" spine. No alteration in length of limbs. No abnormal physical signs in chest. Von Pirquet's reaction slightly positive. *X*-ray examination revealed wedge-shaped condition of first and second lumbar vertebræ, and the interval between these was less than between the bodies of adjacent vertebræ. The skiagram suggested the presence of an extra lumbar vertebra.—*Proceedings of the Royal Society of Medicine.*

## Books Received.

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IMMUNITY METHODS OF DIAGNOSIS AND THERAPY, AND THEIR PRACTICAL APPLICATION. By Dr. JULIUS CITRON. Second Edition, Revised and Enlarged. Illustrated; cloth; 267 pages; price $3.50 net. P. Blakiston's Son & Company, Philadelphia.

PATHFINDERS OF PHYSIOLOGY. By J. H. DEMPSTER, A.B., M.D. Cloth; 66 pages; illustrated; price $1.00. The Detroit Medical Journal Company, Detroit.

KRIEGSERINNERUNGEN. By Dr. M. PELTZER. Paper; 41 pages; price 1.00 M. August Hirschwald, Berlin.

MAN'S REDEMPTION OF MAN. By WILLIAM OSLER. Cloth; price 50c. net; 63 pages. Paul B. Hoeber, New York.

A WAY OF LIFE. By WILLIAM OSLER. Cloth; price 50c. net; 62 pages. Paul B. Hoeber, New York.

LECTURES ON DIETETICS. By MAX EINHORN. Cloth; price $1.00 net; 156 pages; illustrated. Paul B. Hoeber, New York.

MODERN SURGERY, GENERAL AND OPERATIVE. By JOHN CHALMERS DACOSTA, M.D., LL.D. Seventh edition; revised, enlarged, and reset. Illustrated; cloth; price $6.00 net. W. B. Saunders Company, Philadelphia and London.

A HANDBOOK FOR THE POST-MORTEM ROOM. By ALEXANDER G. GIBSON, D.M., F.R.C.P. Cloth; price $1.50; 140 pages; illustrated. Oxford University Press, New York.

TREATMENT OF NEURASTHENIA. By DR. PAUL HARTENBERG. Cloth; price $2.50; 283 pages. Oxford University Press, New York.

BEHANDLUNG KOSMETISCHER HAUTLEIDEN. By DR. S. JESSNER. Paper; price 2.50 mks.; 529 pages. Curt Kabitzsch, Wurzburg.

OPHTHALMIC SURGERY. By CHARLES H. BEARD, M.D., Second Edition, revised and enlarged. Illustrated; cloth; 745 pages; price $5.00 net. P. Blakiston's Son & Company, Philadelphia.

TREATMENT OF CHRONIC LEG ULCERS. By EDWARD ADAMS, M.D. Cloth; 122 pages; price $1.00. The International Journal of Surgery Company, New York.

A SHORT PRACTICE OF MIDWIFERY FOR NURSES. By HENRY JELLETT, B.A., M.D., F.R.C.P.I. Cloth; price $2.50 net; illustrated; 508 pages. Paul B. Hoeber, New York.

THE JUNIOR NURSE. By CHARLOTTE A. BROWN, R. N. Illustrated; cloth; 208 pages. Lea & Febiger, Philadelphia and New York.

A MANUAL OF INFANTILE PARALYSIS. By HENRY W. FRAUENTHAL, A.C., M.D., and JACOLYN VAN VLIET MANNING, M.D. Illustrated; cloth; 374 pages; price $3.00 net. F. A. Davis Company, Philadelphia.

STUDIES FROM THE ROCKEFELLER INSTITUTE For Medical Research Reprints Volume XVIII. Paper; illustrated; 596 pages. The Rockefeller Institute For Medical Research, New York. 1914.

A REFERENCE HANDBOOK OF THE MEDICAL SCIENCES. Embracing the Entire Range of Scientific and Practical Medicine and Allied Science. By Various Writers. First and Second Editions Edited by ALBERT H. BUCK, M.D. Third Edition completely revised and rewritten. Edited by THOMAS LATHROP STEDMAN, A.M., M.D. Volume Three. Illustrated; cloth; price $7.00 net; 930 pages. William Wood and Company, New York.

TEN SEX TALKS TO GIRLS. By IRVING DAVID STEINHARDT, M.D. Illustrated; cloth; price $1.00 net; 193 pages. J. B. Lippincott Company, Philadelphia and London.

THE INTERNATIONAL MEDICAL ANNUAL. A Year Book of Treatment and Practitioners' Index. By Various Contributors. Cloth; illustrated; price $3.50; 716 pages. E. B. Treat & Company, New York.

LA STASE INTESTINALE CHRONIQUE. Par le Docteur E. SORREL. Paper; illustrated; 254 pages. G. Steinheil, Paris, 1914.

ÉTUDES SUR LES RÉSISTANCES GLOBULAIRES. Par le Dr. ETIENNE MAY. Paper; price 5 fr.; 164 pages; illustrated. Librairie Felix Alcan, Paris.

ACHONDROPLASIA. Its Nature and Its Cause. By Dr. MURK JANSEN. Paper; price 6/- net; 98 pages; illustrated. Balliere, Tindall and Cox, London.

## Therapeutic Hints.

**The Treatment of Chilblains.**—Every evening before retiring the patient should lightly rub the affected part with a piece of gauze soaked in glycerin, and then after having wiped off the latter, he should apply the following ointment:

℞ Balsam of Peru, 10 grams.
Tannin, 2 grams.
Spirit of turpentine, 3 grams.
White vaseline, 20 grams.
—*Bulletin Général de Thérapeutique.*

**The Treatment of Migraine.**—M. Allen Starr has recommended the administration of the following pill in cases of migraine associated with intestinal fermentation:

℞ Sodium phenolsulphonate, 5 grains.
Potassium permanganate, 1 grain.
Beta-naphthol, 1 grain.

This pill should be coated with salol to insure its entrance into the bowel before it is dissolved. The dose is one pill after meals and at night.

**The Subcutaneous Injection of Quinine.**—The following solutions are adapted for the subcutaneous injection of quinine:

℞ Quinine hydrochloride, 1 gram.
Urethane, 0.5 gram.
Distilled water, ad 10 c.c.

One c.c. of this solution contains 0.1 gram of quinine.

℞ Quinine hydrochloride, 2 grams.
Antipyrine, 2 grams.
Distilled water, ad 10 grams.

One c.c. of this solution contains 0.2 gram of quinine.

**The Treatment of Irritable Cough.**—A. P. Luff has found the following a very useful mixture for the relief of irritable cough, and especially of post-influenzal cough:

℞ Morphine hydrochloride, 1/24 grain.
Heroine hydrochloride, 1/24 grain.
Apomorphine hydrochloride, 1/48 grain.
Dilute hydrochloric acid, 5 minims.
Syrup of wild cherry, ½ dram.
Chloroform water, ad ½ ounce.

This dose should be taken every four hours. The medicine is very palatable and the presence of the hydrochloric acid effectually prevents the precipitation of any of the alkaloids.—*Lancet.*

**Treatment of Depilating Folliculitis.**—G. T. Jackson and C. W. McMurtry state that Brocq advises epilation of all loose hair and the application of either mercury or sulphur, the latter usually being the more useful. The scalp is to be washed with soap and water in the evening and when dried the following solution should be applied:

℞ Acetic acid crystals, 75 grains.
Corrosive sublimate, 7½ grains.
Glycerin, 6 drams.
Alcohol (85 per cent.), 2½ ounces.
Distilled water, 5 ounces.

**The Management of Mucous Colic.**—W. A. Edwards notes that Mummery uses belladonna to prevent spasm of the colon, in the following:

℞ Tincture of hyoscyamus, ½ dram.
Tincture of belladonna, 6 minims.
Sodium bicarbonate, 20 grains.
Tincture of ginger, 15 minims.
Spirit of chloroform, 20 minims.
Peppermint water, ad 1 ounce.

This dose should be given three times daily. A laxative should be administered at the same time.

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## Original Articles.

### THE PROGRESS OF EDUCATION OF THE DEAF AND DUMB, AND SOME OF THE DIFFICULTIES OF AURAL INSTRUCTION.

By N. J. POOCK VAN BAGGEN,

THE HAGUE, HOLLAND.

THE principal intention of the instruction of the deaf and dumb child has always been to withdraw it from its spiritual isolation and to facilitate intercourse with its fellow-creatures. Many are the attempts made and various the methods applied to attain a more or less satisfactory result. However, when we retrace the historic of those various attempts and methods in its great lines, we can state that in the course of time there is a constant progress in the results of the instruction of the deaf mute.

One of the first efforts we read of to teach the deaf and dumb was that of the physician and philosopher, Jerome Cardan (born at Pavia in 1501), who demonstrated that "connected thought and reasoning is possible without the intervention of the spoken word," hence the deaf mute can be taught to read and write. This statement formed the fundamental principle of the so-called "Silent System." In the same century but later appear three Spaniards, Ramirez de Carrion, Juan Pablo Bonet and Pedro Ponce de Leon, who consecreated their lives to the education of the deaf and dumb, and had a great influence on their instruction. From Bonet and Ponce de Leon we read that they taught their pupils to speak, read, and write, and thus Bonet and Ponce de Leon must be considered as the originators of the aural system.

However in those early times we can not trace a regular course in the various methods used. The reports tell us the names of several men (Ramirez de Carrion, Arnoldi, Lasius, Van Helmont, Amman, Pereira), who instructed the deaf mute with considerable and remarkable results, but their efforts remain isolated attempts and do not form a complete system. Some of them have described their method, for instance Bonet, who wrote: "Reduccion de las Letras" (1620) and Amman who published a book: "Surdus Loquens." Others concealed their method as much as possible with the intention of making as much money as they could out of their business. It was only in the eighteenth century that the French Abbot de l'Epée created a regular and complete system for the instruction of the deaf mute, which has since been adopted by many institutions and which has gained a world-wide reputation. Not satisfied with the results of his teaching the deaf mute articulate speech, the Abbot de l'Epée worked out a systematic language of signs, which to the deaf mute should take the place of articulate speech. He perfected his system in such a degree that his pupils were not only able to indicate concrete objects but even to express abstract notions.

They could hold a conversation with each other and write down a dictation on different subjects. This system of de l'Epée called the "sign system" gained a great popularity, partly because of the great ease with which the deaf and dumb learned and still learn by this system to hold intercourse with each other; partly because of the open-mindedness of its author, which he showed in giving his system away to everybody, who wanted it, and of his never-relaxing efforts to raise his unfortunate fellow-creatures out of their spiritual isolation. About the same time that de l'Epée founded his institution in France, Samuel Heinicke founded a school (1777) for the deaf and dumb in Leipsic under the patronage of the Elector Frederik Augustus of Saxony.

Heinicke adopted the same principle as Bonet, Amman, Wallis and Van Helmont, to wit, that in the education of the deaf mute the artificial restoration of the voice and the use of oral speech must hold the first place. To Heinicke belongs the credit of first founding the German or oral system on a solid basis. When we follow the historical course of both the Oral and Sign Systems, until the present time we find the former supplanting more and more the latter in such a manner that actually there is hardly an institute where the sign and manual language is not brushed aside by the oral system. There are different reasons for this prevalence of the oral system. In the first place the oral system allows its disciples to hold intercourse with everybody and consequently to take a position in the community which, although not on a par with that of hearing and speaking people, nevertheless allows him to be his own independent advocate in society. The deaf and dumb who converse in the sign and manual language can only speak with each other and with the few that are initiated in this mode of exchanging thoughts.

Besides this first great advantage of the oral system there is another of far deeper meaning still. The sign and manual system is a purely artificial language, which avoids the difficulty that exists for the deaf mute in using articulate speech. The oral system, on the contrary, combats that difficulty; it contains an attempt at the restoration of normal speech and therefore must be considered as the healing or hygienic system, with which the hope of improvement is not excluded. Also continuing our investigations as to the progress in the instruction of the deaf and dumb we see how the oral system, by and by going further in its efforts to restore speech to the deaf mute, begins to try to take advantage of the remnant of hearing which a large percentage of the deaf and dum possess.

Already in the first half of the nineteenth century serious efforts to awaken and develop the hearing of the deaf mute had been made by Itard, Beck, Wolf, Toynbee and several others. These efforts, however, did not lead to the formation of a regular system and the interest in the aural exercises slackened again until the end of the nineteenth century when one perceives in the United States as well as in Europe a growing attention given to the important question of the development of the hearing of the deaf mute. At about the same time that the reports of the remarkable results in improving the hearing, attained by Gallaudet, Currier and Gillespie, were published in America, Javal begins his experience and investigations in France, Urbantschitsch in Austria, and Bezold in Germany. To the latter two famous aural surgeons Professors Urbantschitsch and particularly to Professor Bezold belongs the credit of having opened new possibilities for the instruction of the deaf and dumb and of having given to their education a course with deeper perspective than it ever possessed before. Professor Victor Urbantschitsch published the results of his achievements in his highly interesting book: "Ueber Hörübungen bei Taubstummen," to which I refer.

One of the principal and direct results of Professor Bezold's investigations is the classification of the deaf and dumb in different groups. In the schools where Bezold's method is adopted, the totally deaf and the partially deaf remain together only during the first year; after which time they are divided into two classes. In the first are placed the totally deaf and in the second the congenital deaf with a remnant of hearing and those with acquired deafness. This latter class is instructed after the "mirror method," whereby the words are directly spoken in the ear of the child while it has a mirror in the hand wherein it can follow the movement of the lips of the teacher. The children learn in this manner to hear and read from the lips at the same time and this method is thus a combined form of the oral and the aural system.

As the advantages of the method of Bezold we noticed a quicker perception and a better understanding of the language, a more intelligible and smoother pronunciation, and, last but not least, a greater progress and a higher degree of intellectual development.

Another advantage, not less important, of the investigations of Bezold and Urbanschitsch is that the hearing power of each deaf and dumb person is henceforward the subject of a careful examination. The hearing for sounds, for vowels, for words and for sentences is calculated as carefully and as exactly as possible. And as a consequence of these examinations appropriate exercises come forth to improve the remnants of hearing and to develop a hearing for sounds in a hearing for vowels, for words, and for sentences, if possible. The results attained in this respect by Urbantschitsch and his helpers are so satisfying that they induce him to go further still and to try to awaken the hearing of the totally deaf in which he is, as the reports tell us, in many cases successful.

New questions arose with this new course in the treatment of the deaf and dumb: (1) Which is the best method by means of which to calculate the hearing of deaf and dumb pupils? (2) How can we best awaken and improve their hearing power? (3) What are the obstacles we meet during the process of exercising the hearing?

As to the testing of the hearing I presume that the different systems are sufficiently known, so that I need not insist on this question.

With the object of awakening and improving the hearing Urbanschitsch used in the beginning only the human voice, as being of course the best medium for the understanding of speech. But as this method proved to be very fatiguing for the instructors, he tried to employ instruments of which the vibrating tones acted as a stimulant to the hearing. He constructed therefore a kind of harmonica or tonometer with which he could produce tones of all pitches which the human ear can perceive. He made the pupil hear especially those tones of the scale which correspond with the tones contained in human speech, thus from $b^1$ to $g^2$. This harmonica of rather primitive construction proved, however, to be a good help. Since then ever so many instruments have been applied with more or less success with the intention of raising and stimulating the slumbering and reluctant hearing by the vibration of sounds, until some twelve years ago when Professor Marage of Paris succeeded in constructing a kind of siren, which indeed proves to be of great merit if it is not indispensable for the instruction of the deaf and dumb on a modern basis. The instruments hitherto used produced non-periodic irregular vibrations, or continuous periodic regular vibrations (simple or complex). Now the fundamental vibrations of human speech are discontinuous, periodic, regular, vibrations, and thus when we want an instrument to revive and improve the hearing for speech this instrument must reproduce those characteristic vibrations of speech. This was the principle on which Marage constructed his apparatus. (For an ample description of the siren I refer to "Les Travaux Scientifiques de René Marage," Masson et Cie., Paris). The siren (sirène à voyelles) reproduces the fundamental vibrations of the vowels aa, a, ee, o, oo. The success obtained by the treatment with this siren in different kinds of deafness induced Marage to apply the treatment to the deaf and dumb. Experiments were made with 23 deaf mutes of which 19 were reputed totally deaf. We find the results of those experiments in: "Mesure et Développement de l'Audition chez les Sourds Muets." Masson et Cie., Paris.

From those results we can deduce the following conclusions: The siren renders a great service in enabling one to test the ear of the deaf mute. It proves to be of excellent use for the development of the hearing of the deaf and dumb, also for the awakening of the hearing of the totally deaf. With the siren we attain in six weeks results which we can hardly attain in a year or more by exercising with the voice only. After the results of a daily treatment of five minutes during six weeks we can state if the progress of the hearing has reached such a degree that we may expect any success in exercising with the human voice.

We need not insist on the importance of the apparatus and the classification of the pupils ought not to be made until after the treatment with the siren. By the results obtained we can immediately decide which system must be applied: Whether the combined form of the oral and the aural system should be used or whether the pupil would be best instructed by the pure oral system, or whether the sign and manual system should be used, which would be the case in a few instances.

Besides the treatment with the siren of Marage I apply the exercises with a tonometer composed of

tuning forks of heavy caliber and the sound increasing resonator of Montalbetti. Those exercises are to be recommended in those cases in which some series of tones of the scale are not heard or are heard only insufficiently. Special attention must thereby be given to that region of the scale which lies between $b^1$ and $g^2$, as between these intervals lie the tones which are absolutely necessary for the perception of speech.

For the exercises to sharpen acoustic attentiveness I use by preference a large cithern. It is also highly desirable that the aural pupils should attend concerts, specially those of the full orchestra or of a big organ. When there is any possibility of making a pupil himself play an instrument, we immediately take profit of this disposition, for not only will the vibrations of the instrument strengthen the hearing but also at the same time the playing of an instrument forces the pupil to listen and to appreciate all the differences of pitch and the intervals.

Of course the treatment with the siren of Marage and exercising with all the instruments are intended in the first place to support and to facilitate the exercises with the human voice. To make speech perceptible to the ear there is no medium except the human voice. Also when by the treatment with the siren of Marage the hearing power is awakened and sufficiently developed to render aural instruction possible, the most important part of the aural instruction begins, namely, to make the deaf and dumb understand by the ear the spoken word, and to make him speak the word he perceives. This difficult part of the instruction demands all our patience and an utter consecration to the task. This is not the place to mention the exercises and I pass on to the obstacles we meet during the course of instruction.

During the exercising we soon perceive the difference between the power of perception and that of association and the action of the motor nerves of speech of the deaf and dumb with acquired deafness and of those who suffer from congenital deafness. And again we will notice a difference between those children with acquired deafness who became deaf in early infancy, before they had ever spoken, and the children who lost their hearing after the formation of the power of speech. We will observe that the children of this latter group, when once they have heard the vowel, word, or sentence and are invited to speak it, reproduce immediately without any hesitation and with full understanding what they heard, with the same accent with which it is pronounced.

In the second group, in the children who have acquired deafness in early infancy, we notice that the understanding of what is heard is very slow and reluctant, but when once the vowel, word, or sentence is understood, it is pronounced, somewhat weakly, but without much difficulty. Often also they utter fluently what is heard, but without understanding the meaning of the word they pronounce. In that case the understanding of what is spoken comes only after the action of the motor nerves of speech. The children of these two groups are dumb while they are deaf. The first group, including children who acquired deafness after the formation of speech, are dumb because of the fact that their speech was not specially attended to after they became deaf; they have forgotten their language because they were not able to entertain it by their hearing. The pupils of this group are distinguished by the possession of a more melodious voice.

In the children who acquired deafness in early infancy the understanding of what is heard is slow and reluctant while they do not know the sounds of the language. They do not recognize the sound they hear; their treasury-room of memory is still empty of words and syntax. In those pupils we must resort to the oral system in order to help the aural instruction. The recognition of the word by the eye must lead to the understanding of the sound of the word. Generally the pronunciation and articulation of these pupils is weak and the voice is monotonous, but the instructors will notice that the exercising of the voice and the speech muscles is far more easy than is the case in the congenital deaf.

In the pupils who suffer from congenital deafness and dumbness the power of perception and of association and the action of the motor nerves of speech are generally all equally slow, hesitating and weak. These pupils are the real deaf and dumb. When we succeed in developing their hearing power even to a high, almost normal degree, the instruction has to seek with the greatest difficulty to combat their dumbness or, what is the same, to develop the inner cerebral mechanism that governs speech. To reach a correct understanding of the cause of the difficulties mentioned we must remember the formation of speech by the normal infant. We distinguish different periods in the development of the infant's speech. In the first period, during the first year, the infant utters involuntary sounds, which must be considered as a simple muscular action of the apparatus of speech produced by an unconscious reaction of the numerous stimuli which the child receives from without. Later on the stimuli becoming more intense reach, through the spinal marrow, the centers of the cortex, and the child begins to feel the muscular movements and to be conscious of them. About the same time, however, the child begins to hear the sounds it produces. Henceforward it feels those sounds as well as it hears them. Both sensations now leave their traces on the cortex of the brain in those parts which are destined for the motor center of the muscles of articulation and for the center of hearing. The sensations of feeling and of hearing the word occur simultaneously and therefore they become united by simultaneous association. The child now begins to imitate the sounds it produces itself and soon thereafter it notices the sounds produced by others and it tries to imitate them.

The child now commences to appreciate the conformity between the sounds it hears and the sounds it utters, the imitation becomes more and more complete, and finally syllables and simple words are pronounced. However, this pronouncing of words is simply mimicking what the child hears: the words have not yet any meaning for him. It is only gradually that the association between the heard and pronounced word and the realization of its significance takes place. This association is brought about by the simultaneous hearing of the word and the seeing of the object which the word indicates. Whenever the child sees its doll the word doll is repeated till at last the child unites the word doll inseparably with the object itself and henceforward the heard word and its characteristic meaning are fixed in the child's memory. The child enters the third period when it begins to use the words which it knows by memory. When it wants its doll it will

pronounce the word doll even without seeing the object or hearing the word pronounced by standers by.

Through what has been explained above, it is obvious that the hearing plays a predominant rôle in the learning of speech. Comparing now the normal case with the case which has acquired deafness in early childhood (which case is found suitable for aural instruction, where there is no serious organic defect either of the ear or of its nerves) it is clearly perceived to what extent the deafness causes a backward development of the centers of perception and of speech and of their association. These retardations in development and non-development take the form of a sensory and motor aphasia, which is more or less serious according to the period in which the child became deaf. Here the deafness is primary and the aphasia secondary: the child is dumb because it is deaf.

In the congenitally deaf and dumb (who, of course, are also found suitable for aural instruction provided there is no serious organic defect either of the ear or of its nerves) we cannot draw conclusions with the same assurance as in the preceding instance, for in the congenitally deaf and dumb the deviations in the development have already taken place before birth and consequently it is still more difficult, if not impossible, to determine the nature of the disease. However, while the preliminary treatment has awakened and later on has produced an appreciable amelioration of the hearing, we believe that we are justified in speaking here also of an arrest in development. It is only during the course of the instruction that we can determine whether this method of instruction is justifiable. It is evident, however, that the non-development of the parts has a greater extension and goes deeper in the congenitally deaf mute than in the deaf and dumb with acquired deafness. Also during the course of the instruction we will meet with greater difficulties in combating the sensory and motor aphasia. But we cannot say if the results will be less satisfactory, as the intelligence and the general disposition and the character of the child have a great influence on the instruction. A pupil with a favorable disposition and a good character but with serious retardation in the cerebral mechanism for hearing and speech will sometimes give more satisfactory results than the unintelligent and lazy child who has only a slight arrest in development.

A statement that we can make with all assurance and which we cannot repeat with too much emphasis is that the instruction cannot begin too early. This teaching of the very young child is essentially a woman's task. It is infinitely delicate and is the subject of the greatest efforts of patience on the part of the instructors, but the results will largely pay for all the exertion, labor, love, and attention lavished on the unfortunate child.

Plaats, 10.

## CALCIUM THERAPY OF TUBERCULOSIS.

By MAX KAHN, M.D., M.A., Ph.D.,

NEW YORK.

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Practitioners of medicine have used the lime salts in the treatment of tuberculosis for several centuries. It was prescribed empirically at first, and later on physicians based their therapy of phthisis with this element on the ground that the disease was due to a demineralization of the organism of its lime salts. Others have recommended the use of the calcium salts, not as a curative agent of the disease proper, but as a means of preventing the hemorrhages to which the tuberculous are so prone. But not all physicians are enthusiastic regarding the use of this remedy, in spite of the fact that very good results are reported in the literature. There are several proprietary medicines on the market purporting to cure tuberculosis, which contain as their main ingredient 4 per cent. of the chloride of calcium. It was thought proper to summarize our knowledge of this matter so as to be in a position to draw some conclusion regarding this subject.

In 1783 Fourcroy suggested the use of lime in the treatment of tuberculosis, and, though his results were inconclusive, he urged a general tryout of his plan. It was his custom to administer one gram calcium chloride internally, and to apply externally compresses soaked in a solution of this salt. Fourcroy's recommendation was but an empirical one, for he had no scientific data upon which to rest his claims. Since his time rather little work has been done on calcium metabolism in general, and very desultory have been the researches on the metabolism of lime in the tuberculous. Our knowledge of this subject is, therefore, very meager, but certain important facts and principles have been established.

A portion of the calcium present both in animal and vegetable food exists in loose combination with certain albumens of acid character, but by far the greater part occurs in the inorganic state as salts of phosporic and carbonic acids. Vegetable foods are generally richer in calcium than are flesh foods. Eggs and milk are particularly rich in lime because the embryo and infant need much calcium in their period of growth. The greater part of the calcium which enters the body passes into the feces, although in varying proportions, according to the nature of the food supplied. According to Bertram[1] there is present in the urine of man 18 to 43 per cent., and in the feces 60 to 80 per cent. of the calcium consumed. The fate of calcium in the body is very closely connected with that of phosphoric acid. The quantity of calcium excreted in the urine increases when calcium phosphate or carbonate is administered in the diet; thus Soborow[2] found that in two cases so fed the amount of lime excreted daily in the urine rose from 0.28 to 0.87 gm.

The insoluble inorganic calcium salts are dissolved in the stomach depending on the amount of hydrochloric acid present. The greatest absorption, however, is not in the stomach but in the upper part of the small intestine.[3] There the dissolved calcium salts are transformed again into neutral or acid calcium carbonate or phosphate, and into the salts of fatty acids, the amount taken up by the body depending on the reaction of the intestine, on the quantity of carbonic and phosphoric acids present, and upon the various fermentation acids present. During starvation a part of the calcium set free through the breaking down of the cell tissues appears in the feces. Müller and Munk found in two such cases 69 and 32 mg., respectively, in the feces, and 377 and 446 mg., respectively, in the urine.[4]

In adult dogs the calcium requirement is entirely dependent on the diet; the more protein, fat, and probably even carbohydrate in the diet, the greater

the amount of calcium required to keep an animal in calcium equilibrium. The explanation of this is that calcium combines with injurious or useless metabolic products in order to assist in their elimination.

For adult rabbits 0.006 gm. of CaO in vegetable form per day per kilogram of body weight was sufficient to maintain calcium equilibrium during five months. The CaO content of the bones was 300 times greater than the combined CaO content in the albuminoid material.[6] Calcium salts, when injected subcutaneously or intravenously, pass out quickly and almost entirely through the intestine, the large intestine being chiefly selected, although minute quantities are excreted by the small intestine. Voit[7] concluded that calcium was excreted by the intestinal wall, and Rey[8] showed that the amount thus put out may reach 50 per cent. of the intake. The addition of sodium chloride appears to increase the output of lime. In diabetes, these authors found, there was generally a calcium salt loss. From these experiments we may conclude, therefore, that the primary organ for the excretion of calcium is the intestinal tract, and the organ of next importance is the kidneys.

On these grounds, hence, it is futile to attempt to determine the amount of calcium absorption in the body, or the condition of the normal body upon which this absorption depends. For the same reason the attempts to refer those diseases which depend on an imperfect deposition of lime in the bone (rachitis) to an imperfect absorption of calcium salts have failed completely.[9] The general statement may, however, be made that the greater the amount of acid constituents present in food or produced in the body (for example, from the sulphur of protein) the greater is the amount of lime appearing in the urine. With an increased acidity of the urine its power to dissolve calcium is also increased. This explains why so little calcium is found in the alkaline urine of the herbivora, and so much more comparatively in the urine of carnivora.[10] On the same grounds Bunge explains[11] the greater percentage of calcium in the urine from meat diet compared with that from vegetable diet. More calcium appears in the urine after administration of acid calcium phosphate than after the corresponding basic salt. Hydrochloric and sulphuric acids increase the calcium output by the kidneys. Administration of alkalies somewhat diminishes it.[12] In diabetic acidosis, and in other conditions in which greater quantities of organic acids are present in the tissues, the urinary calcium is considerably raised, but falls when such cases are treated with sodium bicarbonate.[13]

A few years after the aforementioned Fourcroy, Quarin also recommended the use of chloride of lime in the treatment of tuberculosis, and he reported good results. In 1832 Cohen,[14] after a lapse of almost forty years, gave a new impetus to the use of calcium for the phthisical. Despinay,[15] in 1860, recommended calcium carbonate for tuberculous patients, and Hahnemann, ten years later, attested to the efficacy of Despinay's method by recommending the use of "calcaria carbonica" in phthisical individuals.

Senator,[16] the great authority on physiological chemistry, asserted that in pulmonary phthisis an abnormal quantity of calcium is excreted in the urine, even if little food is administered, and the patients suffer from diarrhea. This results in a poverty of calcium in the organism.

Crighton[17] obtained very excellent results in the treatment of tubercular adenitis by administering internally a solution of calcium chloride for a period of two or three years.

Before administering the lime salts to patients it is important to be cognizant of the general pharmacology of this remedy. Velden[18] administered to patients 4 to 6 gm. of calcium lactate daily per os; to others he only gave 0.5 gm. of the lactate per diem; while to a third group of patients he injected intravenously a few cubic centimeters of a 5 per cent. solution of calcium chloride. He found that calcium enhances the coagulating power of the blood, and renders the morbidly permeable vessel walls less permeable. The latter effect is strikingly evident in hemorrhagic affections, such as scurvy. The hemostatic effect, therefore, can be anticipated only in cases of bleeding by diapedesis. This fact should be remembered when treating cases of pleural effusions, where the use of calcium will render the vessel walls less pervious, and will thus check absorption of the fluid. The absorption of calcium depends on a variety of factors, especially on good gastric secretion and on the absence of fermentation acids in the intestine. However, it must not be forgotten that animals develop cachexia when given lime salts over long periods.

Our knowledge of the salts excreted through the urine in phthisis is not settled. In phthisis the balance sheets show, according to certain authors, that there is a demineralization in the tuberculous, but according to others, it can not be regarded either as a constant or as an early sign of phthisis.

From a study of the metabolism of six cases, Vanini[19] found that while the tuberculous organism generally lost salt this loss was not a regular phenomenon, periods of salt retention even being noted. The general salt loss is regarded by Vanini as a result of the general disturbances of the nourishment of the body, and hence, not a primary symptom.

The results of Vanini were not corroborated by the researches of Sarvonat and Rebattu.[20] They found that the tuberculous suffer with marked absorption disturbances and especially with high mineral secretion. Lung tuberculosis patients show high calcium content of the feces. Perhaps this is a method of getting rid of excess of calcium from the body, but the urine does not take part in this decalcification.

Halpern[21] also found that in cases of tuberculosis there is a marked demineralization of the organism, which results in an increase in the neutral sulphur of the urine when the patients are on a diet rich in inorganic sulphur. In a paper on the influence of tuberculosis on the mineralization in guinea pigs Sarvonat and Rebattu[22] gave analyses to prove that in the ash of the skeleton and soft tissues the content of phosphorus varied irregularly, tending to be high in the soft tissues. The relative content of calcium of healthy and tuberculous tissue (guinea pig) is shown in the following table:

| | Normal pigs, grams | Tubercular pigs, grams |
|---|---|---|
| Calcium of bone | 6.342 | 4.6 |
| Calcium of soft parts | 1.253 | 0.774 |
| Relation of calcium to total (bone) | 0.496 | 0.357 |
| Relation of calcium to total (soft parts) | 0.179 | 0.162 |

It is a fact, that according to the extensive metabolic experiments carried out by Ott,[23] that there is a demineralization in tuberculosis. But it is wrong

to assume that it is an inevitable symptom, or that it is a symptom that occurs in the early course of that disease. This contradicts the findings of the French observers.

The author[24] found that tuberculous lung areas are twice or thrice as rich in calcium salts as normal lung areas. He also found that guinea pigs inoculated with tubercle bacilli cause a deposition of lime salts in the tuberculous areas. But this is not to be taken as an argument for the treatment of tuberculosis by calcium salts, according to Peittre.[25] He found that a large number of the calcified tuberculous foci (which were examined during a sanitary inspection of beef) showed that a large proportion of such lesions contained virulent tubercle bacilli. From this he concludes that calcification of the lesion is not a sign of their healing, and therapeutic methods based on the introduction of calcium salts into the body are illusory and perhaps dangerous. He also states that the age of a lesion can not even be approximately estimated by the presence or absence of calcium carbonate deposits.

In 1905 Ferrier[26] recommended the use of lime salts for the treatment of tuberculosis. His therapy is based on the theory that tuberculosis induces a decalcification of the organism. His method of treatment has won many admirers, especially among the French and Italian physicians, and lately the British and American medical journals have published articles lauding this procedure. This so-called calcium therapy of tuberculosis is as follows:

The patient is placed in the best hygienic surroundings. Strict attention is paid to the diet. He is forbidden to use wines, beers, ales, etc. All acid fruits like lemons are interdicted. The patient is fed on potatoes, carrots, eggs, meats, fish, etc. As much rest as possible is urged. In addition to this the patient receives several times a day calcium carbonate, 0.5 gm.; tricalcic phosphate, 0.2 gm.; calcium and magnesia, 0.15 gm., and sodium chloride, 0.15 gm. Although Ferrier claims very good results for his method, still he emphasizes the fact that it is not *per se* a complete therapeutic method, and must not be looked upon as a specific. He states that the method of "recalcification constitutes the best means at our disposal for resisting tuberculosis. It has for its object to combat the humoral conditions which prepare the soil for the germination of the tubercle bacillus, and which facilitate its dissemination throughout the organism."

Letulle,[27] working in collaboration with Ferrier, obtained very good results with this method. They treated tuberculosis in all its stages, and they found that the condition became much ameliorated. The respiration became regular and dyspnea was diminished. The expectoration disappeared in many cases or else became less. Night sweats ceased from within one week to one month. The appetite was very much improved.

Even before Ferrier, Michelazzi[28] suggested the general use of lime in the treatment of tuberculosis. He personally obtained very good results, and he based his opinion on clinical and experimental observations. A little before the work of this author appeared in press Rudolph[29] reported very happy results from administration to five phthisical patients, tuberculin, together with 120 to 250 gm. of lime water per os daily. Defotenay[30] recommended that a drink containing a salt of calcium and syrup of tolu be given to patients suffering from tuberculosis. He obtained good results.

In his dissertation Colin[31] reported that the method of Ferrier is very commendable. He found that the procedure regulates the digestion, induces calcification in the lungs, and stops hemoptysis. The lime administration is of value, also, in tubercular peritonitis, laryngitis, epididymitis, etc. The good results are due to the calcification of the tuberculous areas.

Courtellement[32] found the method of Ferrier very efficient. He used it in the treatment of a whole sanitarium of patients with very good results. Likewise, Rostaine[33] obtained good results with the Ferrier treatment. He claimed that this is the only logical treatment, and he recommended it highly.

Several authors, however, have expressed themselves as opposed to the Ferrier school. Cosimo[34] found that saturation of the body with lime salts does not increase the calcium content of the lungs, owing to the presence of a substance in the lungs which "repels" the deposition of the lime. This finding is a corroboration of the report of Bracci. From these experiments which he performed on rabbits Cosimo concluded that calcium is not a remedy for lung tuberculosis.

Another criticism of Ferrier was made by Robin.[35] He stated that the treatment urged by Ferrier is based upon the fact that in the tuberculous there is an increased phosphaturia. But Robin did not believe that this symptom required treatment. Even if demineralization does occur in phthisis Robin did not believe that this demineralization can be cured by the administration per os of small quantities of calcium. He disagreed with Ferrier that there is present in the tuberculous a gastroenteric disorder which aids lime excretion, thus inducing the decalcification of the organism.

But seven years before Robin reported his results Angiulli[36] found an increased phosphaturia in the pretuberculous and the tuberculous, which, he considered, induced a breaking down of the natural protective forces due to the accompanying increase in lime excretion. He, therefore, injected into his patients monocalcium phosphate in increasing doses. Of course, this treatment took a long time, but he reported several cures.

Ferrier had said that in the tubercular there is a gastrointestinal derangement which causes an increased calcium excretion. This observation could not be confirmed by Robin. Loeper and Bechamp,[37] however, indirectly corroborated Ferrier's observation. They found that certain chronic intestinal diseases cause a loss of calcium, and from this arise symptoms such as asthenia, loss of weight, decrease of coagulation, hemorrhages, and nervous disturbances. In a later communication they reported[38] that in gastrointestinal lesions the calcium content of the blood is decreased.

Another author also reported lack of success with the Ferrier treatment. Lewisohn[39] administered per os calcium salts to thirty febrile tuberculous individuals for a period of four weeks. He found that this treatment did not in the least affect the temperature or the general condition of the patients. It was his custom to prescribe 0.5 gm. calcium lactate every four hours.

Crofton[40] indorsed the calcium treatment of tuberculosis. He explained the increased lime excretion in the tuberculous by the fact that "there is a selective affinity recognized to exist between calcium and an albumose (deutero albumose) known to be universally present in tuberculous foci, culture media, in the bacillus and in the excreta of

tuberculous subjects." Crofton brought evidence to show that this albumose produces fever in tuberculous subjects, and this pyretogenic power is lost by combination with calcium. He recommended the use of calcium in phthisis.

Sergent[44] used the Ferrier treatment for six years in his practice, and he obtained very favorable results. Four years ago Russel[42] declared that the treatment of tuberculosis should be based on the consideration that it is a disease due to a lime starvation of the body, which can be remedied only by furnishing the body with enough calcium to overcome this deficiency.

Lately Bruhl and Buc[43] reported the results of injection of 30 per cent. solution of calcium chloride crystals in twelve tuberculous patients with advanced lesions. In all cases the condition was very grave, with high fever, and tubercle bacilli in the sputum. In the majority of the patients treated the local signs improved rapidly; the expectoration became less profuse, and the cough less harassing after the third injection. There was marked increase in body weight, but the reduction in temperature was comparatively slight.

In 1905 Hacker[44] expressed the opinion that the inhalation of fine particles of gypsum dust is very beneficial in tuberculosis of the lungs. The effect is due to calcification of the diseased areas in the lungs, which is induced by the fine particles of calcium sulphate. This has been corroborated by Boston,[45] who reported the case of a man who was suffering from pulmonary tuberculosis, and who accidentally inhaled lime dust, and was completely cured.

Another American physician, Wells,[46] had used calcium in the treatment of tuberculosis for several years before Ferrier wrote his first report on this subject. Wells prescribed calcium suiphide. 15 grains three times daily. It is to be understood that he attended to the diet and general hygienic surroundings of the patients as well.

In looking over the mass of literature on this subject one is left in doubt whether the use of lime in the treatment of tuberculosis is to be recommended. There is, however, no danger in its use, and according to the observations of a number of physicians, it is of marked benefit.

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# PULSE PRESSURE IN DIAGNOSIS AND PROGNOSIS.*

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THE range between the diastolic and the systolic is the pulse pressure. A blood pressure reading is not complete, and may be very deceiving, if the pulse pressure is not ascertained. Further experience is daily proving the truth of this statement.

Some abbreviated case reports showing the importance of the pulse pressure may be of interest:

CASE I.—W., aged 47, insurance agent, sought advice for embarrassed breathing. Upper chest slightly heaving with each heart beat, anxious expression, marked pallor. Systolic pressure 230, diastolic 90, pulse pressure 140 mm. Diagnosis, aortic regurgitation. This diagnosis was made on the blood pressure reading, as no other condition produces this extensive pulse pressure. Of course, the diagnosis was confirmed by other methods.

CASE II.—G., aged 27, farmer, applicant for life insurance, reported by competent examiner with diastolic 55, systolic 120, pulse pressure 65 mm., otherwise a first-class risk. Aortic trouble was suspected and the examiner requested to re-examine after vigorous exercise. Rapid pulse, great irregularity, air hunger, and an aortic murmur were reported and the applicant was declined. Later reports indicate serious disease. It will be noticed in this case that the systolic pressure was normal, and the applicant would have been accepted but for the pulse pressure revealed by the diastolic reading.

CASE III.—K., aged 58, construction contractor. Gallbladder drained one year ago. At that time was in

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serious ill-health, with systolic pressure 210, and a trace of albumin. Diastolic pressure not taken. Now in the terminal stage of nephritis; myocarditis marked, mitral stenosis and insufficiency; labored respiration, general anasarca; systolic pressure 120, diastolic 105, pulse pressure 15 mm. This is a case where the myocarditis and insufficiency make it impossible for the heart to respond to the stimulus of the accumulated poisons in the blood. (This patient died a week after this report was written with the remarkable pulse pressure of 10 millimeters.)

Case IV.—S., aged 55, railroad builder. Hypertrophy with arteriosclerosis, myocarditis, auricular fibrillation; Cheyne-Stokes respiration, great restlessness, "traveling delirium," with occasional violence; kidneys fairly good; systolic pressure 137, diastolic 120, pulse pressure 17 mm. Patient died suddenly in the ninth week. In this case it would seem that the peripheral resistance caused by the toxic blood and the rigid blood-vessels maintained a high diastolic pressure while the heart had not the strength to keep the systolic high. With 25 millimeters additional systolic pressure he might have lived longer.

Case V.—M., aged 40, government inspector, Cardiovascular renal disease, far advanced with great hypertrophy but without leaking; urine rich in albumin and casts, systolic pressure 210, diastolic 165; usual attending symptoms, dizziness, headache, wakefulness, disturbed digestion, irritable. Patient developed rather suddenly air hunger, which was continuous and very distressing. As the heart was compensating and the pulse pressure was compensatory, it was suspected that acidosis was affecting the breathing center and liberal use of alkalies soon afforded relief.

Case VI.—P., aged 38, paving contractor; living under very heavy nerve strain; restless, wakeful, weak; intestinal digestion impaired, autointoxication pronounced; a trace of albumin, several hyaline casts, indican excessive; systolic pressure 118, diastolic 100, pulse pressure 18 mm. There was no indication of organic disease of the heart to account for the rather low systolic pressure and the abnormal pulse pressure, and it was believed that the toxemia was spending its force on the heart muscle, limiting its power. When the poison had been swept from the intestinal tract and eliminated from the blood the systolic pressure promptly rose to 135, striking the proper balance. That organic disease would soon develop in such a case is more than probable.

All these cases were examined repeatedly and the pressures were fairly stable, as reported.

These condensed reports of a few cases selected from a great many similar ones in practice and in life insurance work show that we may be greatly deceived if we depend on systolic pressure alone. Examination of 1000 men and women in average health showed a pulse pressure of 20 to 50 mm. A safe range is 25 to 45 mm. Experience has proven that less than 20 or over 50 mm. is pathological.

The best way to obtain the pulse pressure is by the method of auscultation. The sleeve is rolled well up, but constriction avoided; the cuff is adjusted, the arm laid at rest with the palm of the hand nearly upward; the stethoscope is applied over the artery near the condyle and compression is made till a sound is heard, and is increased till it disappears. Then the pressure is released slowly, and when the collapsed artery fills with blood there is a thumping or snapping sound with each pulse beat. This will continue while the indicator or mercury column traverses about five millimeters, and for the next five or ten millimeters, in many cases, there will be a murmur not unlike a moderate mitral murmur; then follows the sound, increasing in intensity to a high point, then rapidly disappearing. The first return appearance of the sound is the systolic and the high point before disappearance the diastolic.

These illustrative cases show the valuable aid of pulse pressure reading in diagnosis and prognosis in several different conditions, but there are other cases where it will be found useful and by the method of auscultation it is simple and easy to obtain.

It is quite possible to learn the extent of disease of the myocardium by means of the blood pressure. If a patient is exercised vigorously the systolic and diastolic pressure will usually rise. Testing the pressure every three minutes will show a prompt return to the normal in a sound heart, but very slow return in disease of importance. If there is serious myocarditis the systolic pressure may fall and diastolic remain stationary, thus developing small pulse pressure.

A study of the sound in average normal hearts is very interesting, especially in life insurance, and will readily reveal weakness, or lack of size, or, on the other hand, the strength and the power to fight disease successfully.

We have much to learn about blood pressure, but three things have been clearly demonstrated:

1. The sphygmomanometer is so valuable in the diagnosis and prognosis and in the treatment of disease that it is indispensable to the progressive physician, the successful surgeon, the competent medical examiner.

2. The pulse pressure is absolutely essential and therefore the diastolic pressure must be taken.

3. The method of auscultation is the best.

## THE FRENCH ASPECT OF FUNCTIONAL LIVER TESTING.

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Standard methods belong to no one country. The rapid diffusion of scientific knowledge at the present day makes a method which claimed the attention of a little group of workers on one day the property of the world on the next. To label a method French or German is to deny that it has earned that dissemination which attends any worthy effort. But to say that the aspect or general method of approaching a problem is somewhat different in the various centers is to voice a truth which must be apparent to anyone who has had an opportunity of seeing different schools at work. In France, for example, the teaching of the Widal school is the dominant thing in the study of renal lesions and examinations of the blood sera are the order of the day. In Germany these methods give way to the cryoscopic index and functional color tests. If the French have devoted more time to cholesterinemia, azotemia, oxalemia, hemolysins, and sensitized vaccines, the Germans have erected their framework on an elaborate system of physiochemical and metabolic studies. It is therefore of interest to simply discuss the aspect of functional liver testing in France, together with a short description of the classical syndromes attending liver disturbances.

Diseases of the liver have remained in our textbooks on a more or less well-defined pathological basis, with a tendency through the recent application of functional tests towards the recognition of certain faulty functional conditions. The greatest interest attaches to the various methods which have been advocated recently toward the elucidation of hepatic function, namely the phenoltetrachlorpthalein test (Rowntree, Hurwitz, Bloomfield, Whipple) and the estimation of blood lipase and fibrinogen (Whipple, Mason, Peightal). These methods seem to be clinically applicable, and it is hoped that extensive data will soon be forthcoming. In the meantime it seems to me that clinical appreciation of

these syndrones dependent on functional disturbances does not seem to have crystallized to the same degree as the French clinicians have attempted the problem.

Bearing in mind the topography, anatomy, and contiguous relations of the liver as an explanation of the pathological processes in that region, we are requested to pay careful attention to its physiology. The functions of the liver as they are recognized are tabulated below in the first column, and the functional tests which have been based on a disturbance of each function are to be found in the second column.

| INTERNAL SECRETIONS | FUNCTIONAL TESTS |
|---|---|
| 1. On carbohydrates: glygenic function. | Alimentary glycosuria. |
| 2. On fats: adipopexic = arrest of fat in the Kupfer cells; adipoetic = formation of fat from carbohydrate; adipolytic. | Lipuria. Lipemia. Ultramicroscopic test. |
| 3. On albumins; ureopoetic formation of urea. urea nitrogen ÷ total nitrogen = nitrogen coefficient; normal = 0.85—0.95. | Reduction of nitrogen coefficient, increase of amino acid polypeptid, and ammonia nitrogen at the expense of urea. |
| 4. Thermal function. | Hypothermal condition. |
| 5. Antitoxic: alkaloids, bacteriopexic, metal salts. | Hypertoxicity of the urine. Intermittent elimination methylene blue (Chauffard), basis methylene blue test of Roch, |
| 6. Blood: hemolytic. | due to (a) disease of the liver cell, (b) excessive fragility of the red cells. |
| 7. Coagulation of the blood:—formation of thrombin; formation of fibrinogen. | Lessened coagulability. Hemorrhage. |
| 8. Conversion of urobilinogen into bilirubin. | Urobilinogen in the urine. |
| EXTERNAL SECRETION | |
| 9. Bile. | Giving rise to the general urinary, fecal, and serum changes. |

Therefore it is evident that if there is a disturbance of the liver cells, a corresponding disturbance in function will result. Whether there are isolated disturbances in function due to focal lesions as those determined experimentally remains to be demonstrated.

The urine is examined for bile pigments, bile acids, the elimination of urea, which decreases in insufficiency, to rise in certain cases of exalted function. Ammonia which normally oscillates around 0.70 grams per liter can be doubled or tripled, while the elimination of the sulphur (Robin), namely the relation of completely oxidized to total sulphur which is normally 80-90 per cent. is reduced in certain cases of retention icterus and hepatic insufficiency. Indican for certain observers like Gilbert and Weil is a sign of hepatic insufficiency, but its presence in so many varied conditions and its obvious dependence on intestinal function makes it of little value as an hepatic test. Urobilin is considered the product of the diseased liver cell, the product of the "hematolyse hepatique" as Robin styles it. Since the researches of Hayem, urobilin was considered to be the result of the imperfect elaboration of hemoglobin liberated by the destruction of the red cells which the hepatic cells were incapable of transforming into normal bile pigment. Gilbert and Herscher, on the contrary, consider it to be renal in origin, formed on the level of the renal tubules from the bilirubin of the blood serum. Chauffard in admitting the possibility of its renal origin says that the small amount of the bilirubin in the blood serum is not without significance. This is different from the view commonly accepted, which is expressed in Ewald's recent work on "Leberkrankheiten," namely, that the urobilinogen is due to the transformation of the bilirubin in the intestines which is absorbed and taken back to the liver. The hepatic cells being diseased are unable to produce the transformation back into bilirubin, with the consequence that it reaches the general circulation and is eliminated by the kidneys. This would seem to indicate that the property of converting urobilinogen into bilirubin was a specific one of the hepatic cell.

While the feces are examined for the presence of bile pigment, stercobilin, and for fat determinations, the examination of the blood seems to be, if anything, more important. Here it is possible to demonstrate the bile pigment and measure it according to the method of Gilbert, Herscher and Posternak, which is based on the fact that beyond a dilution of 1:40,000 a reaction (Gmelin's) is not obtained. While normal individuals show a bilirubin to the extent of 1:36,000, the so-called "cholémiephysiologique," individuals afflicted with the so-called familial jaundice show a bilirubin which oscillates between 1:10,000 and 1:25,000, on an average 1:18,000; those with biliary cirrhosis 1:3,000, and those with the so-called simple chronic jaundice (Castaigne) 1:3,500 to 1:9,000. Urobilinemia (Troissier) cholesterinemia (Chauffard) determination of the refractivity of the red cells to graded solutions of NaCl have also been suggested. Here the red cells seem to have a normal or diminished resistance, and instead of there being hemolysis at 4.6:1,000, this takes place, for example, at 6:1,000. The demonstration of toxic and hemolytic substances in the sera, the presence of the so-called granular red cells (Chauffard and Fiessinger), and the demonstration of autoagglutinins of the red cells (Widal), and finally the dosage of the serum for urea (Widal), are all of great importance in reaching a solution of hepatic disturbances. Finally the method of Lemierre and Brule of testing for alimentary lipemia is deserving of mention, even though its application is too recent to enable us to determine its value. It consists in giving the individual 30 grams of butter and bread and testing the serum with the ultramicroscope for the presence of little brilliant fatty granulations, the so-called hemoconies. In icterus with obliteration of the bile passages they are not to be found owing to the fact that the bile no longer penetrates the intestines, and absorption is prevented.

Various experimental methods have been used, among which are the following:

1. Alimentary glycosuria: This question is still an unsettled one. The old school, Rodger, Achard, and Castaigne, and Fiessinger, in their recent handbook on "Maladies du Foie et des Voies Biliares" still recommend the use of pure glucose. But Strauss long since demonstrated and advocated the use of levulose, claiming that 78.3 per cent. of liver cases gave the levulosuria, while only 6.3 per cent. gave dextrosuria. This was more or less gen-

erally confirmed and the general feeling was that this test is but a link in the chain of evidence and is by no means to be used alone. Strauss used 100 grams of dextrose in 500 c.c. of water while Castaigne recommends 150 grams in 300 c.c. to be taken over a period of one quarter of an hour, and the urine collected for the next ten hours and examined with Fehling's Solution. Lactose and Saccharose have the objection of first being converted into glucose before objection. Castaigne says that we are by no means to depend on this reaction alone—it is a "complimentary test," but the difficulty in establishing normal tolerance and the fact that there are so many outside factors make it by no means conclusive.

2. The elimination of methylene blue (Chauffard), 1 c.c. of a 5 per cent. sterile solution of chemically pure methylene blue is injected into the buttock or subcutaneously and its elimination studied in fractional specimens. Normally it commences in one-half hour, to attain its maximum in 3-4 hours, and gradually disappears in 50 hours. If on the other hand the elimination of the pigment is made in periods or cycles where there is a diminution and then an increase in output of pigment, in other words where the output is intermittent, there is present most often hepatic insufficiency. I have been able to perform this test on a number of renal cases and have observed this phenomenon on several occasions. The explanation seems difficult, and is best set forth in the statement of Chauffard, "Le bleu ne sert du reste qu'a mettre en evidence le phénomène plus general du rythme intermittent des eliminations urinaires chez les hepatiques."

3. Roch of Geneva has proposed a test which has found some application, but which lacks sufficient clinical confirmation. The patient is given a pill of 0.002 milligrams of methylene blue and the next twelve hours the urine is collected in three samples of four hours each. If the liver is not able to fix this amount which it normally should, the second sample should be green. I have used this on repeated occasions and in slight undoubted functional disturbances of the liver, the second sample was green. Only a few days before writing this communication I gave it to an individual who had a liver distinctly reduced in volume and definite symptoms of hepatic insufficiency and the urine over the entire three samples was green in color!

4. Experimental indicanuria: Gilbert, Weil and Delon claim that a normal individual on a milk diet after ingestion of 1 mmg. of indol does not exhibit indicanuria, while cne afflicted with hepatic insufficiency does. We see therefore, as Florand states, there is no pathognomonic sign for insufficiency or superactivity of the liver, nevertheless we have at our disposition a whole series of tests which taken collectively are extremely suggestive. Therefore, says Florand, when we are in the presence of a patient with persistent urobilinuria, diminution of urea and hypertoxicity of the urine, and when we can provoke alimentary glysosuria and an intermittent or cyclic elimination of methylene blue, we have the right to assume the hepatic activity is diminished. When, however, the urobilin is absent or only slight and passing, the urea is augmented and the urine is hypotoxic, and if all the glucose ingested is fixed in the liver we can believe that hepatic function is increased. Hepatic hyper- and hypo-states are therefore clinically appreciable and the information which these various methods give us form the basis of the study of that organ in France today.

If anyone will pick up the "Elements d'Anatomie et de Physiologie Médicales" by Landouzy and Léon Bernard, he will find after the description of the anatomo-physiology an account of the four great syndromes around which most of the clinical aspects of the diseases of the liver center. Castaigne in his little book "Les Maladies du Foie et des Voies Biliaries" gives five. The whole tendency is to group the symptomology of liver conditions in these four syndromes. Bearing in mind these states, especially the first two syndromes, many of the minor hepatic troubles will be explained.

1. Syndrome of hepatic insufficiency: This syndrome is present all the way from the slight insufficiencies which may characterize the infectious fevers to the severe cases with massive degeneration of the organ. In this syndrome there is an alteration of the hepatic cell and a corresponding alteration in function. From the reduction in bile formation, the stools are soft, fetid, greasy and pale; owing to a lessening in urea formation, there is a diminution of the output of this substance in the urine and an increase in toxic substances producing the hypertoxicity of that excretion. The liver is no longer able to fix urobilinogen and it appears in the urine. Owing to the fact that the liver is the great center for the neutralization of various toxins, these are not removed or neutralized and there results the general symptoms of intoxication, in this case characterized by an earthy tinge of the skin which is pale and dry, dry lips and emaciation from disturbances in nutrition, the fibrinogen and thrombin functions are impaired, resulting in an increased tendency toward hemorrhage, mucous, cutaneous and gastrointestinal; there is a subicteric tint to the conjunctiva; while the nervous system is the seat of more or less marked toxic symptoms resulting in cerebral torpor, somnolence, and even coma. In profound processes there is an alteration of the heat mechanism so that hypothermal state may result. Depending on the extent of the change, the alimentary levulosuria becomes positive, the elimination of methylene blue cyclic or intermittent, and there may even be a complete cessation in the elaboration of bile pigment. It must be remembered that this syndrome may be present in every degree from slight disturbances to those of intense type resulting in an almost complete cessation of function. This type is obviously improved by hepatic opotherapy.

2. Syndrome of hyper function: In certain cases, as in biliary hypertrophic cirrhoses, pigmentary cirrhoses, and in certain cases of diabetes, this syndrome is encountered. It is far less frequent than the former, but it seems that under certain conditions, especially those mentioned above, the liver function is capable of being exalted. There is an augmentation in the quantity of bile formed, resulting in the deep greenish brown coloration of the feces, and at the same time an icterus from the bile resorbed in excess, while the urine shows an inncrease in urea up to 50 grams in 24 hours. The alimentary glycosuria test is never positive, but on the contrary these individuals will often have a sugar tolerance above normal. Nevertheless the liver will in certain cases transform more of the glycogen into sugar than under normal circumstances resulting in a diabetes by hyperactivity of the liver. With this glycosuria, and hyper-urea

formation there are polyphagia and polydipsia and the glycosuria which is moderate after eating increases some five or six hours later. This type is aggravated by the administration of hepatic opotherapy in contradistinction to the former which is improved. In this syndrome pancreatic opotherapy finds its application.

3. Syndrome of portal hypertension: This we all know as the typical syndrome attending Laennec's cirrhosis. This corresponds to the stasis of the portal area and the congestion and alteration of all the organs drained by it. The gastrointestinal catarrh, and hemorrhages, hemorrhoids, splenomegaly, collateral circulation, arterial hypotension, irregular and lessened excretion of urine, and ascites are too well known to merit description. Suffice it to state that joined to this syndrome is usually the syndrome of hepatic insufficiency owing to sclerosis of the liver lobules.

4. Biliary syndrome: While icterus is but a symptom and symptoms which it produces are too well known to merit discussion, it has received a great deal of attention from many French observers, principally Gilbert, Chauffard, Widal, Lereboullet and many others. To discuss the aspect of this phase would require an amount of space entirely incommensurate with the limits of this article. Suffice it to say that while cases are extremely numerous, for simplicity's sake they can be divided into two great groups: (a) Those due to the obstruction of bile, namely icterus by retention whether it be extrinsic, outside of the ducts such as new formations, glands, adhesions, etc., intramural or some change in the ducts themselves such as inflammation or stenosis, or intrinsic due to the blocking of the duct with a calculus or inflammatory material. In all cases there is a partial or total obstruction resulting in the systematic absorption of the material and a more or less complete obstruction to the flow of bile into the intestine. (b) In certain cases there is an excessive formation of bile resulting in the systematic absorption and the so-called pleochromatic icterus in others there is an hemolytic process at the seat of the trouble due either to congenital or acquired weakness of the red cells or to the introduction or formation within the organism of hemolytic substances which are capable of destroying the red cells. The important thing is to study such a case from every aspect; that is, to search the history carefully for antecedents: colic, hematemesis, and the congenital element from the so-called familial jaundice; to make a careful examination of the blood, urine, and feces which by comparison will enable us to determine its probable nature. In suspicious cases the blood is examined for auto agglutination, granular reds, lessened refractivity, and hemolysis. If to this we join a functional examination of the liver, we have sufficient information to enable us to determine the type and probably the etiology.

As Robin points out in discussing the functional testing in hepatic cirrhosis, neither doctrines, nor the results of some vaguely defined and over inflated test, less of possible reasoning and more of facts observed without prejudice are the guides which should point out the methods employed and the more available they are to the general practitioner, the greater will be our espousal. The poor patient who confides in you his life cares not for theories or cures or even pure science, however brilliant he may be. He only demands that he be cured or at least relieved, and while medical therapeutics is many times impotent when an anatomical lesion obtains, it can profoundly modify the state of affairs in many functional disturbances.

1934 Chestnut Street.

## A REPORT OF 128 CASES OF SCARLATINA TREATED BY VACCINES AND THE METHOD OF MILNE

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It is generally conceded that the organism causing scarlet fever gains entrance into the system through the nose and throat, although formerly and even up to the present date some of the medical profession believe that desquamation plays an important role in the transmission of scarlatina. A great variety of germs found in the nasopharyngeal secretions of scarlet fever patients have been described by various writers and investigators but their claims to specificity have not been substantiated. However, etiological significance must be attached to the large coccus described in the Medical Record of December 10, 1910, by E. C. Schultze and found in the throats of nearly all our scarlet fever patients, many times in almost pure culture, generally far outnumbering all other organisms present except a streptococcus. In speaking of this coccus in the future it will be referred to as *Micrococcus "S."*

To determine the value of Dr. Schultze's discovery therapeutically, we decided to treat all our scarlet fever cases with a vaccine prepared from the *Micrococcus "S"* through the kindness of N. S. Ferry, M.D., and beginning March, 1911, to the present date, one hundred and twenty-eight cases were so treated. These patients were treated at their homes. They were of the very poorest classes living in the most thickly populated corner of the globe, the lower east side of New York City, where strict isolation, dietary precautions, etc., were impossible, many of our patients being up and about on a general diet, at the end of four or five days (not with our approval, however). In addition to the vaccine injection all our patients received a preliminary course of eight or ten doses of calomel, 1/10 to ¼ gram and castor oil or citrate of magnesia, and also had their throats swabbed with a 10 per cent. solution of carbolic acid in oil, and their bodies rubbed with a 10 per cent. solution of eucalyptus in oil, as advocated by Robert Milne in his article on the "Home Treatment of Scarlet Fever" in the *British Medical Journal,* October 31, 1908.

A few patients after having been subjected to Milne's treatment passed smoky urine, an evidence of too great absorption of carbolic acid. We therefore temporarily discontinued the use of carbolic acid and the urine promptly cleared. We then diminished the strength of the carbolic acid solution to 5 per cent. and have been using the 5 per cent. strength ever since, with no untoward effects. Milne advises painting the tonsils with carbolic acid solution every two hours for the first twenty-

four hours, later diminishing the frequency according to the appearance of the throat. We would suggest, painting the posterior pharyngeal wall, as well as the tonsils, and continue painting until cultures from the throat show no more "S" cocci. The eucalyptus oil, Milne advises should be rubbed in thoroughly "all over the body from the crown of the head to the soles of the feet, at first twice a day, thence once a day until the tenth day of disease." The rubbing in of the eucalyptus oil, we found was very soothing, and in many cases relieved the intense itching which accompanied desquamation. The carbolic acid swabbing of the throats and the rubbing in of eucalyptus oil in the bodies were continued throughout the course of the disease and in a few cases were also used as a prophylactic measure on some of the healthy members of the family with very good result. However, due to the ignorance of the foreign mothers and lack of understanding, it is a question how thoroughly this treatment was followed.

The vaccines used were three in number, composed of the following organisms: (1) *Micrococcus "S,"* 400 million per c.c.; (2) streptococcus, 400 million per c.c.; (3) *Micrococcus "S"* and Streptococcus (combined), 400 million per c.c. In one hundred and three of the cases only culture "S" vaccine was injected. The other twenty-five cases received the *Micrococcus "S"* and streptococcus vaccine (combined), but as the results obtained by the use of the combined vaccine did not seem to be any better than with the culture "S" vaccine alone, the use of the combined vaccine was discontinued. The dosage of each injection was estimated according to the age of the patient and the severity of the disease.

Of the one hundred and three cases that were given only "S" vaccine, fifty-five received 1 c.c., forty-one received 2 c.c., five received 3 c.c., and two received 4 c.c. Of the twenty-five cases that were given the combined vaccine, ten received 1 c.c., ten received 2 c.c., two received 3 c.c., two received 4 c.c., and one received 7 c.c. In one hundred and twenty-one of the whole series of one hundred and twenty-eight cases only one injection was found necessary. Of the other seven cases, three cases received two injections, two cases received three injections, and two cases received four injections. The necessity for reinjecting a patient was judged by the reaction obtained from previous injections.

In most of the cases the reaction was rather striking. The temperature fell by crisis, and not as described in the textbooks by lysis, reaching normal in from 24 to 72 hours, the general condition of the patient improved markedly; whereas, before injection, many of these patients "looked sick," soon after the injection, however, their general mental and physical conditions showed such improvement that their facial expressions were those of well-being rather than of severe sickness; usually they felt hungry and cried for food, although in some cases the rectal temperature registered 104 or 105 degrees.

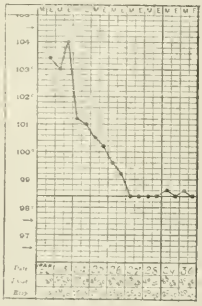
A few case histories may be of interest.

Case I.—M. W. (Case 2), male, three years old; history of one day's illness, fever, vomited, and appearance of eruption. Physical examination showed patient suffering from a typically severe case of scarlet fever; temperature 103, pulse 134, marked cervical adenitis forming a "collar" around the neck and dark-gray membranous patches covering hypertrophied tonsils which meet in the center of the throat. Injected 1c.c. culture "S" vaccine. Temperature the next day 101°, the third day 100°, the fourth day 99°, fifth day 101°, sixth day 100°, the seventh day 99°, eighth day 100°, ninth day 98°, after which the temperature remained normal. The swollen glands subsided rapidly, the throat cleared, desquamation followed, and the child made a complete recovery. Culture showed no Klebs-Loeffler bacilli. The chief interest in this case was the rapid disappearance of the membrance and of the extensive adenopathy, possibly in part due to the swabbing of the throat.

Case II.—M. G. (Case 3), male, two and one-half years old. History of having had a suppurating gland on side of neck incised one week previous to present illness. Present illness is of one day's duration; patient vomited, had fever, and eruption appeared. Diagnosis, scarlet fever. Temperature, 103°. Injected 1 c.c. "S" vaccine; next day, temperature 101°, rash fading; third day, temperature 98°, remaining normal after this day. On the sixteenth day of his disease both ears began discharging. (Culture taken from the pus showed only ordinary pyogenic organisms.)

Case III.—E. M. (Case 4), female, eight years old; ill one day, vomited, marked angina, pseudo-membrane covering both tonsils, punctate rash extending down to the knees. Temperature 103°, pulse 120, respiration 26. Child looked very sick. Injected 1 c.c. "S" vaccine and Milne treatment instituted. Following day, temperature 104, pulse 130, respiration 30. Notwithstanding the high temperature we found the child was sitting up in bed when we entered the tenement in which she lived and the child stated that she felt "all right." Physical examination showed rash covering the entire body, throat improved, membrane a whitish color, less anenopathy. Report of culture from the Health Department showed no Klebs-Loeffler bacilli.

The following chart shows the course of the temperature:



This is a fairly typical chart of nearly all the cases. First, a slight rise of temperature following an injection, then a rapid fall, usually of two or three degrees, with a rapid amelioration of all symptoms.

In connection with this case, we wish to state, that on account of the severity of the weather and the poverty of the family, they had no fuel to make a fire and as the entire family occupied only one small room with a single bed, the mother, the sick child and a younger sister age 3, shared the same bed throughout the illness; notwithstanding the contact the younger member did not contract the disease, probably due to the care that the mother took of the discharge from the nose and throat of the sick child.

Case IV.—E. U. (Case 28), female, nine years old. Five days' illness, fever, vomited first day of her illness. Physical examination, punctate erythema covering the entire body, dry, strawberry tongue, edges covered with sordes, tonsils meet and covered with pseudomembrane, cervical glands size of walnuts, child very ill, septic. Temperature 104°, pulse 124, respiration 26. Injected 3 c.c. "S" vaccine and Milne treatment instituted. The next morning (twelve hours later), temperature 100°, pulse 96, respiration 20. Evening of the same day, temperature 102, pulse 104, respiration 24. This continued for twenty-four hours, after which the highest temperature recorded in the evening was 99°, pulse 96, all symptoms abating. Child up and about on

the fifth day on a full diet (against our advice). Urine examination throughout the course of the disease showed no albumen.

Case V.—W. McE. (Case 41), male, four years old. Two weeks previous to present illness was in a contagious disease hospital for diphtheria; history of three days' illness, initial vomiting, fever, and sore throat. Physical examination showed a punctate erythema covering the entire body, marked cervical adenitis, congestion of throat but no visible membrane, strawberry tongue. Temperature 104°, pulse 136, respiration 20. Injected 2 c.c. "S" vaccine and Milne treatment given. The following day, temperature 102°, pulse 134, respiration 32; rash faint. Third day, temperature 102°, pulse 120, respiration 24; catarrhal symptoms and few macules appeared; throat clear. Evening of same day, temperature 103, pulse 130, respiration 28; macules more numerous (measles). Fourth day, temperature 103°, pulse 134, respiration 30; whitish exudate on tonsils; P.M., temperature 102° pulse 140, respiration 30. Fifth day, A.M., temperature 102°, pulse 140, respiration 34; P.M., temperature 103°, pulse 136, respiration 32; desquamating profusely. Sixth day, A.M., temperature 104°, pulse 140, respiration 38; P.M., temperature 104°, pulse 120, respiration 32; exudate in throat still present (culture showed no Klebs-Loeffler bacilli). Seventh day, A.M., temperature 100°, pulse 120, respiration 28; P.M., temperature 101°, pulse 120, respiration 28. Eighth day, temperature 99°, pulse 120, respiration 28. Ninth day, temperature 99°, pulse 120, respiration 28. Tenth day, temperature 98°, pulse 104, respiration 24. After this day temperature remained normal; no further complications developed. Urinary examinations normal throughout.

Case VI.—H. S. (Case 70), male, three years old. Typical scarlet fever with dark-gray membrane on tonsils, glands of neck about the size of walnuts, temperature 103°. Injected 1 c.c. vaccine "S"; temperature fell steadily until it reached normal on the sixth day, the glands on the right side of neck rapidly subsiding, but not on the left side; temperature fluctuating between 99° and 101°. On the thirty-fifth day of disease, injected 1 c.c. streptococcus vaccine with no apparent effect. Abscess developed on left side of neck, which was incised on the forty-third day of illness, after which the patient made an uneventful recovery. (Pus examined and contained only pyogenic organisms.)

Case VII.—O. T. (Case 89), male, eleven years old. This patient was first seen late in the evening on the fifth day of his illness. His attending physician told the family there was no hope for the child. He thought that the child could linger only a little while longer. History of initial vomiting, sore throat, and appearance of eruption. Had been delirious almost from the very onset of his illness. Temperature ranged between 103° and 104°. Physical examination: Semicomatose, delirious, profuse scarlatinal form eruption all over body, marked cervical adenitis and dark-gray patches on tonsils; temperature 103° to 104°, pulse 134, respiration 28. Injected 4 c.c. combined "S" and streptococcus vaccine. The next morning, temperature 102°, pulse 128, respiration 26. Patient rational. Temperature dropped steadily reaching 100° on the third day (eighth day of disease), then fluctuating between 99° and 100°, until the twelfth day (seventeenth day of disease) when it reached 98° and remained normal after that. Desquamation, which was profuse, was first noticed on the fifth day (tenth day of disease). After that the patient made a complete and uneventful recovery.

To cite more cases would only lengthen this paper unnecessarily. The cases treated were not selected; they were taken at random without any exceptions; every case that presented itself, mild or severe, complicated or uncomplicated was injected and results watched. Of the one hundred and twenty-eight cases treated the following three died:

Case VIII.—R. L., female, two years old; when first seen was moribund, in deep coma, with symptoms of meningeal involvement. Two injections of 2 c.c. "S" vaccine each were given; no change noted; child lingered for three days when she passed away. (A brother who had been a patient in the Willard Parker Hospital for three weeks suffering from the same illness also died that same night.)

Case IX.—W. B., male, aged four years. First seen on the fourth day of his illness. For three days previous temperature ranged from 103° to 104°. At the time of the examination, temperature 104°, pulse 140, respiration 30, bright scarlet eruption, marked cervical adenitis, dirty looking patches on tonsils. Injected 1 c.c. "S" vaccine. The next day, temperature 103°, pulse 134, respiration 28, nasal diphtheria complicating (culture showed Klebs-Loeffler bacilli). Diphtheria antitoxin administered. For the next eight days temperature ranged from 101° to 104°. On the ninth day 2 c.c. combined "S" and streptococcus vaccine injected; temperature dropped and on twelfth day reached 99°, at which figure it remained for two days. The patient's general condition was fair. On the fourteenth day, temperature rose to 100° and the right knee and ankle joints became slightly swollen and painful. Condition unchanged the next four days. Eighteenth day again injected 2 c.c. combined "S" and streptococcus vaccine. Nineteenth day left wrist swollen and endocarditis developed; 3 c.c. combined "S" and streptococcus vaccine injected. Twentieth day patient died, so that this case, which was very severe from the onset, did fairly well until the complicating scarlatinal rheumatism and endocarditis developed which rapidly proved fatal.

Case X.—S. S., female, four years old, a severe septic case of scarlet fever; temperature ranging from 104° to 106°. Extraordinarily large glands of neck and very dirty looking gray membranous patches in throat. On fourth day of illness injected 2 c.c. combined "S" and streptococcus vaccine without any apparent or appreciable effect. Fifth day injected 1 c.c. more of the combined vaccine, still no reaction. Owing to the severe sepsis, due probably to complicating streptococcus infection, on the seventh day we injected 2 c.c. of streptococcus vaccine; repeated the same dose two days later without change in objective or subjective symptoms. The patient died on the eleventh day of disease. This case, however, was the only one of a number of severe septic cases that did not seem to respond to the vaccine treatment.

At the same time that our cases were under observation, there were treated by private physicians in the same district three hundred and fifty-four cases of scarlet fever, which were looked after by the nurses of the Henry Street Settlement, to whom we must express our thanks and appreciation for their kind assistance in our work. These three hundred and fifty-four patients were treated by the usual expectant or symptomatic methods in vogue. Inasmuch as these families were able to pay for their medical services, we must assume that all other conditions which may have exerted any influence upon the course of scarlet fever, must have been more favorable; whereas, in our cases, because of the extreme poverty, ignorance, etc., the difficulties we had to contend with were, innumerable. Of the three hundred and fifty-four cases, there were eleven deaths (3.1 per cent.). Of our one hundred and twenty-eight cases, there were two deaths (1.5 per cent.). (The case cited, R. L., age 2 years, is not included, as this patient was moribund when the treatment was begun, besides having a complicating meningitis which really caused the death of the child.) Of the one hundred and twenty-eight cases, seven were complicated with diphtheria, cultures having shown Klobs-Loeffler bacilli; diphtheria antitoxin in addition to the vaccine and Milne treatment was administered. All of these cases recovered except case W. B., which died of complicating endocarditis. Other complications were: Adenitis, 7 (5.46 per cent.); nephritis, 7 (5.46 per cent.); otitis media, 3 (2.34 per cent.); arthritis, 3 (2.34 per cent.); pneumonia, 1 (0.86 per cent.); measles, 1 (0.86 per cent.); arthritis and endocarditis, 1 (0.86 per cent.); total, 20 (15.62 per cent.).

An analysis of these results reveals certain facts worthy of special note, such as: (1) The rapid improvement in most of the cases treated, the temperature falling by crisis and not by lysis as de-

scribed in the textbooks. (2) Notwithstanding the fact that many of our patients were out of bed and on a full diet early in the course of their disease, there were comparatively few complications. (3) Very few secondary contact cases developed, possibly due to the swabbing of the throats of the healthy members of the family as well as of the diseased. (4) The spread of scarlet fever could probably be kept under better control and the number of cases greatly reduced if all school children were examined by the proper health authorities at the beginning of each school term and in relays during the school year. Cultures should be taken from their throats and examined for *Micrococcus "S"* as well as Klebs-Loeffler bacilli; all suspicious cases to be excluded and isolated until further cultures show no more *Micrococci "S"* or Klebs-Loeffler bacilli present.

In conclusion, we would say that our experience with the use of the *Micrococcus "S"* vaccine and the Milne treatment warrants us in continuing their use in the treatment of scarlet fever; the results obtained compare very favorably with those obtained from other methods of treatment and perhaps, after further studies as to dosage, etc., in the not too distant future, the *Micrococcus "S"* vaccine will prove its value in reducing the all too great mortality percentage of scarlet fever.

Before closing, we wish to state that this paper was not written with the idea of exploiting any vaccine or of endorsing the Milne treatment, but merely to record our observations as they presented themselves to us in our case histories.

40 East Forty-first Street.
56 East Eighty-seventh Street.

## STUDY OF BACTERIOLOGY OF THE POSTERIOR NASOPHARYNX IN SCARLATINA.*

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Late in 1909, at the request of Dr. E. C. Schultze, Director of the Good Samaritan Dispensary of New York, the study of the bacteriology of the posterior nasopharynx in scarlatina was undertaken by the writer. He endeavored to isolate, if possible, and determine the rôle of a certain micrococcus found in this region and briefly described by Dr. Schultze in a preliminary report in the Medical Record, New York, Dec. 10, 1910. This organism was seen by Dr. Schultze in smears from 459 out of 555 cultures taken from the throats of patients suffering with typical symptoms of the disease.

After the writer became interested in the work, cultures were obtained, through the kindness of Dr. Schultze, from patients of the Good Samaritan Dispensary, and through the kindness of Dr. Guy L. Kiefer, of Detroit, from patients of the Herman Kiefer Hospital. On account of certain peculiarities of the organism in question, it early became evident that there were difficulties in the way of isolating and growing it in pure culture, although the organism could be seen in a large majority of cases in smears from cultures taken early in the disease. The greatest number of positive findings have been obtained by swabbing the posterior pharyngeal wall and allowing the swab to stand in a test tube of bouillon a few hours. The entire amount of bouillon is then plated in the usual manner.

The organism was not isolated in the later stages of the disease and was not found in any of the purulent discharges nor in the blood, which seems very significant, considering the fact that it appears to coincide with the contention of the majority of observers that the disease is contagious only in its early stages. All previous observations have been corroborated to the extent of finding a streptococcus predominating on the plates, while the organism next in order, with the exception perhaps of the staphylococcus, is the one fulfilling the description given by Dr. Schultze. For convenience in nomenclature this organism was called by the writer *Micrococcus "S,"* and, for the present, it will continue to be designated by that term.

The *Mic. "S"* is a large coccus usually found in pairs and often in tetrads, which grows luxuriantly on all culture media after the first few generations. While the writer believes it to be a distinct species, it is distinguished at times with difficulty, morphologically, from other cocci found in the buccal cavity, both in health and disease. There is no doubt that this identical organism has been seen by other observers, yet a detailed description of an organism of a like nature has not been found in the literature. Whether the *Mic. "S"* has or has not any specific clinical or pathological significance, for the purpose of placing it on record, a detailed description of the organism will be given, followed by a brief review of the experimental work carried out with it.

*Morphology.—Mic. "S"* is a large, clearly defined, biscuit-shaped diplococcus, sometimes appearing in tetrads, measuring about the size of the meningococcus and gonococcus. It is non-spore-bearing, non-motile, non-capsulated, stains deeply with all aniline dyes and is positive to Gram Cultural Reactions—Agar slant: Abundant, smooth, grayish-white, glistening, opaque, filiform or slightly beaded raised growth, becoming somewhat viscid within a few days. Agar deep: Abundant, filiform growth, usually in one plane, with a slightly spreading surface growth. Agar colony: Slow growing, round, smooth, convex, entire, coarsely granular colony. Bouillon: Slight growth, clear with sediment. Potato: Very slight, colorless growth. Litmus milk: No change. Koch's serum: Slight, filiform, white growth. Loeffler's serum: Abundant, filiform, smooth, glistening, pinkish white growth. Gelatin stab: Gradual stratiform liquefaction. In about five days a cup forms at the surface and as liquefaction increases it reaches the sides of the tube and then proceeds downwards. At the end of six weeks the medium is liquefied about half way down. Indol negative. Litmus sugars: Glucose, maltose, and saccharose gave an acid reaction; galactose, levulose and lactose, no change. Pathogenic powers: While extensive inoculation experiments were carried out with this organism, nothing of any special specific significance could be gleaned from the work. Whether the organism soon loses its virulence on artificial culture media, or whether it is devoid of all pathogenic properties for the animals used, is a question which was undecided.

The following experiments were undertaken: (1) Four monkeys were inoculated subcutaneously with as many strains of *Mic. "S."* (2) Throats of four monkeys ewre smeared with *Mic. "S."* (3)

*Read before the Society of American Bacteriologists, Montreal, January 2, 1914.

Throats of three monkeys were swabbed with *Mic. "S."* (4) Control. Two monkeys were inoculated (Nos. 1 and 2) with streptococci taken from scarlatina throats. (5) Four monkeys were inoculated with *Mic. "S"* grown in monkey blood culture. (6) *Mic. "S"* was inoculated into mucous membrane of pharynx and also into glands of neck. These monkeys were previously given morphine subcutaneously, as a means of lowering their resistance.

In all of the experiments, with the exception of a slight rise of temperature on the fifth day, followed by a swelling of the nearest lymph glands, accompanied by a general indisposition, there were no symptoms indicative of an infection, and no signs or symptoms, whatever, simulating or approaching those of scarlatina as it is recognized clinically to-day. Believing, nevertheless, that this organism was found in a large enough proportion of cases to warrant further work, irrespective of the apparently negative pathogenicity, several vaccines were prepared with it which have been fairly tested out, both prophylactically and therapeutically under the supervision of Dr. Schultze in New York and Dr. Kiefer in Detroit, which work will be reported in later communications by them.

The finding of a diplococcus in such a large proportion of cases of scarlatina is suggestive of the work of Class, who, a few years ago, believed that he had discovered the cause of the disease. Class, in his original article,* described his organism as a "diplococcus, polymorphous in character, but resembling, as ordinarily seen on slides made from fresh cultures grown on any medium, a very large gonococcus." Other observers have, from time to time, noted the presence of a large diplococcus in cultures and smears from the throats of scarlatina cases, and yet no one has succeeded in proving that it has any part to play in the disease, and, therefore, very little stress has been laid on the findings. The organism described by these writers is so varied in its morphology and cultural characteristics that one is inclined to one of two suppositions. Either it is extremely polymorphous, as was claimed by Class, or else they were dealing with cultures containing streptococci, which organism may often be seen, in smears from the throat directly or from cultures, as large diplococci.

It is very evident, from the work of Class at any rate, that he did not always take the utmost pains to assure himself of pure cultures. He says: "I wish to state that the cultures used in these animal experiments were not isolated by means of 'Platten giessen,' but I am quite certain that they were not contaminated by other germs as repeated careful examinations showed. The reason why I did not isolate the germs by means of the process mentioned was on account of the fact that their vitality is easily destroyed by heating, the cultures obtained by isolating the germs by means of the plate method growing very poorly."

From the experience of the writer with the organism he has isolated and named *Mic. "S,"* which tallies with the general descriptions given by Schultze, Class, and others, as seen in smears, it is quite essential not only to plate the cultures but to be absolutely certain that the colonies from which the cultures are taken have no small colonies of streptococci, either deep or superficial, adjacent to or near them. This can be ascertained only by examining the field with a lens. The writer employed for this work a Zeiss binocular dissecting microscope. This precaution was deemed necessary, as it was found that there appeared to be some sort of a symbiotic relationship between this organism and the streptococcus, as was evidenced by the fact that whenever this organism appeared associated with the streptococcus individual organisms were invariably seen surrounded by numerous streptococci hanging close to it.

In attempting to isolate the organism by the plate method, these streptococci are seen to have a tendency to remain in this relationship, and individual colonies of the *Mic. "S"* are seen surrounded in extremely close proximity by minute colonies of streptococci, some so small as not to be recognized by the unaided eye. With this experience at hand, and considering the viscid character of the growth, the writer can very readily imagine how the streptococci, unless great care was taken to avoid them, could and probably would be carried along with cultures of the micrococcus. The streptococci then would be overshadowed by the heavy growth of the organism in question, which might cause it to assume a polymorphous as well as a pathogenic character.

In pure culture, taken very carefully from single colonies some distance from colonies of streptococci, the writer has found the organism isolated by him to be extremely constant morphologically and culturally, appearing only as a large diplococcus. While Class may have had in mind this same organism, especially as seen by him in smears taken from throat cultures, the description of the strains isolated by the writer and identified by their morphology by Schultze, do not correspond with those given by Class, irrespective of the streptococcic forms mentioned by him which the writer has never seen with the *Mic. "S."* According to Class, his organism decolorized by Gram's stain, while the *Mic. "S"* retains the stain. While Class found that his organism grew sparingly on many of the ordinary culture media, necessitating the use of a special garden earth media of his own, and not at all on gelatin, the *Mic. "S"* grows fairly luxuriantly on all ordinary media, including gelatin, in which it gives a typical liquefaction. Inasmuch as it is not a certainty that Class' cultures were pure in his animal experiments, it is impossible to compare results along that line.

Among the several known organisms found in the throat, from which the *Mic. "S"* should be differentiated, the following are the most important: *Micrococcus catarrhalis, Micrococcus tetragenus, Micrococcus pharyngis siccus, Diplococcus intracellularis meningitidis.* Inasmuch as the *Micrococcus "S"* is Gram positive and at the same time liquefies gelatin, it will be seen that these two reactions are all that are necessary to differentiate it from any of the organisms mentioned, including the organism of Class.

The *Micrococcus catarrhalis* is Gram negative and does not liquefy gelatin, and as a rule is a much smaller organism. The *Micrococcus tetragenus* does not liquefy gelatin and is usually found in tetrads. The *Micrococcus pharyngis siccus* is Gram negative and gives also a dry growth. The *Diplococcus intracellularis meningitidis* is both Gram negative and non-liquefying, and also gives a scanty growth on all media. The *Mic. scarlatinæ* of Class is Gram negative, does not liquefy gelatin and grows very sparingly on all ordinary media.

*Medical Record, 1899, Vol. LVI, p. 330.

# SOME EXPERIENCES WITH BACTERIAL VACCINES IN SCARLATINA.

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AND

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THE bacterial vaccines employed in this work, which was carried on at the Herman Kiefer Hospital, Detroit, were as follows: A vaccine composed of streptococci isolated from the nasopharynx of individuals suffering with typical symptoms of scarlatina; a vaccine composed of an organism isolated from the same situation, called for the present *Micrococcus "S,"* and described by one of us; and a vaccine composed of a mixture of the two. These vaccines which were polyvalent, being composed of several strains of each organism, contained 400 million organisms per c.c. each. Two lines of treatment were undertaken; prophylactic and curative, the nurses receiving the prophylactic treatment and the patients the curative. For curative purposes the three vaccines were used as described, while, for prophylactic purposes, the *Mic. "S"* vaccine alone was tested.

*Curative tests.* In order to avoid any chance of a personal factor entering into the work, the streptococcus vaccine was administered to the girls, the *Mic. "S"* vaccine to the boys and the combined to the adults. The vaccines were given a very fair trial, extending over a period of seven months, during which time one hundred and six patients received treatment. The patients treated were proportioned as follows: Those receiving the streptococcus vaccine, twenty-nine; the *Mic. "S"* vaccine, forty-four; and the combined vaccine, thirty-three. The vaccines were given about every two or three days, starting with one-half a cubic centimeter and increasing the dose as the symptoms warranted; and the treatment, as a rule, was continued until the termination of the case. No set rules for the course of treatment were adhered to; this was left entirely to the judgment of the physician in charge. The results of the treatment will be seen in the following tabulated reports made out from the history charts:

Treated with *Mic. "S"* Vaccine.
Number of cases, 44.
Uncomplicated, 34 (77.25 per cent.)
Complicated, 10 (22.72 per cent.).
Adenitis, 3.
Adenitis and Otitis media, 3.
Purpura hemorrhagica, 1.
Adenitis, otitis and purpura, 1.
Total.
Adenitis, 10 (22 per cent.).
Otitis, 4 (9 per cent.).
Purpura, 2 (4.5 per cent.).
Deaths, 2 (4.5 per cent.).

Treated with streptococcus vaccine.
Number of cases, 29.
Uncomplicated, 25 (86.2 per cent.)
Complicated, 4 (13.8 per cent.).
Otitis and adenitis, 2.
Otitis, 2.
Total.
Adenitis, 2 (6.8 per cent.)
Otitis, 4 (12.7 per cent.).

Treated with combined vaccine
Number of cases, 33.
Uncomplicated, 28 (84.8 per cent.)
Complicated, 5 (15.15 per cent.)
Adenitis, 1.
Otitis, 1.
Otitis and adenitis, 3.
Total.
Adenitis, 4 (12 per cent.)
Otitis, 4 (12 per cent.).

Cases treated the preceding year at the hospital, without vaccines.
Number of cases, 318.
Uncomplicated, 255 (80.19 per cent.)
Complicated, 63 (19.81 per cent.)
Otitis media, 21 (6.6 per cent.)
Adenitis, 26 (8.1 per cent.).
Nephritis, 10 (3.1 per cent.).
Pneumonia, 3.
Mastoid, 2.
Arthritis, 1.
Deaths, 14.

Comparison of the cases treated with the vaccine with cases treated according to the usual expectant methods.

| Cases | Untreated, 381, per Cent | Mic. "S" 44, per Cent | Streptococcus 29, per Cent | Combined 33, per Cent |
|---|---|---|---|---|
| Uncomplicated | 80.19 | 77.25 | 86.2 | 84.84 |
| Complicated | 19.81 | 22.72 | 13.8 | 15.15 |
| Adenitis | 8.1 | 22 | 6.8 | 12 |
| Otitis media | 6.6 | 9 | 13.7 | 12 |
| Deaths | 4.4 | 4.45 | 0 | 0 |

From the above résumé it would appear that the vaccines which contained the streptococci had an advantage over the ones containing the *Mic. "S"* alone, as well as over the usual expectant treatment which was previously carried on in the institution. This is what might have been expected in view of our present knowledge of the disease and experience with other diseases. Irrespective of the primary cause of the disease, it is practically conceded by all authorities that the streptococcus is a large factor in the cause of the complications, sequelæ and fatalities and, therefore, if a vaccine has any specific action, the most favorable results would be expected with one containing this streptococcus.

Whether the *Mic. "S"* bears any relation to the disease, it would appear from the study of these few cases that, as a curative agent, a vaccine composed of this organism, alone, would not be indicated. This is also partly borne out by the fact, as pointed out by one of us in another paper, that the *Mic. "S"* is more easily isolated and is found in larger numbers in the early stages of the disease, and has not been isolated from any of the discharges.

*Prophylactic tests.* For prophylactic purposes the *Mic. "S"* vaccine was given in three doses of increasing strength with three to five day intervals between doses. The doses contained two hundred, four hundred, and eight hundred million bacteria respectively. Up to the time of starting this work six nurses out of about one hundred had contracted the disease. However, since the introduction of this vaccine as a prophylactic measure among all nurses who had not already had the disease, not a case has been reported. It is interesting and rather significant, also, that during a period of three months when the prophylactic treatments were discontinued, four out of about twenty nurses became infected. The apparently favorable results following the prophylactic injections may be a coincidence, but whether they are or not, the treatment is being continued and will probably be tried in other institutions in order to test further and more conclusively the value of the vaccine.

*Conclusion.* It would seem from the results of the prophylactic tests with the *Mic. "S,"* together with the frequency with which this organism has been found in cultures from the nasopharynx in scarlatina, that one would be warranted in giving more serious thought to it whether it has or has not up to the present given any evidence of possessing pathogenic properties of a specific nature.

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# RETROPERITONEAL HERNIA OF THE APPENDIX INTO THE ILEOAPPENDICULAR FOSSA.*

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THE usual herniæ of the viscera of the abdominal cavity through the various openings in its parietes are well understood, and do not as a rule give rise to much difficulty in their diagnosis and the method of operative procedure. But when an internal hernia of the intestine or appendix into one of the various fossæ of the peritoneum is encountered, it immediately creates an interest, not only because of its rare occurrence, but also because of the pathological conditions and the surgical features such herniæ present.

For a better understanding of the form of hernia of the appendix, to which the title of this paper refers, a review of the anatomy and location of the pericecal folds and fossæ will be of interest, particularly the ileoappendicular, with which we are most concerned. The same name has by various authors been applied to entirely different fossæ in the pericecal region, and in order to avoid this confusion in the nomenclature we will adopt the classification of Moynihan[1] as given in his most thorough survey of the anatomy and surgery of the pericecal fossæ.

The existence of the fossæ of the ileocecal region depends upon the formation and the presence of the primary and secondary folds. The primary folds are:

1. The Anterior Ileocolic, or anterior vascular, which is produced by the raising of the peritoneum by a branch of the ileocolic artery, which runs over the anterior aspect of the ileocecal junction.

2. The Ileoappendicular, or intermediate, is primarily non-vascular. There are many views, though no agreement as to its mode of origin. Many names have been given to this fold, and that suggested by Jonnesco most suitably and definitely describes its point of origin and attachment.

3. The Mesoappendix, or posterior vascular, is produced by the raising of the peritoneum by the appendicular branch of the ileocolic artery, which runs behind the ileocecal junction.

4. The Accessory Ileocolic, which is not always present, is produced by an additional branch of the anterior ileocolic artery which raises the peritoneum.

These folds are best seen in their typical form in early life, and with increasing years they become modified from one cause or another.

The fossæ formed by these folds are:

1. The Ileocolic, which is situated anteriorly and above the ileocecal junction, between the anterior and the accessory ileocolic folds.

2. The Accessory Ileocolic is not always present, and when it exists its upper and outer border is formed by the accessory ileocolic fold.

These fossæ are of anatomical interest only.

3. The Ileoappendicular fossa lies behind the ileocecal junction, between the mesentery of the appendix and the ileoappendicular fold. A more detailed description of this fossa, which is of interest both anatomically and pathologically, will be given later.

The secondary folds are formed by secondary physiological adhesions between the ascending colon and the posterior abdominal wall. They are the Mesentericoparietal and the Parietocolic folds, between which is found the retrocecal fossa. At times there may be a third fold between these two, forming an outer and inner retrocecal fossa.

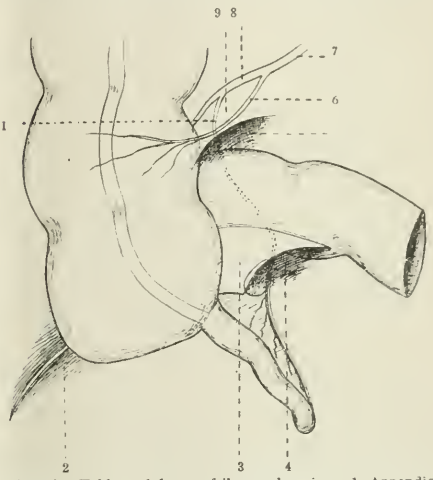


FIG. 1.—Folds and fossæ of ileocecal region. 1, Appendicular artery; 2, subcecal fossa; 3, ileoappendicular fold; 4, ileoappendicular fossa; 5, anterior ileocolic fossa; 6, anterior ileocolic artery; 7, ileocolic artery; 8, posterior ileocolic artery; 9, anterior ileocolic fold.

The *Ileoappendicular fold* (superior ileocecal fold of Waldeyer, bloodless fold of Treves, ileocecal of Lockwood and Rolleston, ileoappendicular of Jonnesco), is described by Moynihan as follows: "The fold extends from the lower border of the ileum—that directly opposite the line of the mesenteric attachment—to the anterior surface of the mesoappendix. It is quadrilateral in outline. The upper border is attached to the ileum for an extent which is extremely variable. An average length will be between 1½ to 2½ inches. The lower border extends from an angle formed by the appendix with the cecum, inward on the anterior surface of the mesoappendix, along a line parallel to the upper border, when the appendix is straightened out. Sometimes this line of attachment is shifted to the appendix itself. Its outer or right border is attached to the inner aspect of the cecum, as far down as the root of the appendix. Its left or inner border is concave to the left and free. This edge contains the recurrent or ileoappendicular artery, given off from the main appendicular, just above the level of the ileum."

The *Ileoappendicular fossa* (recessus ileocæcalis, Luschka; fossa ileocæcalis media, Hartmann; fossa ileocæcalis inferior, Waldeyer) is present in almost all subjects, and depends for its formation upon the ileoappendicular fold and the mesoappendix. The size of the fossa depends mainly upon the size of the former of these two folds. It is triangular in shape. Above it is bounded by the posterior surface of the ileum, and the mesentery immediately adjacent to it; in front and below by the ileoappendicular fold; behind by the upper part of the mesoappendix. The orifice looks downward and to the left. It may be quite large, admitting the tips of one or two fingers for half an inch.

The Ileoappendicular fossa is subject to two

*Read at a meeting of the Eastern Medical Society, February 14, 1914.

pathological conditions. By closure of the mouth of the fossa, a cyst may be formed. Hernia of the small intestine or vermiform appendix may occur into it.

It has been stated that retroperitoneal hernia of the appendix probably exists in 8 to 10 per cent. of

FIG. 2.—Partial hernia of the appendix into the ileoappendicular fossa.

all subjects. An exhaustive search of the literature reveals but few cases of retroperitoneal hernia of the appendix into the ileoappendicular fossa found at autopsy or at operation.

Moynihan, up to 1906, reported seven cases of retroperitoneal hernia of the small intestines into the ileoappendicular fossa, but in this list there were none of the appendix itself.

Murphy[3] in his contribution to the surgery of the vermiform appendix describes the possibility of retroperitoneal hernia into either the ileoappendicular or retrocecal fossæ. He states it is more frequent into the former, but does not cite a case of hernia of the appendix into either.

A. V. Moschcowitz stated in a personal communication to the writer that in a series of 2,000 cases of appendicitis operated upon at Mt. Sinai Hospital, he could not remember a single case of hernia of the appendix into the ileoappendicular fossa.

In a series of 450 cases of appendicitis operated within the last three years at Beth Israel Hospital, I am unable to find a record of any case of hernia of the appendix into the ileoappendicular fossa.

The subject of retroperitoneal hernia of the appendix from a surgical point of view was first studied by Lockwood,[2] who in 1890 reported two cases of hernia of the appendix into the ileoappendicular fossa, which apparently did not give symptoms during life and were found at autopsy. The appendix in each case was thought to be absent. However on close inspection of the ileocecal region the appendix was revealed in one case imbedded in a pouch running behind and parallel to the ileum. In the other it was found partially herniated in a similar fossa.

Elliot[4] in his report of a case of a diseased appendix found in the ileocecal fossa, mentions a nonpathological internal hernia of the appendix shown to him by Mixter in a dissecting room subject, in which the appendix was actually lying in an ileocecal (ileoappendicular) fossa, as described by Treves.

The small number of cases that have been reported of hernia of the appendix into the ileoappendicular fossa have not been diagnosed as such, but have been found at the time of operation. It necessarily follows that from the complicated anatomy more or less difficulty would be encountered not only in locating but also in removing the diseased appendix.

In the following case the above conditions have been observed:

H. S., male, age 32, tailor, was admitted to my service at Beth Israel Hospital on August 17, 1913; has had attacks similar to the present one, nine, and five months ago. Present attack began three days before admission, with severe abdominal pain, accompanied by nausea, vomiting, and fever; bowels constipated. Pain became localized in right iliac region. Physical examination revealed a poorly nourished individual; tongue slightly coated and moist; abdomen not distended; slight rigidity of the right rectus muscle; tenderness over right lower abdomen, most marked over McBurney's point. A small tender mass was felt, which from its position and indefinite outline indicated that it was behind and to the inner side of the cecum. On admission, temperature 101.8° F., pulse 96, respiration 24. Blood count: white blood cells 11,400, polynuclear 68 per cent., lymphocytes 32 per cent. After the patient received his admission treatment, the temperature dropped to 100° F. and the tenderness over the mass was markedly diminished. The case was considered one of appendicitis, passing from the acute to the interval stage. Therefore, he was not operated upon until three days after admission. Anociassociation anesthesia, as recommended by Crile, was given; Kammerer incision three inches long. Peritoneum opened and found normal; no free fluid; cecum freely movable. On palpating for the appendix it could not be felt. On replacing the cecum into its normal position a small mass could be felt through the cecum near its inner border, which was thought to be the appendix hidden away in some recess. Abdominal incision was enlarged. Cecum was pushed up toward the liver, and ileum drawn over to the left. Just below the ileocecal junction on the smooth peritoneum, there was seen an area of fibrinous exudate the size of a quarter. This was easily removed, revealing an opening into a small fossa, having a free margin concave to the left. The appendix was seen to pass over this edge. Beneath the fold, which was undoubtedly the ileoappendicular, the handle of a scalpel was passed into the fossa, upward and somewhat to the right, for a distance of three-fourths of an inch. Beneath this fold, the small mass heretofore described, could be felt. It could not be disengaged. The appendix was ligated at its base, and the stump buried, after it was treated with carbolic acid and alcohol. In order to deliver the appendix, it was necessary to incise the fold from the middle of its concave border over the handle of a scalpel as a guide for a distance of three-fourths of an inch. Then using the ligature on the distal end of the appendix as a retractor, the adherent appendix was brought into view. It was congested. It was stripped out of its serous coat for a distance of 1½ inches. The tip was bent upon itself, club-shaped, and free, except that it was attached to a portion of the mesoappendix. This was ligated, and the appendix was removed. No bleeding was seen. The cut edge of the fold was sutured together with the serous covering of the appendix, thereby obliterating the fossa. A small rubber tissue drain was inserted to the orifice of the fossa, and was removed at the end of 48 hours. Postoperative course was uneventful. The patient did not have any pain in wound, or gas pains, nor did he require any hypnotic. This can undoubtedly be ascribed to the method of anesthesia.

Specimen.—Appendix three inches long, consisting of three portions. First portion three-fourths of an inch long from base to the point where it passed over the free edge of the ileoappendicular fold. This portion was apparently normal. The second portion was firmly adherent to the fossa for a distance of 1½ inches. It was congested, and when removed from its serous coat appeared mottled and as if it was gangrenous. The third portion, the tip of the appendix, was club-shaped, bent upon itself, and lay free in the fossa. Although thickened, it appeared normal.

Pathological report.—Acute suppurative appendicitis.

A careful analysis of the cases of hernia of the

appendix into the ileoappendicular fossa shows that they may be classified in the same manner as the diseased appendix found in its usual situations. These herniæ may be complete or partial, depending upon whether the entire appendix or portion of it is found in the fossa.

A complete hernia of the appendix into the ileoappendicular fossa is described by Lockwood,[5] in one of two cases reported by him. "A delicate streak was observed running across the peritoneum of the iliac fossa close to the attachment of the ascending colon. A little pulling apart with dissecting forceps showed that this was the mouth of the ileoappendicular fossa, within which the appendix lay concealed." This very well demonstrates the possibility of how an appendix might be overlooked, and no doubt accounts for some of the cases giving symptoms of appendicitis and no appendix or abscess being found at operation.

In the other case, Lockwood described a partial hernia into the fossa, in which the appendix was free for about 2 cm. before it bent at an acute angle over the free edge of the ileoappendicular fold, and disappeared into the fossa from which it was easily removed. This was the condition observed in my own case, but in addition the first portion of the appendix and orifice of the fossa was covered by a fibrinous exudate, and the second portion was adherent to the posterior wall of the ileoappendicular fossa.

Belonging to the same class of cases is the one described by Mr. Heaton,[6] in which only the tip of the appendix was strangulated in the ileocecal (ileoappendicular) fossa, giving rise to acute abdominal symptoms, with recurring attacks of severe colic and vomiting.

Elliot,[4] in 1891, reported a case of recurrent attacks of appendicitis extending over a period of two years, which was operated in the interval. His findings are those of a herniated appendix, imbedded in firm adhesions in a fold of the peritoneum, which Treves described as an ileocecal fossa. He substantiates the diagnosis by referring to the case of Mixter, shown to him ten days before. It can be readily seen that as a result of the formation of such adhesions, marked difficulties may be encountered in the search for and the removal of such an appendix.

As the result of strangulation of a herniated appendix, suppuration with abscess formation may occur in the fossa and involve the structures in close proximity. Allen[7] reports such a case. An abstract of his findings will be of interest. A circumscribed mass the size of a small lime, freely moveable, was felt and observed to be on the inner side of what was considered to be the cecum. The mass was incised close to the bowel wall, and pus was evacuated. What was thought to be the appendix was ligated, and proved to be the dividend ureter. The appendix was found closer to the bowel wall, and in order to invert the stump into the cecum, it was necessary to pass it through the mesentery of the ileum. An analysis of this case impresses one with the fact that not only must we have a thorough knowledge of the complications of hernia of the appendix, but also of the anatomy of the ileocecal region and of the folds and fossa situated here.

The case of "transmesenteric hernia of the appendix" described by Wood[8] in 1905 is somewhat similar to Allen's case. From his description it is very difficult to determine whether the appendix had been herniated into a preexisting fossa, or through some defect in the mesentery of the appendix. It is possible that the appendix may find its way into the ileoappendicular fossa, and pass through the mesentery of the ileum, which forms part of its upper boundary; but then the appendix could not be seen, as is described in this case, but would be above and behind the ileum. If there existed some congenital opening in the mesoappendix through which the appendix passed and was strangulated, then this case must be excluded from our list.

After a careful search of the literature at hand I was unable to find any cases other than those herein cited.

*Summary.*—1. Although retroperitoneal hernia of the appendix, and the possibility of their occurrence, especially into the ileoappendicular fossa, is mentioned in most of the works on surgery, it is rather surprising to note how few cases have been reported. It seems that either the condition has not been observed at the time of operation (especially in the cases where the appendix may be dislodged easily) or it is really one of rare occurrence.

2. The diagnosis of appendicitis is established as in the ordinary case, but the malposition of the appendix is discovered at the time of operation.

3. A knowledge of the anatomy of the pericecal folds and fossæ is absolutely necessary in order to locate the supposedly absent appendix, and to employ the proper operative measures.

4. Complications involving important structures in close proximity to the ileocecal junction occur and must be borne in mind.

5. Retroperitoneal hernia of the appendix into the ileoappendicular fossa may be complete or partial.

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**New Studies of the Pathology of Trichinosis.**—Gruber sums up his article as follows: The presence of trichina cells in the muscles conditions a toxic action on the infected organism. The toxins proceed both from the disintegration products of the muscles, and from the secretions of the parasite and are doubtless distinct substances. As a result of the entrance into the blood of the secretions of the parasite a blood eosinophilia develops and a tissue eosinophilia follows. The eosinophile cells are formed by preference in the bone marrow. The claim that the serum of infected animals is toxic cannot be confirmed, and another assertion that trichinosis in the intestines can give rise to a bacteriemia is highly improbable. The furuncles seen in trichinosis subjects are due to the ordinary local causes. The phenomena seen in the liver and kidneys in acute trichonosis require further study. The entire subject, much as it has been and is being studied, is still obscure in many respects.—*Münchener medizinische Wochenschrift.*

# MEDICAL RECORD.

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## STUDIES ON ERYTHROCYTIC RESISTANCE.

AN important field of clinical research is that which is concerned with the study of the resistance of the red blood cells to the hemolyzing action of various substances. Étienne May* has written an important monograph on this subject. He notes that Malassez was the first to study the clinical significance of the erythrocytic resistance. In 1873 he investigated the action on red blood cells of saline solutions in cancerous patients and in those suffering from chronic lead poisoning. Since that time these studies have been continued by Mosso, Viola, Hamburger, and Vaquez and Ribierre.

Étienne May studied the resistance of the red blood cells in various pathological conditions. He classified the results in two groups. The first includes all those facts pertaining to the erythrocytic resistance with reference to hypotonic saline solutions and saponin. The second group includes all instances in which the red blood cells are not affected by hypotonic solutions. The first group includes cases of hepatic icterus, various forms of tuberculosis in the course of evolution, typhoid fever, and certain cases of saturnism and Bright's disease. It is pointed out that in all of these affections there are modifications in the lipoid content of the blood, which modifications have the effect of altering the resistance of the red blood cells to hypotonic saline solutions and to saponin. The cholesterin in the red blood cells increases their resistance to saponin and diminishes it toward hypotonic solutions. The fatty acids increase the resistance of the red blood cells to saline solutions. Lecithin seems to diminish the resistance of the red blood cells to saponin.

As an example of the diseases accompanied by a diminished content of cholesterin in the blood, the author mentions typhoid fever and tuberculosis. The studies of Chauffard and his pupils have shown that the cholesterin of the blood serum is constantly diminished in these affections. These studies are entirely in accord with the facts concerning the resistance of the red blood cells in these diseases. In severe cases of typhoid fever as well as in developing cases of pulmonary tuberculosis there is a persistent diminution of the resistance of the red blood cells to saponin and an increased resistance of these cells to saline solutions. From this fact it is concluded that in typhoid fever and in tuberculosis the content of cholesterin is diminished in the red blood cells as well as in the blood serum. The cellular disturbance is much more pronounced than that of the serum. The globular fragility with reference to saponin is proportionate to the gravity of the disease. In mild cases there are a few fragile red blood cells while the remainder have a normal or an increased resistance.

In pernicious anemia the globular resistance to hypotonic solutions is habitually diminished, but to saponin it is, on the contrary, normal. The anemias on the whole are characterized by a more or less marked diminution of resistance to hypotonic solutions, without any change of resistance to solutions of saponin. In the anemia of Bright's disease the resistance is variable, sometimes with reference to the saline solutions, sometimes with reference to saponin. It is probable that the variations are dependent upon the variations in the substances retained in the blood at different stages of the malady. In saturnism the results are similarly variable. Of particular clinical importance are the comparative studies of the behavior of hypotonic solutions and of saponin in the course of various forms of jaundice. In hepatic icterus there is an increased fragility of the red blood cells under the influence of saponin, whereas in hemolytic icterus there is a diminished resistance to salines and a normal resistance to saponin. It is possible that there are mixed forms of icterus in which there is a double globular fragility. The icterus produced by toluylenediamine appears to be a type of the latter.

In classifying the changes in the blood produced by various morbid conditions May distinguishes two types of globular changes. The first is of a chemical nature, dependent upon the relative proportions of the lipoids in the red blood cells. The second is of a physical nature and depends upon a modification of the coloidal state of the globular constituents.

*"Études sur les Résistances Globulaires. Courbes de Résistances aux Solutions Salines. Résistances Globulaires à la Saponine." Par le Dr. Étienne May, Ancien Interne des Hôpitaux de Paris. Paris: Felix Alcan. 1914.

## A NEW THEORY OF FUNDAMENTAL NERVOUS ACTIVITY.

THERE have been two stages in the interpretation of the real unit of nervous activity. At one time this unit was regarded as the neuron. This conception held sway until Sherrington, in 1906, enlarged the conception of the functional unit in the nervous system, and defined the reflex as the functional unit. This idea was elaborated in his work on the "Integrative Action of the Nervous System." According to this view, nervous activity is conducted from periphery to periphery through a nervous arc consisting of an afferent neuron, an efferent neuron, and one or more interposed neurons. Sherrington's theory sought to establish a morphological basis for the physiological conception that all nervous activity originates primarily at the periphery; in other words, that the nervous system is but a specialized organ which takes over the function of response of the organism to external irritation.

A third conception of the fundamental unit of the nervous system has just been advanced. T. Graham Brown in the *Journal of Physiology*, March 31, 1914, protests against the undisputed sway of the spinal reflex as the original unit and believes that the time has arrived when one should regard the efferent neuron as the functional unit. His theory is based upon a number of his own experimental studies and those of others. These studies were concerned with the act of progression in animals in which the spinal cord had been cut. In studying the act of progression in the decerebrate cat, which progression may be evoked under narcosis even after section of the spinal cord, Brown concluded that the rhythmic alternation of activities is not conditioned by afferent self-generated stimuli proceeding from any of the limbs. The phenomena that followed rapid division of the lower thoracic spinal cord entered with a state of maintained flexion and ended in a state of maintained extension. In the intermediate phase where both activities are balanced the rhythmic act of progression occurs. It is this balance of two antagonistic activities that constitutes, according to Brown, the basis of progression. He next inquired whether this rhythmic phenomenon is the result of peripheral causes. He performed a series of experiments the details of which are too complicated to be alluded to in this place, which experiments seemed to show that a certain complex rhythmic movement may occur at a depth of narcosis at which the peripheral reflexes are abolished and therefore that the spinal efferent neurons may show some degree of independence of the afferent neurons and some of the phenomena of reciprocal innervation when functionally separated from them. This theory tends to displace the reflex as the unit of activity in the spinal centers and put in its stead a mechanism composed of efferent neurons. Brown regards the rhythmic phenomenon of progression as fundamentally conditioned by the balanced activation of antagonistic and linked efferent centers (or "half-centers"), but this activation is not necessarily of peripheral origin. It may be produced by conditions similar to those of the blood-stimulus in respiration. The so-called "half-centers" have mutual interconnections the properties of which seem to condition the rhythm which occurs during the equal activation of the interconnections. The essence of Brown's theory is therefore the independence of the efferent neuron. The mutually conditioned activities of the linked antagonistic efferent neurons together form the "center." The primitive activity of the nervous system is seen in such rhythmic acts as progression and respiration.

In addition to this novel and ingenious hypothesis of the fundamental nature of nervous activity, Brown proposes a theory of the manner of the evolution of function in the nervous system. He assumes that at first the "half-center" is directly exposed to the environment and that a state of "local asphyxia" then acts as the equivalent of the "blood-stimulus" in activating it and thus producing movements of the effector. Such rough movements might serve to change the immediate surroundings of the animal. Then a primitive coordination arises in the appearance of a system of mutual inhibition between "half-centers" which innervate antagonistic effectors. At this stage rhythmic activity becomes possible, and with it a more efficient locomotion of the animal. With the unfolding of the nervous system the primitive environmental direct stimulus is replaced by the indirect "blood-stimulus," and a peripheral afferent nerve mechanism, the function of which is to perfect the movements of progression and to give reflex movements of attack and defense, arises.

## THE DANGER OF PYELOGRAPHY.

THE first radiogram of the injected renal pelvis in the living subject was obtained by Voelcker, of Heidelberg, about eight years ago. The great value of this procedure was not at first recognized and, in fact, very little attention was paid to it until several years later when Braasch recognized its possibilities in the diagnosis of obscure ureteral and renal conditions, began the systematic use of pyelography at the Mayo Clinic, and, after a considerable experience, made an enthusiastic report (*Annals of Surgery*, Nov., 1910) based upon his observations. This seemed to be the signal for the universal acceptance of the method and numerous articles soon appeared confirming essentially all that Braasch had written as to the value of the procedure and the indications for its use. Naturally details in technique, the limitations, and the dangers of its employment still remained to be determined; and of these latter forcible injection of the opaque fluid was found to be the greatest. Accordingly, the technique adopted by most operators has eliminated hand pressure injection and substituted mild hydrostatic pressure obtained by raising the container six to twelve inches above the level of the body, the flow to be stopped at the first complaint of discomfort from renal distension.

It has been demonstrated experimentally that in normal kidneys, so long as the capacity of the pelvis is not overstepped, infiltration of collargol into the kidney substance does not take place. Upon exceeding this capacity, however, collargol is demonstrable in the interstitial tissues; while with still larger amounts injected the silver may be found not only in the interstitial tissue but also in the secreting structure, permeating even into the glomeruli and subcapsular spaces, infiltrating the connective tissue at the uretero-pelvic junction and structures at the hilus of the kidney. When there is a nephritis permeation may take place still more readily and there is thus an added danger of embarrassing an already impaired kidney by even slight overdistention of the pelvis. This has been demonstrated on several occasions when accidents have followed pyelography.

These facts are now so generally known that it would seem unnecessary to emphasize these points editorially but for the fact that new operators are constantly entering the field who do not seem to realize the dangers as well as the virtues of the method. That this warning is necessary is attested by the fact that there have been reported recently a number of avoidable accidents due to too

strenuous injection. The solution should be allowed to run in under a hydrostatic pressure generated by an elevation of certainly not over twelve inches, and not only should the flow be stopped but a little should be allowed to flow back at the first complaint of pain from renal distention; there will thus be little chance of damage to the kidney. Absolute adherence to these rules is, however, essential if one would avoid the occurrence of wholly unnecessary complications.

## HEAT AND INFANT MORTALITY.

That there is a direct and indirect relationship between a high temperature and infant mortality is obvious. The question is how to apportion the causative factors. There is no need to dilate upon the fact that the hotter the summer the greater the mortality rate among infants, for the matter has already been exhaustively dealt with. Views as to ventilation have changed considerably in recent years, and Flügge, Hill, and others have shown that movement of the air is of great assistance in eliminating heat from the body by accelerating evaporation. Moreover, as infants, especially of the poorer classes, spend a great deal of their time indoors, it might be expected that infants living in houses or in parts of cities unfavorable to a free circulation of air would be injuriously affected by such conditions. This has been found to be the case, and consequently it would appear that heat bulks somewhat largely as a direct factor in the causation of summer infant mortality, and further that it is an indoor temperature rather than an outdoor temperature to which infants are exposed.

J. W. Schereschewsky, Surgeon U. S. Public Health Service, in Public Health Reports for Dec. 5, 1913, discussed this relation of heat and infant mortality. He points out that the hypothesis held in this country 35 years ago and advanced anew by Meinert in 1884, that heat itself, by its various effects upon the infant organism, must be regarded as the chief factor in the summer mortality of infants, is once again attracting attention. Schereschewsky concludes as follows: (1) The action of heat as a direct cause in the summer mortality of infants has been greatly underestimated in the last 25 years. In the future much more weight should be given to its influence. (2) The lethal action of heat is a function not so much of the maximum and mean temperatures of the external air as of the indoor temperatures, which, in the late summer may continue to be high, in spite of remissions in temperature of the external air. (3) The action of stale and dirty milk in causing the death of infants has been given a significance which has overshadowed other factors of equal or possibly greater importance. (4) There is evidence to show that a certain proportion of infant deaths are due to specific infections in the dissemination of which contact infection and flies doubtless play a part. (5) As a result, future activities for the prevention of infant mortality must concentrate themselves to a greater extent on the question of housing, especially on the conditions productive of high indoor temperatures, such as overcrowded, narrow streets, and the absence of thorough ventilation. (6) Poor housing conditions can be partially neutralized by the proper care of babies in summer. The general public should be educated as to the importance of high indoor temperature in causing the death of infants, and especially as to measures which prevent babies from suffering from the heat. (7) Breast feeding must still be regarded as a most, if not the most, important preventive of the summer death of infants.

## Comfort Stations in New York.

The Bureau of Public Health and Hygiene of the Department of Social Welfare of the New York Association for Improving the Condition of the Poor has published recently a pamphlet showing what has been done in the direction of providing comfort stations in New York and what remains to be done. The sins of omission as regards this matter are greater by far in New York than the sins of commission, for there are few European or British cities which do not provide better public toilet facilities than New York. In the pamphlet referred to are several recommendations as to the provision of new public comfort stations and the better equipment of some of those now in use, and the general insanitary conditions of the subway and elevated comfort stations is commented on. In London and in practically all the large British cities excellent and adequate toilets are provided in which for a small fee persons are supplied with the conveniences of what are known here as comfort stations. Each station has its attendant or attendants whose duty it is to keep the place scrupulously clean. A sanitary educational campaign under the direction of the Bureau of Public Health and Hygiene would not be amiss in New York and in some other American cities. By this means civic pride might be aroused and efforts would consequently be made to place them at least abreast of European cities from the standpoint of municipal hygiene.

## How the Farmer Can Prevent Malaria

In Supplement No. 11 to Public Health Reports, published Feb. 13, 1914, R. H. von Ezdorf, surgeon U. S. Public Health Service, points out measures that farmers can take to prevent malaria. It is only, however, by understanding the manner in which malaria is contracted and spread and acting upon this knowledge that the disease can be prevented. The farmer must therefore comprehend that (1) malaria is contracted only through the bite of a special mosquito; (2) man infects the mosquito, and the mosquito in turn infects man. In order to prevent malaria the chain must be broken somewhere and the means for effecting this object may be summarized as follows: Houses to be screened and rendered mosquito proof. Mosquito bars to be used over beds if the house is not well screened. Quinine to be taken to keep the system free from the malaria germ. The breeding of mosquitos to be prevented by clearing ditches of grass and weeds and doing way with stagnant water. Von Ezdorf gives a number of instructive examples of how farmers by following these methods have abolished malaria from their immediate neighborhood.

## News of the Week.

**Plague in Colombia.**—The health authorities of the Canal Zone have declared a seven-day quarantine against all ports of Colombia, owing to reports which indicate that the situation there in regard to bubonic plague has become serious. Cases have been reported from Barranquilla, Cartagena, and Calamar on the Magdalena River, about sixty-five miles inland.

**Centenarian Dead.**—Mrs. Bridget D. Curran, said to have been the oldest person in the State of Pennsylvania, died at her home in South Bethlehem on May 15, at the age of 107 years. She came of a long lived family, her mother living to be 102 years old and her grandfather 108.

**Bronx Hospital Assured.**—The protests of persons living in the Seton Falls Park neighborhood of the Bronx, New York, against the construction of a hospital in the district for the treatment of contagious diseases, failed to move the Board of Estimate, which on May 15 authorized the Comptroller to buy a site of thirty-two acres in the park at a price not to exceed $32,000.

**Cancer Conference.**—The American Society for the Control of Cancer held a public meeting in Boston on May 19, under the auspices of the Boston Federation of Women's Clubs. The speakers were Frederick L. Hoffman of the Prudential Life Insurance Company, Dr. F. F. Simpson of Pittsburgh, and Dr. J. Collins Warren of Harvard University.

**Coroners Move.**—The offices of the Coroners of New York County were removed on May 16 to the new quarters in the Municipal building. The Coroners are now housed on the second floor of the building, while the court is held on the fifth floor. The rooms were opened to the public on May 18.

**Montefiore Home.**—A special meeting of the subscribers to this institution was held on May 17, to authorize a change of name from the Montefiore Home and Hospital for Chronic Invalids and Country Sanitarium for Consumptives to the Montefiore Hospital for Chronic Diseases and Country Sanitarium.

**Turtle Serum Suit.**—Basing her action on the contention that the so-called Friedmann turtle cure for tuberculosis was worthless, the widow of a patient treated with the serum recently secured a verdict of $225 against a former assistant to Dr. Friedmann while he was in this country, this being the amount which had been accepted in payment for the treatment. The patient died seven days after its administration.

**Beth Israel's New Site.**—The Beth Israel Hospital Association of New York has announced its plans for what will be one of the largest private hospitals in the city. For the new site land has been acquired on Livingston place between Sixteenth and Seventeenth streets, facing Stuyvesant square, as well as the property at 322 and 324 East Seventeenth street, forming an L with the plot on Livingston place. The site contains 14,000 square feet. On this it is planned to erect a sixteen-story hospital, at a cost of about $1,000,000, giving accommodations to 500 patients. The present hospital at Jefferson and Cherry streets has provision for 150 patients and a dispensary in which hundreds of patients are treated daily. It is probable that this hospital will be maintained, even after the completion of the new building, for emergency work.

**Movies in Health Work.**—Following a conference with Deputy Commissioner Emerson and Dr. Bolduan of the Department of Health, the Motion Picture Exhibitors Association of Greater New York has volunteered the services of more than 800 moving picture theaters for the educational work of the Department. The work began on May 11 when hundreds of theaters in New York displayed slides calling attention to the "clean-up" campaign inaugurated by Commissioner Goldwater.

**Personals.**—Dr. SIMON BARUCH of New York was elected president of the American Association for Promoting Hygiene and Public Baths at the annual meeting in Newark on May 12 and 13.

Dr. JOSEPH S. NEFF has resigned as director of public health and charities in Philadelphia, because of continued ill-health, and Dr. Richard H. Harte has been appointed to the office.

Dr. THEOBALD SMITH of Harvard University has accepted the appointment of director of the new department of animal pathology at the Rockefeller Institute. Mr. John D. Rockefeller recently added $1,000,000 to the endowment of the Institute in order to make possible the foundation of this department. To Dr. Smith's researches are largely due the doctrine of anaphylaxis, the institution of vaccine therapy, the distinction between bovine and human tuberculosis, our knowledge of "carriers," and that of the rôle of insects in the transmission of disease.

Dr. OTTO GLOGAU of New York has been appointed by Governor Glynn to represent the State of New York at the third International Congress of Occupational Diseases, which will be held in Vienna in September, 1914.

Dr. S. A. KNOPF of this city has been invited to give the opening clinic, on June 2, for a postgraduate course to be inaugurated by the Bruchesi Tuberculosis Institute of Montreal.

**Charitable Gifts.**—Beth Israel Hospital, New York, receives a bequest of $1,000 by the will of Mrs. Esther Geloski of Newark, N. J., who died on April 24.

Mr. George W. Nevil of Philadelphia has made a gift of $5,000 to the Jewish Hospital for the endowment of a free bed in memory of the family of Joseph and Amelia Nevil.

The Massachusetts General Hospital, Boston, receives $10,000 by the will of the late Francis Skinner of that city.

Among the residuary legatees of the estate of Miss Mary Guerin of New York are the New York Foundling Hospital and St. Vincent's Hospital, each of which has received $2,160.

The sum of $2,500 each was bequeathed to the Brooklyn Eye and Ear Hospital and the House of St. Giles the Cripple, by the will of Carl H. De Silver of Brooklyn.

By the will of the late Mrs. Francis K. Harlow, widow of Dr. John M. Harlow of Woburn, Mass., the sum of $20,000 was left to the Woburn Charitable Association for the purpose of establishing a surgical building as an addition to the Choate Memorial Hospital, which is to be known as the John M. Harlow Surgery.

**Medical Society Elections.**—MEDICAL ASSOCIATION OF THE STATE OF ALABAMA: Annual meeting at Montgomery, April 23 and 24. Officers elected: *President*, Dr. Benjamin B. Simms, Talladega; *Vice-Presidents*, Dr. Francis A. Webb, Calvert, and Dr. Jacob U. Ray, Woodstock; *Secretary*, Dr. James

N. Baker, Montgomery; *Treasurer*, Dr. Henry Gaither Perry, Montgomery.

TOLLAND COUNTY (CONN.) MEDICAL SOCIETY: Annual meeting at Rockville on April 21. Officers elected: *President*, Dr. Cyrus B. Newton, Stafford; *Vice-President*, Dr. Thomas F. Rockville, Rockville; *Secretary-Treasurer*, Dr. Eli Percival Flint, Rockville.

WORCESTER NORTH DISTRICT (MASS.) MEDICAL SOCIETY: Annual meeting at Leominster on April 28. Officers elected: *President*, Dr. H. W. Page, Baldwinsville; *Vice-President*, Dr. John B. Donnelly, Gardner; *Secretary*, Dr. Curtis H. Jennings, Fitchburg; *Treasurer*, Dr. F. H. Thompson, Jr., Fitchburg.

ESSEX NORTH DISTRICT (MASS.) MEDICAL SOCIETY: Annual meeting at Lawrence on May 6. Officers elected: *President*, Dr. I. J. Clarke, Haverhill; *Vice-President*, Dr. Victor A. Reed, Lawrence; *Secretary*, Dr. Jos. F. Burnham, Lawrence; *Corresponding Secretary*, Dr. Thomas M. Stone, Haverhill.

**Association of American Physicians.**—At the twenty-ninth meeting of the Association of American Physicians, which was held at Atlantic City on May 12 and 13, the following officers were elected for the ensuing year: *President*, Dr. S. J. Meltzer, Rockefeller Institute, New York; *Vice-President*, Dr. Henry Sewall, Denver; *Secretary*, Dr. George M. Kober, Washington; *Recorder*, Dr. Thomas McCrae, Philadelphia; *Treasurer*, Dr. J. P. Crozer Griffith, Philadelphia; *Councillor*, Dr. W. S. Thayer, Baltimore; *Representative on Executive Committee of Congress of American Physicians and Surgeons*, Dr. Theodore C. Janeway; *Alternate*, Dr. Richard P. Strong.

**American Dermatological Association.**—At the thirty-eighth annual meeting of this association, held in Chicago, May 14-16, 1914, the following officers were elected for the ensuing year: *President*, Dr. S. Pollitzer of New York; *Vice-President*, Dr. Martin F. Engman of St. Louis; *Secretary and Treasurer*, Dr. Oliver S. Ormsby of Chicago. It was decided to hold the next meeting in New York City in May, 1915.

**American Pediatric Society.**—The twenty-sixth annual meeting of this society will be held at the Red Lion Inn, Stockbridge, Mass., on May 26, 27, and 28, 1914, Dr. Samuel McC. Hamill of Philadelphia presiding. The secretary of the association, from whom further details as to the program may be procured, is Dr. Samuel S. Adams, 1801 Connecticut avenue, Washington, D. C.

**Canadian Tuberculosis Society.**—The fourteenth annual meeting of the Canadian Association for the Prevention of Tuberculosis will be held at Halifax, N. S., on July 13 and 14, 1914. Dr. S. Adolphus Knopf of New York has been invited to deliver the oration on that occasion, and has chosen for his title: "The Modern Warfare Against Tuberculosis as a Disease of the Masses." His Royal Highness, the Governor-General of Canada, is the Honorary President of the Association.

**American Medical Editors' Association.**—The annual meeting of this Association will be held on June 22 at the Marlborough-Blenheim Hotel, Atlantic City, N. J., under the presidency of Dr. E. A. VanderVeer of Albany, N. Y. The following papers will be read: "President's Address," by E. A. VanderVeer, Albany, N. Y.; "Relation of the Medical Press to the Cancer Problem," by Frederick L. Hoffman, Newark, N. J.; "The Things that Count in Medical Practice," by H. Edwin Lewis, New York; "Ideal National Medical Journal: What It Should Be and What It Should Not Be," by W. J. Robinson, New York; "Two Problems of the Organization Journal: The Mediocre Paper and the Editorial Department," by Sarah M. Hobson, Chicago, Ill.; "Medical Journalism as a Local and as a National Proposition," by Thomas S. Blair, Harrisburg, Pa.; "Medical Books and Journals," by T. D. Crothers, Hartford, Conn.; "The Medical Periodical and the Scientific Society," by F. H. Garrison, Washington, D. C.; "Editorial Experiences," by A. L. Benedict, Buffalo, N. Y.; "The Special Medical Journal," by A. Bassler, New York; "The Medical Profession and Its Influence from a Buying Standpoint," by Joseph MacDonald, Jr., New York; "The Preparation of the Original Article and the Editors' Latitude," by E. Franklin Smith, New York; "He Among You Who Is Without Sin Shall Cast the First Stone," by Erwin Reissmann, Newark, N. J.

**American Medico-Psychological Association.**—The seventieth annual meeting of this Association will be held at Baltimore on May 26-29, 1914, under the presidency of Dr. Carlos F. MacDonald. The secretary is Dr. Charles G. Wagner of Binghamton, N. Y. The recently revised program of the meeting contains an excellent photograph of the president.

**Brooklyn Pediatric Society.**—At a meeting of this society, to be held May 27, in the building of the Medical Society of the County of Kings, 1313 Bedford Avenue, the subject of discussion will be "The Limitation of Offspring by the Artificial Prevention of Conception, from the Individual, Social, and Eugenic Standpoints." The speakers will be Drs. Wm. J. Robinson, William F. Campbell, J. Richard Kevin, Robert L. Dickinson, and James W. Fleming.

**Obituary Notes.**—Dr. JOHN WILLIAM DOWLING of New York, secretary and professor of medicine of the New York Homeopathic Medical College and Hospital, from which institution he was graduated in 1886, and a member of the New York Academy of Pathological Science, the American Institute of Homeopathy, and the State Homeopathic Medical Society, died at Middletown, N. Y., after a lingering illness, on May 11, aged 48 years.

Dr. NEWTON F. CURTIS, of Milton, Mass., a graduate of the College of Physicians and Surgeons, New York, in 1874, and until recently a resident of White Plains, N. Y., died at his home after a long illness, on April 30, aged 64 years.

Dr. OLIVER N. WOLCOTT, of Columbus, O., a graduate of the Starling Medical College, Columbus, in 1875, and a member of the Ohio State Medical Association and the Columbus Academy of Medicine, died at his home, from paralysis, on April 25, aged 64 years.

Dr. PATRICK MCKEOWN of Long Island City, N. Y., a graduate of the Bellevue Hospital Medical College, New York, in 1890, a member of the American Medical Association, the Medical Society of the State of New York, and the Queens-Nassau County Medical Society, and formerly health officer of Long Island City, died at his home on May 3, aged fifty-three years.

Dr. LOUIS PEALE LAMPEN of Philadelphia, a graduate of the Jefferson Medical College, Philadelphia, in 1883, and a member of the Medical Society of the State of Pennsylvania and the Philadelphia County Medical Society, died at his home on May 1, aged fifty-four years.

Dr. SAMUEL G. GRAY of Landisville, Pa., a gradu-

ate of the medical department of the University of Pennsylvania, Philadelphia, in 1863, a surgeon in the United States Army during the Civil War, and a member of the Medical Society of the State of Pennsylvania and the Lancaster County Medical Society, died at his home on May 2, aged seventy-six years.

Dr. WILLIAM FRANCIS GLEASON of Providence, R. I., a graduate of the Harvard Medical School, Boston, in 1886, for three years a member of the school committee of Providence, visiting physician to St. Joseph's Hospital, of which institution he was formerly medical superintendent, consulting physician to the City Hospital and the St. Vincent de Paul Infant Asylum, and a member of the American Medical Association and the Rhode Island and Providence District Medical Societies, died at his home, from nephritis, on April 27, aged fifty-three years.

Dr. THOMAS TRENAMAN of Halifax, N. S., a graduate of the College of Physicians and Surgeons, New York, in 1869, for many years president of King's College, Windsor, N. S., and health officer of Halifax, died at his home, on April 27, aged seventy years.

Dr. IRBY WYNNE HAMIL of Goshen, Ala., a graduate of the Louisville, Ky., Medical College in 1867, and a member of the Medical Association of the State of Alabama and the Pike County Medical Societies, did at his home, on April 25, aged sixty-one years.

Dr. WILLIAM EDMUND WEBER of New York a graduate of the College of Physicians and Surgeons, New York, in 1894, for many years chief medical inspector of the milk department of the New York City Department of Health and in charge of the infants' milk stations, attending physician to the German Hospital Out-Patient Department, and a member of the American Medical Association and the New York State and County Medical Societies, died suddenly, on May 7, aged forty-five years.

Dr. JOHN MCCROSKERY of New York, a graduate of the Bellevue Hospital Medical College, New York, in 1887, and a member of the American Medical Association, the New York State and County Medical Societies, and the Alumni Association of the Kings County Hospital, died suddenly, from heart disease, on May 9, aged forty-nine years.

Dr. MARY C. FARNHAM of Denver, Col., a graduate of the Chicago Homeopathic Medical College in 1881, died at her home, from pleuropneumonia, on May 2, aged 72 years.

Dr. ROBERT KING of Emporia, Kan., a graduate of the New York Homeopathic Medical College and Hospital in 1863, died at his home, from cancer, on May 2, aged 75 years.

Dr. IRA YOUNG KEZARTEE of Battle Creek, Mich., a graduate of the University of Michigan, Department of Medicine and Surgery, in 1867, died at his home, after a long illness, on May 4, aged 70 years.

Dr. WILLIAM H. KERR of Falls City, Neb., a graduate of the College of Physicians and Surgeons, Kekuk, in 1867, and a veteran of the Civil War, died at the home of his son in Minneapolis, Minn., on May 1, aged 75 years.

Dr. DAVID WILLIAM BULLOCK of Wilmington, N. C., a graduate of the University of Maryland, School of Medicine, Baltimore, in 1873, and a member of the Medical Society of the State of North Carolina and the New Hanover County Medical Society, died at his home, from typhoid fever, on May 6, aged 60 years.

## Correspondence.

### THE TYPHUS GERM.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—Few readers of your valued journal could have felt the same interest in the reported isolation of the causative organism of typhus fever as the undersigned who has watched through several large epidemics of the disease in Russia and who knows what ravages are caused by this scourge among the poorer classes of Russia as well as such members of the upper classes as are compelled to dwell in the military barracks or in the prison pens of that unhappy land. For the discovery of a causative organism means progress toward the discovery of a specific treatment. In this connection it is of interest to trace in a few words the history of typhus fever in this vicinity during recent years, especially as your correspondent was active in determining the nature of the disease as it appeared here. As is well known, Dr. Brill had for many years observed that certain cases of sickness usually classified with typhoid fever did not answer the description of that disease in many important characteristics and he separated this group of cases to which the name of "Brill's disease" was not infrequently applied. It has been my fortune to prove that modern typhus answers all the conditions stipulated by Dr. Brill and that in short Brill's disease is nothing more or less than typhus fever as it develops under the hygienic and social conditions of our city. These facts I supported in several meetings when speaking in discussion of Dr. Brill's papers and finally in a paper read before the Academy of Medicine, May 16, 1911, and reported in your valued journal on September 16. These discussions aroused great interest in the whole question and finally led to the well-known research of Anderson and Goldberger (first reported in February, 1912), who, with the transmission of typhus fever to monkeys, gave laboratory proof of the truth of my contention. The crowning achievement, the discovery of the cause of typhus, is now reported by Dr. Plotz of Mt. Sinai Hospital in this city, and I close by expressing the hope that the report may find corroboration so that another scourge of humanity may be checked in its devastating course.

G. A. FRIEDMAN, M.D.

123 EAST NINETY-FIFTH STREET.

### OUR LONDON LETTER.

(From Our Regular Correspondent.)

COLLEGE OF PHYSICIANS' REPORT ON TUBERCULOSIS—CAMPAIGN AGAINST FLIES—ELECTRIFIED MILK—MEDICAL MISSIONS—NURSING CONFERENCE.

LONDON, May 1, 1914.

THE Royal College of Physicians has thought well at the present time to issue a statement on the nature and infectivity of tuberculosis. It embraces those points which are of the greatest importance for the consideration of the public and which will, no doubt, be regarded as authoritative.

Tuberculosis is stated to be an acquired disease but certain constitutional types may be inherited, rendering a person specially susceptible to infection and there is reason to think that such susceptibility is an inherited character. The bacillus may be contained in the various discharges and excreta, especially the sputa, but these are not infective unless the bacillus is contained, so that tubercu-

losis from internal organs from which no excretion is furnished, even cases of arrested pulmonary phthisis, have never been proved to be infectious. But here it is to be noted that by "arrest" is meant that all symptoms and physical signs of activity have disappeared and the sputum has ceased or contains no bacilli.

The next point considered is the way in which tubercle may find entrance into the body: (*a*) through a wound or abrasion of the skin, which has sometimes happened to those engaged in post mortems or laboratories or working with tuberculous material and the report says this is presumably the way in which lupus is contracted. (*b*) by inhalation of air containing bacilli, either in droplets or as fine dust. Sputum and other discharges on soiled linen or other articles soon dries and is easily converted into fine dust and as such dispensed about rooms or any enclosed spaces. It is suggested that droplets are the less important form because nurses and others engaged in hospitals where the discharges are, of course, carefully disposed of, do not suffer from tubercle above the average. (*c*) by swallowing food on which infected dust has settled, so carrying the bacillus directly into the alimentary canal. Again, it is suggested that direct transmission may occur in the act of kissing or by the use of food utensils which have been used by consumptives and not been adequately cleansed. It is estimated that some 10 per cent. of milk supplied to large cities contains tubercle derived from tuberculous cows and this is a special danger to young children for the bovine bacillus is more commonly found in them than in adults. It is affirmed that there is no evidence that tubercle can be conveyed to others by the breath alone, or by emanations from the patients, or by their garments, unless they have become soiled as mentioned above and the dried discharges become pulverized and so distributed.

The precautionary measures that should be taken in all cases are obvious from the considerations already reported and, no doubt, the intelligent members of the public will to some extent adopt them; especially will they be welcome to the families who have been or are afflicted by this scourge. It may be added, however, that the spread of tuberculosis is favored by overcrowding, defective ventilation, and all forms of uncleanliness. Experience in hospitals and institutions shows that the risk of infection can be reduced to a minimum. The means they employ to secure this reduction are not those named or indicated above, such as the disinfection or destruction of soiled articles, removal of dust by frequent moist cleansing of floors, walls, etc., with full and free ventilation. The report declares that no risk is incurred by living in the immediate neighborhood of properly conducted institutions for the treatment of tuberculosis. One might add that there appears no risk from residence within such institutions looking at what has been shown to be the average mortality of those engaged in them.

The campaign against houseflies which I mentioned on the 10th ult., as opened by the Medical Officers of Health, has continued in a desultory sort of a way—not so actively perhaps in London as in various country places where the pests have hatched out in the warm spring we have enjoyed. At Tunbridge Wells swarms of flies have taken possession of one of the churches and caused so much annoyance to the congregation that the building has been closed to fumigate it in the hope of destroying the pests. It seems a case for minute inspection of the building and all around to find the breeding places.

Lecturing on flies and disease at the Royal Sanitary Institution the other evening Dr. Graham-Smith said there was great need for more careful study of the habits of flies and of their various enemies. If, for instance, one could discover how to propagate the fungus which attacks them in the autumn it would help us to get rid of their attentions. Failing that he emphasized the importance of destroying their breeding places which are always insanitary.

In reply to questions he said flies were in the habit of drinking in the early morning and if some drops of milk and water containing 1 per cent. of formalin were left on plates in a room for the night, they would drink and be found dead in the morning, within a few inches of the plates.

Professor J. M. Beattie has reported on some experiments carried out at a Liverpool milk depot with a view of determining whether the electrical treatment of milk destroys pathological bacteria. Sterilization is not in the strict sense of the word brought about but a great reduction in the total number of bacteria and after treatment the milk keeps sweet for three or four days, no chemical change taking place in that time and no alteration in taste. In two cases the electrified milk was non-tuberculous though the controls yielded tubercle, so that it seems the milk treated by electricity is a satisfactory food for infants.

At the annual meeting of the Medical Missions of the Society for the Propagation of the Gospel, Lord Sydenham, presiding, commented on the terrible loss of life in India from preventible causes. But he said research was being carried on not only in the great epidemics but in all directions by an able and diligent board of medical and scientific accomplished observers. Personally he thought there was an excellent sphere for lady doctors to go out and take a share in the work of medical missions which gave to the people the best service they could give in a spirit of love which was truly Christian.

The Seventh Annual Nursing Conference has been held this week when a resolution was carried by a large majority calling on the government to accept the bill for the state registration of nurses introduced by Dr. Chapple. An exhibition in connection with the conference was held in the Royal Horticultural Hall and was well attended. In the discussion on ambulance work the lady superintendent of St. John's Brigade described the origin of the association and said improvement in quality not quantity was needed. She had seen any number of half-trained people rushing off to Ulster who would be useless in case their services were needed.

Mrs. J. Cantlie said Red Cross work lay along lines of communication and a separate body was required for it. First aid was outside doctoring and hospital training. Almost everything had to be improvised and this was the charm of the Voluntary Aid Association work. Ambulances and stretchers would be taken for the front and the "Volunteer Aid Detachments" had to learn how first rate dressings for wounds could be made of burnt leaves, sticks, hay, or straw; that straw ropes could serve as bandages; that stretchers could be constructed out of pitchforks, cross sticks, and straw rope. Some protests were made against the disregard of the trained nurses by the Red

Cross Society. It was also objected that this society should not undertake ambulance work but leave it to the St. John's Brigade. A suggestion was put forward to incorporate nurses into a supplementary division of the Army Medical Corps.

## OUR LETTER FROM THE PHILIPPINES.

(From Our Regular Correspondent.)

"BUYO" CHEEK CANCER—EPIDEMIOLOGY OF ASIATIC CHOLERA IN THE PHILIPPINES—FACTORS OF THE SPREAD OF CHOLERA—TREATMENT OF CHOLERA—SANITATION IN THE PHILIPPINE LEGISLATURE.

MANILA, P. I., March 7, 1914.

THE regular monthly meeting of the Manila Medical Society was held at 8.30 P. M., March 2, in the amphitheater of the College of Medicine and Surgery of the University of the Philippines. There was a large attendance.

The first paper read was entitled "'Buyo' Cheek Cancer: A Study of 65 Cases of Oral Cancer With Special Reference to Cheek Cancer and Its Etiology," by Dr. Geo. G. Davis. The author gave a history of a number of cheek cancers which seemed to be very closely associated with the chewing of betel nut and the buyo leaf. This habit is very common in the Philippines, especially among the lower classes. A slice of betel nut is placed upon a buyo leaf, ordinary lime is sprinkled upon it, and then it is wrapped up in the leaf and this whole morsel is placed in the mouth and chewed. The teeth of betel nut chewers gradually become discolored to a brownish black. It is assumed that the irritation which is set up by the chewing of this substance has an intimate relationship with cancer. In the discussion which followed, Dr. Heiser pointed out that the more scientific study of diseases in the Philippine Islands showed more and more conclusively that cancer apparently prevails in the Philippine Islands just as extensively as in other countries. He drew special attention to the fact that prior to 1905, or before the time that careful and extensive studies were made of the diseases which afflicted Filipinos, it was frequently stated by writers that cancer was very rare in the Philippines. He also inferred that the alleged infrequency of cancer in the tropics, mentioned by many authorities, would in all probability be found erroneous if a more careful study of the disease were made.

The next paper was entitled "Some Recent Developments With Regard to the Epidemiology of Asiatic Cholera in the Philippines," by Dr. Victor G. Heiser. The writer stated that in accordance with the best information available, prior to August, 1912, cholera had been absent from the Philippines for the two preceding years. In the present outbreak the first cases occurred among permanent residents and no infection could be traced to foreign sources. The disease appeared often simultaneously in widely separated sections without its being possible to trace any connection between them. There is now much evidence available to show that cholera carriers probably were present in the Philippines at all times and that possibly they were not recognized because the cholera organism might perhaps pass through a cycle during certain stages of which it might not be possible to identify it by present laboratory methods. He dwelt particularly upon the fact that the disease had not become epidemic and that this was perhaps due to the fact that the cases were quickly discovered, so that there had not been an opportunity for many passages from one human intestine to another, thereby keeping the virulency low. Greater cooperation was had than in previous outbreaks, and that was probably due to the fact that the masses are rapidly gaining confidence in modern health methods. The measures employed to combat the disease were also less irksome than heretofore. Briefly, they consisted only of the quarantining of the sick person. The stools of the sick and of the contacts were passed into receptacles which contained a disinfecting fluid. At the door of each house in which a case of cholera occurred there was placed a bowl of disinfecting solution and each person who desired to leave the house, whether it was the sanitary inspector, guard, nurse, or doctor was required to immerse his hands therein. In stricken towns the stools of the whole population and the water supplies were safeguarded. There was no other quarantine nor were there any restrictions placed upon the sale of foodstuffs. This did much to remove friction. Greater success was had in combating this outbreak than any which occurred heretofore of which there was any record.

The next paper was entitled "Observations on Some Factors Responsible for Spreading of Asiatic Cholera; Vitality of the Cholera Vibrio in (1) Cholera Carriers, and (2) Water," by Dr. Otto Schöbl. The author briefly reviewed the laboratory history of the cholera organism and stated that the behavior of the cholera vibrio in this outbreak was much the same as that which had heretofore been reported. He drew especial attention to the fact that he had been able to keep the cholera organism alive in sea water for a period of 106 days and at this writing the organism still continued to grow in that medium. In ordinary Manila tap water he kept it alive for 50 days.

The next paper was entitled "Treatment of Asiatic Cholera at San Lazaro Hospital," by Dr. A. C. Garton. The author stated that the intravenous transfusion of calcium permanganate and sodium chloride as recommended by Rogers of India had produced most excellent results and that in a series of 116 cases he had attained the mortality of 35 (30 per cent.), which is a lower mortality than has heretofore been reported in any Philippine outbreak. The last 57 cases treated gave a mortality of 10 (17.5 per cent.).

The Philippine Legislature held its last session on February 28 and will not convene again until next October. The Council of Hygiene Bill, which provided for a Board of Health or Council instead of a Director of Health, as at present, failed of passage in the Upper House of the Legislature. The bill to transfer the Philippine General Hospital to the College of Medicine and Surgery of the University of the Philippines met a similar fate. A bill recommended by the Director of Health for the more central control of sanitation in the provinces also failed of passage. The intention of this law was to make the health service in the Philippines much the same as that of Cuba during the last temporary occupation by the United States. Briefly, more central control was aimed at. Politics have interfered so much with the municipal control of sanitation that in many instances effective work is not possible, and it was therefore the desire to remove the control of sanitation in the provinces from the influence of politics in order that more efficiency might be obtained. The Legislature passed a model bill directed against misleading advertise-

ments, which has recently become a law in Minnesota and a number of other States. Possibly the most drastic measure affecting patent and proprietary medicines that has ever been enacted by any Legislature became a law on February 27. This law provides that no medicinal preparation, except that of a licensed physician, may be sold without the qualitative and quantitative formula being given on the label and also in any advertisement of it which may be published, whether by circular, handbill, newspaper, or periodical. There is also a severe penalty for false, misleading, or exaggerated claims or statements. The law was considered necessary because the patent medicine evil has not yet seriously spread in the Philippine Islands, and by placing rigorous restrictions upon it now it is thought that the Filipinos might be protected against acquiring the habit of using them or at least only those that have real merit.

## Progress of Medical Science.

### Boston Medical and Surgical Journal.

*May* 7, 1914.

1. Results of the Swift-Ellis Intradural Method of Treatmeint in General Paresis. A. Myerson.
2. Hip Fractures and Their Treatment. F. J. Cotton.
3. The Experimental Method as Utilized in the Clinico-Pathological Conference. H. T. Karsner.
4. The The Vesalianum Mistaken for a Fracture of the Fifth Metatarsal. W. P. Coues.

**1. The Swift-Ellis Treatment in General Paresis.**—A. Myerson concludes that patients receiving this form of treatment show changes mostly limited to the disappearance of the Wassermann reaction and alterations in the chemical and cytological composition of the spinal fluid. The order of changes is somewhat as follows: The Wassermann reaction seems to be the most variable—the first to disappear and the least stable. The cell count seems to be the next most variable constituent. It seems to be profoundly affected by the treatment, but a reduction must not be taken too optimistically. The globulin is perhaps a little less variable than the cell count; it does not diminish much under treatment, and it rarely completely disappears. Finally, the albumin content is the most constant of all and is least affected by treatment. The Wassermann reaction is not nearly as important a criterion of improvement or recovery as it is frequently held to be. This applies in a lesser degree to the chemical and cytological changes. It is probably true that the criterion of recovery or progress at present must be in the field of the clinical manifestations. The author believes that the theoretical grounds upon which the Swift-Ellis treatment is based do not seem to be valid. It is assumed that because the Wassermann reaction is most constant an hour after the administration of salvarsan, therefore the body at that time contains more antibodies. This is by no means certain, for the meaning of the Wassermann reaction is unknown. Furthermore, it seems to be the opinion shared by Swift and Ellis that the nervous system is inaccessible to medicaments administered in the usual channels. One hears the term "inaccessibility of the nervous system" quite frequently, yet there is really no such thing. The effects of opium, chloral, bromides, alcohol, strychnine, and certain of the toxins of the infectious diseases seem notably to affect the brain and nervous system, and to do this through the blood stream. There seems to be another reason for the failure of salvarsanized serum in this method of treatment. Granted that its theoretical basis be correct, and that the introduction into the intradural spaces can locally and favorably influence general paresis, the amount introduced seems utterly insufficient. Of all the blood in the body, 50 c.c. are removed one hour after salvarsan has been administered. Such an insignificant fraction of the total amount of the blood present can contain only a small amount of salvarsan. Its introduction seems *a priori* to be adding but little of local treatment to that of the salvarsanized blood stream itself.

**4. The Vesalianum Mistaken for a Fracture of the Fifth Metatarsal.**—W. P. Coues notes that the occurrence of the Vesalianum in the foot is so unusual that no reference is made to it in such modern anatomies as Sobotta, Piersol, Gerrish, Morris, Macalister and Gray. A few *x*-ray experts and surgeons are familiar with its occurrence, although the modern books on fractures are silent on its relation to fracture of the base of the fifth metatarsal. The author reports the case of a girl aged 12 years in whom the Vesalianum was mistaken for a fracture of the fifth metatarsal bone. The importance of the recognition of this rare abnormality is obvious. Its relation to the cases of fracture of the base of the fifth metatarsal bone by inversion of the foot needs further study and elucidation. It is possible that some of the reported cases of this lesion have been this rare anatomical variant, and that others may have been fractures through the line of union of the Vesalianum with the metatarsal. A radiograph of both feet with a good view of each fifth metatarsal bone should be taken in all cases in which the diagnosis of fracture of the base of the fifth metatarsal bone has been made.

### New York Medical Journal.

*May* 9, 1914.

1. The Relation of Aphasia to Mental Disease from the Medicolegal Point of View. C. W. Burr.
2. Sensorimotor Aphasia. J. H. Lloyd.
3. Some Observations on the Child of Today. T. S. Southworth.
4. Psychoanalysis. M. Solomon.
5. The Psychological Effect of the Fairy Story. A. L. Benedict.
6. Rectal Cases under Local Anesthesia. J. F. Saphir.
7. Why Electrotherapy Cures. H. H. Seelye.
8. Brachial Neuritis. J. F. Harris.
9. Acute Dilatation of the Stomach Complicating Pregnancy. N. P. Thompson.
10. In Memoriam, Dr. Edward Charles Spitzka. N. E. Brill.

**1. The Relation of Aphasia to Mental Disease.**—C. W. Burr concludes that motor aphasia in and by itself does not affect mentality. When dementia is present it is due to widespread cerebral arterial disease. In aphasia due to destruction of the auditory speech center there is always dementia. When the amnesic aphasia is only partial, dementia may or may not be present, depending upon the amount of speech disorder. Isolated word blindness may occur without mental defect. Aphasia of any kind may be a mere incident in the course of paresis or senile dementia. If it is sensory the dementia is thereby increased. The true essential insanities, paranoia, manic depressive insanity, and dementia præcox are never caused by aphasia.

**2. Sensorimotor Aphasia.**—J. H. Lloyd admits that Broca's convolution is the motor center of speech, but believes that this motor center represents only one part of the speech zone, and without a study of the great primary auditory or sensory zone, by means of which the mother tongue is learned, one is likely to make grave mistakes in studying this obscure subject. There are hardly two cases of aphasia that are alike. The attempt to localize language in the brain cortex any more accurately than one is now able to do, is destined to be futile. It looks as though one is simply threshing over the old straw in trying to make an anatomical dissection of a complicated psychological process. Language, in its very nature, has a sensory as well as a motor element, and to attempt to separate these two is something like an attempt to separate

force from matter, or form from substance. The idea is metaphysical, not practical. There are two sides to the shield, and it depends upon which side the observer is looking at, whether he calls it the one thing or the other.

**6. Rectal Cases Under Local Anesthesia.**—J. F. Saphir prefers the use of quinine and urea hydrochloride as a local anesthetic. This is not followed by the toxic symptoms, the cold sweat, the feeling of faintness, and the excruciating after-pains that usually follow the use of cocaine or beta-eucaine. The anesthesia produced by quinine and urea hydrochloride solution takes place within three to twenty minutes, and lasts for a period of three to ten days after the operation, a sufficient time to allow the wounds produced by an ordinary rectal operation to heal. Even the distention pain caused by sterile water or saline solution is avoided when quinine and urea hydrochloride solution is used. Rectal cases in which local anesthesia is feasible are: (1) Thrombotic hemorrhoids, (2) skin tags, (3) external hemorrhoids, (5) fissure ani, (6) ulcers of the anus, (7) dermoid cysts, (8) rectal polypi, (9) tight sphincter ani, (10) some cases of fistula ani, and (11) some cases of prolapsus ani. Rectal cases in which local anesthesia should be preferred are: (1) Patients who refuse to be operated on under general anesthesia, (2) patients who cannot afford to absent themselves from their place of business or from their social duties for one or two weeks, (3) patients who are sufferers from some cardiac, nephritic, or pulmonary affection.

**8. Brachial Neuritis.**—J. F. Harris states that the best results in the treatment of this condition are obtained with the high frequency current. All the author's cases treated in the dispensary were given applications of the Oudin current by means of a glass vacuum electrode. These treatments were of ten minutes' duration and were given three times a week. The electrode was passed slowly from the plexus to the finger tips and back again for the period of time stated. No internal medication was advised, with the possible exception of a mild tonic laxative. The results were astonishing. Relief was obtained in many cases at the end of the first week and in the majority of cases a complete cure was established in one month. The patients often remarked after the first application of the current that the arm felt "looser," that the sense of tightness had been relieved. The only form of the disease which failed to yield to the current was one of diabetic origin, and here one was able merely to alleviate the pain for a short time following each treatment. It was found that if the electrode was held in one position for any length of time, the skin became extremely sensitive, so much so that the next application became very painful, hence the employment of the slow massaging application of the entire arm. Treatment should never be given through an intervening garment, but always upon the bare skin, for burns may result, and in one instance reported to the author, a lady's silk waist was destroyed by a circular piece of sleeve dropping out. In private practice the author has found that the use of wet hot applications for one hour, following the high frequency treatment, has been quite advantageous, but only when used within a few hours. The duration of this disease in private practice in which the high frequency current is used is even shorter than in the dispensary, for in the former case patients are able to receive daily application of electricity which after all is the most desirable method of treatment. The author cites the case of a dentist who was suffering intense pain and difficulty in raising the arm, and who, as the result of a daily treatment with the current, was able to continue his work until a cure was effected.

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**Journal of the American Medical Association.**

*May 9, 1914.*

1. The Medical Department in the Civil War. S. Weir Mitchell.
2. Palliative Effect of Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis. W. C. Voorsanger.
3. Radium Treatment of Cutaneous Epitheliomas by Single or Massive Doses. A. S. Clark.
4. Cholesterinized Antigen. L. Thompson.
5. Heteroplastic Tissue Grafting Effected Through Roentgen-Ray Lymphoid Destruction. J. B. Murphy.
6. Complete Bilateral Isolated Paralysis of the Seventh Nerve Developing Four Months After the Primary Infection of Syphilis. H. M. Ewing.
7. Treatment of Gonorrhea and Its Complications by Antigonococcic Serum. B. C. Corbus.
8. An Investigation of the Causes of Failure in Cowpox Vaccination. J. N. Force.
9. A New Aid for the Diagnosis of Stricture of the Esophagus. A. C. Crump.
10. Acute Lymphatic Leucemia After Tetanus Serum Anaphylaxis. E. J. Brown.
11. A Method of Staining and Mounting Smears. H. S. Willson.

**3. Radium Treatment of Cutaneous Epitheliomas by Single or Massive Doses.**—A. S. Clark concludes that radium if used in sufficient quantity is an efficient and satisfactory means of attacking these lesions. The single or massive dose method will probably prove to be the method of choice. It is easier to estimate this single or massive dose because one is dealing with a stable remedy emitting a constant amount of rays, which is not the case with the Röntgen rays, even with the pastiles now at one's disposal. The cosmetic results are at least equal to those of any other form of treatment of these lesions. Its ease of application, comparative painlessness, even in the inflammatory stage, and harmless appearance recommend it to patients. The length of exposures can be practically determined and depends on the amount of radium and the character of its container; its distance from the lesion; the character of the lesion, whether superficial or deep, and the age, state of health, and susceptibility of the patient to other rays, such as the sun's. Its two disadvantages are its high cost and the length of time of exposure in the single-dose method. This latter, however, is indirectly in proportion to the amount of radium employed.

**4. Cholesterinized Antigen.**—L. Thompson concludes that owing to the ease of preparation of this antigen it is to be recommended. It is slightly more delicate than other antigens, and is especially valuable in determining when a cure has been effected, as a positive reaction with its use persists after treatment for a longer time than with other antigens. If the reagents are titrated properly, non-syphilitics will not give positive results.

**7. Antigonococcic Serum in Gonorrhea.**—B. C. Corbus comes to the following conclusions: The complement-fixation test is a reliable guide in the administration of the serum. When the test is negative, the serum should not be used. The intensity of the positive complement-fixation test offers a reliable guide as to whether or not the serum will be efficient, as the efficiency and intensity are in direct proportion. The amount injected should be at least from 36 to 45 c.c., administered intramuscularly, from 12 to 15 c.c. a day, for three days. Serum-sickness, if distressing, should not be alarming. A negative complement-fixation test after two or three months shows a complete cure.

**8. Cowpox Vaccination.**—J. N. Force states that any one of the typical reactions against vaccine virus must be regarded as an evidence of immunity. If antibodies against virus are present in the blood of the individual the immediate reaction occurs, characterized by the formation of an areola around the vaccinated spot usually within the twenty-four hours succeeding the vaccination. If antibodies are not present but the

power of forming them exists through previous vaccinations, the growing vesicle is aborted sooner than in a previously unvaccinated person, which accounts for the small size of the vesicle and the early appearance of an areola larger than in the case of a vesicle of the same age. The author has evolved a special technique as an aid to exact observation subsequent to revaccination. Physicians' certificates of immunity should be based on an observed reaction and not on the failure of two or three vaccinations, unobserved until the fifth day after the insertion. These "failures" may have been due not to immunity but to inert virus.

## The Lancet.

*May 2, 1914.*

1. Some Modern Theories Concerning Hysteria. J. A. Ormerod.
2. The Diagnosis of Postpyloric (Duodenal) Ulcer by Means of Serial Radiography. L. G. Cole.
3. Acute Lobar Collapse of the Lung. H. L. Tidy and E. Phillips.
4. Pain After Operation for Internal Piles and Its Prevention. P. L. Mummery.
5. The Early Detection of Diabetes by a Simple Method of Estimation of the Blood Sugar. Dr. O. K. Carlsbad.

**1. Modern Theories of Hysteria.**—J. A. Ormerod states that the fundamental defect in hysteria, according to Janet, consists in a feebleness of mental synthesis; yet this is a condition that has to be inferred and cannot be directly observed. But there are certain very common mental traits open to observation to which Janet gives the name of mental stigmata, adopting the term used by Charcot for certain common bodily symptoms. Among such mental stigmata are: (1) Suggestibility—not merely that an idea can be easily implanted in a patient's mind, but that it tends to develop there and engross the whole mind. (2) Distractibility—This is merely the obverse of suggestibility, while the patient is occupied with one idea she forgets all others. (3) Feebleness of will—so-called "aboulia." Whatever the will means it implies at the lowest estimate a weighing and comparison of many motives, which is just the sort of thing which the hysterical patient cannot do. (4) Changeability and waywardness, as of symptoms, so of disposition and desires—a trait that has been most unjustly transferred to the whole female sex. (5) Defective memory-amnesia. In addition to a localized amnesia there is a loss of memory which may be called "systematized." The patient forgets everything connected with a particular person, or a particular event, or even a particular conception. It is a class of memories that disappears, not a series of events in time. Hysterical patients are apt to be dominated by fixed ideas. So long as the fixed idea remains buried in the subconsciousness it may give rise to no overt trouble, but should circumstances arise to weaken the grasp of the personal consciousness, so that it vacates its proper dominion, then the subconscious idea may assume command.

**3. Acute Lobar Collopse of the Lung.**—H. L. Tidy and E. Phillips conclude that inaction of the muscles of respiration is a cause of acute lobar collapse. Blockage of the bronchioles from capillary bronchitis may possibly have a similar result. Lobar collapse may explain cases of pleural effusion without corresponding displacement of the mediastinum and heart. In the case described by the authors, acute pleurisy occurred without changes in the lung. Inhibition of the muscles of respiration resulted in acute lobar collapse.

## The British Medical Journal.

*May 2, 1914.*

1. The Diagnosis and Treatment of Cerebrospinal Syphilis, Including Tabes and General Paralysis. P. Stewart.
2. On Some Clinical Manifestations of Congenital Syphilis. H. Armstrong.
3. The Clinical Importance of the Cerebrospinal Fluid. W. Boyd.
4. Meningitis in Children. W. M. Smith

**1. Diagnosis and Treatment of Cerebrospinal Syphilis.**—P. Stewart states that before coming to definite conclusions one requires numerous and prolonged observations over a large series of cases. One or two observations are not enough to justify a conclusive opinion in any case. The patients should be repeatedly examined, not only during the progress of the treatment, but at intervals for months and years afterwards. Improvement in the condition of the cerebrospinal fluid is a useful index of arrest of the disease. But one must remember that in general paralysis at least the cell count in the fluid may go down without any corresponding improvement in the mental symptoms. This is readily understood when one bears in mind that, even if the disease process be arrested, those nerve cells and nerve fibers which have been already destroyed, remain destroyed and cannot be regenerated. It is therefore of importance to select only those cases of general paralysis which are in the early or toxic stage of the disease, before the cortex has become profoundly degenerated. The earlier the disease is recognized, the better are the prospects of improvement. Advanced cases with profound cortical degeneration are totally unsuitable. The most thorough method of attacking general paralysis would be to administer the remedies concurrently by all three routes—intravenously, intraspinally, and intracranially. It may be that in the future this combination will be adopted. It is as yet too early to claim that one possesses a cure for tabes or general paralysis, but one can in suitable cases do a good deal toward arresting both diseases. Whether such periods of arrest are permanent time will show.

**4. Meningitis in Children.**—W. M. Smith presents the following table in which he contrasts the different forms of meningitis in children:

| Meningitis | Onset | Initial Symptoms | Cerebrospinal Fluid |
|---|---|---|---|
| Epidemic meningococcal (spotted fever) | Generally sudden | Basal | Polymorphonuclear leucocytes, Weichselbaum's *Diplococcus intracellularis*. |
| Sporadic meningococcal (posterior basal) | Sudden | Basal | Polymorphonuclear leucocytes, non-Gram stained organisms, *Diplococcus intracellularis*. |
| Pneumococcal | Sudden | Cortical | Polymorphonuclear leucocytes, Fränkel's diplococcus. |
| Traumatic | History | | Blood. |
| Pyogenic | Sudden | Cortical | Polymorphonuclear leucocytes, staphylococci or streptococci |
| Rheumatic | During attack of acute rheumatism or history of rheumatism | Cortical | Polymorphonuclear leucocyt s, *Diplococcus rheumaticus*. |
| Other forms of infection (typhoid fever, influenza, etc.) | Sudden | Cortical | Polymorphonuclear leucocytes, infecting organism. |
| Syphilitic | Insidious | Generally basal | Excess of lymphocytes. Wassermann reaction positive. |
| Tuberculous | Generally insidious | Generally cortical | Excess of lymphocytes generally, may be polymorphonuclear leucocytes if acute infection. Tubercle bacilli. |
| Serous | Sudden | Cortical | Excess of lymphocytes, no organisms. Fluid at increased pressure |
| Meningism | Generally insidious | Cortical | Normal fluid generally at increased pressure. |

The initial symptoms when the cortex is first invaded are intense pain, headache, convulsions, and mental symptoms. When the base is first invaded the initial symptoms are tonic muscular spasm, paralysis, constant vomiting, and optic neuritis.

### Berliner klinische Wochenschrift.

*April* 20, 1914.

**Theories Concerning the Thyroid.**—Grumme considers Graves' disease, myxedema, cretinism, goiter, hyper- and hypothyroidism. From his speculations he seeks to draw some practical conclusions, such as: Cretinism, myxedema and endemic goiter are all benefited by organic (thyroid) iodine. In the endemic goiter of mountainous countries, which is to be regarded as an incomplete cretinism, inorganic iodine acts more intensively than organic iodine, causing improvement, *i.e.*, reduction in size of the goiter. In Graves' disease all iodine is harmful, even foods which are rich in iodine (marine fish). Apparently simple goiter of the plain and lowlands, since it often represents a step toward Graves' disease, is also aggravated by iodine. Naturally cases arise of simple goiter in which the crucial factor of altitude is in abeyance—for example, after a migration from low to high lands. In such cases to give iodine would be a blunder. The history, therefore, must be investigated in cases of plain goiter, and with added reference to previous treatment. Several blood tests are also available to distinguish an incipient goiter from incipient Graves' disease. These concern both the blood count and coagulability (Kocher, Kottmann). Other differential tests are found in special works.

**Studies of Mummies and Frozen Mammals.**—Heller studied the mummies of both Egypt and Peru, and the Siberian mammoth as preserved in ice. While the finds interest chiefly the pure scientists, since they consist of minute anatomical finds, there is much of collateral interest to the general reader. The mammoths found were not victims of any cataclysm, but simply fell into holes which had been hidden by an artificial soil of débris. Multiple fractures give proof of this statement. The animals were not killed outright, for they made attempts to raise themselves and to eat. Death, however, occurred quickly, from whatever cause, and the cadavers were soon covered with ice and preserved, until at some later period during the subsidence of glacial ice, a river washed away the latter and exposed the monsters. As the mammoth was preserved by ice, the Peruvian mummy was kept intact primarily by heat. Peruvian mummies may be traced back to 1100 B. C. Preservation was due solely to burial in a hot, dry soil. The Egyptian mummies, in addition to the action of the hot, dry climate, went through a process of embalming, but only in relatively modern times. Natural mummies occupy the interval between 4000 and 2000 B. C. The embalming technique shows variations from century to century.

### Berliner klinische Wochenschrift.

*April* 27, 1914.

**Causation of Landry's Paralysis.**—Leschke has been at work upon this subject, in common with his superior, Saenger, for some months. After describing a typical case in a 16-year-old girl, he sums it up as follows: paralysis ascendens acuta with complete absence of fever—an ascending flaccid palsy, causing death by finally involving the medulla. Autopsy showed no naked eye alterations in the brain and cord. The latter to the microscope showed severe recent lesions in the ganglion cells; more or less complete plasmolysis and chromolysis of the cells of the anterior horns. On the other hand there were absolutely no inflammatory changes and nowhere any infiltrative interstitial process —which distinguishes this form of paralysis from the epidemic infantile type. After a description of the so-called Landry corpuscles found in the spine the author relates the results of inoculation experiments on animals. He was able to inoculate apes with the disease, and to propagate it from ape to ape, but no positive results were obtained from small laboratory animals. The virus is filtrable and the period of incubation varies from 7 to 23 days. Clinically the affection often results from exposure, or the grip, after a latent period of about two weeks. Attempts to cultivate the germ have as yet met with but doubtful success. All alleged Landry bacilli have thus far been shown to be non-pathogenic. The author's virus seems a marked advance.

**Investigations into Abderhalden's Dialysis Procedure in Pregnancy.**—Lange has studied 170 sera with several hundred single determinations, the chief value being based on double determinations and other controls. In regard to the claim that placenta substance is not broken down by the sera of subjects with cancer and salpingitis, the author found that in not a few placentas there was a positive reaction with such sera. Proceeding with control subjects the author tested cases of febrile diseases, lues, tuberculosis, etc., and in from 30 to 65 cases obtained the "pregnancy reaction"—results which cannot be set down to technical errors alone. The specific character of these reactions seems much in doubt.

**What Kind of Cancers Are Best Suited for Treatment with Radioactive Substances?**—Koblanck lays special emphasis on the following: superficial chancroids of the face; carcinoma of the uterus, vagina and vulva; cancer of the tonsil; cancer of the parotid. Facial chancroids heal with surprising rapidity if the treatment is supported by high frequency. Surprising facts come to light in the treatment of the portio vaginalis. Thus after the latter had been destroyed by the disease it underwent regeneration through treatment. Not a single operable case is included in the author's material. Various forms of cancer and sarcoma readily accessible to the treatment do not benefit by it at all. Here belong advanced, deeply eroding cancers of the face, cancerous ulceration in the scalp, ovarian cancer, and bone sarcoma. The preceding make up the "unfavorable" group. Between this and the "favorable" group lies a stretch of intermediate territory, occupied by tumors of the breast, respiratory and digestive tracts. The prognosis here is doubtful.

### Münchener medizinische Wochenschrift.

*April* 7, 1914.

**Silicic Acid in Cancer and Tuberculosis.**—This number of the Wochenschrift has two articles on these subjects. Kahle, who has studied both the metabolism of silica and the latter's relation to tuberculosis, makes some important announcements with especial reference to the pancreas. 1. There is an intimate association between the pancreas and the silica metabolism of the organism. The metabolism of this acid is changed in the tuberculous and cancerous subjects. In both less of the acid is eliminated by the kidneys than is the rule in health. 2. In the pancreas of tuberculous subjects there is a deficiency of silicic acid. Therefore the patient should not only injest a sufficient quantity of this chemical, but it may also be used to advantage as a local cicatrizant which inclines wounds to heal, but causes granulation tissue to cicatrize. The tuberculous subject should freely injest silicates, etc. In the pancreas of cancerous subjects but little silicic acid is found, and there is no rationale for this deficit. The use of silica preparations in tuberculosis of all kinds lies in the production of new connective tissue which may encapsule the tuberculous lesions and lead to a cicatrization of the latter. The second article is by Roessle, who supervised the work of Kahle. He states

that he has yet to see a case of "incoercible phthisis" associated with cancer. In his silica treatment of tuberculosis he is guided largely by the control of the intracutaneous reaction, repeatedly applied.

**Diagnosis of Cerebral Apoplexy.**—Mendel refers here to the condition which precedes the stroke. A search for prodromes has as a rule yielded the knowledge that such occur in but 1 or 2 per cent. The author has noted a symptom which while evidently rare is none the less dependable, and moreover portends a fatal hemorrhage. A unilateral congestion of the scalp is accompanied by seborrhea on the side of the future focus. In rare exceptions the entire scalp is involved. Following the seborrhea is a contraction of the arrectores pilorum muscles which causes the hair to stand on end, just as in case of profound fright. The face, after a brief congestive stage becomes pale and sunken, with an anxious expression and there is precordial anxiety. Some hours may elapse before the stroke. The nature of the phenomenon is obscure, although the author cites some plausible views.

**Gorky's Recovery from Pulmonary Consumption.**—Gorky himself contributed an article on this subject in the lay press, a résumé of which is as follows: The distinguished author's left apex was in the first stage, the right apex in the second stage. The abundant purulent sputum contained Koch's bacillus in abundance. There was frequent hemoptysis, profuse night sweats, a high degree of emaciation and weakness. In August, 1913, a profuse hemorrhage occurred. For a number of years past the author had lived at Capri, without apparent benefit. In October of the same year the author, while at his worst, submitted to Röntgen radiation of the spleen for a period of several months. The improvement was pronounced from the start. The severe symptoms ceased and there was a gain in weight of 20 pounds. At present the author, in St. Petersburg, feels well and is under no special regimen.

## Münchener medizinische Wochenschrift.

*April* 14, 1914.

**Nature of the So-called Defensive Ferments.**—Stephan refers to the slenderness of our knowledge of these bodies. The word "ferment" and the word "defensive" may alike have been prematurely chosen. The bodies appear to be of the nature of Ehrlich's amboceptors. The author has made many researches into the numerous forms of Abderhalden's seroreaction, and learned that in all cases the addition of the so-called "complement" greatly intensified the reaction. Under this term in this connection we are to understand the following: Fresh guinea pig serum 0.1 ccm. diluted in the proportion of 1:2 with physiological saline solution. Starting with this discovery he continued his research until the following conclusion was reached: The so-called defensive ferments are of complex nature, of the nature of the amboceptor bodies of Ehrlich. They do not differ from the various bodies of immunity research—hemolysins, bacteriolysins, cytolysins. The author uses a term "albumin reagins" to comprise all of these bodies. "Reagins" are always strictly specific. The complement, on the other hand, contains a proteolytic enzyme which is not specific.

**"Combined" Treatment of Syphilis.**—Klausner refers to a mixture used by a colleague to abort syphilis. The chief active constituent is colloidal, molecular mercury, and with it are combined salicyl, quinin, sublimate, arsenic, phosphorus and an iodine compound. The formula is not new, for it has been tested for over two years. From all indications it is intended for the market. The author would term it an excellent mercurial, the role of the combined substances not being specifically apparent. It is injected intramuscularly. In no sense is it advocated as a substitute for salvarsan, for a combination of the two is advocated. The combined remedies appear to be intended, at least in part, to offset mercurialism, so that a good dosage is practicable. Attempts have long been made to modify the action of mercurials in such manner that they may be given safely—for Hg. is a much stronger spirocheticide than salvarsan, and although it causes high morbidity it does not menace life.

**Tuberculin Cures in a Sanatorium.**—Ponndorf, who is at the head of a large public institute for inoculation treatment, gives some statistics of results during 1913. His patients received one to six or seven inoculations with tuberculin, chiefly "new." The number treated was 134, and during this period 44 were pronounced cured, 37 greatly improved and 28 somewhat improved. Twelve disappeared and the remaining 13, who did not react to tuberculin (clinical diagnosis positive?) were not treated. All ages, and all forms and stages of the disease were represented. Since some of the cures cannot have been in clinically tuberculous subjects—they are recorded as asthma, anemia, etc.—the inference is that there was a laboratory diagnosis. Of much interest is the fact that tuberculous subjects, especially those under 25 years of age, have a very marked tendency to enlarged thyroid as evidence of tuberculous toxicosis. This is readily determined by neck measurements. Not infrequently the latter show a decline after a few inoculations.

## Münchener medizinische Wochenschrift.

*April* 21, 1914

**Two Cases of Nutmeg Poisoning.**—Beck relates the following: two servant girls partook of a mixture made up of two ground nutmegs, a small quantity of powdered cinnamon and half a liter of hot wine. One girl, M. U., drank the greater part, the other, M. H., receiving but a small portion. Both were brought to the hospital unconscious. M. U., a strong girl of 20, could not be aroused by speaking. Her respiration was 20, even. Pupils reacted to light. Pulse small, 95. Heart and lungs normal, also urine and temperature. Reflexes all normal. In sum, with the exception of the stupor and pulse, nothing abnormal was found save a divergent strabismus and slight meteorism. The stomach was washed out and analeptics were given. Although much of the ingested nutmeg was removed patient became restless, while her pulse and temperature rose. She was not aroused from stupor until the third day. The fifth day found her nearly well, some headache persisting. The other patient had a similar experience but less pronounced, and recovered more promptly. Both girls stated that after taking the mixture they developed consecutively dyspnea, failure of memory, vertigo, and somnolence. The purpose of the draught was to bring on delayed menses. The toxicity is probably due to ethereal oils and their terpenes.

**Peculiar State of Narcosis after Industrial Work with Methyl Chloride.**—Gerbis relates an episode of this sort, which occurred after this chemical had by oversight been eliminated from the industrial poisons, and indeed from the general list of poisons. Those who work industrially with methyl chloride handle the latter in closed vessels, since it is highly volatile. As a rule, therefore, the worker is not exposed to danger. It had been noted incidentally that while the employees led a very active life, they nevertheless quickly became fat, but aside from this there was nothing to suggest an occupational affection. However, when the gasometers

are cleaned, it appears that unless due precautions are used fumes of the methyl chloride may be inhaled and cause peculiar disturbances of vision, along with a cerebral state not unlike alcoholic intoxication, initial excitation being followed by prolonged somnolence. The author believed at first that he had made a new contribution to industrial poisonings, but after the completion of his report learned that over ten years ago methyl bromide was placed among these poisons in Switzerland as the handling of it by workmen caused a high degree of weakened vision, disturbances of memory, and somnolence. This intoxication was chronic in type. When large amounts were inhaled convulsions and coma developed with persistent delirium, ending in cachexia and dementia. The author sees sufficient difference between these types of intoxication to entitle him to some priority, the difference being more than one of degree.

### Deutsche medizinische Wochenschrift.

*April* 9, 1914.

**Familial Syphilis and Keratitis Parenchymatosa.**—Lesser and Carsten emphasize the fact that the newer seropathology has made many changes in our ancient empirical knowledge of lues. This is nowhere more apparent than in the congenital form, and all our old ideas of familial syphilis must require overhauling. We can no longer depend on indirect clinical evidence in such cases, for serological tests must be applied. In order to secure an entering wedge the authors began to study the families in which one or more cases of keratitis parenchymatosa exist. While we know but little of the intimate nature of this affection, few will deny that it is typically syphilitic—although in about 10 per cent. of cases this connection had not been demonstrated. This was originally true also of tabes before the introduction of the Wa R. The authors hope that they have raised the percentage to 100. Thus of 38 children with keratitis, 35 gave outright the positive Wa R. The other three were tested with lüetin with two positive results. Thus but one case remained unaccounted for. To explain its existence by the presence of some other constitutional disease was merely begging the question. Tuberculosis naturally coexists to some extent with keratitis parenchymatosa. Thus in five cases a positive von Pirquet was obtainable. Yet how does syphilis produce this lesion? No spirochetes have been found in the former, nor does inoculation of the latter cause keratitis. We can only accuse the blood vessels. The phenomenon is almost universally bilateral, the sequence being akin to that of sympathetic ophthalmia; so that the mechanisms in the two affections should be closely related. In regard to the success of treatment all agree that after one eye is attacked nothing can prevent the development of the affection in its fellow. To come to the heredity of the cases 20 fathers of 38 children admitted infection and four of these had metasyphilis (a shocking percentage). The problem with the mothers was singularly complicated. The latent syphilis, Colles cases, etc., naturally caused much confusion. As a rule the mother of a syphilitic child gives at first a positive Wa R, ranging from 90 per cent. to 100 per cent. The negative cases coincide in part with the Colles law women, but this as a rule is apparent only after the first few years, when the number of negative finds attest that the so-called Colles mothers tend to recover spontaneously. In further labors these negative Wa R women tend to bear healthy children. The highly interesting work must be summed up as follows: Keratitis parenchymatosa is doubtless purely syphilitic in character, results of medication are uncertain, but it is a practical certainty that if one eye is affected the participation of the other cannot be prevented. The clinically intact mother of a congenitally syphilitic child almost unvariably shows a positive Wa R. The so-called "Colles mother" suffers from latent syphilis. The new serology throws no light on the old alternative of "infection of the mother vs. infection of the ovum." At least two "serologically syphilitic" children are born to every clinically syphilitic child. These data open up endless possibilities for new medicolegal problems.

### Deutsche medizinische Wochenschrift.

*April* 16, 1914.

**Etiology of Acute Articular Rheumatism.**—Singer reviews all the recent speculations on the nature of this affection, with special reference to the septic rheumatoids. The occurrence of acute phenomena in a chronic rheumatic subject naturally suggests anaphylaxis. Despite the great number of affections in which the joints participate, generalizations seem out of the question. We can only speak of arthrotropic toxins or bacteria, and of arthrotropic medicaments which are of more or less value in treatment. The author goes no further than the statement that we cannot escape the streptococcus as an arthrotropic disease exciter. This seems assured for all secondary articular rheumatism, and the author is convinced that streptococci will be recognized eventually as the essential exciter of the acute type. Singer announces his adhesion to the opinion which was advanced many years ago that acute articular rheumatism belongs to the large family of pyemias.

**Functional Testing of the Liver with Levulose.**—Arai of Tokio sums up his personal experience of this subject as follows: 50 grams levulose suffice to test the function of the gland. If a healthy subject ingests this quantity a positive result is almost never obtained. For testing in levulosuria a simple Nylander reaction suffices, provided that the fasting urine is exactly controlled. The color reactions of Pinoff or Selivanoff is quite uncertain. In different affections of the liver we see the strongest depression of the tolerance for levulose in cirrhosis, high degrees of syphilis of the liver, marked atrophic processes in the liver from various causes, and in general marked injury of the liver parenchyma. As for catarrhal jaundice a decision here has not been reached. In primary and secondary tumors of the liver, in parasitic diseases of the same, in stasis, in gallstones (especially in cysticus obstruction) in the swollen liver of leucemia or pseudoleucemia the tolerance for levulose is not at all reduced, or barely so at most. As far as he has gone the author finds the test a simple and trustworthy one.

**The Iodotherapy of Arteriosclerosis.**—Schwalbe concludes a serial article on this subject as follows: But one thing seems assured, to wit, that iodine can influence favorably syphilitic arteriosclerosis. Where improvement follows in cases which occur in non-syphilitics we may, of course, suspect that the disease is latent (no mention of the Wassermann reaction). In the other types of the disease the iodine is given quite empirically—there is no theory yet devised to explain the merchanism of a cure, just as there is no proof in a given case that the disease is not due to suggestion or other factor. An iodine cure should be given with intermissions, and may be prolonged for years. Failure of improvement after a reasonable time, say 4 months, should lead to permanent discontinuance. There is always a possibility that iodine will cause unpleasant symptoms in overlooked goitre, and it is then contraindicated. This also holds good if iodism goes beyond a certain point.

# Insurance Medicine.

## SUGGESTIONS TO MEDICAL EXAMINERS.

BY THE INSURANCE EDITOR.

### CAUSES OF DEATH AMONG WOMEN.

THE Medico-Actuarial Investigation Committee has tabulated the following comparison of the causes of death among men and women for twelve of the most common diseases:

MEN AND WOMEN—DEATHS BY CAUSE.
PERCENTAGES OF TOTAL DEATHS.

| Cause of Death | AGES AT ENTRY, 15-29 | | AGES AT ENTRY, 30-44 | | AGES AT ENTRY, 45 AND OVER | |
|---|---|---|---|---|---|---|
| | Men | Women | Men | Women | Men | Women |
| Typhoid fever | 14 2 | 6 3 | 6 8 | 4 3 | 2 0 | 1.3 |
| Tuberculosis of the lungs | 22 5 | 27 2 | 12 3 | 13 9 | 4 5 | 4.0 |
| Cancer and other malignant tumors | 2 1 | 2 7 | 4 8 | 11 8 | 7.7 | 13 3 |
| Diabetes | 1 2 | 7 | 1 7 | 9 | 1.5 | 1 8 |
| Cerebral hemorrhage and apoplexy | 2 1 | 1 5 | 6 2 | 3 9 | 11 3 | 10 3 |
| Organic disease of the heart | 3 0 | 3 3 | 5 9 | 5.3 | 10 6 | 10 7 |
| Pneumonia | 7 6 | 6.1 | 9 4 | 7 5 | 8 4 | 10 7 |
| Appendicitis and typhlitis | 3 3 | 2 3 | 2 1 | 1.5 | 1 0 | .3 |
| Cirrhosis of the liver | .7 | .4 | 1 4 | .8 | 1 7 | 1 0 |
| Nephritis and Bright's disease | 4 1 | 4 2 | 7 3 | 6 4 | 9 6 | 7 4 |
| Suicide | 3 1 | 2 1 | 4 1 | 1 4 | 2 5 | .5 |
| Accident | 12 1 | 3.7 | 8 2 | 4 0 | 4 8 | 2 6 |
| All other causes | 24 0 | 39.5 | 29.8 | 38.3 | 34 4 | 26.1 |

RATIOS PER 10,000 EXPOSED TO RISK.

| Cause of Death | AGES AT ENTRY, 15-29 | | AGES AT ENTRY, 30-44 | | AGES AT ENTRY 45 AND OVER, | |
|---|---|---|---|---|---|---|
| | Men | Women | Men | Women | Men | Women |
| Typhoid fever | 6.7 | 3 3 | 4 6 | 2.7 | 3 7 | 2.3 |
| Tuberculosis of the lungs | 10.6 | 14 1 | 8 2 | 8 6 | 8.4 | 7.3 |
| Cancer and other malignant tumors | 1.0 | 1 4 | 3.2 | 7.3 | 14 4 | 24.3 |
| Diabetes | .6 | .4 | 1.2 | .6 | 2.8 | 3.3 |
| Cerebral hemorrhage and apoplexy | 1 0 | .8 | 4 1 | 2.4 | 21.2 | 18 7 |
| Organic disease of the heart | 1.4 | 1.7 | 4 0 | 3.3 | 19.9 | 19.6 |
| Pneumonia | 3.6 | 3 2 | 6.3 | 4 7 | 15 8 | 19.5 |
| Appendicitis and typhlitis | 1.6 | 1.2 | 1 4 | 1.0 | 1 9 | .6 |
| Cirrhosis of the liver | .3 | .2 | 1 0 | .5 | 3.3 | 1.8 |
| Nephritis and Bright's disease | 1 9 | 2 2 | 4.9 | 4 0 | 17.9 | 13.6 |
| Suicide | 1 5 | 1 1 | 2.8 | .9 | 4 8 | 1.0 |
| Accident | 5 7 | 2.0 | 5.5 | 2 4 | 8 9 | 4 8 |
| All other causes | 11.3 | 20.5 | 20.0 | 23.7 | 64 2 | 66.0 |

It is seen from a comparison of these tables that typhoid fever, appendicitis, cirrhosis of liver, suicide, and accident cause the death of a larger number of men, and that cancer and malignant tumors are the causes of a greater proportion of deaths among women.

The death rate among insured women may be studied under four classes: 1. Spinsters. 2. Married women with husband beneficiary. 3. Married women with beneficiary other than husband. 4. Widows and divorced. It is found that spinsters show a much lower mortality than any of the other classes from tuberculosis of lungs, pneumonia, disease of the kidneys, cancer, apoplexy, and cardiac diseases.

A comparison of the death rates of men and women with tuberculosis as the cause show that the mortality from this disease among women, even spinsters, is considerably higher than that among men at the early ages. This, however, may be accounted for to some degree by laxity in the medical examination.

It is interesting to note the effect of marriage on female life during and after the period of childbearing. The result of most observations have been that the high mortality among women is limited to the child-bearing ages, 15 to 45, whereas a lower rate is found above those ages. This is brought out by the following Medico-Actuarial table:

DISEASES OF PREGNANCY AND THE PUERPERAL STATE.

| Class | AGES AT ENTRY, 15-29 | | AGES AT ENTRY 30-44 | |
|---|---|---|---|---|
| | Percentage of Total Deaths | Ratio per 10,000 Exposed to Risk | Percentage of Total Deaths | Ratio per 10,000 Exposed to Risk |
| Spinsters | 8 6 | 3.5 | 3.8 | 1.6 |
| Married women, beneficiary husband | 18 8 | 12.5 | 8.8 | 6.3 |
| Married women, beneficiary other than husband | 14 7 | 10.1 | 6.3 | 4 7 |
| Widows and divorced | 6.2 | 4.0 | 1 8 | 1.2 |

The foregoing table indicates that many who insure as spinsters marry afterwards and that childbirth has an important influence on the mortality among married women.

This influence of build on the mortality of women is of some importance, as seen in the following table:

WOMEN.
Height 4 Feet 11 Inches to 5 Feet 10 Inches Inclusive.
ALL POLICY YEARS COMBINED.

| Variation From Average Weight in Pounds | AGES AT ENTRY, 20 TO 39 INCLUSIVE | AGES AT ENTRY, 40 TO 62 INCLUSIVE |
|---|---|---|
| | Ratio of Actual to Expected Deaths, Per Cent | Ratio of Actual to Expected Deaths, Per Cent |
| −25 to −30 | 101 | 87 |
| −15 to −20 | 111 | 96 |
| −10 to +10 | 105 | 101 |
| +15 to +30 | 105 | 119 |
| +35 to +60 | 117 | 124 |
| Total | 107 | 101 |

The foregoing table emphasizes the distinctly better quality of the underweight risks at the older ages.

If these results are compared to those found among men, it is found that the effect of underweight or overweight, particularly at the younger ages, is less than among men, though exhibiting the same general tendencies. At the older ages, underweight to the extent of at least 30 pounds is an advantage and overweight is a disadvantage, increasing with the degree of overweight.

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**Ever-Increasing Interdependence Between Life Insurance and the State.**—The growth of life insurance and State supervision have kept pace with each other. The people now call for and demand strict supervision of all classes of business, but especially of the insurance business. They are entitled to it, and the viewpoint of the Hon. James R. Young, president, National Convention of Insurance Commissioners, Raleigh, N. C., is to make it a help and not a hindrance to the business. Supervision, as now conducted, has helped the growth of the companies, and produced a better feeling among them. They have learned to know each other better and to distrust each other less, to feel that the success of one, instead of hurting, is a decided advantage to the other. There in no question as to the progress and splendid results in the life insurance business. From a mere wager, or a desire to protect one's family, the business has advanced to the protection of our business and business associates. The business no longer moves or evolves its work without the Government and its laws. The State, in its onward progress and wonderful industrial development, can no longer neglect or do without life insurance and its support and aid to business.—Association of Life Insurance Presidents, December, 1913.

# Book Reviews.

MENTAL DISEASES—A Textbook of Psychiatry for Medical Students and Practitioners. By R. H. COLE, M.D. (London), M.R.C.P., Physician for Mental Diseases to St. Mary's Hospital; Lecturer on Mental Diseases to St. Mary's Hospital Medical School, and at the West London Hospital Postgraduate College. With 52 Illustrations and Plates. London: Published for the University of London Press by Hodder & Stoughton, 1913.

THIS small volume is one of the London Medical Publications series. It purports to delineate in a concise manner the salient features of present day psychiatry. This is an interesting statement in itself as latter-day advance in psychiatry represents both a continually developing evolution and a decided revolution in the entire subject. The Kraepelin classification was a wonderful advance over the old psychiatry and, as the author says, "the teaching of Kraepelin is tending to dominate psychiatry in England." But there are even later teachings, of the Freudian school, and other workers, which are molding even a newer psychiatry in this country. However, while we do not find in it much about Freud or even about Kraepelin, we recognize in this book a step in the right direction in English psychiatry. The subject-matter is set forth very clearly and the book ought to be of service to those for whom it was especially written. The illustrations are also good, for the most part. The plan and scope of this work are as follows: In the first chapter are given, very briefly, the incidence and history of insanity. In the next four chapters we find a very elementary description of mental mechanisms in health, with their disorders in abnormal mental conditions, and reference to the structure and vascular supply of the brain. The next chapter is entitled "The Diagnosis of Insanity." The next two chapters are on general causation and classification. Then follow condensed descriptions of the psychoses in ten chapters, and chapters on "General Diseases and Insanity," the "Pathology of Insanity," "Prognosis," "The Legal Relations of Insanity and Mental Deficiency," and "General Treatment."

OUR NATION'S HEALTH ENDANGERED BY POISONOUS INFECTION through the Social Malady: The Protective Work of the Municipal Clinic of San Francisco and Its Fight for Existence. By Dr. JULIUS ROSENSTIRN, Chief of Staff and Attending Surgeon Mount Zion Hospital; Chairman Advisory Committee Municipal Clinic. Price 25 cents. San Francisco, 1913.

THIS publication is a denouncement of what is claimed to be a great wrong done in San Francisco by the suppression of an institution that has been most active for the benefit and preservation of the public health. It divulges the plan of attack of the opponents of sanitary reforms regarding venereal diseases. A brief description of the Municipal Clinic of San Francisco is given and its aims and work are discussed.

BURDETT'S HOSPITALS AND CHARITIES, 1914. Being the Year Book of Philanthropy and the Hospital Annual. Containing a Review of the Position and Requirements, and Chapters on the Management, Revenue, and Cost of the Charities. An Exhaustive Record of Hospital Work for the Year. It will also be found to be the most useful and reliable guide to British, American, and Colonial hospitals, and asylums, medical schools and colleges, nursing and convalescent institutions, consumption sanatoria, religious and benevolent institutions, and dispensaries. By Sir HENRY BURDETT, K.C.B., K.C.U.O.; Editor of *The Hospital*. Twenty-fifth year. London: The Scientific Press, Limited, 1914.

BURDETT'S Hospitals and Charities is too well known throughout the English-speaking medical world to require eulogy. It stands alone. This issue, however, is the jubilee issue and it is instructive to note the manner in which each new edition has been an improvement on the previous one. The feature of the present volume is its special chapters, which, with the exception of one chapter, deals with hospital and charitable affairs in Great Britain. The last special chapter but one discusses the hospitals of the United States, Canada, Australasia, and India. Again the author calls attention to the difficulties which beset the compilers of information concerning hospitals and other charitable institutions of the United States, and he criticizes the somewhat chaotic condition of hospital accounts in this country. He recommends to a limited extent the adoption in Great Britain of the American system of paying wards. With regard to the vexed question as to what effect the national insurance act of Great Britain is likely to have on the voluntary hospital system the author is silent. Burdett's Hospitals and Charities is a rich mine of valuable information and is almost as necessary to the physician as the medical directory. Sir Henry has performed a public service in gathering information concerning hospitals and charities during the period of twenty-five years.

DISEASES OF THE DIGESTIVE CANAL—Esophagus, Stomach, and Intestines. By Dr. PAUL COHNHEIM, Specialist in Diseases of the Stomach and Intestines in Berlin. From the Second German Edition. Edited and Translated by DUDLEY FULTON, M.D., Assistant Professor of Principles and Practice of Medicine, University of California College of Medicine, Los Angeles Department; Attending Physician, Los Angeles County Hospital. Illustrated. Third Edition. Price $4.00. Philadelphia and London: J. B. Lippincott & Co., 1913.

THE third English edition of this work speaks for the continued popularity which it enjoys. The most distinctive feature of the present volume, as of the previous ones, is the discussion of the subject matter purely from the clinical point of view, and is thus written especially for the physician in general practice. The author considers the anamesis the most important part of the examination in arriving at a diagnosis of the condition of the gastrointestinal tract and throughout the volume he so defines the significance of the subjective symptoms that the reader will scarcely fail to be impressed with the value of the art of interpreting these rather than applying himself to complicated details of laboratory work. The author frankly disclaims any attempt to review the literature or to compile views of other authors or to present any pathological details or theoretical discussions. Every subject is attacked with directness and all non-essentials are ignored. The volume is a succinct record of the author's daily experiences with gastrointestinal diseases of every kind and this is perhaps the most valuable asset of the book. Only a few changes and additions have seemed necessary. New matter pertaining to the medical treatment of gastric and duodenal ulcer have been added. The general section deals with taking history, physical examination, laboratory methods of examination. The special section deals with the diseases of the stomach and intestines. Increasing value is attached to skiagraphy, recent improvements in the diagnosis of lesions of the esophagus, acute dilatation of the stomach, treatment of gastric and duodenal hemorrhage, and technique of sigmoidoscopy.

LEITFADEN DER SÄUGLINGSKRANKHEITEN für Studierende und Ärzte. Von Dr. WALTER BIRK, Privatdozenten für Kinderheilkunde, an der Universität Kiel. Mit 25 Abbildungen im Text. Price 4.80 marks. Bonn: A. Marcus & E. Webers Verlag, Dr. jur. Albert Ahn, 1914.

THIS book, which is termed the "Essentials of Diseases of Children," is more than a mere synopsis of pediatric science. It is a succinct account of pediatrics from the viewpoint of the latest German theory and practice. This modern presentation of the subject is clearly indicated in the chapter on the nutritional disturbances of infancy. The classification of these as adopted by the author is the one introduced by Czerny and Keller and is as follows: (1) Nutritional disturbances *ex alimentatione*, (2) nutritional disturbances *ex infectione*, (3) nutritional disturbances *ex constitutione*, and (4) nutritional disturbances from congenital difficiencies. In discussing the alimentary types of nutritional disturbances the author takes up in order those caused by deficient or disturbed lactation, those caused by disturbances of lactation in children suffering from the exudative diathesis, and those arising in artificially fed infants. The last group is of particular interest inasmuch as the author describes in detail the latest methods of managing those difficult cases of malnutrition in which cow's milk disagrees either in whole or in part. The malnutrition associated with an excessive cereal diet is sharply delineated. The method of managing cases of alimentary intoxication according to the teachings of Finkelstein is presented in full. This summary of part of the section dealing with infant feeding may serve to illustrate the up-to-date manner in which the principles of pediatrics are handled by the author. This book, which in its 256 pages epitomizes the practice of pediatrics in the leading German clinics, may be recommended to all those who would obtain a brief survey of this fertile domain.

MANUAL OF SURGERY. By ALEXIS THOMSON, Professor of Surgery, University of Edinburgh; Surgeon Edinburgh Royal Infirmary; and ALEXANDER MILES, Surgeon Edinburgh Royal Infirmary. Vol. III—Operative Surgery. Second Edition, 620 pages, with 255 illustrations. Price $3.50. Edinburgh, Glasgow, and London: Henry Frowde, Hodder & Stoughton; New York: Oxford University Press, 1913.

THE first edition of this surgery received a very flattering reception on this side of the Atlantic, and deserved it. The work has been most thoroughly revised and brought up to date and is one of the best of the smaller operative surgeries. The assignment of space to the various subjects is, however, open to criticism. Why give 60 pages to the time honored repetition of ligature of arteries and only two each to the operations on the pancreas and spleen and a trifle over five to the kidneys? But four pages are allowed for operations on the liver, while the gall-bladder is disposed of in 11, and much of the space assigned to the consideration of operations on these vitally important organs is taken up by illustrations. With these exceptions, and the fact that the use of the Basle nomenclature makes some of the descriptions rather difficult to follow, one can but feel that criticism is unwarranted, while much praise should be given the authors for crowding so much of true value into a book of this size. The choice of operations is almost invariably good, the descriptions are remarkably clear, and the illustrations, which are found in great profusion, are of unusual excellence. The latest advances in the way of surgical technique are to be found almost without exception; and American surgeons have certainly fared well at the hands of the authors. The work of Murphy in the treatment of ankylosed joints, of Cushing, Elsberg, Frazier, and Hartley in the development of the surgery of the brain and spinal cord, of the Mayos in the surgery of the stomach and thyroid, of Young on the prostate, the work of C. L. Gibson, Halstead, Crile, Whitman, and many others has received recognition and often especial prominence. Any surgeon's library will be enriched by the acquisition of this volume.

PRACTICAL PATHOLOGY, INCLUDING MORBID ANATOMY AND POST-MORTEM TECHNIQUE. By JAMES MILLER, M.D., D.Sc., F.R.C.P.E., Lecturer on Pathology and Bacteriology, School of Medicine of the Royal Colleges, Edinburgh, and Edinburgh School of Medicine for Women; Examiner in Pathology, University of Aberdeen and Royal College of Physicians, Edinburgh; Pathologist, Royal Victoria Hospital, Royal Hospital for Incurables, and Deaconess Hospital, Edinburgh; Assistant Pathologist, Royal Infirmary and Royal Maternity Hospital, Edinburgh; late Visiting Pathologist, General Hospital, Birmingham; Lecturer, Birmingham University; Examiner in Pathology, University of St. Andrews. Price, $2.50. New York: The Macmillan Company, 1914.

THIS volume is quite evidently intended merely for a student's guide to be used as a current textbook during a course in gross and microscopical pathology. Within these limits the book can be warmly commended, but it is by no means a textbook of pathology for reference. This is best shown by the fact that there are no drawings of histological preparations, but only a series of moderately well-executed plates showing the most important gross lesions. The purely practical portions, such as those on autopsy and section technique, are better than the text descriptive of gross lesions.

SURGICAL DISEASES OF CHILDREN. A Modern Theatise on Pediatric Surgery. By SAMUEL W. KELLEY, M.D., LL.D., Honorary Professor of Surgical Diseases of Children, Medical Department, National University, St. Louis; Pediatrist and Orthopedist, St. Luke's Hospital, Cleveland; Formerly Professor of Diseases of Children, Cleveland College of Physicians and Surgeons, Medical Department, Ohio Wesleyan University. Illustrated. Second Edition, Revised and Enlarged. Price $5.00. New York: E. B. Treat & Co., 1914.

THIS volume admirably covers the ground of pediatric surgery. The author has shown in the first edition of this work a sympathetic interest in the problems and special technique of the surgery of children. In the second edition he has maintained this attitude and has made notable additions to the text. Among these additions may be mentioned transfusion by means of Brewer's tubes, arthroplasty, motion after dislocation and other joint injuries, anomalies and deformities of the skull, Abbott's method for scoliosis, tonsillectomy, fistulæ and cysts of the neck, and Cook's operation for relapsed clubfoot. The general practitioner will find in this work detailed instructions as to the simple operative procedures which he may attempt while the general surgeon who would gain an insight into the special needs of the surgery of children will be greatly assisted by this volume. Such subjects as appendicitis in children, the indications and technique of intubation, the operations for enlarged tonsils and adenoids, the treatment of bony deformities and of the various forms of bone and joint tuberculosis in children, etc., are all fully described. Exception may be taken to the use of the word "tubercular" instead of "tuberculous," when the author wishes to convey the meaning that the condition pertains to tuberculosis rather than that the lesion is one having a nodular conformation, as in the case of the cutaneous lesions of leprosy and syphilis. On the whole this volume may be commended for its happy planning and complete execution. It is in every respect a treatise on the surgical diseases of children.

A MANUAL OF MEDICAL TREATMENT OR CLINICAL THERAPEUTICS. By I. BURNEY YEO, M.D., F.R.C.P., Emeritus Professor of Medicine in King's College, London; Consulting Physician to King's College Hospital; Honorable Fellow of King's College. Fifth Edition. By RAYMOND CRAWFORD, M.A., M.D. (Oxon.), F.R.C.P.; Physician and Lecturer on Clinical Medicine to King's College Hospital; Fellow of King's College, London; Examiner in Medicine, Royal College of Physicians; late Examiner in Materia Medica and Pharmacology, University of London, etc., and E. FARQUHAR BUZZARD, M.A., M.D. (Oxon), F.R.C.P.; Physician for Out-Patients to St. Thomas's Hospital and to the National Hospital for the Paralyzed and Epileptic, Queen Square; Consulting Neurologist to the Royal Free Hospital and to the Hospital for Diseases of the Throat, Golden Square; late Physician to the Belgrave Hospital for Children, and Goulstonian Lecturer, Royal College of Physicians, etc. In Two Volumes. Price $6.00 net. New York: William Wood & Company, 1913.

THE fourth edition of this work appeared in 1909 and the advances made since that time have called for a revising and enlargement of this fifth edition, particularly in the fields of physical therapy, use of the *x*-ray in diagnosis, and serviceability of various physical methods of treatment. The study of disease from the point of view of treatment is the object of this work. The teaching of therapeutics is here approached from the side of the drug or remedy. No attempt is made to discuss questions of treatment apart from considerations of the clinical history, course, and pathological characters of the disease. Rational indications for treatment are arrived at by examining the mode of causation of disease. The aim has been to deduce rational indications for treatment from an examination of the pathological nature and the clinical course and characters of the disease under discussion. Selections of formulas are added to most of the chapters. Vol. I deals with chapters on Diseases of the Organs of Digestion, Heart and Blood Vessels, and the Blood and Ductless Glands, Diseases of the Organs of Respiration, and Phthisis. Vol. II treats of Diseases of the Liver, Kidneys, Nervous System, Constitutional Disease, Specific and Infective Diseases.

ANATOMY AND PHYSIOLOGY. A Textbook for Nurses. By JOHN FORSYTH LITTLE, M.D., Assistant Demonstrator of Anatomy, Jefferson Medical College, Philadelphia. Illustrated with 149 engravings and 4 plates; price $1.75. Philadelphia and New York: Lea & Febiger, 1914.

DR. LITTLE has presented in this textbook for nurses a work which may be considered an intermediate between a compend and the larger standard works on the same subjects. No space has been wasted, and every line in the book contains well arranged, clearly thought-out facts. The illustrations, which are many for a book of this size, are the classic ones usually found in the large works on anatomy and physiology and have been both faithfully and beautifully reproduced. The preface states that "emphasis has been placed on the description of organs and their functions which are of fundamental importance in the practical work of the nurse." The book shows that the author has fully succeeded in his efforts. As an additional aid to the course of lectures given in the training schools this little work should prove invaluable.

# Society Reports.

## MEDICAL SOCIETY OF THE STATE OF NEW YORK.

*One Hundred and Eighth Annual Meeting, Held in New York City, April 27, 28 and 29, 1914.*

(Special Report to the MEDICAL RECORD.)

(*Continued from page* 915.)

### SECTION ON SURGERY.

*Thursday, April 30—Third Day.*

**The Surgical Treatment of Empyema.**—Dr. CHARLES N. DOWD of New York read this paper. He said that anatomy must be the basis of surgery, but lately there had been the tendency to use physiological and pathological knowledge to conserve the strength of the patient. Surgeons were more careful of interfering with processes tending to repair. The surgical treatment of empyema was directed toward the drainage of pus. The frequency of pus pockets had been exaggerated, while the frequency of pneumonia had not been appreciated. Pneumonia was the cause of death in most cases; empyema was only incidental. Aspiration was used for diagnosis, but it was not without danger, because when one lung was incapacitated pneumothorax might result from puncture, with fatal result. As regard thoracotomy ether inhalation was not good for pneumonia patients. Local anesthesia was sufficient for resecting a piece of rib. The introduction of the finger was necessary to determine whether there was lung compression. The patient must be made to cough, and if he coughed and expanded lung, lung compression need not be feared. It was important not to cut below the diaphragm. It was better to cut above the eighth rib. The treatment in babies was very discouraging. There were very seldom good results in these cases. The after treatment of thoracotomy was important. Rubber spools maintained satisfactory drainage. Suction apparatus gave little help. The lung should expand at the time of operation, and if adhesions were present blowing exercises should be used. The X-ray should be taken after thoracotomy. The lung would sometimes remain compressed for months. Thoracotomy with decortication of the lung sometimes was of use in these cases, in others not. When the compression was extreme permanent expansion could not be maintained. The procedure was to resect two ribs under ether; the pleura was divided and a longitudinal incision made. The patient was allowed to emerge from anesthesia to cough so that the lung bulged into the wound. The chest wall was brought together with sutures.

Dr. H. LILIENTHAL of New York agreed with Dr. Dowd that empyema was a complication and not a disease. The primary condition should be looked for in order to treat the complication as much or as little as necessary. In the majority of cases the pneumococcus was the infecting agent. Local anesthesia was of utmost importance. The shock and pain were not great if the intercostal nerve was anesthetized, although the crunching of bone frightened the patient. It was dangerous to aspirate for emptying the cavity in cases in which the heart had been swung very much to the side, particularly in left-sided empyema. With the great suction pulling the heart too suddenly back, sudden death might occur. Aspiration was not a simple operation; it was dangerous and free opening was preferable. The patient should have time to get over pneumonia before resection of the ribs was attempted.

Dr. E. W. PETERSON of New York said that very young subjects were not successfully treated no matter how managed. Most cases were due to pneumococcus infection, but if from streptococcus the prognosis was very bad.

Dr. WALLACE of Syracuse said that an *x*-ray was important to keep track of the fluid in the chest and if fluid were present, early aspiration was indicated.

Dr. DAWBARN of New York said that in cases of thickened pleura where the patient's condition was desperate, an Estlander incision or decortication of the lung were not well borne. He used instead a third method which consisted in making long cuts from top to bottom of the pleura, binding down the lung. The lung could be seen expanding. To do this he advocated a long-handled knife, called a "pleura knife," in which a cross bar on the back of the blade controlled the depth of the cut, thus avoiding too deep a cut and the possibility of pulmonary hemorrhage. The knife could be made in three sizes with a malleable handle to be bent as the surgeon required.

**The Surgery of Acute Osteomyelitis.**—Dr. WILLIAM L. WALLACE of Syracuse said that osteomyelitis had been described and treated for many years. Before bacteria were recognized the cause was supposed to be trauma. Pyemia was early recognized. The treatment was procrastination, in the hope that part of the limb might be saved. Later some bold surgeons amputated, and, as the medullary cavity was infected, death resultcd. Next they amputated at the joint above. This also usually meant death. Later discoveries showed that the staphylococcus was the cause of osteomyelitis. Osteomyelitis was a secondary pyemic infection of bone, starting in the epiphyseal cartilage, generally from trauma. The damage was rapid and extensive necrosis with severe symptoms needing immediate, rapid, surgical care. It came at a very definite time in the course of the primary infection. The source was always a pus focus in some other part of the body. The cause was bacteriemia, which was often so mild as to be overlooked. It was an infection of early life, most frequent between 8 and 17 years. The child had a throat for scarlet fever. The boy had bones for osteomyelitis. Occasionally it was caused by streptococcus or pneumococcus. The lesions in chronic cases depended more upon the location of the abscess than upon bacteriemia. The symptoms were chills, headache, prostration. Acute osteomyelitis was often called rheumatism. In many cases operation would avoid bone destruction. Tissue should be opened down to the bone two inches above and below the lesion. In many cases this disease was due to infected ears, throats, teeth, etc., perhaps to inhalation of germ laden dust in schools. Perhaps in the future germs would be filtered from the air as typhoid germs had been filtered from drinking water and much disease thus prevented.

Dr. DAWBARN said that much trouble came from lack of thoroughness on the part of the surgeon. Infected bone marrow should be scooped. No bone had ever died for lack of marrow. The cavity should be cleaned and filled.

Dr. LILIENTHAL said that the *x*-ray would not help you in diagnosing osteomyelitis. Nothing could be seen of the site of the inflammation. In a first operation tension should be relieved. In so-called typhoid osteomyelitis it was better to wait, the condition often cleared up.

Dr. LEE of New York, said he had had personal experience of osteomyelitis as a boy, for ten years. He was first treated for "growing pains" and then for rheumatism. Surgeons all over the country tried their hand on him. He had many pieces of bone removed. With modern methods he would not have been a sufferer for so long.

**The Surgery of Acute Suppurative Spreading Infections of the Fingers and Hand.**—Dr. WILLIAM B. BRINSMADE of Brooklyn read this paper. He said that very few persons escaped some infection of the hand, and that certain definite treatment gave the best results. A man worn out with hard labor took infection badly; so did a hard drinker. The worst cases were with tired surgeons, who ran much risk of infection, from contaminated wounds. Infections might cause lymphangitis, tenosynovitis or abscess of the fascial spaces. Treatment was distinct for the three types of processes. Judgment and skill were required here as well as for cancer of the breast, but too often were not given. The causative bacteria were streptococci or staphylococci. The treatment was to put the patient to bed; give saline cathartic; cover lesion with iodine; take pulse and temperature frequently and use large dressings of boric acid. In tenosynovitis drain at once freely, or loss of the tendon would result. In infections of the fascia the spaces must be freely opened. In lymphangitis hot, moist dressings were indicated; the limb must be raised and incisions made under ether. Patient must be treated by rectal saline injections. In cases of infections in a hospital staff, physicians and nurses should be trained to let an infected wound bleed freely and to cover it with tincture of iodine.

Dr. JOHN HARTWELL of New York said that this important paper should have been heard by the Medical Section. Cases in the first stages went to the physician. The surgeon saw them later. It was very hard to make a house staff realize the importance of such cases. The men could not be made to report them. A safeguard for the surgeon was the use of rubber gloves.

which at any rate wiped off some of the poison. A good indication of favorable progress of the patient in these cases was whether he slept well or not. If restless he was not going to do well.

Dr. LEE of New York said he had written a paper on the subject twelve years before, but apparently little attention had been paid to it.

Dr. DAWBARN of New York said that operators could avoid infection by vigorous stripping of the wound. The wound might be deepened with a scalpel to increase outflow of blood.

**The Status of Vaccine Therapy in Acute Suppurative Infections.**—Dr. CHARLES NORRIS of New York presented this subject. He said that some observers had found that immune serum increased the phagocytic power of the blood. This was the basis of Wright's work in immunization against bacterial infection. According to Wright, vaccine injection developed specific opsonins which increased phagocytosis. Many workers, however, had been unable to follow Wright's methods, although some used the opsonic index as a guide to time and amount of vaccine to be given. According to Pearce the enthusiastic advocates of vaccine applied it to every form of bacterial infection. There were three types—production of immunity through development of a mild form of disease; production of immunity after infection; and curative vaccination. Pearce claimed that the latter was doubtful of result. Dr. Norris said that many reports of successful vaccine treatment were based upon faulty reasoning. Any line of treatment in severe infection was given the credit of effecting a cure. Quoting Theobald Smith, he said that an important principle in the process of immunity was that each infection must be studied by itself. The principles of immunity to one infection could not be applied to another. For instance, diphtheria bacilli and tetanus bacilli both produced soluble toxins. One was curative and the other at best prophylactic. Immunology showed that many cooperating and interacting forces were concerned, as antitoxins, bacteriolysins, opsonins, agglutinins and phagocytosis. In no two diseases was the reaction the same. The scientific basis of vaccine therapy could be obtained only through the careful studies of clinical research in the experimental laboratory. Dr. Norris said it was a question whether it was logical to apply the vaccine treatment to such localized lesions such as were caused by staphylococcus. We might ask why introduce more poison in an already overwhelmed organism. The absurdity of giving any doses in acute suppurative conditions was apparent. The great danger of vaccine lay in its effect on local sepsis. The laboratory influence was not altogether wholesome. The surgeon left the risk to the laboratory and it was too easy to put the blame on "the other fellow." The value of vaccine in chronic gonococcus infections and in streptococcus arthritis had been justified by experience. In erysipelas it was useless. The disease was uninfluenced by vaccines. An important question was, was it worth while to raise immunity experimentally and how much energy did it cost the body. Vaccines applied during disease were rarely if ever life saving. They might hurry recovery, however, by bringing into play unused reserves. Future efforts should be directed toward active immunization combined with antiserum.

Dr. L. HOTCHKISS of New York said that Dr. Norris had taken a judicial and sensible view. The indiscriminate use of vaccines was to be deplored.

Dr. DAWBARN of New York said that the streptococcus of erysipelas and that of pus were entirely different, though they looked alike. Results might be obtained by using a strain of streptococcus from an erysipelas patient.

Dr. H. KELLER of New York said that he had had experience with autogenous vaccines in gonococcus infection. Unless the local condition was treated the results were of no use.

**A Consideration of Methods and Results in the Surgery of Rectal Carcinoma.**—Dr. CHARLES H. PECK of New York presented this paper. He said that rectal carcinoma was the *bête noir* of surgeons. The results were far from satisfactory. Symptoms were often passed over as hemorrhoids. If the perirectal tissues were invaded recurrence was almost sure. With secondary involvement in the liver, operation was out of the question. Involvement of the vaginal wall and uterus could often be treated by excision. Over 60 per cent. of cases were unsuitable for operation. Methods and results should be considered and whether there was any hope of reasonably comfortable existence. A fixation of growth contraindicated operation. The abdominal-perineal operation was the ideal anatomical operation. It could be accomplished in one or two stages. The mortality, however, was high. Miles cited 17 deaths of 42 cases; Mayo 5 of 14 cases; of his own cases 2 of 3 died. A preliminary laparotomy would discover metastases and a week or two later the excision of the rectum could be done with removal of anal segment. The two stage operation protected from contamination of the wound. In low operations a posterior incision could be made with preservation of the anal segment. The operation was safer but many died of recurrence. The two stage operation promised to be more popular in the future.

Dr. J. M. LYNCH of New York agreed with Dr. Peck that the combined operation in one or two stages was the preferred one. The greatest shock seemed to be handling the peritoneum round the bladder. The cause of this was unknown. Pressure and handling of the bowel should be avoided. The perineal operation gave least mortality, but recurrence was very great. Mortality would be reduced when better technic was used, with less handling of the gut.

Dr. JOHN HARTWELL said that surgeons tended to go too close to growth above and below in the effort to spare the anus. An artificial anus gave comparatively little trouble.

Dr. S. G. GANT of New York said the surgeon thought too much about the preservation of the anal segment, rather than the life of the patient. Patients would rather have their lives than a good sphincter. The anus with nerves destroyed was of no use and should not be considered.

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## SECTION ON MEDICINE.

*Tuesday, April 28—First Day.*

DR. CHARLES STOVER OF AMSTERDAM IN THE CHAIR.

**The Pleural Lymph Flow; Causes of Its Increase and Decrease.**—Dr. ALBERT H. GARVIN of Raybrook read this paper and said that the accumulation of fluid within the pleural space was of interest to the clinician in a pathological sense only, as an occurrence and complication in the course of an underlying major illness, or a collection of fluid caused by mechanical obstruction or occurring apparently as an independent local infective manifestation, the portal of the infection not being in evidence at the time. Varying modifications to the standard therapy of pleurisy with effusion arose periodically to be added to the time-honored effective procedures. These modifications ran their course, added but little to the knowledge of the underlying physiology, were then dropped, to be again revived and modified and perhaps perfected. Artificial pneumothorax had gone through such a cycle, and was now laboring under the probable handicap of an insufficient knowledge of the actual physiology involved. The accumulation of fluid within the pleural cavity meant that the secretion of fluid into the pleural cavity was increased or that the elimination was diminished; and further that the increase and the outflow might both be relatively increased above or decreased below the normal rate, or that the outflow might be stopped for all practical purposes for the time being. It was relatively simple to give a correct guess as to which of these factors predominated in a clinical case. Dr. Garvin's review had the purpose of presenting the direction of the pleural lymph flow and of emphasizing some of the factors that varied it as an explanation to this physiological law. The mere approximation of the pulmonic pleura to the parietal was a very important factor in absorption. Numerous experiments had been made to show that absorption was not dependent solely upon mere physical phenomena, such as osmosis and diffusion which played a minor part. Hamburger, Heidenhain, His and others had expressed the opinion that selective cellular activity or some factor other than simple physics entered into the explanation of absorption. In the introduction of air to the extent of half the volume of the pleura, the parietal and visceral pleura remained in contact to an extent greater than half their areas. With the introduction of the same volume of fluid (normal serum) the pleural separation was much greater. What he gave fitted into the previous experimental evidence supporting the fact that the greatest secretion was from the pulmonic area, and the greatest absorption was from the pleural area. The chief present interest in physiology of the pleura ex-

isted in the application of lung collapse or compression in the treatment of pulmonary tuberculosis. Here the so frequent pleuritic inflammatory involvement complicated the clinical picture, and so could interfere frequently with the normal physiology, but in cases where it did not, this factor should be considered. The size of the compression, the extent of the separation of the two pleural surfaces beyond the safe limit might in itself throw out of balance the mechanical factors that regulated and balanced serum flow.

**Clinical Irregularities of the Heart Beat.**—Dr. ALEXANDER LAMBERT of New York presented for discussion the consideration of irregularities of the cardiac rhythm and endeavored to see if the knowledge they possessed of the myocardial degenerations could be correlated with these irregularities. The most common form of the cardiac irregularities was that produced by the so-called auricular fibrillation. In a personal series of 125 hearts showing various forms of cardiac disease in Bellevue Hospital, sphygmographic tracings showed that 46 per cent. gave evidence of some form of irregular heart rhythm. Of these irregularities, 43 per cent. were auricular fibrillation; 26 per cent. showed some form of heart block, either partial or complete; 12 per cent. showed extrasystoles, and 19 per cent. showed various forms of irregularities, such as sinus arrhythmia, tachycardia, and pulsus alternans. To understand these irregularities and their action they must remember the physiological action of the heart and the sequence of its contraction in the normal rhythm. It was of no consequence to them what theory should prove to be the truth provided that they remembered the fact that the contracting impulse started and went in a smooth, uninterrupted wave from a definite position in the upper portion of the sino-auricular junction, passing down from auricle to ventricle, and spread from base to apex of the heart. With this contracting wave then passing definitely from one point to another, it was possible to conceive that pathological lesions injuring or destroying either the muscles or the nerves lying in these tracts could produce irregularity of contraction, irregular forms of cardiac beats and cardiac rhythm. Dr. Lambert then considered each individual form of cardiac irregularity, and asked what the various forms of myocarditis were and how they affected the muscle of the heart. The mildest form of myocardial degeneration was acute albuminous myocarditis which followed all forms of infections and was usually the beginning degeneration in any one of them. The two main diseases which caused destructive lesions in the heart were rheumatism and syphilis. After giving this conception of myocarditis, he asked if they could correlate it with the clinical irregularities of the heart beat. It was evident, therefore, considering the conception that had been given of myocardial degenerations and the occurrence of these degenerations in relation to the various clinical irregularities, that these irregularities were expressions of myocardial degeneration. They were not the expression of normally functionating muscles. It was also evident that at present they could not say that a given irregularity was due to a given definite form of myocardial change. The sinus arrhythmia occurring in the milder forms of myocardial changes was due to the intoxications in the mild forms in which recovery speedily occurred. The severe infections produced the intense acute degenerations which might occur evenly over the heart muscle or might be more intense in one area than in the others, thus producing the same localized intensity of injury that was produced by the chronic forms of myocardial degeneration. These clinical irregularities usually were the expression of the patchy fibroid areas resulting from the morbid processes of rheumatism, syphilis, and arteriosclerosis. They were, therefore, thrown back for their accurate diagnosis on the knowledge of what had gone before, on their knowledge of the diseases from which the individual had suffered. But they were forced to realize that these general diseases of rheumatism, syphilis, sepsis, and the like brought about a change in the heart muscle as they brought about changes in the body, and they must therefore be willing to accept the fact that if these diseases were present, and there were evidences of disturbed cardiac rhythm, the degenerative changes found post-mortem were existing ante-mortem before the pathologist saw them, and that clinically they existed when the heart showed the clinical evidences of this disordered mechanism. The inability, therefore, to diagnosticate myocardial changes was the inability to draw logical deductions from cardiac pain, dyspnea on exertion, and clinical irregularities.

**Pulsus Alternans.**—Dr. HERMON C. GORDINIER of Troy presented this paper. After a careful survey of many observations made by Traube, Sansom, Hering, Volhard, Hoffman, Mackenzie, Windle, Lewis, and others, he said that one was led to the conclusion that both clinical and experimental alternation was the result of varying degrees of impairment from exhaustion of that most important function of the myocardium, contractility, which might be due to temporary exhaustion from the overwork of great rapidity of action, or to permanent exhaustion and early cardiac failure, the result of grave pathological changes in the myocardium. The following were his conclusions: (1) Pulsus alternans, while not common, was certainly not very rare. He agreed with Mackenzie and Windle in giving it the third place among pulse irregularities—extrasystoles being placed first, and the persistent irregularity of auricular fibrillation the second. (2) Clinical alternation was frequently overlooked because it could not be recognized without the graphic registration of the pulse. (3) Its presence was positive evidence of defects of the function of contractility, this in turn being due to temporary or permanent myocardial changes. (4) From a prognostic standpoint, the presence of pulsus alternans, save the temporary form, due to great rapidity of rate, was grave, as it indicated extensive myocardial degeneration—most patients dying from cardiac insufficiency within three years of its onset. (5) Extra-systoles, invariably followed by alternation, also indicated exhaustion of contractility and carried with it a grave prognosis. (6) Persistent false bradycardia, due to feeble systoles, where the deficit between the apex beat and the pulse rate was but little altered by the exhibition of cardiac tonics, such as digitalis or strophanthus, also indicated grave defects of contractility, with extensive myocardial degeneration and unfavorable prognosis.

**The Drop Heart (Heart of Congenital Asthenia); the Hitherto Unrecognized Importance of Its Chronic Dilatations.**—Dr. CHARLES LYMAN GREENE of St. Paul, Minn., read this paper which he illustrated with lantern slides. He said that when insufficient, dilated, and a source of troublesome symptoms, the drop heart was almost invariably overlooked, though readily recognized when undilated and innocuous. It represented ptosis and atony of a hollow muscular viscus, manifestly extraordinarily liable to chronic overstrain and dilatation by reason of enforced constant activity and the imperative and widely varying demands made upon an atonic musculature and subnormal reserve. Despite these facts and despite the knowledge of its known tendency to acute enlargement under severe strain, hitherto its chronic dilatation had been wholly disregarded. The typical pendulous heart, when free from dilatation, was abnormally small, characteristically low and medium in position and peculiarly attenuated and vertical in outline. The domes of the diaphragm itself, unless lifted by intraabdominal pressure, might lie two interspaces below the normal levels, and in certain extreme cases might appear as if actually suspended from the great vessels and cervical fascia. The author summarized as follows: (1) Contrary to current belief both drop heart and its chronic dilatation were extremely common, and indeed should logically be anticipated in view of their present knowledge of the musculature of such hearts. (2) They had been hitherto overlooked, because of the natural tendency to accept as the normal a standard of measurements far in excess of the drop heart normal and a failure to apply the simplest of therapeutic tests. (3) Another cause of general oversight had been the absence of serious symptoms of incompensation, apart from dilatation, and the decided dominance of subjective manifestations. (4) In the absence of proper diagnostic tests, the subjective manifestations were in great measure indistinguishable from those of the so-called neurasthenia and nervous dyspepsia, both of which in most instances were directly associated with chronic congenital asthenia and its visceroptosis. (5) The type of individual case carrying congenital asthenia was easily recognizable and in itself at once suggested the presence of the asthenic for drop heart. (6) Diagnosis must be based upon the basic stigmata, the decided changes wrought by rest, the administration of full therapeutic doses of some standard digitalis preparation, and results of repeated careful percussion with modern technique and a full record of symptoms. (7) In view of the authoritative statement from Cloetta Fraenkel Hansen and others, affirming that therapeutic doses of digitalis failed to affect the normal undilated heart in outline or action the use of this drug as a test measure was not only justified but required, not

only for the recognition of masked dilations of heart drop, but for the silent enlargements of degenerative types as well. (8) The congenitally asthenic heart might initiate symptoms of the most varied character or intensify those originating in other visceroptotic organs or finding expression in the nervous system as a whole. (9) It was therefore a definite and important contributive factor in those morbid states underlying the greater part of our chronic invalidism. (10) A few full doses of digipuratum, rest modified or absolute, and the comparison of carefully determined outlines obtained by modern methods were simple and efficacious means of making a primary diagnosis. (11) Not all drop hearts were symptom-producing, nor did the stigmata of congenital asthenia in general mean necessarily that their possessors must be chronic invalids. (12) Nevertheless, the writer believed that dilated drop hearts, while often borne by well nourished individuals without active symptoms might play a large part in the actual initiation of neurasthenic and dyspeptic symptoms in victims of malnutrition or infections.

**Percussion versus the Röntgen Ray in the Examination of the Heart.**—Dr. GEORGE CHEEVER SHATTUCK of Boston, Mass., read this paper. He said that since Auenbrugger advocated percussion as a means of examining the chest, many different methods and innumerable modifications of technique had been suggested until it would seem that every conceivable procedure had been tried, and yet methods continued to increase. It was many years since a celebrated German professor said that he pitied anyone who had read all that had been written on percussion. Since the invention of radiographic methods of determining cardiac outlines they had been in possession of a new and valuable means of checking and testing the various methods of percussion. Results of this kind in Germany had been important. For example, the combined use of percussion of the phonendoscope in outlining the heart had been shown to be fallacious, and consequently an entire group of percussion methods had been dropped. Two roentgenological methods were of special value in controlling percussion, namely, orthodiagraphy and teleroentgenography. Those who were experienced with the technique in the employment of the former could obtain important information about the heart and neighboring structures, and could make outlines of the sagittal projection of the heart shadow with a high degree of accuracy. The disadvantages of orthodiagraphy were that high skill and patience were required to get accurate pictures, that the method was open to a variety of subjective errors, and that only a small part of the heart shadow could be seen at the moment when a mark was actually being made. To minimize subjectively, Köhler advocated that skiagraphs of the heart be taken from a distance sufficiently great to allow the projection on the plate of a heart shadow practically free from magnification by divergence of rays. This method was called teleroentgenography. Orthodiagraphy and teleroentgenography both were valuable. Three types of percussion had been shown by large numbers of observations (which were checked by roentgenography) to be suitable for obtaining cardiac outlines comparable directly with those of the orthodiagraph; namely, Moritz modification of light, finger percussion, Goldscheider's "threshold percussion" (called by some "orthopercussion"), and Ebstein's "touch percussion." In conclusion Dr. Shattuck said that both orthodiagraphy and teleroentgenography afforded useful means of checking percussion and of bettering its results, but it was essential that they be skilfully handled. Silhouette percussion promised to show smaller amounts of cardiac enlargement than could be detected by ordinary percussion, but the successful application of these methods was difficult. Silhouette percussion should not displace ordinary percussion, but was best used in conjunction with it. Ordinary percussion should be referred to landmarks, but silhouette percussion should be compared with tables of measurement such as were used for the orthodiagram. Measurements implied accuracy, but landmarks did not. When measurements suitable for comparison with normal standards had not been obtained by percussion they should trust to landmarks. Therefore, when measurements suitable for comparison with normal figures had not been obtained it was better to judge by landmarks than to run the risk of being deceived by apparent accuracy which did not exist.

Dr. NEUHOF of New York said that the standpoint he took in regard to arrhythmia differed from that of Dr. Lambert, although he agreed with what he said in general. He had seen one case of auricular fibrillation in which there were no evidences of endocardial, myocardial, or cardiovascular disease. He had seen a number of cases of extrasystole occurring in young people and without any evidences whatever of myocardial, endocardial, or cardiovascular changes. There must be cases which depend upon nonorganic changes, or reflex in character. The study of arrhythmia was very interesting and important. After all it must be stated that arrhythmia arose from some neurogenetic source. It was detrimental to keep such patients in bed. Apropos of sinus arrhythmia it had been his experience to meet with at least two instances which followed severe hemorrhage. He did not think they could rely upon percussion methods, for even the most careful diagnostician would be apt to go astray.

Dr. ROBERT H. HALSEY of New York said that there were certain sounds which should be kept carefully in mind and which would help them in making a probable diagnosis of a great many of those irregularities of the heart. One of the most frequent irregularities was fibrillation, so-called, and a diagnosis could be made without these exact instruments, but there were one or two exceptions even for an exact man. Without these instruments of precision it was often difficult to make a diagnosis such as of flutters, auricular tachycardias, etc. The greatest value in the use of these instruments was that they turned one's attention from the value of the murmurs and made the observer pay more attention to the heart muscle and its functional ability. That was of the greatest value in heart work. With regard to the electrocardiograph it was a very expensive instrument, but did by no means tell them all about the heart. It was specially valuable in summing up what they had found by means of other instruments. He closed by stating that men should be more careful in weighing all the signs at their disposal in looking over cardiac conditions.

Dr. LEO H. NEUMAN of Albany believed that the present meeting was of great value in showing the trend of exact methods in connection with cardiac conditions. The point that Dr. Lambert brought out was a good one—the question of muscular sufficiency of the heart. They had thought about endocarditis, pericarditis, and myocarditis, and they should bear in mind that when there was present an acute affection of the endocardium the affection did not limit itself to the endocardium. The crux of the whole question was in regard to function: was the heart capable of doing the work placed upon it? If not, then there appeared definite symptoms. With regard to the arrhythmias, of course some of them were of great importance from a prognostic standpoint and some were not. As to drop heart the location of the heart itself made it difficult to map out the lower borders. As a matter of fact the low position changed the location of the apex; this was specially so when the patient stood. Buck's instrument was of great aid in locating the apex.

Dr. DE LANCEY ROCHESTER of Buffalo said that when they came to any discussion of the heart from a clinical standpoint they always had before them the condition of the patient, the prognosis and treatment and they wished to use all methods possible. Instruments of precision were very valuable and interesting and would continue to be more and more valuable as time went on. Most of those who practised medicine did not have at hand these instruments and must depend upon the ordinary methods of making physical examinations. In all cases where there was any disturbance in rhythm of the heart they had disturbances of the myocardium which were at the bottom of the condition. As long as forty years ago it was taught by clinicians that the myocardium was the most seriously diseased part of the heart even when there were evidences of endocarditis and pericarditis. In order to get their patients well they must endeavor more to strengthen the heart muscle. In determining the size of the heart he did not think they should limit themselves to percussion, but upon inspection, palpation, auscultation and percussion with the patient in different positions. Then they would get a more exact idea of the edges of the heart.

Dr. MARK I. KNAPP asked what was the normal position of the heart, for they all knew that the position of the heart varied in different individuals, and this was a question that confronted the general practitioner. He had found the normal position of the heart by mapping out by a straight line drawn from the left nipple to the thyroid cartilage. This would map out the absolute

dullness of the heart, but not the relative dullness, which lay from one-half to three-quarters of an inch outside this line.

Dr. Louis Faugeres Bishop believed that the name myocarditis should be discarded from medicine because it was the dumping ground of obscurities. When Mackenzie introduced the term cardiosclerosis he did much for them. He believed that it was to the pathological physiology of the cells of the heart that they should direct their attention. He believed that what they had in these cases was a reaction of the individual cells against some protein to which the cells were sensitive. There was a disturbance of pathological physiology and not of pathological anatomy.

*Wednesday, April 29—Second Day.*

**A Plea for the Diabetic.**—Dr. Douglas C. Moriarta of Saratoga Springs read this paper in which he said that he felt very strongly that he was justified in the position he had taken, that the attention given the diabetic patient by the family physician was often of a very low standard, and that it was not the errors of commission that he would emphasize, but those of omission. Every case of diabetes should be considered of moment by the physician, and every patient should be plainly informed of his condition. The probable satisfactory results of a correct manner of living should be set forth; and, on the other hand, the disaster sure to follow indifference to such advice. The physician must control his patients; if he had their confidence he would be sure of their cooperation. In his early practice carbohydrates were withdrawn from the list until the urine was sugar-free; no importance was attached to the rapidity with which they were withdrawn. Acidosis was not associated as a result of so doing. But, in recent years, much study and experiment on the part of the physiological chemist had given them a mass of clinical information, from which the following points stood out: (1) Acidosis was always a menace to the life of the diabetic, and a factor to be considered in the treatment; (2) ketone bodies, when found in the urine, should always suggest the possibility of supervening acidosis. These bodies appeared when the carbohydrates were diminished to control the secretion of supgar, and were the results of an imperfect oxidation of the fatty acids. (3) The secretion of these bodies in the urine was of more significance, temporarily at least, than that of sugar. (4) It was therefore, apparent that the intake of carbohydrates should never be abruptly withdrawn, and only markedly so when the patient was under personal observation. (5) Various carbohydrates and the alkalies were the most potent prophylactic remedies, as well as the only ones, with which to combat acidosis when it appeared. (6) Tolerance for carbohydrates varied in different individuals and might vary in the same individual at different times. (7) The tolerance in every case, as well as the intake, should be constantly in mind, for occasionally more sugar was secreted than should result from the carbohydrates taken in; and further, with care and attention the tolerance was often increased. (8) A diet low in caloric units, when not contraindicated, was often helpful in relieving obstinate symptoms. (9) Exercise, massage, and a limited amount of alcohol, assisted the oxidization of carbohydrates except in cases which were severe in which exercise increased ketone production. Dr. Moriarta's routine procedure in a case of diabetes was as follows: After the history and diagnosis had been made, he directed the patient to follow his usual diet for forty-eight hours. The urine was collected for examination during the last half of this period. For the following forty-eight hours he gave the patient a definite diet, carefully directing the quantity. The urine was collected during the last half of this period. Each specimen was examined for sugar, acetone, and diacetic acid. From this data, the case was temporarily classified according to the percentage of sugar present, and whether or not this was accompanied by the ketone bodies. The information acquired, when the patient was living on an unmodified diet, as a standard comparison, was useful as the case proceeded. The case might be considered mild if sugar only was present, and serious if, in addition to the sugar, the ketone bodies were found. The urinary findings suggested the immediate procedure. He told the patient very plainly the seriousness of the condition and sought to impress upon him the necessity of following implicitly the directions given (all of which were carefully written down for him) and he tried to enlist the cooperation of his patient. He told him there was no other way; that he had no option if he wished to live comfortably while he did live. He also told him that if he was willing to do as directed and help him, he could probably live many years, though his condition might become anxious at times. For the period of one month the urine was examined daily and he had the patient keep a record of the amount of food taken. The quantity of food was generally estimated, though in some cases he resorted to the scales to determine the quantity which was allowed. He sought to keep the caloric value of the food low when the carbohydrate tolerance was small, unless contraindicated, or in young or growing persons. While all this was simple to describe he assured his hearers that the management of these cases was always a source of anxiety. After a month of such observation he said he had a good clinical idea of the initial peculiarities and carbohydrate tolerance. Some cases yielded almost at once on a restricted diet; others did not and required a great deal of thought. He said he had little or no use for drugs, unless one so characterized the Saratoga mineral waters. In addition to a morning walk to one of the springs before breakfast, where a quantity of the mineral water was taken, he had his patients exercise by further walking, directing a certain distance for each day. A mineral bath was also directed daily at a temperature of 100° F. allowing the patient to remain in the tub for a period of ten minutes; this was followed by a hand rub and a rest. When this régime was followed he had yet to see the first case in which there had not been a general amelioration of the pruritus, thirst, polyuria, constipation, high blood pressure, and fatigue, all of which were distressing symptoms at the commencement of the treatment.

**Some Recent Thoughts on Diabetes and Metabolism.**—Dr. Waldron B. Vanderpoel of New York read this paper. He believed that to the painstaking and widespread labors of the laboratory workers should be attributed much of the medical progress of the present day. Through their efforts with the intelligent cooperation of clinicians, a firmer and more scientific basis had been established for general etiology, pathology, and therapeutics. The result of these labors were manifest in the modern conception of diabetes mellitus, but not in so brilliant a manner as in most other fields of medical research. Diabetes mellitus was classed by many as a symptom complex, and not as a distinct entity and this was because of the number of types with a different etiology for each. The phases and problems presented by this morbid condition were of more than ordinary difficulty of interpretation. The appearance of glucose in the urine was formerly considered diagnostic of diabetes in practically all cases. Later research had revealed that glucose was a not infrequent constituent of the urine. Some eminent observers, notably Pavy, Germain See, Moritz and others came to regard it as a physiological element of the urine. Conceptions of the morbid anatomy of diabetes were still in a transitional stage. As a result of experimental and clinical observations the following tentative propositions might be stated: (1) The liver was closely identified with the morbid process known as diabetes. (2) The nervous system was frequently structurally or functionally involved primarily, but it might only be made manifest by changes in the hepatic circulation. (3) The pancreas was undoubtedly concerned in the production or assimilation of glucose. This gland was supposed to supply a hormone or ferment which stimulated glucose conversion in the muscles. The ductless glands had an undeniable influence over carbohydrate metabolism. These glands were the adrenals, thyroids, parathyroid, pituitary, the island of Langerhans, or the pancreas. To a certain extent confirming the above classification it was usual to recognize clinically three types of the disease: (1) An hepatic type; (2) a nervous one, accompanying lesions of the nervous system; (3) a pancreatic form. It was well known that two opposing factors contributed to produce glycosuria, viz., excessive formation of sugar on the one hand, as against the failure of the muscular tissues to burn it up. The latter was considered as the characteristic feature of diabetes. In like manner glycolysis might prevail in diabetes. Diabetes was to be considered as one of those forms of glycosuria which continued after the elimination of all carbohydrates from the diet. A thorough understanding of the changes and processes was of vast importance in the study of diabetes. As a result of discarding the rigid non-carbohydrate diet, a number of

systems of "cure" had been brought forward, the oatmeal cure of von Noorden, rice cure of von Duhring, potato cure of Mosse, etc. The oatmeal cure had proved the most valuable but it should be modified by limiting to certain periods "carbohydrate days." Whole wheat and barley ground together had been advocated for bread in the diabetic diet.

Dr. N. B. Foster of New York, discussing the two papers relating to the treatment and the pathogenesis of diabetes mellitus, said he wished to transpose the order of presentation so that what he might have to say relating to the metabolism had a bearing upon the treatment. He believed that the last speaker was correct in implying that there was more than a single cause for diabetes. At least there was not a constant pathology. The only organ that was found involved with any degree of constancy was the pancreas; but even here there were exceptions. And it was a striking fact that with young individuals where the disease ran its most rapid and malignant course and where the term "pancreatic diabetes" was often used to designate the severity of the disease, just in these cases they occasionally found at autopsy no significant lesion in the pancreas, no hyaline degeneration of the islets, nor interstitial fibrosis. That the majority of all cases, young and old, did present pancreatic lesions was not disputed; the point was that *all* did not reveal a constant lesion. Their conception that the pancreas was concerned with diabetes was supported not so much from the findings at autopsy as from the experiments on dogs. Removal of the pancreas invariably led to fatal diabetes. Now if they could learn how this occurred they would doubtless learn something of the pathogenesis of the human disease. They knew only that the dog so operated upon could no longer burn sugar; he derived his energy from fat and protein. This was demonstrated by the respiratory quotient which was low. The same was true for severer cases of human diabetes; the quotient showed a fat-protein metabolism. The idea suggested by von Noorden that there was a primary over-production of sugar in the body lacked a vestige of evidence. The trouble was fundamentally that sugar could no longer be utilized. It could not be warehoused as glycogen when it was ingested and the tissues could not utilize it for energy. In what way the pancreas functioned to enable the tissues to use sugar they might only conjecture. An internal secretion was spoken of but the evidence supporting it was of a very dubious character. An hypothesis was permissible but they should not forget that it was purely an hypothesis. They should be content with the fact that with human diabetes there was in some degree a failure to utilize glucose. When this function was but slightly impaired, the disease was mild or early; when gravely impaired no sugar was burned in the body and death quickly followed. Now one new consideration entered at this point and that was that fats were burned normally only when some sugar was being burned also; or as it had been worded "fats are burned in the fire of carbohydrates." From this it followed that when the body consumed but little sugar, about 50 grams per day, the fats were not burned to carbondioxide and water, but only to the ketone stage, oxybutyric and diacetic acids. This was not peculiar to the diabetic; a healthy man might excrete 30 to 40 grams of ketone bodies per day if the diet were suitable for it. Consequently they were confronted therapeutically with this problem—to limit the carbohydrate ingest to the body's capacity, and to increase that capacity to ward off acidosis. Now the principle in treatment was that rest of a diseased function strengthened it and over-use weakened it. It followed that they were not completely successful in treating any case of diabetes so long as glycosuria persisted, simply because the function in question was being overtaxed and weakened. On the other hand they invited disaster if less starch was allowed than could be cared for because this almost surely resulted in acidosis. It was in the early stages of this disease that most could be accomplished and where he was afraid that the least effort was made. The danger of toxemia in younger persons and gangrene in older were not sufficiently appreciated until it was too late.

Dr. William H. Porter believed that the practitioner should make individual examinations, and until this was universally done he did not believe they would make the advancement they were entitled to. It was only when they made their own examinations that they would get at the true inwardness of metabolism. They could get the prognosis by an analysis of the urine. When glucose was found it meant that something was going on in the system, some disturbance in the alimentary canal, or some disturbance of the internal secretions, then an isomer of glucose was produced which gave an instantaneous reaction with Fehling's solution. Every glucose molecule was an oxidation protein product and did not come from fats, sugars, or starches. He thought the whole question of diet had been on a wrong basis.

Dr. Henry S. Stark believed that diabetes was certainly on the increase and that while it was prevalent he did not feel that it was the dangerous disorder today that it was years ago. They did not to-day see those gangrenous processes such as they used to. Why? He did not know. They must confess they were much in the dark as to the history of this disease and even in 1914 the pathology of diabetes had not been discovered. He firmly believed that instead of clothing their investigations with so many mathematical equations they should direct their time more to learning the pathology of the malady. He called attention to the recently formed Life Extension System which had for its object the encouragement of urinary and other examinations. Was diabetes ever cured? There had been cases of glycosuria where the sugar disappeared and never returned again; was that a cure? There evidently was some form in which the patient had diabetes and yet a very careful examination failed to reveal glucose.

Dr. William B. Hanbidge of Ogdensburg called attention to the difficulty of practically managing these cases because of the poverty of the patients in so many instances. In his experience the so-called diabetic foods were the enemies of the diabetic patients. Some diabetic flours had 60 to 80 per cent. of carbohydrates and these foods, too, guaranteed by the pure food law. Another difficulty encountered in treating these patients was that the average man and woman could not restrain from partaking of the sugars and starches.

Dr. Bond Stow of New York said that one must clearly differentiate between a glycosuria which might be but a mere symptom and true diabetes mellitus which represented an organic disease with profound metabolic changes. One of the main causes of glycosuria was an autointoxication from the intestinal tract. This alimentary glycosuria, if left uncorrected, eventually would end in true diabetes. It was in the correction of these cases of alimentary glycosuria that attention was called to the beneficial results from the employment of pure viable cultures of the *Bacillus bulgaricus* grown in a sugar free medium. For the past two years the speaker said he had been much interested in this line of treatment and the causation of unexpected brilliant successes in some cases and failure to succeed in others admitted of plausible explanation. In some cases even a high percentage of sugar in the urine had been reduced to zero in a surprisingly short space of time (two to three weeks); in others more stubborn by nature a longer time was required; in others no reduction whatsoever could be obtained. But in all cases there were improvement in the general health, increase in weight, and raising of the hemoglobin content. These results led to a grouping of cases presenting glucose in the urine clinically as follows: (A) Alimentary glycosuria: (1) Cases controlled simply by the moderate restriction of the carbohydrates and small daily doses of cultures of *B. bulgaricus* grown in a *sugar free medium.* (2) Cases controlled by a restriction of both carbohydrates and albuminates with large daily doses of *B. bulgaricus.* (B) True organic diabetes mellitus: (3) Cases uncontrolled by the complete withdrawal of carbohydrate and a considerable restriction of the albuminates irrespective of the use of *B. bulgaricus.* The ability of diabetics to catabolize sugars exhibited so wide a range that the above clinical grouping of cases afforded an excellent working basis. This lactic bacillary treatment of all cases of alimentary glycosuria when combined with proper dietetics had one decided advantage over the older lines of treatment in that it permitted of a more liberal carbohydrate diet. This Dr. Stow believed was a very essential point. The fundamental experiments of Rosenfeld and Hirschfeld definitely had determined that the complete exclusion of carbohydrates from the metabolism of man (not so in animals) was invariably followed by acetonuria. Excess of acetone and $\beta$-oxybuturic acid in the blood (as is well known) was the direct cause of diabetic coma and death. In all his cases he demanded complete elimination of sugars and sweets, but under the lactic bacillary treatment a lim-

ited amount of starchy foods, as potatoes, cereals (especially oatmeal), green vegetables, and fresh fruits, was found to be well tolerated and a benefit. In all cases short periods of rigid dietetic measures were exacted in the very beginning of treatment. After the sugar had disappeared entirely for some length of time the physician should begin experimenting with small quantities of the heavier starchy foods, especially potatoes and oatmeal. There was but one rational explanation of the successful treatment of glycosuria by lactic acid bacilli. The cases were due to some form of toxemia that directly interfered with the glycogenic function of the liver cells or indirectly through the nervous system diarranged the mechanism controlling the carbohydrate metabolism. This toxemia was accredited to some form of long standing autointoxication from the intestinal tract against which the *B. bulgaricus* had proven so effectual. If, however, damage done the pancreas by a long-standing autointoxication had reached the atrophic stage of the pancreatic cells and islands of Langerhans, neither *B. bulgaricus* nor any other line of treatment would reduce the existing diabetes. Cases of diabetes due to pressure irritation of Claude Bernard's diabetic center located at the apex of the calamus scriptorius in the floor of the fourth ventricle (which surgical interference alone might benefit) must be kept in mind as a possible organic cause in any specific case of glycosuria.

**Syringe Cannula Transfusion.**—Dr. EDWARD LINDEMAN of New York read this paper. He said he would confine himself to some of the principles involved in blood transfusion and would speak of some of its applications. When one considered the many facts about the blood, not generally recognized which were known, and the many facts yet to be learned, one could not help but realize its complexity. It was only by a thorough study of this complex tissue in the normal and pathological conditions that one might obtain a clear conception of the possibilities of blood therapy. Many pathological conditions produced changes in quantity and quality of the blood. Failure on the part of the blood to properly and adequately modify its quality to meet the demands required in the various conditions was responsible for the existence of disease, especially infection. Dr. Lindeman took up for consideration some of the conditions in which the blood transfusion therapy might be considered. In one case cited the diagnosis of rheumatic fever with endocarditis was made in a child who was emaciated, very ill, anemic, with petechiæ on the skin, and blood in the stools. The first transfusion was followed by chills and slight temperature. No chills and no rise of temperature followed the succeeding transfusions. Dr. Lindeman had had seven other cases of sepsis in which there was one death, a case of appendix abscess with spreading peritonitis and gangrene of the face.

**Election of Officers.**—*Chairman*, Dr. George Reese Satterlee of New York; *Secretary*, Dr. Nelson G. Russell of Buffalo.

*Thursday, April 30—Third Day.*

**Recent Contributions to the Diagnosis of Nervous Diseases.**—Dr. CHARLES L. DANA of New York read this paper. He said that the continued and intensive study of nervous symptoms which was going on throughout the world had not been without fruitful results. He referred to some contributions and chose for consideration such subjects as seemed to him interesting, and he did not try to present the matter in any complete and systematic way. He said he could hardly touch upon all the psychoneuroses, but here there was a sharp line of cleavage on the lines of psychoanalysis and the protean activities of the *libido*. The cult of psychoanalysis and of the subconscious opened to some new worlds for psychological exploration, full of cultural possibilities and orgiastic interest and delight. To others it opened up only an amazing shibboleth of libidinous suggestion, unproven assertions and futile if not dangerous therapeutics. Dr. Dana called attention to some diagnostic features connected with the peripheral nervous system.

Dr. L. PIERCE CLARK thought that it was possible that they were too hasty in drawing conclusions regarding psychoneuroses. A group of them who were interested in this particular field believed a great deal in the future of neurology as ordinarily considered from the standpoint of betterment of these patients, and the standpoint of cure was going to drift in this direction. In speaking of what had been attempted by the surgeon in the way of relieving some of these hysterical conditions Dr. Clark told of a woman who returned to him recently and showed results of five abdominal operations, as well as other operations, and he asked if it would not have been better if the neurologist had persuaded her to follow his advice and not have so much surgery done. Their progress in neurology was intense gratification to him as well as to many of his friends who had followed this line of work and knew what was being done.

Dr. J. RAMSAY HUNT said that Dr. Dana did not have the time to enter into a discussion of the cerebellum, and studies had recently shown that in the cerebellum there were centers which controlled or governed movements in different directions—that was, to the right, to the left, upward, and downward. Experiments had shown that cortical localization in the cerebellum was almost always in the adult in the Orlandic area in the cortex, so that he felt it was safe to state that they had more exact knowledge of cortical distributions in the cerebellum to-day, and this was a very interesting field of research at the present time. Dr. Hunt felt that one of the important advances made along neurological lines had been in the direction of a study of the cerebrospinal fluid. Neurological investigators and students had added materially to the advancements made in this field. The *Spirochæta pallida* had been found in the spinal fluid in tabes which the neurologists had regarded as a parasyphilitic disease. For many years had work been accomplished in the treatment of certain diseases by injections into the cerebrospinal fluid. They were now treating tabetics by the injection of salvarsanized serum.

**The Proper Relation of Laboratory Work to Neurological Diagnosis.**—Dr. B. SACHS of New York presented this paper. He said that the neurologist had sought to benefit by the advance made in every branch of medicine. They had followed with the keenest interest the great progress of the last decades in the study of cardiac and renal diseases. They had followed closely the advance in the recognition of diseases of the blood. He had tried to glean something from the domain of physiological chemistry. He had hoped to make metabolism mean something especially fruitful in the interpretation of functional nervous disease. He had, above all, looked to the biological laboratory for help in the diagnosis and treatment of many organic diseases of the central nervous system. Twenty years ago in equipping a neurological service at any hospital stress would be laid upon the electrical outfit and possibly upon the hydriatic apparatus. The neurological division of the present day needed these, but it needed still more a well equipped laboratory for the examination of the blood and of the cerebrospinal fluid, a laboratory for the preparation of salvarsan and sera for the treatment of central nervous disease; it also needed facilities of the laboratory for the inoculation of animals to prove the special character of various infectious diseases of the nervous system, many of which were still problematical. An active neurological service made a great demand upon the resources of the best equipped laboratory in any general hospital, and for some of the problems, such as the blood test in poliomyelitis, they were compelled to fall back upon the very special researches of the workers at the Rockefeller Institute and one or two other kindred institutions.

Dr. GRAEME M. HAMMOND said he was in accord with the sentiments expressed by Dr. Sachs. In regard to the diagnosis of nervous diseases the laboratory was not of great service, and what evidence came from it was mainly corroborative. If a man came to him with symptoms of locomotor ataxia he would never think of sending him to the laboratory. He knew that he had syphilis. Whether the laboratory findings were positive or negative made absolutely no difference. He knew the patient had syphilis or he would not have locomotor ataxia. He was not sure that he could depend upon the reports from the laboratory; a great deal depended upon the personal equation of the person making the test. He depended upon the clinical symptoms and not on the laboratory findings. To illustrate this he had a specimen which he wished examined. He divided it into two parts and sent these two parts to two different laboratories; one report came back negative while the other was positive. He also sent one half of a specimen with the other half to the same laboratory and under different names, and again one report was positive, the other negative, although it was the same specimen and was examined by the same man.

**What Facts of Diagnostic or Prognostic Value Can Be Determined from Test-Meal Examination of Patients with Gastric Symptoms.**—Dr. FRANK SMITHIES of Chicago, Ill., presented this paper in which he re-

ported on the findings of a clinical analysis of 7,041 consecutive cases by a uniform method. The work forming the basis of this report was personally performed at the Mayo Clinic at Augustana Hospital. A close association of clinical, laboratory, and operative observations were possible in all the cases. The ages of the patients ranged from fifteen to seventy-eight years. There were two males to each female. More than 32 per cent. of the patients were from farms or rural communities. The average length of time of the gastric disturbance was 6.4 years; the shortest time two weeks, and the longest period was more than forty years. The emptying power of the stomach had been tested by the physiological test meal of mixed food. Experience had taught them that a twelve hour time interval was of greater diagnostic worth than the four to six hour interval. The secretory factor was determined by the Ewald breakfast of second day bread. The time limit in ordinary cases was 50 minutes after administration. This time limit was shorter when the symptomatology indicated abnormally rapid emptying power of the stomach. The size and position of the stomach were ettimated by means of air inflation, with the patient recumbent. The boundaries of the stomach were determined by the auscultatory method, while the inflation was in progress. The average capacity of the stomach was 27 ounces in females and 33 in males, where dilatation did not exist. Where dilatation was present the average capacity in females was 41 ounces and 52 in males. The greatest gastric capacity we associated with nonmalignant pyloric stenosis. The macroscopic appearance of removed gastric contents, apart from evidences indicating gastric retention, was not infrequently of significance. Traumatic blood was noted in 6.4 per cent. of all cases. Its presence was quite as constant where simple spasm existed at the cardia as where ulceration was present. Its appearance upon lavage had no consistent relation to any form of gastric disease other than cancer. In cancer cases (98 per cent. being of the medullary type) traumatic blood on lavage was observed in more than one-half of 218 consecutive cases. Bile coloring in various shades of green or yellow were observed in 11 per cent. of the cases in the series. The green coloration from bile was noted quite constantly in cases of gastric atony, ptosis with relaxed plyorus, dilatation with or without ptosis, intermittent plyoric spasm, induration about the pylorus, and obstruction below the patella of Vater. Of the cancer cases it was interesting to observe that "coffee" colored extracts were noted in but 19 per cent. When such were observed the cases were inoperable. The color of gastric contents was quite as apt to be tan or brownish in partial stenosis with dilatation or atony from nonmalignant causes as from cancer. The odor was, however, a fairly reliable differentiating point between the two conditions. There were 314 cases of achilia gastria; in 96 per cent. of this group the dead white color of the gastric extract, associated with markedly absent chymification, was a characteristic finding. As to odor in nonretention cases the sharpness of the odor was usually a reliable gauge of the free hydrochloric acid index. In retention cases high or low free hydrochloric acid might be masked by the odor of fermentative or putrefactive processes. In 84 per cent. of the cancer group the odor due to volatile organic acids was almost pathognomonic. In 76 per cent. of the nonmalignant retention cases the peasty aroma was almost similarly characteristic. The average quantity of test meal removed in the entire series was 108 c.c.; the average quantity in the nonretention group was 76 c.c.; in the retention class 350 c.c. So-called hypersecretion was as frequently observed in pyloric spasm from appendix or gallbladder disease as from duodenal or gastric ulcer. Mucus was a sign of doubtful diagnostic worth. Chymification was an index of masticatory thoroughness, of the character of the food ingested, of the combining power of hydrochloric acid, of the presence of normal gastric ferments, and of variations in gastric peristalsis and emptying power. The last factor appeared to carry the greatest weight. Of the entire series 12 per cent. of the cases showed some grade of retarded gastric emptying power macroscopically; in 8 per cent. of the series this was a constant finding. In 87 per cent. of the group where gastric retention was a persistent manifestation, some degree of gastric dilatation was an associated complication. In two out of every three cases where this occurred there was clinical history of delayed vomiting. Some of the most marked instances of gastric dilatation proved to have almost perfect emptying power. Persistent demonstration of gastric retention was an indication for surgical intervention. In this series the causes of persistent gastric retention in the order of their frequency were gastric cancer, duodenal ulcer, gastric ulcer, cholecystitis with adhesions, gastric atony, tumor of the pancreas, tumor of the liver, hypernephroma, tuberculous peritonitis, and retroperitoneal sarcoma. The causes of intermittent gastric retention were pyloric spasm associated with appendicitis, or cholecystitis, gallstones, duodenitis, or gastritis in the presence of free hydrochloric acid and gastroptosis. In gastric cancer emptying power was retarded in more than 70 per cent. irrespective of the location of the growth. In surgical gastric ulcer in rather more than 50 per cent. of the instances some grade of retention was proved. Of the pyloric spasms associated with appendicitis, cholecystitis, gallstones, or duodenitis, in rather more than 3 per cent. of instances retention was demonstrated. The sign of differential worth on this group of cases was that of the variability of the exhibition of retention at different examinations. This sign was of special worth to the surgeon who contemplated gastroenterostomy. Unless definite obstruction existed at or near the pylorus the best operative results were only to be expected where artificial stricture was surgically produced. In the records of 482 cases of pyloric spasm with intermittent gastric retention, in which later the appendix had been removed, or where operations on the gall tract had been performed, in only twenty-one instances was any form of gastric stagnation subsequently demonstrated. The most common causes of increased rate of emptying of the stomach occurred in conjunction with achylia gastrica, vagus hypotonia, temporary or permanent atony without marked gastric dilatation, nonobstructing gastric cancer, colitis, and in numerous states in young adults. Much information that could in nowise be neglected was obtained from a determination of the gastric acidity. For the purpose of determining the degree of acidity he divided his series into three groups: (1) Intrinsic gastric disease; (2) where the lesions were chiefly extragastric, and (3) in epilepsy or neurasthenia of the young adult. The author then discussed the demonstration of occult or altered blood, the incidence and significance of organic and gastric extracts, the significance of the demonstration of specific ferments in gastric extracts, the value of the Wolf-Junghaus test for soluble albumin, the significance of the microscopic examination of gastric contents, and the diagnostic worth of the demonstration of microorganisms in the gastric contents. They had made 6,280 examinations by high power after the unfiltered contents had been stained by the agar technique. From their studies they had developed four microscopic pictures which seemed almost pathognomonic of certain disease conditions, but apart from these they could see nothing very significant. In closing these four pictures were described.

Dr. JACOB KAUFMANN of New York said that Dr. Smithies' masterly paper would help a great deal to change the present tendency of underrating the value of gastric analysis and of overestimating, on the other hand, the importance of radiology. When considered alone $x$-ray findings were liable to cause most painful errors in diagnosis. The findings of the $x$-ray examination, of gastric analysis, and of any other method of examination were of value only when taken in connection with the history of the case and all other clinical symptoms, and furthermore when the findings were rightly interpreted. He fully agreed with Dr. Smithies that it was easier and more reliable to base the diagnosis of intermittent pylorospasm—so important a factor in gastric ulcer—on findings resulting from the use of the stomach tube than on $x$-ray findings. He could not, however, endorse Dr. Smithies' attempt at differentiating the various types of hyperacidity on the basis of statistical figuring, because the individual factor played too great a rôle. His own examinations, numbering almost as many as Dr. Smithies, had taught him that the type of secretion in a given case was distinctly individual. He had records of a large series of cases, which on reexamination after intervals of years showed identically in every detail the same secretory condition as on the first examination. The positive finding of blood in the gastric contents should be recorded only when the blood was distinctly visible or recognizable as old blood; so-called "occult blood" should not be taken into account because the introduction of the tube might have caused the bleeding. In the case suspicious of cancer it had been his rule to first examine the feces for occult blood after a few days of appropriate dieting and then examine the

stomach contents. In gastric cancer one could not expect positive findings before the growth had developed. That applied equally to the older and to the more modern tests. The results of the tryptophen test were not reliable; they were often positive without and negative with cancer. When present lactic acid and bacterial fermentation were the only characteristic signs of gastric cancer. The test for lactic acid, however, must be strongly positive and unmistakable. When a moderately strong test was recorded linked with the findings of free hydrochloric acid it meant nothing. Too much stress had been laid on the Boas-Oppler bacillus; of much greater importance was the fact that gastric bacteria was enormously increased, and one usually found numerous types of long and short bacilli and cocci. He had never seen a case in which such pronounced bacterial fermentation was not associated with gastric cancer.

Dr. Fenton B. Turck said that this splendid presentation by Dr. Smithies showed that the motor power of the stomach was of paramount importance, and that atony from various causes played a most conspicuous rôle. Atony was now understood as a form of fatigue of the muscle wall of the hollow viscera. Gastric muscle fatigue might result from overwork due to stenosis produced by persistently overloading the stomach, often disabled by toxins. The two conditions differed materially from the standpoint of diagnosis and treatment. The one was a pathological condition to be treated by surgical means; the other was to be considered from a physiological standpoint, and to be corrected by physiological methods. No more difficult problem of differential diagnosis presented itself to the clinician than to distinguish between these two conditions. The retention of food in the stomach beyond the normal time had been too often regarded as due to some obstruction, usually pyloric. If one was justified in saying that a case was one of pyloric stenosis because of the presence in the gastric contents of food taken the day before then the speaker had seen hundreds of cases of pyloric obstruction permanently cured without surgical interference. The diagnosis of gastric insufficiency involved another factor as well; that was, whether the atony was really of gastric origin and not to be referred to the intestinal muscularis. An accurate knowledge of clinical conditions could not be obtained without careful consideration of the physiology of the gastric movements. The gastric muscle seemed to have an inherent power of rhythmical contraction independent of the central nervous system. The relation of the local and central nervous system to peristalsis was not understood, but other factors must come into play, and one of the most important of these was tension; this quickly stimulated gastric peristalsis. Gastric muscle fell in line with the laws of contraction and fatigue in general, and the experimental work on animals by overworking the stomach and producing dilatation corresponded in etiology and pathology with the clinical observations in atony and fatigue of the gastric muscles in the human being. This could be seen in many cases of rickets; it often followed typhoid fever, and was frequently found in tuberculosis. Even in the healthy individual overwork of the stomach would result in fatigue and dilatation and this would be permanent if the muscle could not recover its power to contract. The differential diagnosis between motor insufficiency due to obstruction and that due to fatigue of the gastric muscle was difficult. The two conditions presented similar history and symptoms, but physical examination would show some characteristic differences. In stenosis the muscle wall hypertrophied to compensate for the increased resistance of the pyloric outlet and would require greater tension than normal to distend it. On the other hand, in gastric myasthenia the muscle became less and less resistant to tension or it showed a greater degree of distension under the same pressure. This difference could readily be tested by artificial inflation of the stomach through a double tube. The energy with which the air was ejected from the stomach would give some idea of the tonicity of the muscle. This could be felt with the hand or cheek, or the ejected air could be passed through a bottle containing soapy water and the amount of force would be indicated by the soapy bubbles formed. It required practice to make this estimation with the hand. If nebulized oil was forced into the stomach, the rapidity with which it passed out would give some estimate of the elasticity of the muscle. It could also be diagnosed by exclusion, by giving the test meal as follows: After washing the patient's stomach at the usual eating time a test meal was given of rice, chopped meat, and toast mixed with a little bran. The time that it took for the meal to pass out of the stomach was carefully noted. The next day the stomach was exercised by inflating it with air through a double tube. This inflation was repeated several times until peristalsis was excited. Then another test meal like the first was given at the same hour of the day. The length of time that this meal remained in the stomach was compared with that of the first. If it was much shorter, then one could be certain that no stenosis was present and that the exercise of the stomach muscle with air had stimulated it to quicker work. Pneumatic gymnastics of the stomach would help to make diagnosis more certain and they were very much dependent upon such methods as their knowledge of the etiology and pathology remained so incomplete. The same method was of great value in examining the colon, and similar methods used in treatment had shown most beneficial results. The trend of modern research had been especially characterized by a growing recognition of the importance of the physiological methods of diagnosis and the need of such methods was conclusively demonstrated by the scholarly report of these 7,000 cases.

**The Determination of Surgical Conditions of the Stomach.**—Dr. Walter A. Bastedo and Dr. Leon T. Le Wald presented this communication, which was illustrated by lantern slides.

(*To be concluded.*)

## Philadelphia Neurological Society.

At a stated meeting held April 24 Dr. James Hendrie Lloyd reported "A Case with Bulbar Symptoms Associated with Bilateral Sixth-nerve Paralysis." The patient was a white man, about twenty-five years old, with a history possibly suggestive of pulmonary tuberculosis, who presented marked internal strabismus, difficulty in swallowing and in speech, with immobility of the tongue and paralysis of the right vocal band and of the velum palati, loss of smell and taste, without affection of sensibility or changes in the optic nerves or a Wassermann reaction. *X*-ray examination disclosed destructive changes in the posterior clinoid processes of the sphenoid bone. It was thought the condition might be one of multiple nuclear degeneration, or a poliomyelitis inferior and superior. Other possibilities suggested were a solitary tubercle of the pons and medulla oblongata and a tumor of the pituitary body.

Dr. Alfred Gordon presented "A Case of Amyotrophic Lateral Sclerosis, with Bulbar Onset." The patient was a woman, 27 years old, who gave a history of having had a right-sided hemiplegia with entire recovery at the age of 15 years old, and who without loss of consciousness or antecedent or attendant acute illness developed difficulty in speaking and in swallowing, soon associated with wasting and weakness in the left upper extremity, subsequently followed by weakness and wasting also in both lower extremities, with exaggeration of the reflexes, but without sensory changes and an absence of Wassermann reaction. The tongue was paralyzed and wasted, and the face was immobile, but with a persistent smile. While originlly the case was considered one of amyotrophic lateral sclerosis beginning with bulbar symptoms the subsequent course of development suggested a vascular lesion involving the upper cord and adjacent pons and medulla.

Wm. G. Spiller presented on behalf of Dr. J. W. McConnell a child with "Paralysis of the Lower Branch of the Right Fifth Nerve and of Both Sixth Nerves." The condition had been observed immediately after birth, it was not progressive, and it was supposed to be due to an aplasia of the nuclear centers involved. There was marked internal strabismus and loss of power in the muscles on the right side of the face.

Dr. D. J. McCarthy presented a communication entitled "Progressive Lenticular Degeneration," reporting four illustrative cases. The disorder is characterized by difficulty in speech and in swallowing, with a variable tremor and increased emotionalism, in conjunction with cirrhotic changes in the liver.

Dr. Wm. G. Spiller presented a communication entitled "Symmetrical Pain in the Heels from Exostosis of the Os Calcis." He reported the case of a man who complained of pain in the heels on walking and standing, without evidences of neuritis, but with a history of gout. *X*-ray examination showed an exostosis of

each os calcis, and for relief surgical procedures were recommended.

Dr. TH. WEISENBURG presented a communication entitled "The Character of Organic Convulsions, with the Description of a New Symptom." He pointed the greater reliability of studies of convulsive movements made with the aid of the cinematograph, as compared with ordinary clinical observation. He was able to determine in a number of cases of Jacksonian epilepsy that the movements are first tonic and subsequently clonic; also that the movements in the upper extremities are always flexor in character, while in the lower extremities they are extensor. He relates these differences to the withdrawal of the influence of the cortex from the cells in the anterior horns of the spinal cord, the cells more remote from the cortex, namely those for the lower extremities being affected differently than those nearer to the cortex, namely those for the upper extremities.

## Books Received.

*The* MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

BEITRÄGE ZUR KLINIK DER INFEKTIONSKRANKHEITEN UND ZUR IMMUNITÄTSFORSCHUNG. Herausgegeben von Prof. Dr. L. BRAUER. Paper; price 6 Mks. Curt Kabitzsch, Würzburg.

THIRTY-SIXTH ANNUAL REPORT OF THE BOARD OF HEALTH OF THE STATE OF NEW JERSEY 1912, and Report of the Bureau of Vital Statistics. Cloth; 774 pages. Dispatch Printing Company, Union Hill, N. J.

COMMUNICABLE DISEASES. An Analysis of the Laws and Regulations for the Control Thereof in Force in the United States. By J. W. KERR and A. A. MOLL, A.B. Paper; 699 pages. The Government Printing Office, Washington.

INTERNATIONAL CLINICS. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles. By Leading Members of the Medical Profession Throughout the World. Cloth; price $2.00; illustrated; 300 pages. J. B. Lippincott Company, Philadelphia and London.

DE LA NÉPHROPEXIE (Procédé d'Albarran-Marion). Par le Dr. JULES LUZOIR. Price 8 francs. G. Steinheil, Paris, 1913.

CHEMICAL PATHOLOGY. Being a Discussion of General Pathology from the Standpoint of the Chemical Processes Involved. By H. GIDEON WELLS, Ph.D., M.D. Second Edition. Thoroughly revised. Cloth; 616 pages; price $3.25 net. W. B. Saunders Company, Philadelphia and London.

A MIND REMEDY. By JOHN G. RYERSON, M.D. Cloth; 82 pages. The Quinn & Boden Company, Rahway, N. J.

A HISTORY OF LARYNGOLOGY AND RHINOLOGY. By JONATHAN WRIGHT, M.D. Second edition, revised and enlarged. Cloth; 357 pages. Lea & Febiger, Philadelphia and New York.

SURGERY. Its Principles and Practice for Students and Practitioners. By ASTLEY PASTON COOPER ASHHURST, A.B., M.D., F.C.A.S. Cloth; illustrated; 1141 pages. Lea & Febiger, Philadelphia and New York.

ARTERIOSCLEROSIS. A Consideration of the Prolongation of Life and Efficiency after Forty. By LOUIS FAUGERES BISHOP, A.M., M.D. Cloth; price, $3.50; 383 pages. Oxford University Press, New York.

PROPÄDEUTIK. By Prof. Dr. OSCAR POLANO. Cloth; price 5 mks.; illustrated; 150 pages. Curt Kabitzsch, Wurzburg.

LE TRAITEMENT DES STENOSES AIGUES DU LARYNX. Par le Docteur GUILLERMO ZORRAQUIN. Paper; price, 2 francs; illustrated; 45 pages. Vigot Frères, Editeurs, Paris.

INFANT FEEDING. By Clifford G. Grulee, A. M., M.D. Illustrated; second edition; thoroughly revised; cloth; 314 pages. W. B. Saunders Company, Philadelphia and London.

BEDSIDE HEMATOLOGY. By GORDON R. WARD, M.D. Illustrated; cloth, 394 pages. W. B. Saunders Company, Philadelphia and London.

KLINIK FÜR PSYCHISCHE UND NERVÖSE KRANKHEITEN. Herausgegeben von ROBERT SOMMER. IX Band. 1 Heft. Paper; 96 pages. Carl Marhold, Halle a. S.

## Miscellany.

**The Doctor's Bill.**—Sir John Collie points out that the intervals at which medical accounts should be rendered is always a perplexing problem to a young medical man. It would be well if the latter recognizes early in his career that the public has a very short memory. Evening and night visits, which are so wearing, are often forgotten by a patient long before the account goes in. Small wonder, then, that a man who was very grateful for much kindly assistance in the early weeks of January, should almost have forgotten the occasion, and perhaps raise his eyebrows when the doctor's little bill is presented on July 1. The custom, which prevails in the higher branches of both the legal and medical profession, of looking upon the fee as an honorarium and giving no credit is admirable, but in the physician's sphere of work, this in the vast majority of cases, except in the cases of the very poor, is a practical impossibility. Quarterly accounts have the advantage of automatically weeding out those who never intend to pay at all. The physician should depend upon it, if he is really doing good work, he need have no fear about the effect of asking for his fees. Some medical men willingly allow a large number of patients to run up small accounts, which they know cannot be paid, and indeed they never really expect it. This is not done from philanthropy, but from the mistaken idea that it enhances the value of one's practice. It is bad business. It certainly will increase the number of patients, it will increase the working expenses, it undoubtedly makes large inroads on one's leisure; but the gain, if any gain there be, is wholly disproportionate to the wearing labor expended. Frequently, when a patient is in receipt of a small but regular salary, the suggestion that payment be made by periodical instalments would be gladly accepted. Suppose that when a man in this position saves to pay his doctor's bill, an occasion arises which demands money, the probability is very great that the money laid aside to meet the doctor's bill will be appropriated. This is not right, of course, but with the money in hand very few individuals can resist the temptation; if the money has been paid over, the temptation can not arise, and the doctor is better off.—*British Medical Journal.*

**The Relation of Physician and Patient.**—R. C. Buist points out that the relation to the patient is the primary reason for the doctor's being, and the cardinal principle of the latter's duties is to furnish the best that the medical profession can supply for his needs. Not only must the best within the physician's own knowledge be brought forth, but the limits of this knowledge must be honestly recognized, and inside them must be found a knowledge of a way to the best that is available. This is true in whatever circumstances the patient comes into the doctor's hands. Be it parochial, insurance, hospital, or private patient, he is entitled to the best that the profession can do for him.—*British Medical Journal.*

**Illiteracy and Mortality.**—Statistics show a more or less close parallelism between these two, at any rate, in Italy. In Calabria, in which 78 per cent. of the population is illiterate, the mortality is 30 per thousand; in Sicily, with an illiteracy of 71 per cent., the mortality is 21; in Piedmont an illiteracy of 21 per cent. corresponds to a mortality of 20. —*Rivista Ospedaliera.*

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## Original Articles.

### A CLINICAL STUDY OF TRAUMATIC NERVE PARALYSIS.

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NEW YORK.

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[Introductory Note.—Clinical studies of injuries of nerves have been made from time to time. Although the subject is an old one, it seems justifiable to go over the subject matter again, because the new industrial conditions bring new factors in the etiology of the traumatic nerve conditions. In particular, the passage of workmen's compensation laws will make the study of the traumatic neurosis more vital and call for more specific and detailed knowledge regarding the conditions.—C. L. Dana.]

The following study is a report of 331 cases of traumatic nerve paralysis of the upper and lower extremities, occurring in adults, together with a report of 30 traumatic birth palsies, 10 facial nerve palsies, and 2 post-thoracic nerve palsies, that applied for treatment at the Cornell University Medical College, New York City, Department of Neurology.

The study includes the subjects of nativity, sex age, occupations, causes, occupation as a causative factor, distribution and nerves involved, with a detailed consideration of the individual nerves, length of time the paralysis existed, treatment, conclusions, and illustrated cases.

Nativity: Of 331 cases, 192 were foreign born, 139 were born in United States.

Sex: 289 were males, 42 were females.

Age: There was a gradual increase until the fourth decade, and then a gradual decrease until the seventh decade. Of 331 cases, 119 occurred between the ages of thirty and forty.

Occupation: There were 79 different occupations recorded for the males and 14 for the females. Of 331 cases, 54 were laborers, 27 drivers of vehicles, and 18 were houseworkers. In the remaining occupations the number of cases varied from 1 to 6.

Causes: Of 331 cases, 154, or 46½ per cent., were caused by pressure during sleep induced by alcohol; 21, or 6 per cent., were caused by pressure during sleep not induced by alcohol; 22, or 6 per cent., were caused by pressure induced by crutches, bandages, carrying heavy bundles, and handling various tools; 134, or 40 per cent., were caused by violence, contusions, lacerated, incised, and punctured wounds, crushing, fractures, and dislocations. In 73 cases, of 331 particular occupations had a distinctive bearing as a causative factor.

The duration of the paralysis varied from three months to one and a half years.

Distribution: Nerves Involved—Of 331 cases, 315 occurred in the upper extremities, 16 occurred in the lower extremities.

*Distribution of 315 Cases in the Upper Extremities.*

| | Number | Males | Females |
|---|---|---|---|
| Total arm palsies | 41 | 33 | 8 |
| Musculo-spiral | 179 | 162 | 17 |
| Ulnar | 52 | 43 | 9 |
| Circumflex | 29 | 22 | 7 |
| Median | 8 | 8 | 0 |
| Median and ulnar | 6 | 6 | 0 |
| Totals | 315 | 274 | 41 |

*Distribution in the Lower Extremities.*

Anterior tibial palsies (16 cases): Male, 15; female, 1.

*Total arm palsies* made up 12 per cent. of the cases. Thirty-three per cent. occurred between the ages of forty to seventy years. The percentage of palsies due to violence were about equal in the male and female cases—90 per cent. males and 87 per cent. females. In 42 per cent. of the male cases particular occupation had a distinctive bearing as a causative factor. There was only one female case out of eight in which occupation might be said to be influential, viz., servant falling down stairs. The duration of the paralysis in the majority of cases was up to one year.

*Musculo-Spiral Palsy* occurred in 54 per cent. of the cases. In 179 cases, 114, or 63 per cent., occurred between the ages of twenty to forty years. Of 162 cases, there were 31, or 19 per cent., laborers, and 20, or 12 per cent., drivers. Of 17 female cases, there were 9 houseworkers. Of the 162 male cases, 138, or 85 per cent., were due to pressure; the remaining 15 per cent. were due to violence. Of the 138 pressure cases, 122, or 89 per cent., were caused by pressure during sleep induced by alcohol. In the occupations of laborers and drivers of vehicles 75 per cent. were caused by pressure during sleep induced by alcohol. There was a distinct relation between particular occupations in 13 per cent. of the male cases. In the female cases there was no distinct relation. Of 179 cases, 145, or 80 per cent., presented themselves for treatment during the first month. Duration appears to be from three to six months.

*Ulnar Nerve Palsy.*—The ulnar nerve was paralyzed in 15 per cent. of the cases. Twenty-seven per cent. of the male cases were caused by pressure during sleep induced by alcohol and 25 per cent. were due to pressure caused by handling various tools. Occupation was influential in 30 per cent. of the male cases. Occupation shows no relation in the female cases. Thirty-seven per cent. of the cases were due to violence. The duration of the paralysis varied from three months to one year.

*Circumflex Palsy.*—The circumflex nerve was involved in 8 per cent. of the cases. In 63 per cent.

of the male cases the paralysis was caused by violence. In 3 out of 7 female cases violence was a factor. The duration of the paralysis was from four to seven months.

*Median Nerve Palsy.*—Median nerve paralysis occurs in 2½ per cent. of the cases. All these cases were males. Fifty per cent. were due to pressure during sleep induced by alcohol. Fifty per cent. were due to pressure. Less than 1 per cent. show occupation as a causative factor.

*Median and Ulnar Palsy.*—Combined median and ulnar nerve palsies made up 1½ per cent. of the cases. No female cases were recorded. Fifty per cent. were due to incised wounds and the remaining 50 per cent. were due to pressure and violence. There was a residual paralysis in the cases due to incised wounds. Occupation was influential in 5 out of 6 cases.

*Anterior Tibial Palsy.*—Anterior tibial paralysis made up 5 per cent. of the cases. In 60 per cent. of the cases pressure during sleep induced by alcohol was the cause. In 2 out of 16 cases occupation was influential.

*Traumatic Facial Paralysis.*—Of 10 cases of traumatic facial paralysis, 8 occurred in males and 2 in females. Three cases occurred at the age of thirty-five years and 2 of the cases at forty-one; the remaining 3 cases occurred between twenty to thirty years of age. Occupation showed: Drivers, 2; ironworkers, 2; laborers, 2; painter, 1, and waiter, 1. Four, or 50 per cent., of the male cases were caused by fracture of the base of the skull. Three, or 37 per cent., followed mastoid operations. One was caused by being squeezed between buckets. Injuries were connected with falls from scaffolding, building and wagon. In 5 of the 8 cases particular occupation had a distinctive bearing. In 5 of the cases the right side was involved and in 3 cases the left side. In 5 cases all branches of the nerve were involved, and in 3 cases the superior branch alone. The ophthalmic branch of the facial was involved in one case to a varying degree, causing lagophthalmus. Duration varied from sixteen days to two years. Seven of the eight cases showed a complete reaction of degeneration in the branches of the nerve involved.

Of the two female cases, 1 occurred at nineteen years and 1 at twenty-nine years of age. One was a press girl and one was a servant. The paralysis followed mastoid operations. Occupation had no bearing as a causative factor. One was on the right side and one was on the left. All branches of the nerve were involved and the eye could not be closed in either case and showed a complete reaction of degeneration. Duration, one year in 1 case and three years in 1 case.

*Peripheral Birth Paralysis, of the Upper Arm Type.*—Of 30 cases of of peripheral birth paralysis, of the "upper arm type," 16 occurred in males and 14 in females. The age of the males was from one month to five years. The age of the females was from two months to nine years. There were 14 vertex presentations and 2 breech presentations. In 9 of the 16 male cases, the paralysis occurred after the artificial delivery, and in 7 cases when the labor terminated naturally. In 8 of the 14 vertex presentations paralysis occurred after forceps. In 3 cases traction in the axilla produced the paralysis. In the remaining 3 vertex cases the labor was prolonged but terminated naturally; the paralysis was attributed to pressure upon the shoulder during labor. The paralysis in the 2 breech cases was associated with fracture of the clavicle. Of the 14 female cases, 11 were vertex presentations and the paralysis occurred after artificial delivery. One was a breech presentation and was caused by traction in the shoulder. Two were prolonged but terminated naturally. In 14 of the 16 male cases the deltoid, biceps, brachialis anticus, and supinator longus muscles were paralyzed. In most of the cases atrophy of the muscles occurred and showed a complete reaction of degeneration. In some cases anesthesia in the outer surface of the arm was noted. Three cases were operated on, but the paralysis remained the same as before operation. In 8 of the 14 female cases all of the shoulder muscles were involved and atrophied and showed the reaction of degeneration. In 6 cases only part of the muscles were involved; they also were atrophied and showed the reaction of degeneration. None of the female cases was operated upon.

*Posterior Thoracic Nerve Paralysis.*—Two cases occurred in children, one male eight years of age and one female eight and a half. The male case was caused by pressure while resting in bed for a long time. The female case was due to falling down stairs and striking on her back. Male case existed for three weeks, female case for four months. In both cases electrical examination demonstrated a reaction of degeneration in the serratus magnus muscle.

*Treatment.*—The general treatment included hygiene, baths, tonic and special exercises.

The local treatment, electricity, massage, and mechanical devices. Surgery was demanded in cases caused by dislocation, cut nerves, and callus.

Pressure cases caused during sleep induced by alcohol, in which there was a partial or complete reaction of degeneration, were treated with the positive pole to the muscles and by massage. The constitutional treatment consisted in elimination of the toxic materials, giving of tonics and strychnine. Baths were used, especially the hot and cold, followed by the douche. The cases recovered in from three to six months. In pressure cases caused during sleep not induced by alcohol, in which there was a very slight or no reaction of degeneration, the best results were obtained by electricity, the continuous current and the negative pole to the muscles, used every other day for five or ten minutes, together with massage. In these cases the duration was variable, extending from a few days to one month before cure. Pressure cases due to crutch and tight bandaging were more rebellious to treatment. In one male case of double total arm palsy due to tight bandaging, in which there was a complete reaction of degeneration, sensation returned at the end of three months. At the end of eighteen months there was a partial return of motor power. Another patient with double total arm palsy, due to pressure from crutches and in which there was a partial reaction of degeneration recovered sensation and motor power with some residual weakness in eleven months. A patient with double circumflex palsy due to dislocation, got well in eight months after the reduction of the dislocation.

In a case of musculospiral paralysis due to implication of the nerve in a callus, operative treatment met with partial success.

A case of combined median and ulnar palsy due to incised wounds was treated by suturing. Before suturing the hands were deeply cyanotic; cold stiff, slightly flexed, with atrophy of the interossei and loss of sensation in the distribution of the nerves.

After operation sensation in the hands and fingers returned in about one month. At the same time there was an improvement in the general nutrition of the hands. At the end of six months motion was slightly improved. The improvement of flexion of the first phalanges was more marked than extension of the second and third phalanges.

A case of total arm palsy due to a bullet in which there was no surgical treatment, showed no improvement in the motor power and little in sensation at the end of one year's treatment.

The great majority of pressure cases were cured. The non-alcoholic and those showing the lesser degree of the reaction of degeneration recovered the most rapidly.

*Conclusions.*—Of 331 cases, the males numbered 88 per cent., females 12 per cent. Traumatic paralysis occurs in infancy to old age. Ninety per cent. of the cases occurred between twenty and thirty-five years, the most active part of adult life.

Occupation varied widely. The most predominant occupations were laborers, drivers of vehicles, and houseworkers. Sixteen per cent. were laborers, 8 per cent. were drivers of vehicles, and 5 per cent. were houseworkers.

The most direct, exciting cause was pressure during sleep induced by alcohol; the next in frequency was violence. It does not appear that the accidents were connected with dangerous work, awkwardness, or carelessness. Ninety-five per cent. occurred in the upper extremities and 5 per cent. in the lower.

There was a distinct relation between particular occupation and the trauma in 23 per cent. of the cases.

Eighty per cent. of the cases presented themselves for treatment during the first three months of the paralysis. Fracture at the base of the skull, involving the facial nerve in its course, produced facial palsy in 40 per cent. of the cases.

The female cases were not caused by violence. None of the cases showed a complete recovery.

In the peripheral birth palsies males and females were injured about equally. The great proportion of all cases of peripheral birth palsies of the "upper arm type," as seen in a neurological clinic, are vertex presentation, occurring after artificial delivery. Operation does not improve the condition. When the reaction of degeneration is present improvement is slow and the paralysis may be permanent.

Case I.—Total arm palsy from gunshot wound of brachial plexus. A policeman, 38 years old, was shot with a 38 caliber bullet, at a distance of seven feet, on March 16, 1906, at 10 P. M.

The point of entrance was two inches below the middle of the right clavicle, and the exit, middle of the scapula, toward inner side, two inches below the spine. At the time of injury had a sensation as if a red hot iron was running over his arm and felt as if he had "no arm." He was operated on at 12 P. M. (two hours after the injury). The first portion of the axillary artery was ligated, no suturing of nerves.

On April 11, 1906, less than one month after injury he came to the clinic for treatment. Patient was able to abduct arm partially at angle of 45° adduction; also external and internal rotation of shoulder; no flexion or extension of the forearm, no supination or pronation of the forearm, no extension at wrist, but had good ulnar flexion at wrist. Had good flexion of little, ring, and middle fingers; less power in middle. Interossei muscles of hand supplied by the ulnar nerve were functionally sound. Tendon jerks in right arm absent. There was a slight general wasting of right arm, but no localized atrophy.

Sensation.—Tactile anesthesia in median and musculospiral distribution of hand, also in the cutaneous branch of the musculocutaneous, including diminution of pain and temperature sense, but pain was acute in fingers and hand; loss of deep sense in the radial fingers.

April 23, thirty-eight days after the injury, motion still impaired and patient complained of dull, aching pains in whole of right arm, except ulnar distribution, burning and scalding sensations in median distribution, also paresthesis, occasional sharp shooting pains in dorsum of thumb; little pain in the bullet tract, neck, or shoulder.

June 15, 1906, three months after injury, no pain for three weeks, except when storm is coming. Paralysis was improved, could move all muscles of shoulder, but no flexion of elbow or wrist.

November 23, 1906, eight months after injury, unable to use shoulder muscles. There was general wasting of arm, no flexion or extension of elbow, no extension of wrist or fingers. The movements of the muscles supplied by the ulnar, present, and no atrophy of muscles supplied by the ulnar. The motion of the muscles supplied by the median were lost and atrophy of muscles; no pain, no paresthesia, except occasionally in musculospiral distribution of the hand. Anesthesia to touch, pain, and temperature sense in median distribution. Tactile sense had returned in the musculocutaneous distribution, no trophic changes in the nails. Radial pulse was feeble.

Electrical examination: No faradic response in muscles of arm except ulnar distribution and deltoid. The deltoid was sluggish. At Erbs point, contraction only in deltoid. Galvanic, slow, vermicular contraction in all muscles of arm except deltoid and ulnar distribution. No response to indirect methods through musculospiral or median nerves. Good response in ulnar.

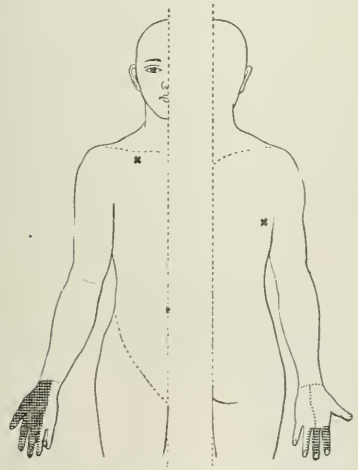

Fig. 1.—Case I. Total arm palsy from gunshot wound of the brachial plexus. Cross shows entrance and exit of the bullet. The area of vertical and horizontal lines shows complete cutaneous anesthesia, protopathic and epicritic. The area of horizontal lines indicates loss of epicritic sensibility only.

Case II.—Circumflex palsy, due to dislocation of the right shoulder, showing area of anesthesia sixteen months after injury. The patient was a butcher, 70 years old. In December, 1899, he fell and struck on his right shoulder, dislocating it. The dislocation was reduced two hours after the accident. After injury he had pain in shoulder; numbness and stiffness of the fingers of the left hand. In the course of two months this wore off.

April 18, 1901, sixteen months after injury, there was atrophy of the right deltoid, and infraspinatus muscles, crepitation in joint, inability to raise the arm laterally from the side, forward and backward movements limited, opposition of the thumb and fingers not possible. Anesthesia to tactile, pain, and temperature sense in region corresponding to the circumflex nerve.

Electrical examination: Complete reaction of degeneration in the deltoid and infraspinatus muscles.

Case III.—Injury to the musculospiral nerve from fracture of humerus illustrating the paralysis of the

hand, the degree of flexion of the fingers, and sensory disturbances. Seven weeks after injury. A laborer, 30 years old, was throwing a heavy stone weighing 14 pounds on July 9, 1905. The arm "cracked" at the juncture of the middle and lower third. The fracture

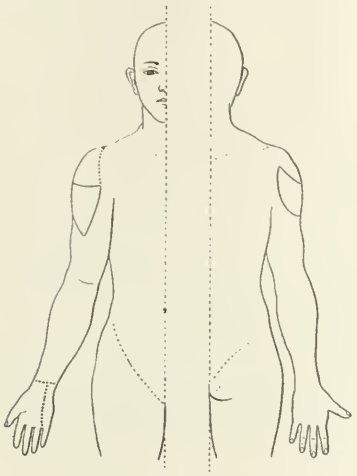

Fig. 2.—Case II. Circumflex palsy. The area of the right upper limb within the black line was anesthetic 16 months after injury.

was set the night of the injury. At the time of the accident the extensor muscles of the wrist and fingers were paralyzed and patient complained of numbness in the musculospiral distribution.

Three weeks after the injury, it was found that the nerve was so involved in the subsequent formation of callus as to occasion its paralysis. At this time an operation was done to free the nerve.

Examination made August 30, 1905, seven weeks after injury. Supination was found imperfect. Extension of the hands and fingers entirely lost. The

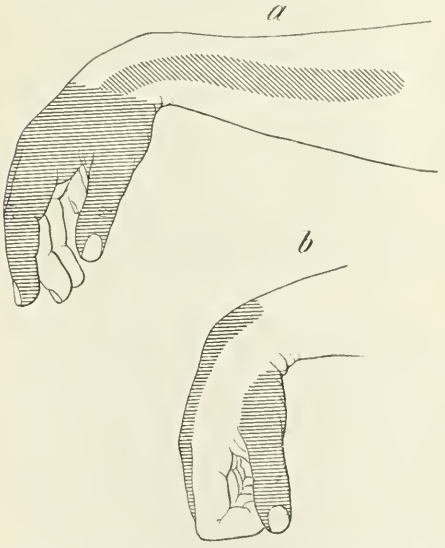


Fig. 3.—Case III. A shows the wrist-drop, pronation of the forearm, the degree of extension of the fingers, and the area of anesthesia, indicated in horizontal lines. Seven weeks after the injury. B shows area of anesthesia and degree of flexion into the palm of the hand. Seven weeks after the injury.

forearm was pronated, and the hands and fingers were passively flaccid. Cut shows area of anesthesia.

Electrical examination: There was a complete reaction of degeneration in the muscles, supplied by the musculospiral nerve.

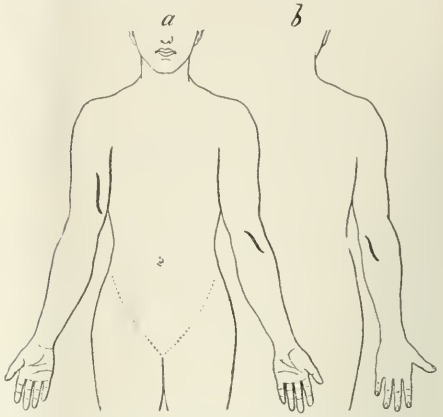


Fig. 4.—Case IV. The points of entrance of the knife. *a* shows the entrance on the anterior surfaces of both arms. *b* shows the exit of the knife wound on the posterior surface of the left arm.

Case IV.—A case illustrating the paralytic, protopathic, and epicritic disturbances after complete section of the median and ulnar nerves of both arms. Six months after the injury. A houseworker, 36 years old, was stabbed in both arms with a carving knife on September 29, 1910. Immediately after the injury the fingers of both hands dropped and there was a loss of sensation in the median and ulnar distributions. The wounds were treated antiseptically in the hospital and were sutured without an anesthetic. There was no history of an attempt to suture the nerves. The wound in the right arm healed in a few days, but the wound in the left arm became infected and incision was done.

At first there was an absence of extension of the fingers, but after a short time slight power of extension returned. Six months after injury, the movements of the thumb and fingers were much impaired; the thenar and hypothenar eminences were flabby and flat. The interossei muscles were atrophied. There was inability to extend the second and third phalanges. Abduction and adduction of the fingers were lost. The muscles in the ulnar distribution of the forearm were atrophied. The left hand was weaker than the right, both hands were cold and cyanotic and showed trophic changes in the thumbs and tips of the fingers. The nails were marked with ridges; the radial pulse in both wrists was small; patient complained of prickly sensations in both hands.

Electrical examination: To faradism there was no response in ulnar and median distribution; to galvanism, AnCC>CaCC. In the muscles supplied by median and ulnar nerves the response was a slow, sluggish, veriform movement, and in some muscles none at all.

The illustrations show the points of injury, the deformity of the hands, the protopathic loss, and the epicritic loss.

Protopathic cutaneous sensibility responds to painful cutaneous stimuli (pricking), also to extremes of cold and heat, 45° C. and over and 10° C. and under.

Epicritic cutaneous sensibility appreciates light touches, of cutaneous localization, recognition of finer differences of temperature, warm and cold.

Case V.—Wound of the median and ulnar nerves. Secondary nerve anastomosis; before operation total anesthesia; after operation only epicritic anesthesia. A tinsmith, 18 years of age, on June 14, 1905, fell off a barrel, cutting his left forearm, about the middle, with a piece of tin. At the time of the injury his wrist dropped, fingers became flexed, with complete anesthesia in the median and ulnar areas. The following morning after the injury the wound was sewed up without suturing the nerves, but three days after the wound became infected, necessitating incision. The wound healed in twelve weeks.

The patient complained of no pain in the hand or fingers, but all sensation was lost over front and back of the hand, except a patch on the dorsum between the thumb and index fingers. Sensation remained absent until secondary suturing, fourteen months later. The

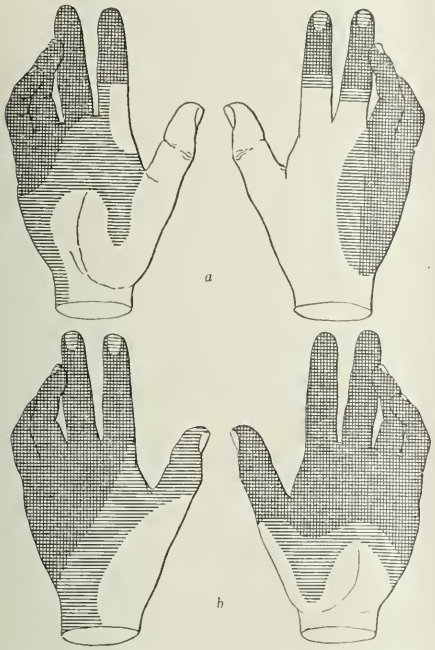


Fig. 5.—Case IV. The area of vertical and horizontal lines show complete cutaneous anesthesia, protopathic and epicritic. The area of horizontal lines indicates loss of epicritic sensibility only. Six months after the injury. *a*, Right hand; *b*, left hand.

median and ulnar nerves were found to be completely severed. One-half hour after operation, it is asserted, that sensation returned in the hand. This lasted two days and disappeared; then there was a gradual return of sensation, but not complete. The diminution of sensation was more marked in the median area than in the ulnar. The patient complained of frequent

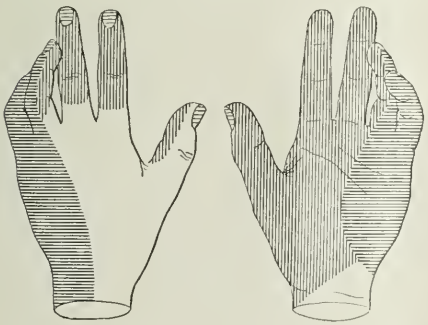

Fig. 6.—Case V. Showing paralysis of the median and ulnar nerves. The horizontal and vertical lines represent the areas in which protopathic cutaneous sensibility returned. After 15 months, following secondary nerve anatomosis there was an absence of epicritic sensibility in that area.

pains in the hand and all the fingers. Motion gradually returned in the hand and fingers.

Electrical examination showed a complete reaction of degeneration in the muscles of the hand. Slight trophic changes in the nails occurred. The radial pulse was small.

Case VI.—Severance of the median nerve, illustrating area of protopathic and epicritic loss. The patient was a ship's steward, thirty-seven years of age, who on October 8, 1912, was cut on the right wrist with a piece of broken glass, severing the median nerve.

Fig. 7.—Case VI. Severance of the median nerve. One month after injury. The area of vertical and horizontal lines show complete cutaneous anesthesia, protopathic and epicritic. The area of horizontal lines indicates loss of epicritic sensibility only.

Twenty-four hours after the injury he was treated in the hospital, but the nerve was not sutured. At the time of the accident he had a loss of sensation in the thumb, index, and middle fingers. One month later the motor power in the long flexors and extensors were present, also all movements of the thumb, though weak. The illustration shows the region of protopathic and epicritic loss, one month after injury.

Case VII.—Ulnar palsy following fracture of the radius and ulnar, showing sensory disturbances in the ulnar distribution. A laborer, 22 years of age, fell and broke his right arm. Five months later there was a badly formed fracture at the junction of the middle and lower third of the radius. A large callous projected into the interosseous space. There were indications also of callous formations in the anterior surface of the ulnar at the junction of the middle and lower third. The union was in a bad position, the arm having been in splints two months. Immediately after the accident there were sensory disturbances as well as motor. These had improved with time and not grown worse.

Examination showed the hand directed toward radial side. There was flattening of the palm and hypothenar eminence also of the first interosseous space. Trophic disturbances were apparent in all four fingers. Tbe

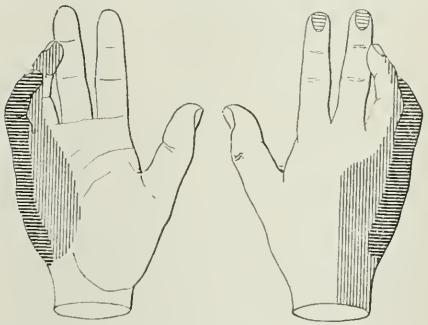

Fig. 8.—Case VII. Ulnar paralysis following fracture of the radius and ulnar of the right arm. Showing the sensory disturbances which existed five months after injury. The horizontal lines indicate the epicritic and protopathic loss in the little finger. The light perpendicular lines indicate the area of returned protopathic cutaneous sensibility. Epicritic cutaneous sensibility was absent in this area.

nails were smaller, presented ridges and were imperfectly developed compared with the right side. Skin was somewhat glossy. The hairs of the skin were present in the ulnar side of the arm and hand. The sensory disturbances are indicated in the illustration.

Electrical Examination: Indirect faradic and gal-

vanic to ulnar lessened; only response, flexor carpis ulnaris and flexor of little finger. On a strong current flexion also of the middle and ring fingers. No adductor pollics response. Direct faradic, no response. Galvanic, slow contraction in thenar eminence, increased on reversal of poles.

167 St. Nicholas Avenue.

## THE MANAGEMENT OF LARYNGEAL TUBERCULOSIS IN SANATORIA AND PRIVATE PRACTICE.*

By WOLFF FREUDENTHAL, M.D.,

NEW YORK.

As a result of a large number of post-mortem examinations, Naegeli asserted that in 97 per cent. of all adults some kind of a tuberculosis lesion is found. He concludes: "Every grown person has tuberculosis." (*Virchow's Archiv*, Vol. 160, 1900.) This tends to show that an occasional infection is not dangerous to the average person. To those exposed, the danger lies in constitutional weakness, in close or prolonged contact with tuberculous patients in the family life or business relation. The disposition is considered as the principal etiological factor, in comparison with which the bacilli play only the rôle of a match, which though inoffensive in itself, if thrown carelessly aside may cause ruin and destruction, provided several factors combine to cause its ignition. Many fires occur daily, and still more cases of tuberculosis. But it is not timely to go into details of the etiology of pulmonary tuberculosis. Everybody knows that it is prevalent to a dreadful degree, and that in spite of the active, often rational, often nonsensical, crusade against it, it has decreased to only a slight extent.

The most severe and serious complication of the disease is the laryngeal involvement. No other condition subjects the patient to such a severe test of endurance as does a deeply ulcerated tuberculous larynx. Few patients in any condition demand relief more earnestly, or spur the physician to greater effort, or demand more attention, or are a source of more anxiety than these cases. Should we not try everything to relieve these most wretched of all patients of their suffering?

It is a great pity that many of our fellow practitioners still believe that tuberculosis of the larynx is an incurable disease. But a short time ago a colleague in charge of a large hospital for tuberculosis cases expressed this view: "The patient is lost as soon as the larynx becomes involved." This would be most hopeless if statistics alone had not proven the fallacy of such a belief. Permit me to quote only one and a very reliable investigator, viz., W. Jobson Horne of London, who for many years had conducted both clinical and pathological research (*Journal of Lar.*, etc., Dec., 1905). His results "showed that 97 per cent. of cases of phthisis experienced symptoms referable to the larynx at one time or another in the course of the disease, and the investigation further went on to show that the routine examination of the larynx in persons suffering from symptoms suggestive of early pulmonary disease would often enable a diagnosis of phthisis to be made at a time when the stethoscope yields no evidence, and that is at a time when the physician can be of the greatest service to his patient." Even if we do not accept these statistics as positive proof, still all men of experience will agree that the larynx is affected in an extraordinarily large percentage of cases, and if this be so it must be equally true that many of them are cured, and, indeed, that is what happens quite frequently with or without our making a diagnosis and with or without treatment. It is true that a certain proportion of the milder cases do get well merely by being placed in proper hygienic surroundings. But how about the others? Can any of these be saved, or is it useless to bother with them? In order to present an outline of my results and plan of treatment, let us consider, first, the management of all cases afflicted with tuberculosis of the larynx in a well-equipped sanatorium. It should be an established rule to examine every case that enters a sanatorium as to the condition of the upper air tract, whether the patient complains of this or not. If this is done as a matter of routine a number of pathological conditions will be found, the correction of which will have a decidedly beneficial effect, not only locally, but as regards the pulmonary affections as well. Permit me to refer to several articles published by me a number of years ago, which have an important bearing on our theme. It was found that many of these patients suffered from an atrophic catarrh of the nose, or from a milder form of this, *i.e.* a rhinitis sicca. Most of these persons have wide nasal passages, and yet they feel that they can not get any air through them. The reason for this is that the mucous membrane of the nose is dried out, or covered with scabs and crusts. The air spaces are large enough but the air itself cannot be "assimilated." I might compare this condition to that of a patient suffering from cholera. He is craving for water, but no sooner drinks it than it leaves the system again without being absorbed. So it is with the air inhaled in the above affection. In the University Clinic at Kiel, Germany, my experiments were repeated by Dr. M. Behr and were corroborated in every instance. (*Brauer's Beiträge zur Klinik der Tuberkulose*, 1904, p. 37.)

Great stress should be laid upon these findings since we gain two points by giving them attention. Firstly, in many patients the characteristic hacking cough described in all textbooks as a premonitory or incipient stage of tuberculosis, has its source in the pharynx, being caused by the dry secretions of atrophic rhinitis getting down into this region from the nose; or you may find simply a postnasal catarrh. If one treat this nasopharyngeal catarrh according to the customary methods, one will be sure to eliminate the cough originating in the above manner. In this way we have accomplished a great deal already, for here is a chance of arresting the disease in the beginning. "Principiis obsta" is an old rule which should be followed. On the other hand, one will benefit the patient by restoring the nasal mucosa to a normal condition, so that the inhaled air can be warmed and moistened and thus rendered fit for breathing purposes.

The following example may be cited. A physician from a neighboring city called on me and told me that the week before he had had a pulmonary hemorrhage, night sweats, and rise in temperature, and there had been tubercle bacilli in the sputum; in short, he gave a plain history of tuberculosis. The doctor called on me to find out whether his hoarseness was due to laryngeal tuberculosis, and, if so, he knew he was lost. On examination, a bleeding vessel was seen in about the center of the left vocal cord—a very rare occurrence indeed. This was cauterized with a strong solution of chloride of zinc.

*Read by invitation at the annual meeting of the Tompkins County Medical Society at Ithaca, N. Y., March 10, 1914.

Besides, his nose and pharynx were sprayed with a mild alkaline solution, on account of his naso-pharyngeal catarrh, and as a result the cough stopped almost instantaneously (he had been coughing for the last ten years, or more) and he suffered no longer from night sweats or temperature. I do not claim to have cured his pulmonary condition with these simple applications, which every beginner in laryngology can make, but the constant irritation from the pharynx and nose was stopped and so a rational and very simple treatment of his general condition was inaugurated.

Another obstacle frequently encountered is a deviation of the nasal septum or spurs. If they are of such a nature as to materially interfere with respiration they should be removed. This can be done easily with very little loss of blood and in almost any stage of tuberculosis. Adenoids should also be curetted, but look out for the tonsils, *i.e.* do not operate on them if the disease has been positively established. I have seen several fatalities occur in patients who had been sent away by me to recuperate. They were operated on against my advice and died of *pulmonary* hemorrhage in from three to eight days after tonsillectomy had been done. If a simple *laryngitis* is present, treatment of this will be indicated if it causes a cough. If not, leave it alone. But if tuberculosis of the larynx has actually set in, what then?

The management of such cases is often one of the most difficult tasks that confront the laryngologist. But it is worth all the work and all the pains we take, for the progress in the therapy of this condition has been marvelous. It is natural that these patients should have sanatorium treatment. Here again I want to make a plea for these poor sufferers. We admit so-called early cases, which are no menace to the community nor to their family, as long as their sputum is negative. We build expensive places for those who can be housed just as well in a much less elaborate style, but we frequently reject those who need it most, *i.e.* the tuberculous subjects with laryngeal complications. That hospital is the best, said a prominent German scientist, which admits the worst cases. According to this view, with which I heartily coincide, there are mighty few satisfactory sanatoria for tuberculosis here and abroad. This is all wrong, as every institution of this kind should be forced to admit patients with laryngeal tuberculosis. The general treatment received there of itself often exerts a curative effect in incipient cases. The rest-cure, especially of the voice, the good air and suitable nourishment, are sometimes so stimulating that slight lesions, as superficial erosions, slight infiltrations, etc., are healed.

In other instances, in which ulcers appear, with papillary outgrowths, and localized and diffuse infiltrations, a more active therapy is indicated. No matter in what state the lungs may be, two requirements must be met, viz., to stop the cough and remove the dysphagia. There are various means at our disposal, and it will depend largely upon the experience and judgment of the physician as to which will be chosen. Some have proposed major operations, *i.e.* the entire removal of the affected parts right into the healthy tissue, as has been done surgically in other parts of the body; in other words, partial or total laryngectomy. Theoretically, this is the correct mode of procedure. Practically, however, it has not proven a success. By far the majority of patients operated on in this way succumb quickly to pneumonia and other complications, and only few recover from it. Even simple tracheotomy, which has been recommended as a prophylactic measure, is of no value. It is not more than six months ago that I was forced to do a hurried tracheotomy for dyspnea in a young woman. The wound never healed, but kept discharging a mass of pus, and apparently a new infection of the system had set in. She died recently. Such fatalities perhaps occur oftener than we know. Other patients survive, but have to wear a tracheotomy tube for years without benefit. Nowadays tracheotomy should be performed only on account of dyspnea which cannot be otherwise relieved.

We are therefore limited to minor surgical work *within* the larynx. It is well known that the disease manifests itself frequently on the posterior wall (its anterior portion) and on the anterior wall, *i.e.* the epiglottis. For a long time deep ulcerations and infiltrations may persist on the lateral wall of the interior of the larynx without causing dysphagia or any other serious trouble; but difficulties arise as soon as the region of the arytenoids or the epiglottis becomes involved. Then dysphagia sets in and the fear of the dreaded pain in swallowing reduces the amount of food taken to a minimum. Therefore, what can be done? This condition must be overcome by every means at your disposal, or your patient is lost.

Let us start with the epiglottis. This organ may be severely affected, and in that case is apt to nullify all therapeutic efforts in the larynx and lungs. If ulcers have formed on its lingual side they are easily treated by means to be discussed shortly. At times they yield quickly to treatment. On the other hand, we may find the epiglottis greatly infiltrated, either principally on one side or equally on both sides (the well-known omega and turban-shaped forms). In such cases, if dysphagia is pronounced, all our efforts towards alleviating it will fail. (1) On account of the inability to reach the ulcers lower down in the larynx, the epiglottis occluding the introitus laryngis, and (2) because ulcers have formed on the lower, *i.e.* laryngeal surface of the flattened epiglottis, which cannot be reached by any application. Under these circumstances the best we can do is to amputate the epiglottis either with some cutting forceps, as for example A. Alexander's of Berlin, or, better still, with the cold snare, as advocated by P. Gerber (*Zeitschrift für Lar., Rhin.*, etc., p. 739, 1909). This operation is extremely simple and afterwards enables you to treat the lesions further down. Occasionally improvement is noticed immediately when the epiglottis is the only part affected. If, however, ulcers are present further down, they should be especially treated.

Ulcerations: The first thing to strive for, as has been said above, is to remove the pain in deglutition and incidentally the laryngeal cough. To accomplish this we have to produce local analgesia of long duration, *i.e.* painlessness of the parts lasting for days. We have given up using cocaine daily, or even several times a day, for such purposes. This drug produces anesthesia and aside from its cumulative, toxic effect, has other shortcomings. Prolonged analgesia can be produced by orthoform or anesthesin. They can be applied as a powder or in the emulsion recommended by the writer some years ago. The important points to be remembered in applying the emulsion or the powder are that the parts to be treated must be clean. If they are not, any bland spray will remove all the débris. Secondly, these drugs must be applied in such a manner that

they remain on the ulcer. If too much is applied at one time the patient will cough it all up. I take pleasure in repeating the formula of the emulsion here:

℞ Orthoform, 6 grams.
Menthol, 0.5 to 5 grams.
Hexamethylenamine, 0.50 gram.
Sweet almond oil, 15 grams.
Powdered acacia, 10 grams.
Water, ad 60 grams.
M. f. emulsio.

Such medication alone, if used correctly, will often produce cicatrization of an ulcer. This is accomplished by simply putting the parts at rest through analgesia. To make this clear I may be allowed to mention here the investigations of Prof. G. Spiess on the value of anesthesia (analgesia) in inflammatory processes. The old classical symptoms of an inflammation were: rubor, calor, tumor, and dolor. According to the observations of Spiess, however, it is evident that the "primary dolor" is the factor in causing inflammation. The irritation of the sensitive nerves leads reflexly to hyperemia, *i.e.* rubor. That naturally causes calor and leads to a tumefaction (tumor). Spiess produces anesthesia of the larynx by submucous injections of novocaine (2 per cent. to 5 per cent.) and has thus verified his experiments (*Archiv für Laryngologie*, Vol. 21, No. 1). I have not used these injections, but have reached the same end with applications of orthoform or anesthesin and feel convinced that Spiess is right in his deductions.

But these analgesic remedies, like everything else, will cure only a certain percentage. The reasons for these failures are: first, in some instances we cannot reach the seat of the ulcers; second, they are sometimes so located that no fluid or powder will adhere (posterior laryngeal wall), etc., and thirdly, some ulcers will not heal under analgesic treatment alone. In that event we resort to caustics. Of these I would mention chloride of zinc, in solutions ranging from 3 to 10 and 15 per cent. nitrate of silver, argyrol, etc. These caustics have to be followed within about half an hour by the insufflation of orthoform in powder or in the form of the emulsion. The most effective caustic is the galvanocautery (point), used first by Grünwald of Munich. (*Münchener med. Woch.*, No. 25, 1903) and (*Wiener medizin. Woch.*, No. 28, 1905). I have made use of the galvanocautery in patients with deep solitary ulcerations and in such cases good results will occasionally be obtained. For multiple ulcers this method cannot be recommended. The reaction after the galvanocautery is sometimes unpleasant and unavoidable. Like Kofler of Vienna I have noticed perichondritis of the arytenoids in a case in which the cautery was applied too near the processus vocalis. There are other reactions which, however, are omitted here.

Instead of the galvanocautery I have also employed fulguration. In the *Laryngoscope*, July, 1912, I published my experience with this method which gave some encouraging results. Since that time suspension laryngoscopy has been introduced which has opened new channels for treatment. Consequently I have given up the application of the high frequency current as well as of galvanocautery, at least for the present, and now operate mostly under suspension laryngoscopy. This new method of Killian's, described by me on different occasions, has opened a new field for our therapeutic endeavors. It is quite impossible in this paper to give a description of the method; suffice it to say, that with it the larynx is opened widely to direct inspection and that there is an excellent opportunity to reach its different parts, especially its posterior wall, which is so easily affected. We are enabled to curette thoroughly all ulcerations which, after all, is the most satisfactory surgical method. I have done this frequently and have had some excellent immediate results. I say immediate, because these ulcers recur and have to be curetted over and over again. The procedure is not painful, the loss of blood minimal, and the dangers connected with the method practically nil.

After doing curettage under suspension it would be best to apply a strong caustic, as the galvanocautery or pure lactic acid. There is, however, the danger of edema of the larynx, for which we have to be constantly on the lookout. For that reason it is often wise to proceed slowly, *i.e.* to curette only some of the most troublesome parts at the first sitting. When, for some reason, the whole, or part of the epiglottis has been removed and ulcers then become visible they should be curetted in the same sitting under suspension laryngoscopy.

Excisions of infiltrated portions or of granulations: Some years ago Grünwald, Spiess, and other laryngologists expressed the view that half-hearted surgery was to be condemned here. They preferred to remove as much as possible of the affected parts. With suspension laryngoscopy they now have the best chance to accomplish this. But is it wise to do so? There was a time when I did a good deal of such work. Undoubtedly some persons were benefited, but a large majority were not, and therefore the method was given up for a time and the patients were apparently as well off as before. The only exception to this rule were infiltrations causing dyspnea, and in such instances something had to be done to relieve this. With the appearance of suspension laryngoscopy things have changed again. The first time I operated by this method was for interarytenoid papillary outgrowths. Several laryngologists of New York City, including myself, had tried in vain to remove the entire mass by the indirect way. I then attempted suspension laryngoscopy and I was amazed at the ease with which the work could be done. Other observations soon followed and one point was noticed immediately. The infiltrations and tumefactions in the larynx are always larger than they appear to us, and it was frequently a matter of surprise what big pieces could be removed before normal tissues were reached. Soon afterward we encountered cases that have become more frequent nowadays. These show advanced tuberculous lesions of the larynx often very difficult to diagnose, but without positive signs in the lungs. These are most interesting and instructive cases and they bring nearer to us the possibility of a primary infection of the larynx. One example may be cited:

Case I.—G. H., a sailor, aged 40, was referred to me in September, 1912, on account of hoarseness, which had come on gradually during the last ten weeks. No pain, no cough, but a heavy feeling in his chest. The larynx showed an irregular infiltration of the left vocal cord and a thickening of the entire right one, which was immovable. Quite a large ulceration was seen on the posterior wall. In spite of the fact that the lungs showed no positive evidence of any tuberculous affection I considered the case to be one of tuberculosis. On October 18 several pieces were removed from the vocal cord and the ulcerated surface was curetted under suspension laryngoscopy. The immediate result was satisfactory. The ulcer healed and the patient could breathe easier. Within a week he left for a country place. At the beginning of Decem-

ber, 1912, he returned, as he did not feel comfortable. On that day the sputum for the first time showed the presence of a few tubercle bacilli. There were some new ulcerations, which were treated with orthoform emulsion. The pain disappeared, but not the ulcers. These were curetted again under suspension on December 20, and once more the patient felt so much better that he left for the mountains. In February, 1913, he returned to the city with some dyspnea. Sputum positive, but chest findings almost the same as in the beginning. The larynx, however, had changed surprisingly. There were irregular masses springing up from both vocal cords; the arytenoids were markedly swollen, so that very little of the posterior wall was visible, and little space was left for breathing. Patient did not care to undergo another operation, and was kept under observation, the dyspnea growing steadily worse. March 17—The dyspnea was so marked that I came very near doing a tracheotomy at my office, but finally succeeded in getting him to a hospital. There I removed five large pieces of tissue from the larynx under suspension laryngoscopy, local anesthesia being employed. The bleeding during and after the operation was minimal, in spite of the fact that there had been a very extensive removal of tissue. The further history of the case proved that we were right in our deductions. After the operation the patient was put to bed and ice applied externally and given by the mouth. All the instruments required for tracheotomy were placed next to his bed in case of immediate necessity. His breathing was better than before the operation, but about six hours later it again became quite bad, due, undoubtedly, to edema of the larynx, which, however, subsided gradually. March 27—Fulguration was applied to hasten the process of healing, with the result that the edema again appeared next day, together with dyspnea. This subsided after application of cocaine and adrenalin, but soon recurred. Examination showed a dislocation of the left arytenoid, which was flattened and lower than the right one. The dyspnea became so marked that on March 31 I removed part of the overhanging tissue from the right vocal cord. After that the breathing remained free, and about two weeks later the patient again left the city. In this case the thorough surgical procedure was surely life-saving and this could only be accomplished with the aid of suspension laryngoscopy.

I have operated on a large number of patients with similar infiltrations, although cases as pronounced as the one just cited are rare, and I have invariably found that the infiltrations recur sooner or later. But while it was formerly noticeable that the general condition of the patient suffered after excision (fever, etc.), with suspension laryngoscopy it is quite the reverse. The patients generally improve after the reaction is over and also feel better subjectively. However, I cannot yet give a final opinion on that question, as I want to see many more cases before doing so. One point is certain: that the excision of an interarytenoid thickening is often of the greatest benefit in the early stages of the disease, if followed at the same sitting by a thorough curetting of an ulcer below it, which generally cannot be seen by indirect laryngoscopy. All former attempts at the removal of those evenly spread interarytenoid infiltrations and papillary outgrowths appear to us now simple playwork.

If infiltrations as well as ulcers recur, we have to excise and curette them under suspension as often as may become necessary and as long as the patient derives any benefit. We do this in spite of the very pessimistic remarks of one of the best known laryngologists, viz., Professor Hajek of Vienna, who said (*Centralblatt f. Lar.*, p. 20, 1914) that he would make the best prognosis in the case of those patients who live under the most favorable hygienic conditions and are not being treated locally at all. My experience, which extends over twenty years' work in the Montefiore Home, a sanatorium for the tuberculous, differs. Good hygienic surroundings, a nourishing diet, etc., are certainly most desirable and ought to be encouraged. Even when you advise your patient to move from the cellar of a tenement house to the top floor you have improved his hygienic and climatic conditions, sometimes just as much as by sending him to a climatic resort. But these changes will never prevent the appearance of ulcers, etc. On the other hand, I have seen patients living in the worst and most unhygienic tenement districts of New York City who came to the dispensary with marked dysphagia and improved after careful treatment even in spite of their surroundings. One example of many may suffice to prove the former statement:

Case II.—Mr. C. B. was referred to me by a laryngologist of a neighboring city. Patient had deep ulcerations on both sides, interarytenoid thickening, and below that in the trachea an ulceration; advanced tuberculosis of lungs. Under suspension he was curetted thoroughly and left for the mountains ten days later in a greatly improved condition. Four weeks later he had to return to the city, as he had difficulty in swallowing, which was not relieved at all by frequent applications by the local laryngologist. Again he had to be curetted under suspension laryngoscopy, whereupon his condition quickly improved. After a further treatment of two weeks I sent him to one of the best known sanatoria, which has a recognized laryngologist on its staff. Patient stayed there four weeks, had all the benefits of the sanatorium, but his laryngeal condition grew worse. He was given an atomizer containing a 2 per cent. solution of cocaine, but his dysphagia became so pronounced that he dreaded meal time. Finally he was advised to return to this city, which he reached in an almost moribund state. With the simplest means possible, *i. e.* those described above, analgesia was produced and within a few days he could swallow nourishment. Now, *i. e.* twelve days later, he has gained the 2 pounds which he had lost at the sanatorium.

This case is not unique; on the contrary, in most sanatoria they send the patient back to the city as soon as there is a sign of laryngeal involvement. This is not a desirable condition; for what use are the sanatoria if they cannot, or do not care to treat those most dependent upon them? If a patient in a sanatorium shows but slight infiltrations of the bands or the aryepiglottic fold, or slight injection of the cords without any symptoms excepting perhaps a little hoarseness, he does not need to be treated locally. But with the appearance of more serious symptoms, especially dysphagia, it is my practice to be as active as possible and not to limit myself to one remedy alone. For this reason the other means used by me will now be given. Very helpful are the different rays used therapeutically for the past years, viz. (1) the actinic rays; (2) the high frequency current, and (3) the rays emanating from radium.

1. The actinic rays. One of the first orders given to a patient is to keep in the sun as much as possible, *i.e.* in the winter. In the summer the early morning hours are especially recommended, *i.e.* up to 9 or 10 A. M., when the sun is not so very hot. As a substitute for the sunlight the electric arc light can be used and its chemical or actinic rays applied externally to the affected parts. As an adjuvant to other remedies it is sometimes of great benefit for its analgesic effects.

2. The same can be said of the high frequency current. Of late it has been my custom to apply the current intralaryngeally. It seems to have some curative effect in producing cicatrization. Applied for a longer period externally, it relieves dysphagia to a certain degree.

3. Radium. The local use of radium has been

followed by marvelous results, but they were *very exceptional.* Patients who have been exposed for half an hour felt free from pain for several months. In these cases there had been no cough and the lungs were but slightly affected. Even when all other means had failed, relief from pain for a day or for a few days frequently occurred. Yet, for obvious reasons we must avoid making promises in regard to this much abused and occasionally wonderful element. I have worked for ten years with radium and would refer to my publications.*

*Injections of Alcohol.*—There are cases in which not one of any of the therapeutic measures mentioned will give relief. For such sufferers, Rudolf Hoffmann of Munich was the first to use injections of alcohol into the superior laryngeal nerve. His aim was to produce analgesia of long duration.

The place where the superior pharyngeal nerve penetrates the membrana thyrohyoidea can be felt with the finger from the outside. If the patient be placed on his back and the larynx pushed toward the affected side the most painful spot can be determined with the finger. Here the needle puncture is made in a direct vertical line to the body, a little more toward the outer side. The needle is inserted to a depth of about 1½ cm., meanwhile feeling for the place where the patient complains of the greatest pain, and here the alcohol is injected. Hoffmann recommends 85 per cent. alcohol, and of a temperature of 45° C., equal to about 112° F. The same proportion has been used by me. After the subsidence of the initial pain, which is sometimes quite severe, another injection is immediately made. Hoffmann advises a strong and somewhat blunt needle, which is preferable, as it avoids the blood vessels and is less liable to break. It is well to tell the patient neither to swallow nor to talk until the procedure has been completed. If one succeeds in striking the external branch of the superior laryngeal nerve, one will obtain immediate amelioration of pain in many instances, the patient being able to swallow solid food and to drink water.

The treatment and supervision of laryngeal tuberculosis in private practice is often difficult and sometimes impossible. Yet in milder cases a good deal can be accomplished. The first thing is to make the patient's home as sanitary as possible, a task often difficult to fulfill. The second consideration is to relieve dysphagia and cough by any of the advocated means, which is at the disposal of the practitioner and if successful, he ought to be able to cure certainly 50 per cent. of patients afflicted with tuberculosis of the larynx in any stage.

If dysphagia cannot then be overcome the lack of proper nutrition will soon be evident and the patient will succumb to the disease. But before this critical event, all the means at one's disposal should be tried, one after the other. Optimism is nowhere so much indicated as in the therapy of tuberculosis, for it greatly assists the physician as well as the patient.

*1. "The Effect of the Rays of the Radium Upon the Mucous Membrane of the Larynx," *Archives of Electrology*, September, 1904.

2. "A Case of Leucoplacia Treated by Radium," *Archives of Physiological Therapy*, July, 1906.

3. "The Therapeutic Value of Radium in the Treatment of Diseases of the Upper Air Tract," *Archives of Otology*, March, 1911; ibid, June, 1912.

4. "Ueber die Behandlung maligner Tumoren der oberen Luftwege, mittels Radium," *Archiv für Laryngologie*, Bd. 25, 1911, p. 3.

5. *International Journal of Surgery*, October, 1904.

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## OBSERVATIONS, BASED ON FORTY-FIVE YEARS OF ELECTROTHERAPEUTIC WORK.

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As fifty years of medical practice are now to my credit, forty-five of which have been devoted more or less to the study of electrotherapeutics, it has been suggested that I give some sort of résumé or conclusion relating thereto. Because of my partial retirement from the more active duties of professional work, I find myself the more ready to do this, and trust the opinions expressed will be received in the spirit in which they are given, both by those who believe little in, and care less for, the well-accredited values of this wondrous physical agent, as well as by those whose enthusiasm is so apt to carry them somewhat beyond the border of judicial estimates. In the Medical Record of November 15, 1866, will be found my first article relating to electricity in medicine, and entitled "Cases of Rheumatism and Neuralgia Cured by Electricity." If I had the title to write again, I would put it somewhat in this way: "Rheumatism and Neuralgia Treated by Electricity," or "Recovery Following the Use of Electricity." For while to cure, really means to care for, which, for the most part, is only what we physicians do, yet as commonly interpreted by the laity, it means something marvelously more.

Following this first effort, and running through the various issues of the Medical Record for 1867, were five articles on the "Medical Uses of Electricity," written jointly with Dr. George M. Beard. These articles were, if I recollect aright, reproduced in the London *Lancet* and in some of the German medical journals.

The only reason why they were thus honored was, in my opinion, not because of the so-called cases of cures recorded, but because of the enunciation and attempted demonstration of the rather new idea, that electrization was more than a mere irritant, useful to prick up paralyzed muscles, but possessing nutritional values of far-reaching importance. It is not my purpose, however, to review further these investigations, now a matter of medical history.

In looking over the therapeutic part, it is easy to see now how enthusiasm over apparent and immediate results, interfered with accurate deductions in individual conditions of disease. We followed too much the lines of least resistance, and failed to realize what every one must finally realize, that he cannot, except after the most careful training, be trusted either to observe or to report his observations with accuracy.

Even with the imperfect means for instrumentation possessed in those early days, we did, however, witness results both novel and interesting, and I remember when I first awoke to the fact that we had, even in the ordinary induction-coil a means of positively though inadequately influencing circulatory changes and nutritional activities, I was amazed to think that in all my medical training not one word of this was ever heard. Quackery was therefore rampant in the use of this agent.

Money was coined by quacks of every degree, and as in ophthalmology, quackery had a free field, until the profession, under the leadership of the lamented Agnew, took it in hand and banished the advertising eye doctor, so electricity in medicine under the guidance of reputable physicians, has become an unprofitable field for the pure charlatan. The respect,

or lack of respect, in which this agent and the medical man who dealt in it was held, is illustrated by the remark of a distinguished member of the State Medical Society. When I presented a paper for its consideration, he exclaimed, "Is this man regular?" But for the support of some minds more hospitable, it is doubtful whether it would have been accepted. In the seventies the field of electrotherapeutics became much enlarged by the freer utilization of what is commonly termed the galvanic current. Previously, the voltaic pile was the main dependence, rendering experimentation very unsatisfactory.

The only remark that I care to make about this neglected manifestation of electricity is, that it is a great pity that it should be so little used by those who claim mastership in this department. No man can rightly claim thoroughness in electrotherapeutics who has not mastered the technique of the use of the galvanic current.

Later occurred the recrudescence of static or franklinic electricity, first abroad, and later in this country, mainly through the efforts of Dr. Wm. J. Morton. It is a brilliant and impressive manifestation of electric force, and if we could give credence to the dictum of Moebius, that at least four-fifths of the cures effected by electricity are due to psychic influences, it might be believed of this modality more than any other. For myself, I can only say that after a continuous use of static electrification since its introduction, I am far from rating it like some others, as the most efficient form of electrical treatment. Far be it from me, however, to attempt to decry a faithful servant which has carried us far.

Though it possesses neither chemical nor cataphoric action, nor electrolytic effects of moment, yet it acts physically with wonderful vigor, and is either sedative or stimulant according to the method of its application. To say that its action is also psychic, is to speak only in its favor; and if as a purveyor of suggestion, electricity is of value, I am sure that none of its manifestations are fitted to give more interesting results in this direction than static electricity. But to my mind, we have in the development of the high frequency current, reached the high water mark thus far, in the application of electricity to disease. In considering this most interesting and truly wonderful manifestation of electric force, it is well to bear in mind that every form of electricity depends upon the resistance to its passage for the good or ill it does. If it meets with no appreciable resistance as in passing through a metal conductor, its effects are nil, but through the air it develops ozone, and through the living tissue, heat. All currents do this, but such modalities as the faradaic, galvanic, and static, cannot be efficiently utilized for this purpose, because of their powerful chemical, and neuromuscular effects. All these currents would kill, long before enough current strength was developed to give even a small fraction of the heat imparted to living tissue by a perfectly painless and even unappreciable diathermic application of the high frequency current.

In the death chamber at Ossining, with an alternating current of low frequencies, having a potential of 1,900 volts, sufficient to force three or four amperes through the body, a heat so intense is instantly developed under the electrodes as to be almost unbearable to the touch, and death is instantaneous.

With an ampere, or milliampere, strength almost equal to this, and a potential far in excess, the high frequency current on the contrary, develops very positive degrees of heat throughout the whole body, with only agreeable effects. It is seen, therefore, that the action of high frequency currents on organic compounds, living or dead, is most remarkable, and quite different from anything heretofore known in connection with electrical currents. Faradaic or static electricity passed through water, has little appreciable effect.

The galvanic current on the other hand, causes immediate chemical decomposition, while the high frequency develops extreme heat but with no electrolytic effect. A raw potato subjected to a powerful galvanic current, is burned only on the surface, and the electrolytic effects are seen mainly at the points of contact, while the effect of the faradaic current is nil, and the static, mechanical. On the other hand, the passage of one thousand milliamperes, more or less, of the high frequency current, develops not only a high degree of heat sufficient to cook the potato, but to cook it from within outward.

An egg with its shell on, is in the same way cooked from within outward, while if we pass the current through the white of an egg in a U-shaped tube, we see, in a few minutes, a coagulation of the central portion only.

Herein then, in addition to its pronounced calorific properties, consists the absolutely unique physical and physiological effects of high frequency currents on living as well as on dead tissue, viz., its action from within outward. On the surface of the body under properly adapted electrodes, we get profuse perspiration but little redness compared with the galvanic current, while calorific and circulatory changes are most marked within.

Therapeutically, the best results are not obtained through the autoconduction couch, useful as this method is, but in the use of large, flexible metal electrodes. The greatest care and nicety of adaptation is necessary in the placing of these electrodes. Let an air gap occur anywhere between the plate and the body, the resultant spark, even though minute, may cause a disagreeable excoriation.

It has been questioned whether by the diathermic method, there may not be some liability of overheating the interior of the body. This would seem to be quite impossible, for long before such a condition could be reached, the exterior heat would become altogether unbearable.

A possible exception to this rule is when the path of the current is through the cardiovascular centers, in the treatment of which it is well to observe caution. So much can be said therapeutically, about the high frequency current, that I shall content myself with saying very little, and this little along the broad, general principle of its action. Chronic diseases afford the widest field for its activities. These currents of high frequency, high potential and amperage which a few years ago would have been unbelievable, have developed new physical and physiological phenomena and greatly enlarged the sphere of electricity in medicine.

Now, as always, the fundamental idea of the therapeutics of electricity, is its nutritional influence.

As an energizing principle, it exceeds all other physical agents, because of its more powerful and far-reaching effects on the circulation, the secretory and excretory processes of the body, and on absorption. It adds a definite amount of calories of heat to the body, in a way altogether new and unthought of until recently. For the lowering of high blood pressure, and the relief of its many distressing symptoms, the diathermic application of the high

frequency current is invaluable. It is of course only in cases where the arterial changes are not too far advanced, that there is hope of permanent relief, but even then the effects are often ameliorative. I shall not, however, attempt to enumerate individual pathological conditions in which it is of service. A knowledge of its physical and physiological activities which I have tried to make clear should be a good guide for its therapeutic use.

It cannot be claimed that electricity in medicine has kept pace with electricity in commerce. If this were so, medicine might become really a science, rather than an art. It has, however, followed in its footsteps, if even at a distance, and every new development for its commercial use, is likely in the future as in the past, to redound to its value as a therapeutic agent.

Why is not electricity more extensively used in our hospitals and public institutions? Perhaps, the truth was partly given expression in a remark made to me some years ago, by a distinguished surgeon, who had requested me to accompany him to a hospital with which he was connected, and administer this agent. The apparatus was there, but he did not believe in "hospital electricity." The inference was plain. The internes to whom was left this method of treatment, had no more exact training in the matter, than have those who generally administer electricity in our large private sanatoriums, or the nurses who are often called upon. But that it may be made useful I have exact knowledge. For a dozen years or more back in the seventies and eighties, the writer was the electrotherapeutist of the Women's Hospital in the State of New York.

The position was no sinecure, and in looking over the records of the great number of cases treated in those years, I am reimpressed with the fact that a very useful work was done there, even with the incomplete apparatus then available.

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## CESAREAN SECTION.

### THREE METHODS OF PERFORMING THE OPERATION WITH ILLUSTRATIVE CASES.*

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The field for purely obstetric operations is becoming more and more limited. This is the result of increased experience in the management of cases of dystocia, of a fuller knowledge of their outcome, and of a better appreciation of the dangers incident to obstetric interference. The field for surgical operations, on the other hand, has correspondingly widened, and a number of new surgical procedures have been devised. It is not the intention of this paper to describe the various surgical procedures, but rather to briefly discuss the three leading methods of performing cesarean section applicable to certain cases of dystocia.

Case I.—Classical cesarean section with sterilization. Mrs. R. K., age 25, Para, III.; no history of rickets. First child delivered by cesarean section at Bellevue Hospital December 27, 1910. Patient did not do well and was confined to bed for four weeks. The second child was also delivered by cesarean section at the Sloane Maternity Hospital, July 24, 1912. Patient had a very stormy recovery, was bedridden with chills and fever for eight weeks, and left the hospital at the end of three months. It took six months for the abdominal wound to heal. In both cases, she was operated before labor had set in. She menstruated first at 14, regularly every two weeks, duration 1½ days, very scant and without pains. Last menses, April 10, 1913, as usual. Date of expected confinement January 17, 1914. Examination showed a generally contracted pelvis.

January 16, 1914, patient was at full term. Had already had two cesareans; the last one in particular running an unfavorable postoperative course. I suspected an imperfectly healed uterine scar, and therefore did not permit patient to go into labor, and decided on a classical cesarean section with sterilization against further pregnancy.

*Operation.*—At the outset, pituitrin and ergot, 1 c.c. of each were given intramuscularly. A median incision was made, beginning at the umbilicus and extending upwards 14 centimeters. Extensive firm adhesions between the abdominal wall and uterus were encountered. Above, near the fundus, the omentum adhered to both the abdominal wall and uterus. Owing to the firm attachment of the uterus to the abdominal wall, I carried the incision downwards an additional 14 centimeters. Found adhesions between the sides of the uterus and the intestines. Separated all adhesions, and freed the uterus. Examined uterus for previous cesarean scars, but they were not discernible. Uterine wall appeared to be firm. A median incision of the uterus 12 centimeters long was made, child extracted, and placenta removed manually. Uterus contracted firmly into a ball and there was very little bleeding; closed uterine wound with interrupted catgut sutures, taking in the entire thickness of the uterine wall, except the mucosa. Covered these with interrupted Lambert sutures. As the suturing progressed, the work was rendered more difficult by the gradual thickening of the uterine wall, reaching a thickness of 5 centimeters. A portion of the right tube and a wedge-shaped part of the right cornua, were excised. There was some bleeding from the cornua; the wound was sutured and covered with peritoneum. The left tube was extirpated in toto, including its insertion into the uterus, with little or no bleeding. Covered the raw surfaces with peritoneum, and closed abdominal wound in two layers. The postpartum period was uneventful. The abdominal wound healed by primary union except for a small section near the umbilicus where it encountered the old scar. Patient was out of bed on thirteenth day, and left the hospital on the nineteenth day.

An examination made on April 11, 1914, showed two broad ugly scars on either side of the median line, and a fresh lineal scar, twice as long as either of the others. The fundus uteri was about a finger's breadth below the end of the scar. The cervix was above the symphysis and the uterus seemed to be attached to the abdominal wall. Patient felt well.

The deductions to be drawn from this case are: (1) The classical cesarean section is fraught with great risk. This patient was operated upon on two occasions, under the most favorable conditions, and in the service of two of the most eminent obstetricians in New York, and yet passed through recoveries more or less stormy. (2) Because of this danger, patients who have had two or more cesareans should be protected against further pregnancy by sterilization. This case also demonstrates to a marked degree the effectiveness of pituitary extract on the uterus. This extract, especially if given in combination with ergot, will cause contractions of the uterus even before labor has begun.

Generally speaking, the elective classical cesarean is indicated (1) in cases of absolutely contracted pelves, (2) in cases where a cesarean section has already been performed, and (3) in multiparas with slight contractions of the pelves, where under the guidance of expert obstetricians the patients have failed to deliver living children by the natural route.

Case II.—Extraperitoneal cesarean section. Mrs. J.

*Read before the Eastern Medical Society, April 17, 1914.

G., aged 21, Para I, was admitted to the Sydenham Hospital, January 11, 1914, at 6.30 A. M. The patient, a short slender woman, stated that she had been having labor pains every 10 minutes for the preceding 6½ hours and that the membranes had ruptured just prior to her admission. No history was given of rickets or other diseases bearing on the case.

*Examination.*—Pelvis generally contracted. Measurements: interspinous 19.5; intercristal 26; intertrochanteric 31; conjugate diagonal 10 minus; conjugate vera 8¼; double promontory, moderately projecting. The internal os was obliterated; the external os admitted one finger; head of child above the brim; back to the right; small parts to the left. Liquor amnii dribbling away. Labor pains continued, but descent into the pelvis did not take place. January 13, at 11.45 A. M., patient received pituitrin five minims, intramuscularly. Pains became strong; half hour later came a gush of liquor amnium. The last examination made at 2 P. M. showed the ext. os four fingers dilated; membranes ruptured; head well fixed with large diameter in the pelvic inlet. At 4 P. M. thinning of the lower uterine segment having occurred and the fetal heart sounds being good, extraperitoneal cesarean section was decided on. Patient had been in labor 63 hours. Preliminary filling of the bladder having been unsuccessful, was dispensed with.

*Operation.*—A median incision was made two centimeters above the symphysis and extending upward 12 centimeters. Incision of the fascia; separation of the recti muscles; separation of the prevascular connective tissue; separation of the bladder from the lower uterine segment on the left side; incision through the ligamentum umbilicalis sinistra; separation of the peritoneal fold from bladder as far as the urachus, sharp and blunt; separation of the peritoneal fold from the lower uterine, segment on the left; retraction of the bladder to the right. A plexus of large veins was exposed without injury or bleeding. Median incision of the lower uterine segment, 10 to 12 centimeters long. The right ear presents; finger put into mouth and face rotated anteriorly; forceps applied bilaterally; head extracted by flexon with ease; body follows. Child cries. Placenta removed manually; uterus well contracted; bleeding minimal. Cervical incision closed by running catgut suture, taking in the entire thickness of the cervix and was covered by a second layer of interrupted sutures. The bladder was replaced and fixed above to the peritoneal fold and at the left to the pelvic connective tissue. Drain was inserted; abdominal wound closed in three layers. At the time the uterus was incised, patient received Pituitrin 1 c.c. and Ergot 1 c.c. intramuscularly.

*Postoperative History.*—The condition of the patient, the next day, was very good. Although it was necessary to catheterize her several times during labor, she now was able to urinate spontaneously in spite of the extensive separation of the bladder. The patient complained of hunger and of not getting enough nourishment. The drain was shortened daily and removed entirely on the fifth day. The patient was out of bed on the seventh day. Except for a bronchitis contracted on the fifth day, patient was well. Examination made February 17 did not show any general or local disturbance.

Before referring his patient to the surgeon for cesarean section the general practitioner might bear in mind the following facts: (1) Delivery occurs spontaneously in over 80 per cent. of all cases of contracted pelves, and that even in marked degrees of contraction (C. V. = 7 — 7½) delivery is spontaneous in 50 per cent. of the cases. (2) That in such cases of contracted pelves where delivery is spontaneous, the maternal mortality is one or less in a thousand. (3) That the maternal mortality of those delivered by cesarean section is always comparatively high. Even the most favorable records show a mortality of 1 per cent and over. It would seem then, from the above facts that if every case of contracted pelvis were cesareanized, at least eight cases out of every ten would be subjected to a serious operation unnecessarily, and that even in marked degrees of contraction (C. V. = 7 — 7½) every second case would be operated on needlessly.

What then, should be the management of a case of contracted pelvis? It must be laid down as a rule that every case of contracted pelvis should be referred to a hospital for confinement; firstly, in order that the physician in attendance may not be subjected to interference on the part of the family and forced to go counter to his better judgment, and secondly, that he may be in position to meet the demands of the case properly should intervention be deemed necessary. The management of the caes in the hospital should be conservative. The physician in charge should be clear as to the things he must not do. Then only will he be unlikely to err as to the things he should do. The "don'ts" may be enumerated as follows:

(*a*) Do not make repeated vaginal examinations during labor; first, because the necessary information can be obtained and the progress of the case followed by a careful external examination supplemented if necessary by rectal examination, and, second, because even the most careful vaginal examination lowers the asepsis and renders the patient less fit for cesarean section in case the operation is decided on.

(*b*) Do not perform a high forceps operation in contracted pelvis; first, because the use of the forceps in such cases violates a fundamental principle of physics, namely, a reduction in one diameter of a solid spherical body involves a corresponding increase in a diameter perpendicular to it and vice versa. The head enters the pelvic inlet with the biparietal or bitemporal diameters corresponding with the anteroposterior diameter of the pelvis, the frontooccipital lying in the transverse or oblique diameter of the pelvis.

The obstruction to the head occurs at the anteroposterior diameter, but the forceps can only be applied to the frontooccipital diameter. This application of the forceps will cause an increase in the biparietal diameter, the very diameter which has to be reduced to make the passage of the head possible. In fact the greater the contraction of the pelvis and consequent resistance to the pull, the greater will be the tendency to increase the biparietal diameter owing to the firm grip of the forceps on the frontooccipital diameter. Second, do not perform a high forceps because the results are very bad, the majority of the children dying during extraction, the mother usually being crippled for life if she is fortunate enough to survive.

(*c*) Do not perform a prophylactic version, first, because it is a disputed question whether the aftercoming head will pass through the inlet more readily than the forecoming head, and, second, because the mortality of the children is high and the results to the mother, especially if a primipara, are serious on account of sepsis and injury to the pelvic floor.

(*d*) Do not perform induction of labor, first, because it is suitable only for the minor forms of contractions where spontaneous delivery is fully 80 per cent. and, second, because the maternal mortality through sepsis is higher than in properly managed cases of cesarean section, and, third, the mortality of the children during the first two weeks is unusually high.

(*e*) Do not perform hebosteotomy or pubiotomy on a primipara on account of the injury to the soft parts. In a multipara, where these have been well stretched, it is only permissible when the disproportion between the head and the pelvis is slight, and where the asepsis is doubtful.

(*f*) Do not perform craniotomy on the living child except where symptoms of infection are already manifest.

Having given the natural forces a trial, having strengthened the labor pains by the administration of pituitary extract, having perhaps aided descent of the head into the pelvis by rupturing the bag of waters, and having increased the anteroposterior diameter of the inlet by the Walcher position, and having after all these procedures and maneuvers failed to deliver the child by the natural route, we still have at our command an operation that is relatively safe and efficient, namely, the extraperitoneal cesarean section.

Case III.—Vaginal cesarean section or anterior hysterotomy. Mrs. R. G., age 30, Para III., was admitted to the hospital December 20, 1913, on account of uterine bleeding. The patient had been suffering from biliary colic for ten years, last attack four weeks before admission. Had two children, both pregnancies and labor normal; no miscarriages, no abortions. First menses at 12 years, regularly every 28 days, very profuse, lasting 4 days. Patient did not remember date of last normal menstruation, having stained or bled slightly at each expected menstrual period, but she considered herself pregnant about four and half months. Two weeks prior to above date, the patient bled profusely. One week later there was an escape of liquor amnium, and patient bled up to the time of admission.

*Treatment.*—The patient was put to bed and sedatives were administered. December 23: Patient bled and morphine was given hypodermically. December 28: She bled profusely and was packed. December 29, 3 A. M.: Packing was expelled, bleeding recurred and she was repacked.

*Examination.*—December 29, 10 A. M.: Pulse was 92, temperature 100.6°. Fundus was one to two fingers' breadth below the umbilicus. No fetal heart sounds elicited. Bled from vagina. External cervical os admitted two fingers; internal os, one finger; cervical canal long and rigid. Membranes ruptured, body of fetus presenting. Lower edge of placenta was palpated at the left margin of the internal os.

*Diagnosis.*—Five and a half months pregnancy; protracted miscarriage; placenta prævia lateralis.

*Operation.*—The cervix dilated manually to admit two fingers. Further dilatation having been unsuccessful, vaginal cesarean section was proceeded with. The cervix was well exposed. The portio vaginalis was grasped with tenaculli forceps on both sides. It was drawn down well into the vaginal orifice. A transverse incision was made through the mucous layer over the anterior wall of the portio, two centimeters above the external os. The bladder was separated up to and beyond the internal os. A median incision was made through the entire anterior wall of the cervix beyond the internal os. The fetus and placenta were removed manually. The uterus was irrigated with a one per cent. iodine solution. The patient was given pituitary extract 1 c.c. intramuscularly. The cervical wound was closed with plain interrupted sutures taking in the entire cervical wall except the vaginal mucosa. Especial pains were taken to suture the upper angle of the wound with precision. All bleeding was checked by ligature or suture. The vaginal mucosa was closed transversely except for a small opening to admit a drain. An iodiform drain was inserted into the vaginal wound and another into the uterine cavity. The vagina was packed.

*Postoperative History.*—December 30: Packing and drains were removed. January 3: Patient was out of bed. January 7: Wound healed by primary union. Patient was discharged.

A vaginal cesarean section may be defined as a delivery through the natural route by incision of the uterus. I would limit its application to periods of pregnancy beyond the twenty-eighth week, when the fetus is already viable. For periods under twenty-eight weeks the designation anterior hysterotomy I deem more appropriate. The case reported therefore was one of anterior hysterotomy. The operation was decided on, firstly, because it was a prolonged case of threatened miscarriage, secondly, it was complicated by placenta previa, thirdly, patient was not only bleeding, but also running slight temperature, and manual dilatation proved unsuccessful.

Heretofore the curette has been used almost exclusively as a therapeutic instrument. The best practice of today, however, has discarded it for this purpose, except in the earliest periods of pregnancy. It is now used principally as a diagnostic instrument. In more advanced stages of pregnancy the practice of the most eminent surgeons in cases of induced or threatened abortion is to empty the uterus manually, inserting one or two fingers into the uterine cavity. Where manual or instrumental dilatation is difficult and insufficient, cutting of the cervix is resorted to.

Of the various methods in vogue for the treatment of placenta previa, the surgical procedures, in contradistinction to the purely obstetrical methods, have given the best results. Where there is a viable fetus and dilatation of the cervix has not set in or has just begun, the abdominal cesarean section is the operation of choice. However, where dilatation has progressed, and the patient has been handled, the vaginal cesarean is more advisable. Caution must be observed to extend the incision sufficiently up into the uterus to obviate the possibility of tearing during extraction. The vaginal cesarean is also employed in other conditions where rapid emptying of the uterus is deemed advisable, such as eclampsia, premature separation of placenta, and sometimes where the heart, lungs, or kidneys are diseased.

*Conclusions.*—(1) In the lesser degrees of contracted pelves, conservative treatment gives the best results, for both mother and child. (2) When interference is called for, the cutting operations should be chosen in preference to the purely obstetric operations. (3) The classical cesarean section should be reserved for elective cases of contracted pelves and for clean cases of placenta previa. (4) The extraperitoneal cesarean should be the operation of choice in cases that have been handled by outsiders, and in cases that have been a long time in labor with ruptured membranes. (5) Pubiotomy should have a limited application. (6) The vaginal cesarean section may be advantageously substituted in the majority of cases for the stretching and tearing operations, whenever rapid emptying ofthe uterus may be desirable, and in placenta previa where dilatation has progressed but is incomplete.

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## TOBACCO AMBLYOPIA.

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While the subject of the toxic influence of tobacco on the optic nerves is described fairly thoroughly in the text books of ophthalmology, it is seldom mentioned in the general medical literature of the day. The disease is more prevalent probably than ophthalmologists suspect, for in its slight manifestations it is present in many men whose occupations do not necessitate its discovery. When the only symptom is a very small red-green blind area over the fixation points of the eyes the disease is very apt to be overlooked, except in engineers and others

in whom quick and accurate perception of colored signals is a prerequisite to their continued employment. This early stage of macular red-green color blindness may persist for several months before diminution of vision begins, at which time the great majority of the cases are discovered or brought to the physician's attention. Indeed, most observers claim that diminution of vision is the first manifestation of the disease, developing before the scotoma. This claim is based on the fact that almost all cases have some diminution of vision when seen, the incipient cases with normal vision and the red-green scotoma being almost unknown.

The disease is usually found in men about or after the age of thirty-five, and more frequently in pipe and cigar smokers and chewers than in cigarette smokers. The latter class more easily escapes probably first because there is no absorption through the mucous membrane of the lips, the paper wrapper serving as protection, and second, because of the rapid and almost complete combustion of the tobacco. The amount of tobacco necessary to cause the disease varies greatly, as some men are affected by very moderate amounts, while others exhibit the disease only after prolonged immoderate consumption. As tobacco amblyopia is more prevalent among men of small incomes, such as laborers and artisans, it may be that the cheaper varieties of tobacco are more prone to cause the disease. As smokers are generally to a greater or less extent consumers of alcoholic drinks, the latter intoxicant by many is considered an accessory before the fact. The etiological influence of each of these drugs is difficult to separate, for while we have undoubted cases of alcoholic retrobulbar neuritis, and undoubted cases, though few in number, of tobacco retrobulbar neuritis, the great majority of cases use the two drugs to a more or less equal extent. But we at the present time will restrict our discussion to those cases due to tobacco alone.

To determine the toxic substances in tobacco that cause the inflammation it is necessary to take into account not only ingestion into the system by means of the smoke but also absorption through the mucous membrane of the mouth and lips from direct contact with the cigar and chewing tobacco, and also absorption through the skin of those who work in tobacco factories and do not use it in any form of indulgence. Most experiments on tobacco have been made to determine the substances that produce toxic effects on the general system, particularly through the agency of smoke, neglecting the fact that absorption often takes place from direct contact of the tobacco through mucous membrane and skin. These substances that produce harmful general effects and result from the combustion of the tobacco have been fairly accurately determined, but whether they produce retrobulbar neuritis also we do not know; we can only surmise that they do.

Tobacco smoke has been analyzed and found to contain many substances in themselves toxic, such as carbon monoxide, and dioxide, marsh gas, hydrogen sulphide, hydrogen cyanide, furfurol, phenols, pyridine, empyreumatic oils and a trace of nicotine. Most of these substances, such as hydrogen cyanide, furfurol, and empyreumatic oils, produce general weakness, nausea, and headaches, but the quantity present in smoke is so very small that they cannot produce serious effects except by accumulative action. A short time after a cigar is smoked carbon monoxide is found in the blood, a poison of well-known properties. The most toxic substance in the smoke is pyridine, which is found in the largest quantity. Nicotine, upon which the odium of guilt ever has been laid, always can be found to some extent. In the burning ashes at the cigar end it is quickly and completely destroyed, leaving no poisonous intermediate substances. Just behind the glowing end is a region of high heat, where the nicotine is volatilized as it would be in a retort over a bunsen burner and here the poisonous substances before mentioned are manufactured, particularly pyridine. A little behind this region the nicotine is not destroyed, but carried as such in the smoke. Through chewing and through absorption from the moistened end of the cigar in the mouth, and through the skin of the hands of workers in tobacco the nicotine is absorbed probably in pure state. It appears likely, therefore, that nicotine and its decomposition products, particularly pyridine, cause the systemic symptoms of tobacco poisoning and the retrobulbar neuritis of tobacco amblyopia.

The length of time required for the production of tobacco amblyopia is difficult to ascertain for many reasons, chief of which is that smoking as a rule begins at an early age, and the incipiency of the disease is apt to pass unnoticed. Nettleship has reported a case that developed in three years, and the case I will report later in this paper developed the disease in less than two years, the habit of smoking having been acquired more than twenty-five years before.

Tobacco amblyopia is a chronic retrobulbar neuritis similar in pathology and symptomatology to the retrobulbar neuritis that may develop from the use of stramonium, chloral, opium, chloroform, arsenic, lead, iodoform, cannabis indica, and from the toxin of diabetes. Tobacco may produce sudden acute blindness, which is extremely rare and needs no further mention here.

The lesion of chronic retrobulbar neuritis has been found by several observers to be in the macular bundle of nerve fibers in the optic nerves chiasm and tracts. The primary inflammation is a parenchymatous neuritis that later is followed by an increase of neuroglia and interstitial connective tissue. It has been suggested that the lesion begins in the retina at the macula and travels thence along the macular bundle of nerve fibers. Clinically this is born out by the fact that in a few reported cases the first symptom discovered was a red-green scotoma that persisted for some time before diminution of vision commenced. Not all the fibers of the macular bundle are affected, for while the scotoma for red and green may be complete, that for form is very rarely absolute.

The symptoms of tobacco amblyopia are general and local. General subjective symptoms may be absent entirely or consist of irritability, insomnia, general weakness, and impairment of digestion. The first local symptom noticed as a rule by the patient is impairment of vision. He seems to be looking through a fog, and sees relatively better by subdued light when the pupils are dilated, a fact long ago recognized and used to name the disease, "amblyopia nyctalopia." Rarely does the patient notice the macular defect for red and green unless his occupation is such as demands careful differentiation of colors. The objective symptoms are so clearly defined as to make the disease, chronic retrobulbar neuritis, a distinct entity. Externally the eyes present no pathological appearances. The nerve head may show also no untoward appear-

ance, though it may present a paleness in the outer and lower quadrant, especially late in the course of the disease. Rarely we see cases in which the nerve head shows a mild neuritis. In alcoholic amblyopia congestion of the disc is a common though not constant occurrence.

Peripheral vision for form and colors is always normal except in very old cases where atrophy has intervened or where syphilis has been a concomitant cause. Central vision is diminished according to the time the disease has lasted. It may vary from little or no diminution in incipient cases to the perception of form only in old cases. Usually as we see the cases the vision varies from 20/50 to 20/200.

The pathognomonic symptom of retrobulbar neuritis, whether caused by tobacco or other toxic agent, is a distinctive defect, or a scotoma in the center of the visual fields. This scotoma is for red and green, and beginning over the fixation point, spreads towards the normal blind spot in an oval manner. At times perception for red and green is abolished on the temporal side. Within this scotoma perception of red and green is absent, though form is recognized with more or less reduction, depending on the diminution of vision. Usually there is a scotoma in each eye of similar aspect, but at times we find one more advanced than the other; and in the incipiency of the disease we may find only one scotoma, color perception in the macula of the other eye being present but sluggish. Of course, in making the test for color scotoma we must be careful to determine the absence of congenital red-green color blindness, a condition which is characterized by color blindness over the whole field, while in retrobulbar neuritis the blindness is limited to the scotoma around the fixation point.

It may not be amiss at this point to report a case of retrobulbar neuritis due to tobacco that exemplifies many of the points brought forward in this paper:

An engineer, forty-five years of age, consulted me for an examination of his eyes because he had failed in his examination in signal work on the railroad. Every two years for the past twenty-five years, during which he was in his present situation of engine driver, he had passed successfully the examination to test his acuity of vision and color perception. At his last examination, held one week before I saw him, he had been rejected for failing to read quickly and accurately the colors as flashed by a William's signal lantern. On my examination I found the following: Vision of both eyes normal. All structures of the eyes normal in appearance, including the nerve heads. In the field of vision of the right eye was a scotoma for red and green, discoverable by means of small pieces of red and green paper about 0.5 mm. square held 30 cm. before the eye. Larger pieces of paper, 2 mm. square, were recognized after two or three seconds display. The scotoma for the colors was absolute over the fixation point only, perception being dull towards the blind spot. The peripheral color perception was normal. If the papers were moved slowly before the eye from side to side the colors were perceived very slowly, and this was probably the reason for his rejection at the examination, for he had no difficulty in recognizing large colored objects stationary or mobile. In the field of vision of the left eye a difference was noticed. At the fixation point was a scotoma for green, but red was recognized after an appreciable interval of time and concentration. All other parts of the fields were normal.

The patient was nervous, sleepless and worried over the prospect of being permanently discharged from his work unless cured within a short time, having been promised a re-examination in a month's time. He was in perfect general health, no lesions of any organs being discoverable. Wassermann reaction was negative. He had never taken alcohol in any form, a statement proven by his wife and the evidence of many friends. He had smoked about six cigars and six pipes of tobacco a day for the last thirty years.

Here a diagnosis of retrobulbar neuritis of tobacco origin was positive. Tobacco was stopped and the patient received hyperdermically 1/40 gr. of strychnine sulphate daily. At the end of one week the scotoma presented the following: Right Eye—Scotoma for red absolute; green perceived sluggishly. Left Eye—Red and green both perceived, though slowly. At the end of two weeks: Right Eye—Red perceived slowly at fixation point; green normal. Left Eye—Red and green normal. At the end of three weeks red and green were perceived normally in both eyes. For all of these tests pieces of green paper 0.5 mm. square were used. Acuity of vision at all times normal.

This case presents several points of interest besides the positive diagnosis. It showed that the scotoma began before any loss of vision developed. It showed that the disease probably developed subsequent to the examination held two years before. It showed that pallor of the lower outer quadrant of the nerve head is probably a late manifestation; and also it showed that very likely perception of green is the first to be lost and the first to return, a manifestation frequently observed.

The prognosis of tobacco amblyopia is excellent even in cases of long standing. It may be necessary to persist in treatment for many weeks before improvement commences, and many months may pass before a complete cure is attained, though six to eight is sufficient time in which to cure the average case. Not only is a cure almost always possible, but a relapse is almost unknown, even though the patient returns to the use of tobacco in large quantities.

Strychnine is considered the best remedy for the disease outside of the abstinence from tobacco. The drug must be begun with the average doses, but as quickly as possible pushed to the physiological limit. It is also necessary to combat the patient's irritability, worry, and general debility that may be present.

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## THE PROVOCATIVE WASSERMANN REACTION.

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The Wassermann reaction is not now believed to be specific in the strict sense of the word, although the "provocative" Wassermann seems to have some claims for specificity. In any case it has been conclusively shown that less than 30 per cent. of primary syphilitics show a positive Wassermann reaction during the first week of the disease; and at the end of the fifth week nearly 20 per cent. of undoubted cases are still negative. In a series of 125 cases tested at Washington ten were negative at the end of two months. In the secondary stage of syphilis from 90 to 95 per cent. of the cases are positive, the variations in the figures depending on the type and severity of the treatment and, to a certain exent, upon the technique used. If the treatment has been inadequate the higher figure will be approximately correct, leaving about 5 per cent. of negative reactions in the secondary stage not accounted for by the Wassermann test. In the tertiary stage of cases having symptoms from 85 to 90 per cent. are positive; while in the latent

stage the number of positives fall off to about 65 per cent. These last cases present no symptoms, and in most instances the test is made to determine whether or not the disease has been cured.

It will be noted from these statistics, which have been gathered from many sources, that it is possible to have a negative Wassermann reaction at any stage of syphilis, even though symptoms are present and it is possible to demonstrate the presence of living spirochatæ in the open lesion. A second test is demanded in all stages of syphilis after a weak positive. This second test should be made after a more or less brief interval. Under certain conditions there are a few diseases which tend to give a weak positive, but it is the common opinion that a full positive reaction in a non-syphilitic case is at the least suggestive of imperfect technique and demands a second application of the test. A single negative reaction is of no value in excluding syphilis, and it is only when such a reaction has been obtained on repeated examinations, extending over a period of at least a year that it can be considered as good evidence of the absence of the disease. Even under such circumstances it is well to have the result corroborated by the luetin test and the provocative Wassermann test.

It is perhaps unfortunate that luetin is not within the reach of every physician, for it is a test of no little delicacy in the later stages of syphilis, and is simple in its application. The provocative Wassermann, however, apparently gives even better results than the luetin test in the late stages of syphilis, and besides has a wider usefulness in that it is applicable to primary, secondary, and tertiary conditions that give a negative reaction to the ordinary Wassermann test.

The test is carried out with 0.4 grams of salvarsan or 0.6 grams of neosalvarsan. The blood should be taken immediately before the injection and on several following days. It has been found that the test is most apt to become positive on the two following days, but occasionally does not appear for seven or more days. A fairly safe rule for obtaining specimens is to take the blood during the forty-eight hours immediately following the injection and again after seven and fourteen days.

It has long been known that in a syphilitic a negative Wassermann could be converted into a positive one by an injection of salvarsan. Gennerich and Milian in 1910 first suggested that advantage be taken of this fact for diagnostic purposes, but it is only recently that the possibilities of a provocative Wassermann have interested more than a select few of the profession. An analogous effect to the provocative Wassermann is seen in the so-called Herxheimer reaction—or the accentuation of the clinical symptoms of the disease immediately following treatment with salvarsan. The "provocative" Wassermann can be obtained in every stage of the infection; in the early chancre stage before the ordinary Wassermann reaction is positive, a provocative Wassermann may be very strong. A negative in the secondary stage may be changed into a positive provocative test. It is, however, in the tertiary and latent stages of syphilis that the reaction is of most value. The probable explanation of the test is that when the spirochetæ are killed their toxic action is temporarily increased with a corresponding increase of the bodies concerned in the Wassermann reaction. It is fair at the present time to assume that a positive Wassermann indicates the presence of living spirochætæ, and therefore a positive provocative test is proof that the patient is not cured and needs further treatment.

The importance of the test is clearly indicated in the following series of cases:

| Case | Diagnosis | Wassermann | Luetin Test | Provocative Wassermann |
|---|---|---|---|---|
| 1 | Initial lesion 3 weeks ago | Negative | Not made | Positive |
| 2 | Initial lesion 4 weeks ago | Negative | Not made | Positive |
| 3 | Initial lesion 6 weeks ago | Negative | Not made | Positive |
| 4 | Initial lesion 6 weeks ago | Weak positive | Not made | Positive |
| 5 | Initial lesion 8 weeks ago | Weak positive | Not made | Positive |
| 6 | Initial lesion 12 weeks ago | Negative | Doubtful | Positive |
| 7 | Initial lesion 12 weeks ago | Weak positive | Doubtful | Positive |
| 8 | Initial lesion 16 weeks ago | Weak positive | Weak positive | Positive |

| Case | Diagnosis | Treatment, Years | Wassermann | Luetin Test | Provocative Wassermann |
|---|---|---|---|---|---|
| 9 | Ext. rectus palsy, Argyll-Robertson pupil | 3 | Negative series, after a positive | Positive | Positive |
| 10 | Cong. syphilis | 3 (?) | Negative | Positive | Positive |
| 11 | Congsyphilis | 3-4 (?) | Negative | Not made | Positive |
| 12 | Specific throat | 2 | Negative | Not made | Positive |
| 13 | No symptoms. History of infection many years ago | 3 | Negative | Negative | Negative |
| 14 | No symptoms. History of infection many years ago | 1 | Negative | Negative | Negative |
| 15 | No symptoms. History of infection many years ago | 1 | Negative | Negative | Negative |
| 16 | No symptoms. History of syphilis | Little | Weak positive | Positive | Positive |
| 17 | No symptoms. History of syphilis | Indefinite | Negative | Positive | Positive |
| 18 | No symptoms. History of syphilis | Indefinite | Negative | Positive | Positive |
| 19 | Optic nerve atrophy. History of syphilis | 2 (?) | Very weak, positive | Not made | Positive |
| 20 | Epithelioma of tongue. History of syphilis | Unknown | Negative | Negative | Negative |
| 21 | Specific laryngitis | 1 | Negative | Doubtful | Positive |
| 22 | Paralysis of ext. rectus | 1-2 | Negative | Not made | Positive |
| 23 | Iritis, specific | Unknown | Weak positive | Positive | Positive |
| 24 | Congenital | Unknown | Weak positive | Positive | Positive |
| 25 | Spinal cord lesion (specific?) | None | Weak positive | Positive | Positive |
| 26 | Spinal cord lesion. No history of syphilis | None | Negative | Negative | Negative |
| 27 | Beginning tabes | Unknown | Negative | Positive | Positive |
| 28 | Tabes | Unknown | Negative | Doubtful | Positive |
| 29 | Congenital. Tertiary ulcers | Unknown | Negative | Not made | Positive |

These cases have been gathered from many sources. The majority of them were incidental to routine examinations of private patients sent for a Wassermann test, in which the evidences of a syphilitic taint were so well known as to warrant energetic treatment in spite of a negative Wassermann reaction, or because there was a positive luetin test. A very few of them have deliberately received an injection of neosalvarsan or salvarsan in order to determine the question of a cure. In one of the (negative) cases treatment

was instituted without any expectation of beneficial results as a desperate measure. The lack of intention in this series is a fault which is of no little importance in interpreting the provocative Wassermann test. A considerable number of known syphilitic cases in which the symptoms and treatment have been followed by the clinician from the beginning should be subjected to the test. It is also granted that this series is inadequate as regards numbers and that the group is in a manner a selected one. It would have been of more value if it had been a consecutive series of thirty or more cases known to have had syphilis.

It has seemed worth while, however, to bring these particular cases together as proof that the test has a real place in the diagnosis of certain obscure cases of syphilis and as emphasizing the now accepted fact that treatment may change a negative Wassermann into a positive one. The test appears to be fully as reliable as the luetin test, so far as any conclusions can be drawn from these cases in which both tests were made. The indications for a provocative Wassermann test are (1) a doubtful positive reaction and (2) a negative test in the presence of a history or symptoms which point to a syphilitic infection. As has already been stated a positive Wassermann indicates the presence of living spirochetes and therefore a negative provocative Wassermann reaction is the best evidence available at the present time of the actual cure of syphilis.

109 West Eighty-seventh Street.

## THE PREVENTION OF PSYCHIC TRAUMA.

By HENRY S. MUNRO, M.D.,

OMAHA, NEB.

A LAD, eleven years of age, went with his parents from a Southern State to a city in the middle West. Upon his first day at school the boys gave him a "rolling," by turning him over and over, many times, on the grass, as was their custom to do with each new boy at that school. They dealt with him rather roughly. When his father came home that evening the boy related the incident and seemed to feel somewhat humiliated by the experience. His father only laughed, and replied: "I'm sure that they are a great bunch of boys, and that you will enjoy their association when you come to know them well; now, you go and help roll another boy to-morrow."

On his second day in school, as well as on the third, the experience was repeated, and the father was unable to persuade the child that such experiences, if rightly interpreted, would be of inestimable value to him. The boy's appetite was disturbed, and he seemed restless and unable to sleep soundly. The morning of the fourth day, he frankly stated to his father that he did not desire to return to school, for, said he: "I do not like such treatment, and there is not another 'new boy' for them to roll."

"All right," replied the father, "you will not have to let them roll you any more; come with me and let's see what we can do to bring about a cure of such thoughtless conduct on the part of those boys, who should be taught to behave better."

The father and the lad proceeded to a hardware store and purchased an effectual fighting tool, in the form of a good pocket knife. Taking the boy aside, the father addressed him as follows: "Now, my boy, when the bunch proceed to deal with you again, you sail into them with this knife, and jab it into their eyes, or stomachs, or faces, or hearts, and *cut for all that you are worth*. But listen: Do not cut them until you have given them fair warning not to roll you on the grass again. Now, if you allow them to roll you any more, I will take a part in your punishment in a manner that you will not soon forget."

"Papa, you do not have to talk to me that way. You just give me that knife and tell me to use it. If they can get to me again, they can roll me a hundred times if they want to do so," was his reply.

The father again cautioned him that it would be unmanly for him to cut any of the boys until he had given them fair warning. He then proceeded to the school and had an interview with the principal, relating the entire matter as here recited, though assuring her positively that the boy would use the knife, and use it effectually, if such an experience were again repeated.

The lady school principal in question became indignant, and said: "You had no business giving your boy that knife and telling him to do any such thing. Why did you not come to me, and I would have prevented the boys from rolling him again, without subjecting *them* to such danger?" "Yes, madam, but you would not have restored self-respect to the boy, nor have conserved his rights as an individual. If I am wrong, you have recourse to the law. I have fulfilled my duty when I have equipped him for self-protection, and notified you to look after the welfare of the boys during playtime."

Two policemen were speedily brought to guard the school boys during recess, and strenuous lectures were given in each room of the entire school upon the necessity of observing the rules of the school during play time, with a threat of expulsion if there was any more "rolling."

The lad returned home that evening, highly elated over the reaction which had been induced as the result of his having a knife in his pocket, knowing nothing of my visit, and he afterward found great pleasure in his association with the entire group of boys, and he did splendid work during his further stay at that school.

As to whether or not the father was right or wrong in his way of dealing with the matter, "right" or "wrong" did not enter into his consideration. What he did was simply his individual reaction to the stimuli of the factors of his environment, approved by his own judgment, and this mode of reaction on his part would undoubtedly tend to influence the future reaction to the stimuli of environment by the boy.

The response of the individual, or of a nation, to environmental stimuli, is determined by the phylogenetic and ontogenetic history of the individual or of the group, though reason and judgment should at all times be in control.

Justice, as a psychic attribute, is evolved together with the self and species-preservative instinct, and, where this is a dominating element of human character, the individual can act with absolute freedom at all times, and his decisions are as unerring as the rock of Gibraltar is stable; and his philosophy of life will ultimately meet the approval of the entire herd, because it is in harmony with the laws of nature, true to the law of evolution in general, and adapted to the welfare of the entire medical profession, and that of the larger social body as well.

The primary cause of "disease," as we understand it to-day, is due to a blocking, or arrest, of sub-conscious instinctive psychophysical potentialities that are striving for expression. These arrests or dispersions of energy may be compared to the right and left arms of a man placed together and consuming the entire energy of the central battery, the brain, in the effort of each to shove the other member up or down, as the case may be, instead of working in harmonious cooperation for the preservation of the personal self and the species. This internal conflict, this eternal warring, results in a waste of energy, a leak constantly going on, robbing the central storehouse or dynamo of power that should be normally employed in running the entire physiological machinery. This depletion or waste of psychophysical potential is indicated by abnormal emotional manifestations, and can be diagnosticated by the word association experiments. These cause an abnormal response to environmental stimuli on the part of the patient, or moods of depression with the corresponding disturbance of the function of every organ and cell in the body; an alteration of the glandular secretions, or an abnormal biochemistry of metabolism; and, in its grosser manifestations, producing such conditions as indigestion, constipation, intestinal stasis, and the entire "Arbuthnot Lane series" of symptoms as the sequence, such as cardiovascular, nephritic, hepatic, nervous, circulatory, respiratory, and other manifestations of disease. Herein is the cause back of the perverted physiology which results in pathological anatomy, such as goiter, cancer, rheumatoid arthritis, diseases of the skin, eyes, ears, nose, and throat. This lowered psychophysical potential, as the result of misadaptation to environment, with its corresponding functional disturbances, lessens the immunity of the individual to bacteriological invasion, and is the cause back of the entire "cause" of disease. In other words, disease is a social affair and must be fought socially.

In the light of the foregoing conclusions, are we giving due attention to the cause, prevention, and cure of disease? Is it not time that the medical profession awake from its long sleep and give due heed to those who are crying to us for help?

506 Brandeis Theatre Building.

## DIVULSION OF ARM AND SCAPULA.

By G. K. DICKINSON, M.D.,

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A SHORT statement of the subjoined case seems of sufficient interest to warrant publication:

On January 14, 1914, S. Z., 23 years old, while oiling machinery had his right arm caught between a thirty-inch pulley and a thirty-inch rubber belt of a coal-conveyor, making forty-one revolutions a minute. The arm was completely divulged, with loss not only of the arm but of the scapula. The muscles were torn off close to the body and the skin evenly torn, but with rather a long cuff. The accident occurred at the bottom of a pit fifteen feet deep with perpendicular sides. The man was alone at the time. After the injury, with the aid of his remaining arm, he walked up the fifteen foot ladder, down an incline for one hundred and sixty feet to the foreman and about five hundred more to the office, where he insisted upon sitting up. An ambulance was called and the patient removed to Christ Hospital, where it was found the blood vessels and nerves had been torn off and had receded, so there had been no hemorrhage whatever from the wound. The pulse in the other arm was slow and good. His blood pressure was 140. He expressed no pain. In the afternoon he was etherized and the traumatic portion explored. Neither the arteries nor nerves were discoverable. One small postscapular blood vessel began to bleed and was ligated. The wound was swabbed out with tincture of iodine, the superabundant skin flap was excised, and the skin was sutured around a rubber tube drain. Recovery was uneventful. The amputated arm was afterward found in a crooked position hanging over on a bar of the machinery.

280 Montgomery Street.

## Medicolegal Notes.

**Reading Medical Authorities to Jury.**—In an action on an accident insurance policy for the death of the insured from pancreatitis, the plaintiff claimed that the disease was caused by a violent wrench which the insured sustained in attempting suddenly to rise when a street car on which he was riding started to rock, while the defendant attempted to show that the pancreatitis arose from indigestion. Expert witnesses were introduced on both sides. One or two of these had previously seen one case of pencreatitis, but none of them had seen enough of the disease to speak as experts upon it, independently of medical authority; and they all relied on and referred to medical authorities for the conclusions which they stated. When the experts for the defendant had testified that pancreatitis could not be caused by the external injury, the trial court allowed them, on cross-examination, to be asked if certain medical authorities, known to be authoritative, did not give instances of pancreatitis having been so caused, and the statements of these authorities were permitted to be read to the witnesses as a part of the question. It was held that this was proper. When one doctor testifies that the medical authorities teach so and so, and another doctor testifies that they teach the contrary, the jury would have little light to guide them in determining between the conflicting statements. But if the medical authorities referred to are presented to the witnesses, and read in the hearing of the jury, they can form a more intelligent idea as to which of the witnesses is supported by the text.—Travelers' Insurance Company v. Davies, Kentucky Court of Appeals, 153 S. W. 956.

**Evidence of Usual and Customary Treatment.**—In an action for negligent and unskilled treatment of an injury by a hospital physician, it was held that the testimony of a nurse of some years' experience, otherwise properly qualified, on whether the treatment given the plaintiff was the usual and customary treatment, should have been admitted.—Klodek v. May Creek Logging Co., Washington Supreme Court, 129 Pac. 99.

**Compensation—No Implied Promise by Mother of Patient Living with Husband.**—A physician, it is held by the New York Court of Appeals, may not recover on an implied contract by a mother to pay for medical services rendered to a daughter living with her husband, the husband consenting to the physician treating her, though the mother importuned the physician to treat the daughter. It is well settled, said the court, that a physician, in the absence of a special contract, may recover upon an implied agreement to pay for his services *quantum meruit*, when they have been rendered at the request of the patient, or of a person who, in the eye of the law, is regarded as being under a legal obligation to provide such professional services for the patient; such as the husband, or the parent of a minor child. In the present case, notwithstanding the anxiety, the importunity, and the prayers of the defendant, the legal obligation of the husband was not shifted to, or assumed by, the defendant, and there was no express promise by her to pay. It would, it was added, be a simple matter, in cases where the physician is called upon to attend a person, at the instance of some one not standing in a responsible relation to the patient, to inform himself as to whom he shall look to for compensation.—McGuire v. Hughes, 207 N. Y. 516, 101 N. E. 460.

**Agreement as to Division of Fees.**—A family physician, for whose services his employer is personally liable, cannot, it is held, without the knowledge of all the facts by the employer, enter into a contract with a surgeon, whom the physician has called in to perform operations, by which the surgeon is to divide his fees with the physician. Such a contract is void as against public policy.—McNair v. Parr, Michigan Supreme Court, 143 N. W. 42.

# MEDICAL RECORD.

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## "PAINLESS CHILDBIRTH" AND PAINFUL MAGAZINE EXPLOITATION.

AN article that is likely to arouse the interest of certain of the laity appears in one of the popular magazines for June under the caption "Painless Childbirth." It is written by two women who made a special study of the method at Freiburg in Baden, where Krönig and Gauss have made trial of scopolamine-morphine narcosis in midwifery. This method has been closely watched by the medical profession for a number of years; it has been tried throughout Europe and considerable difference of opinion has arisen as to the value of this attempt to rob the lying-in room of some of its terrors. A comprehensive review of narcosis in childbirth is presented by H. Fuchs of Danzig in the *Universal Medical Record* for December, 1913. He compares the relative merits of chloroform and of ether, preferring the latter in hospital cases; of nitrous oxide and oxygen; of cocainization of the genital area of the nose, as devised by Fliess; of hypnosis; of suggestion-narcosis; of the use of drugs such as chloral hydrate, and finally of scopolamine-morphine narcosis.

The essential of this method consists in the production of a clouding of consciousness, a "twilight sleep" (Dämmerschlaf) as it is called. "When the pains come, the women usually cry out just as loud as any other lying-in woman, answer the question whether they have pains in the affirmative, but during the intervals between the pains fall into a deep sleep. If awakened from this sleep and questioned about the pains they have suffered there is a complete loss of memory, that is, if the semi-sleep is complete. Psychologically the facts of the case are that the pains are perceived at the moment, but then make no impression; they leave behind in the higher cerebral centers no memory picture. It results that, if the semi-sleep is properly produced the whole of the processes of labor are banished from remembrance." During twilight sleep there is a loss of psychic control and the assistance of the patient cannot be obtained by the accoucheur. To the question whether scopolamine-morphine anesthesia is harmless to the organism as a whole, Fuchs answers in the affirmative, but he believes that this combination of drugs adversely influences the course of labor, increasing the pain intervals, and shortening and weakening the pains themselves. Prolongation of labor is a regular consequence of the twilight-sleep. Furthermore scopolamine-morphine anesthesia is not innocuous to the child. According to Fuchs, the excitability of the respiratory center is lowered with the result that one-fourth of the children are born in a state of oligopnea or apnea.

If one now turns to the account of the method of Krönig and Gauss as given in the magazine article one notices the exaggerations and circumlocutions that are almost inseparable from this type of literature. The statement is made that twilight sleep "is not in any way injurious to the mother," and "in no way injurious to the child." It is stated that in the Freiburg clinic forceps "are almost never used," and on page 44 this is contradicted by the statement that "the frequency of forceps cases has settled down to an average of from 6 to 7 per cent." If it were not misleading to the unthinking reader most amusing indeed would be the testimony that is cited of some of the patients who journeyed to Freiburg to experience the benefits of twilight sleep. Thus we are told of the Scotch noblewoman who in spite of the precedent that the heir of the family should be born "in his own heather and beneath his own castle walls," nevertheless journeyed to the clinic, in possession of two German sentences: The first was "Where is Professor Krönig?" and the second was, "I will have a painless child." "The 'painless child' from recent photographs, is the most beautiful child that the heart of a Raeburn might ache to paint. Her baby having been so very satisfactory, she is one of the mothers who returned for a second." Another glowing testimonial of the Freiburg method appears in the recital of a case in which a woman gave birth to a boy at 5 o'clock in the morning, at 8 was sitting up enjoying her coffee and rolls, at noon ate a typical German midday meal of soup, meat, vegetables, and compote, and in a week was returning calls of congratulation.

One of the serious drawbacks of the popularization of medical topics in magazines is the fact that usually the whole truth is not presented. A glowing account of one phase of the subject is usually given and the reader receives a distorted idea of a subject which wise men are still weighing in the balance. This is particularly true of the question of "painless childbirth." Even if one disregard the valid sentimental objection to the open discussion of such a topic, there can be nothing but condemnation of the unreal and one-sided portrayal in a popular magazine of a strictly medical subject such as that of analgesia in obstetrics.

## CANCER OF THE TONGUE IN EARLY LIFE.

JUST at present considerable thought is being given to the subject of oral sepsis hence this seems an opportune time to call attention to another and very important one of the conditions that may arise from neglect of the teeth, namely, cancer of the tongue. Gorse and Dupuich (*Revue de Chir.*, March, 1913)

made a study of this subject, their attention having been drawn to the condition by a case occurring in a soldier 22 years of age, who came under their care in October, 1911. His mother had died from cancer of the uterus; no other cases of cancer in the family. In February, 1911, a small ulceration had appeared on his tongue opposite a carious tooth. Due to the constant irritation of rubbing against the teeth, the ulceration gradually increased in extent. Finally the carious tooth was removed but the ulceration continued to increase and the employment of antisyphilitic treatment had no effect upon its progress. When seen by the authors he had an ulceration of the right side of the tongue opposite the last three molars. The ulcer was irregular in shape, shallow with thickened edges, the floor of the ulcer having a grayish appearance with some yellowish spots. The ulcer rested upon a somewhat smaller base which extended into the depths of the tongue. There was little tendency to bleeding. Near the angle of the jaw there was one slightly indurated, enlarged, movable lymphatic gland. His general condition was good. No evidences of tuberculosis in the lungs or elsewhere. Under local anesthesia the right side of the tongue and a portion of the floor of the mouth were removed on November 29, 1911. There were no postoperative complications. Recurrence took place rapidly, however, and he died during the following May. Microscopical examination showed that the tumor was a typical epithelioma.

Cancer of the tongue is rare before the age of thirty years, though cases *may* occur at any age. In the vast majority of instances cancer of the tongue occurs between the ages of 40 and 60. Of the statistics quoted by the authors the following are of particular interest. Among 80 cases of cancer of the tongue reported by Butlin, there were only two under 30 years of age. Barker in 290 cases reported by various authors found eight between 20 and 30. Piquantin, in his thesis, collected the statistics of 155 cases of cancer of the tongue in the female. The age was noted in 137 cases and among these there were three patients between 10 and 20 years of age, fifteen between 20 and 30. Loison, in 342 observations of cancer of the tongue of both sexes, found only nine between the ages of 15 and 30 years. In their entire search of the literature, Gorse and Dupuich were able to find but thirty well-authenticated cases in which the patients were not over 30 years of age. The majority of these cases occurred in females, while in later years males are much more frequently affected. According to the statistics of Butlin and Spencer and those of Barker, the ratio of females to males afflicted with cancer of the tongue is about 15 to 100; while the statistics of numerous authors, covering nearly 2000 cases, show a proportion of 17 females per 100 cases.

The authors say, regarding the etiology of these cases, "the true cause of cancer in the young cannot be stated, as we still remain ignorant of the real nature of the cancerous affections. As the cause second in importance one must recognize the irritations—chemical, infectious, and, especially, mechanical. The mechanical irritations come particularly from sharp-edged or carious teeth (as seen in eight cases out of the thirty), or from an ill-fitting plate (two cases)." These two causes together thus account for one-third of these cases. They found no reference in this series to the development of cancer of the tongue under the influence of a chemical irritant (tobacco, alcohol, etc.). Syphilis seems to play only a minor rôle in the etiology of cancer of the tongue in the young. Two patients only could be suspected of having a specific history. The absence of previous syphilitic manifestations is noted in nine cases and these patients did not derive any benefit from treatment with mercury or the iodides.

Regarding the pathological anatomy the authors say, "Cancer of the tongue in young subjects presents itself almost always under the form of an ulceration more or less deep or sinuous, resting upon an indurated base, with small yellowish or white points, pressure of which squeezes out vermicelli-like masses. The ulcer has a grayish floor and indurated, rigid borders, perpendicular or overhanging. Sometimes the ulceration is covered with fine or luxuriant papillary formations. Finally, but more rarely, there may be a nodule which remains such or which ulcerates, or there may be a scirrhous mass. The ulceration is generally single but may be multiple, and one may find as many as three distinct centers of malignant ulceration. They usually bleed at the least touch. The site of the cancerous involvement is more frequently the border than the body of the tongue." The authors found the site of the lesion mentioned in 24 of the 30 cases: 18 on the border, 4 on the tip, 1 on the back, and 1 on the inferior surface. They call attention to this localization upon the borders and tip of the tongue as a proof of the causative action of contact with pointed or carious teeth. Recurrence after operation takes place *in situ*, in the lymphatic glands, in the neighboring salivary glands, or at the level of the soft palate.

In considering the symptomatology and diagnosis the authors emphasize two points: "the affection is very manifestly painful, *very* painful even, and irradiations and otalgia are frequent. * * * On the other hand, the patient retains for a very long time the appearance of good health, a fresh complexion without cachexia, an excellent general condition." Cancerous ulceration must be distinguished from that of syphilis and tuberculosis, as well as simple ulceration due to the teeth. Sometimes it is only by means of histological and bacteriological examinations that one is able to elucidate the problem.

Cancer of the tongue in young subjects has an especially grave prognosis. Of these 30 cases there was one ten-year and one two-year cure. The rest died within two to ten months or could not be traced. As a large proportion of these cases had as their apparent exciting cause rough, sharp-edged, or carious teeth, it seems certain that proper attention to the teeth will do much to lessen the liability to cancer of the tongue—a malady which may affect even those in the second decade of life, and which has an appalling mortality.

## STUDY OF THE INTERNAL SECRETIONS.

An almost illimitable field of scientific research is afforded by the internal secretions. Although, in this field students are still groping to a great extent in the dark, the obscurity becomes every now and then illumined by a light which serves to show the infinite possibilities which would accrue from a more thorough elucidation of the whole subject. In short, sufficient progress has been made already to demonstrate clearly that a complete knowledge of the functions and correlations of the internal secretions would place in the hands of the medical practitioner the most formidable weapon to fight disease which has as yet been vouchsafed to him. But much water must flow under the bridge before this Utopia is realized, and in the meantime steady and persistent work in the direction of unraveling the tangled skein must be the order of the day.

In *American Medicine* for April, 1914, is a series of articles dealing with the internal secretions written by those who have made a special study of the matter. The issue constitutes a valuable contribution to the literature of the internal secretions, and also indicates the existing situation with regard to them. On the one hand, it draws attention to the great advances made, and on the other hand, distinctly denotes the many gaps which will have to be bridged ere it can be affirmed that the task is ended and that tangible results have been evolved.

The literature of the internal secretions during the past few years has been vast, almost overpowering, and while it is well that every phase of the question should be dissected and ventilated at the same time, the advice given by the late Dr. Roswell Park may be taken to heart. He pointed out that what we, perhaps, most need is an accurate combination of clinical observation and post-mortem pathological study. Better would it be now, in the opinion of the Buffalo surgeon, if students of the subject would cease from all literary effort save collecting and collating facts, would familiarize themselves with the already enormous bibliography and literature of the subject, all this for a period of a few years, and then assign to some committee or commission, or possibly to some unusually equipped individual, the duty of digesting and of presenting anew the total material thus accumulated. It is worthy of note that American students of the internal secretions are well to the front. Cushing, Ott, Simpson, MacCallum, Klotz, Beebe, Sajous, to mention some of the more prominent, have contributed largely to the sum of our knowledge thereof, and may be confidently expected to lay bare yet further the secrets of this comparatively unknown domain of research. So far as a definite knowledge of the internal secretions is concerned, the future is full of hope.

## HYALINE DEGENERATION OF THE ISLANDS OF LANGERHANS.

The knowledge of the diseases of the pancreas has been greatly extended within recent years, chiefly in two directions. First, in the close anatomical and physiological relationships between the pancreas and the liver there has been discerned an adequate cause for the frequent involvement of the pancreas in affections of the biliary passages. Second, pathological changes in the pancreas have been described as one of the most common causes of diabetes mellitus. These changes consist in a sclerosis or in a hyaline degeneration of the islands of Langerhans. But the latter change is not necessarily confined to cases of diabetes, for it has been observed in cases in which there had been no diabetic manifestations during life.

A series of six cases of this nature are reported by R. L. Cecil in the *American Journal of the Medical Sciences*, May, 1914. The patients had died, respectively, from epithelioma of the inferior maxilla, cirrhosis of the liver, acute pericarditis, typhoid fever, a possible endotheliama of the left orbit, and cardiorenal disease. In every case there was noted an interstitial pancreatitis of the type usually seen in diabetes, with thickening of the arterioles. Both sclerotic and hyaline changes were detected in the islands of Langerhans, but many of these islands were perfectly normal. In two of the cases there was a well-marked cirrhosis of the liver. As regards the kidneys, in every instance there was a definite fibrosis and a hyaline degeneration of some of the glomeruli.

Of eminent significance is the fact that in all of the cases studied by Cecil there was present a more or less pronounced arteriosclerosis. It is probable that this was responsible for the coincident degenerative changes in the pancreas and in the kidney. And just as lesions in the latter organ may be present without giving any clinical evidence of renal disease, so also a considerable degree of pancreatic involvement may exist without giving rise to glycosuria. The factor of safety in the physiology of the pancreas is well illustrated by the fact that hyaline degeneration of the islands of Langerhans may occur up to a certain point without producing that disturbance of carbohydrate metabolism whose outward expression is glycosuria. The fact is emphasized that the fundamental lesion is a sclerosis of the smaller vessels supplying the islands of Langerhans.

## The Insert Bone Graft in Fractures of the Patella

The insert bone graft, as developed and popularized by Albee in the treatment of Pott's disease and in ununited fractures of the long bones (*Am. Jour. Surg.*, Jan. 1914), is apparently destined to have a still wider field of application. This seems the direct corollary to be drawn from the consideration of the two cases of fracture of the patella reported by Rogers (*Annals of Surgery*, April, 1914) as having been successfully treated by the autogenous bone graft. The technique in these cases did not include the grooving of the fragments for the reception of the graft, which was taken from the crest of the tibia, hence the periosteum which had been turned back to allow apposition of graft and raw surface could not be made to cover over the graft, but was "drawn up to, or over, the transplant with a couple of catgut sutures." The remaining means of holding the fragments and trans-

plant in place was "a figure-eight suture of chromicized catgut or kangaroo tendon, which grasps the ligamentum patellæ and quadriceps tendon immediately below and above the broken bone and crosses in front of the transplant." An examination of the radiograms shows that in both cases there was a buckling of the fragments, so that the articular surfaces of the fragments were not restored to the same plane, although, fortunately, a perfect functional result was obtained in each instance. Grooving of the fragments deeply enough for the reception of the transplant, so that the patellar periosteum may be firmly sutured over it near the fracture line of each fragment, should result in the restoration of the proper alignment of the articular surfaces, with the increased probability of perfect anatomical and cosmetic, as well as functional result.

## News of the Week.

**Women Doctors Graduate.**—The annual commencement exercises of the New York Medical College and Hospital for Women were held at the Waldorf on May 20, when seven graduates received their diplomas.

**City Death Rate.**—For the first twenty weeks of 1914 the death rate in New York City was 15.35 per 1,000 of population, as compared with 15.56 for the corresponding period of last year. During the week ending May 17, there occurred in the city 1,533 deaths, an increase of two over the number for the same week of 1913. There was an increase of 47 in the deaths from typhoid and scarlet fever, while pulmonary tuberculosis showed a decrease of 26 deaths.

**Lebanon Hospital.**—At the annual meeting of the Lebanon Hospital, Bronx, New York, it was reported that during the previous year 49,057 patients had been treated at the hospital, of whom 419 had died; that the ambulances had responded to 2,888 calls; and that the cost of running the hospital and the training school was $165,267.98.

**Montefiore Home.**—The new buildings of the Montefiore Home on Gun Hill Road, Bronx, New York, were opened for public inspection on May 17, and it was estimated that at least 3,000 people took advantage of the opportunity to visit the plant. The Home now has 239 men and 177 women patients, a total of only 34 less than its capacity, and the Country Sanitarium at Bedford Hills has 107 men and 73 women inmates, which is as many as it can accommodate. At the business meeting preceding the public reception the proposal to change the name of the institution resulted in the adoption of the titles: "Montefiore Home, Hospital, and Country Sanitarium for Chronic Diseases."

**"Mikveh" Baths.**—A conference, called by the Commissioner of Health of New York, was held recently to consider the subject of "Mikvehs," the cleansing baths whose regular use is required by the Jewish faith. These baths in New York have been made the subject of a bacteriological investigation by Dr. Mannheimer of Columbia University and independently also by the Department of Health, and their investigations have shown that the Mikveh baths, as at present conducted, are a serious menace to the health of the people using them and have indicated the need of steps to render them sanitary. While no definite program has been formulated, the Department announces that it is believed that insistence on regulations similar to those adopted for the floating baths would prove feasible. These provide for a preliminary cleansing shower bath and for the cleanliness of the water. The problem has been presented to the Board of Authoritative Rabbis of the Jewish community of New York, with the request that they submit suggestions for regulations to the Health Department.

**Dr. Henry Pickering Walcott** of Boston, whose term of service as a member of the Massachusetts State Board of Health expired on May 19, received a remarkable tribute from his professional brethren on his retirement. This was an address signed by 2,200 members of the medical profession in Massachusetts, commemorating Dr. Walcott's thirty-three years of service as health officer and chairman of the State Board of Health, and expressing their appreciation of his work.

**Dr. Smith Ely Jelliffe** of this city has been elected corresponding member of the Paris Neurological Society.

**Dr. Jacques Loeb** of the Rockefeller Institute of this city has been elected corresponding member of the French Academy of Science in the Section on Anatomy and Zoology, to succeed the late Lord Avebury.

**Dr. Mark J. Schoenberg** has received the Lucien Howe prize of the Medical Society of the State of New York for his research work on ocular anaphylaxis.

**Sir Francis Henry Laking, M.D.,** physician in ordinary and surgeon apothecary to the King of England and the Prince of Wales, died at his home in London on May 21 at the age of sixty-seven years. Sir Francis was consulting physician to the Victoria Hospital for Children and apothecary to his Majesty's household. He was educated at Heidelberg and St. George's Hospital, London, and was created a knight in 1893 and a baronet in 1902. He was also a commander of the Legion of Honor, and had received a number of other decorations.

**Dr. Stephen Townsend** of London died at his home on May 20. He became a member of the Royal College of Surgeons in 1883 and a fellow in 1887, and for several years was lecturer and examiner on first aid to the injured to the London County Council. He was also well known in the literary world and was the husband of Mrs. Frances Hodgson Burnett, well known as an American writer.

**Gifts to Charities.**—By the will of the late Mrs. Henry T. Cutter of New York, the Presbyterian Hospital, New York, the Seney Hospital, Brooklyn, and the Mount Vernon Hospital receive bequests of $20,000 each, while the Hospital for Deformities and Joint Diseases, New York, receives a bequest of $25,000.

St. Rose's Home for Incurable Cancer, New York, receives a bequest of $1,000 under the will of the late Margaret F. Kennedy of this city.

**The Harrington Lectures** of the Medical Department of the University of Buffalo will be given by Professor Ludwig Pick of Berlin on the evening of June 2 and in the afternoons of June 3 and 4. The title given is "Some Recent Advances in Pathological Anatomy." The lectures will be illustrated by lantern slides and many Lumière plates.

**New York Neurological Society.**—Dr. Paul Federn of Vienna will speak on the "Psychological Roots of Masochism," and Dr. W. J. Maloney on the "Relationship of Syphilis to Tabes" at the next regular meeting, to be held June 2, 1914. The meeting is open to all members of the medical profession.

**Medical Society Elections.**—Florida State Medical Association: Annual meeting at Orlando on May 14. Officers elected: *President,* Dr. F. Clifton Moor, Tallahassee; *Vice-Presidents,* Dr. Calvin D. Christ, Orlando; Dr. Thomas Truelsen, Tampa; Dr. John A. Simmons, Arcadia; *Secretary-Treasurer,* Dr. Graham E. Henson, Jacksonville; *Librarian,* Dr. James B. Pasco, Jacksonville. *Delegate to the A. M. A.,* Dr. John MacDiarmid of De Land. The next annual meeting will be held in De Land.

Oklahoma State Medical Association: Annual meeting at Guthrie on May 12 to 14. Officers elected: *President,* Dr. John William Riley, Oklahoma City; *Secretary-Treasurer,* Dr. Claude A. Thompson, Muskogee. Bartlesville was selected as the place for the next convention.

Southwestern Kentucky Medical Association: Forty-fourth annual meeting at Paducah on May 13 and 14. Officers elected: *President,* Dr. Benjamin P. Earle, Dawson Springs; *Vice-Presidents,* Dr. John L. Dismukes, Mayfield; and Dr. W. F. Peeples, Spring Hill; *Secretary,* Dr. James T. Reddick, Paducah; *Treasurer,* Dr. Henry G. Reynolds, Paducah.

Bristol South District (Mass.) Medical Society: Annual meeting at Fall River on May 14. Officers elected: *President,* Dr. Ralph W. Jackson, Fall River: *Vice-President,* Dr. Charles Austin Bonney, Jr., New Bedford; *Secretary-Treasurer,* Dr. Alanson J. Abbe, Fall River.

Franklin District (Mass.) Medical Society: Annual meeting at Greenfield on May 12. Officers elected: *President,* Dr. John Edwin Urquhart, Ashfield; *Vice-President,* Dr. Harry N. Howe, Greenfield; *Secretary-Treasurer,* Dr. George Pierce Twitchell, Greenfield.

Ohio Homeopathic Medical Society: Annual meeting at Columbus on May 11 and 12. Officers elected: *President,* Dr. Romeo O. Keiser, Columbus; *Vice-Presidents,* Dr. Ira O. Denman, Toledo; Dr. Gertrude K. Meck, Cleveland; *Secretary,* Dr. J. G. Keiser, Columbus; *Treasurer,* Dr. Thomas T. Church, Salem.

Texas Roentgen Ray Association.—This association was formed recently at a meeting of the Texas State Medical Association in Houston. The organization consists of those physicians who are interested in the *x*-rays and in electrotherapeutics, and meetings will be held each year in connection with the conventions of the State Association. The following officers have been elected: *President,* Dr. George D. Bond, Fort Worth; *Vice-President,* Dr. William Oscar Sauermann, Houston; *Secretary-Treasurer,* Dr. J. W. Torbett, Marlin.

**Obituary Notes.**—Dr. F. E. Daniel of Austin, Texas, editor of the *Texas Medical Journal,* popularly known as the "Red Back," died at his home on May 14 after an illness of long duration. He was born in Greenville County, Va., July 18, 1859, and was educated in Vicksburg, Miss. He served as surgeon in the Confederate Army from 1862 to the end of the war, and then began practice in Austin where he established his journal in 1885.

Dr. Winfield Scott Wells of Providence, R. I., a graduate of Rush Medical College, Chicago, in 1890, and a member of the Rhode Island and Providence District Medical Societies, died suddenly at his home, on May 2, aged 54 years.

Dr. Fred W. Meddaugh of Williamsport, Pa., a graduate of the Jefferson Medical College, Philadelphia, in 1909, and a member of the Medical Society of the State of Pennsylvania and the Lycoming County Medical Society, died on May 5, as the result of an automobile accident, at the age of 27 years.

Dr. John A. Brobst of Allentown, Pa., a graduate of the College of Physicians and Surgeons, Baltimore, in 1885, died at his home on May 4, aged 62 years.

Dr. Elmer B. Eddy of Providence, R. I., a graduate of the College of Physicians and Surgeons, New York, in 1873, died suddenly at his home, on May 6, aged 64 years.

Dr. Henry Cabell Tabb of Richmond, Va., a graduate of the Medical College of Virginia, Richmond, in 1869, and a member of the Medical Society of Virginia and the Richmond Academy of Medicine and Surgery, died at his home, on May 7, after a long illness, aged 75 years.

Dr. Levi Secord of Brantford, Ont., a graduate of the St. Lawrence School of Medicine, Quebec, in 1876, and Mayor of Brantford in 1893 and 1894, died at the Brantford General Hospital, on May 8, aged 60 years.

Dr. Nicholson C. Washington of St. Louis, Mo., a graduate of Washington University, Medical Department, St. Louis, in 1867, died at his home, after a long illness, on May 7, aged 70 years.

Dr. Joseph E. A. Lanouette of Manchester, Pa., a graduate of the University of Bishop College, Faculty of Medicine, Montreal, in 1872, formerly a surgeon in the Canadian militia, and known for his work in the smallpox epidemic in 1885, and a member of the New Hampshire and Hillsboro County Medical Societies, died at his home, on May 16, aged 64 years.

Dr. Thomas Mackaness Ludlow Chrystie of New York, a graduate of the Bellevue Hospital Medical College, New York, in 1867, a veteran of the Civil War, formerly surgeon to the New York Orthopedic Dispensary and Hospital, and a trustee of the institution, and a member of the New York State and County Medical Societies, died at his home in Rye on May 19, aged 73 years.

Dr. Daniel Morris Woolley of Brooklyn, N. Y., a graduate of the New York University Medical College in 1885, died in a senatorium on May 18 from cancer of the liver, aged 64 years.

Dr. Lewis Hodges Clapp of Brooklyn, N. Y., graduate of the New York Homeopathic Medical College and Hospital in 1904, died on May 17, following an operation for appendicitis at Lakewood, N. J., aged 33 years.

Dr. James Gillespie Hunt of Utica, N. Y., a graduate of the Jefferson Medical College, Philadelphia, in 1871, formerly State Commissioner of Health, surgeon to the Faxton Hospital, and a member of the New York State and Oneida County Medical Societies, died at his home on May 19, aged 69 years.

Dr. Jeptha C. Clark of Andover, N. J., a graduate of the New York Homeopathic Medical College and Hospital in 1885, formerly coroner of Sussex County, and a member of the Andover Board of Education, died at his home from paralysis on May 16, aged 54 years.

Dr. Howard B. Gates of Los Angeles, Cal., a graduate of the New York Homeopathic Medical College and Hospital in 1895, and a member of the American Medical Association, the Medical Society of the State of California, and the Los Angeles County Medical Society, died on May 8 at Rome, Italy, where he had gone in search of health, aged 47 years.

Dr. James D. Whitney of San Jose. Cal., a grad-

uate of the Cooper Medical College, San Francisco, in 1863, died at his home on May 8.

Dr. WILLIAM B. RICHMOND of Terre Haute, Ind., a graduate of the University of Michigan, Department of Medicine and Surgery, Ann Arbor, in 1899, died suddenly, in church, on May 10, aged 38 years.

Dr. NILES T. QUALES of Chicago, Ill., a graduate of the Rush Medical College, Chicago, in 1866, and a member of the American Medical Association and the Illinois State and Chicago Medical Societies, died at his home from pneumonia, on May 23, aged 83 years. Dr. Quales was a Scandinavian by birth and a few years ago was decorated by the King of Norway with the Cross of St. Olaf.

Dr. SAMUEL B. WRIGHT of Stanford, Ill., a graduate of the Medical Department of the University of Nashville, Tenn., in 1875, died at his home on May 14, aged 64 years.

Dr. GEORGE DRESSER of Chicopee, Mass., a graduate of the Harvard University Medical School in 1862, and a member of the Massachusetts and Hampden District Medical Societies, died at his home after a long illness on May 16, aged 76 years.

Dr. ROBERT B. NELSON of Memphis, Tenn., a graduate of the Medical Department of Vanderbilt University, Nashville, Tenn., in 1903, and a member of the Tennessee State and Shelby County Medical Associations, died at his home from the effects of injuries received in a railroad accident, on May 12, aged 33 years.

Dr. DAVID ALEXANDER RYAN of Chicago, Ill., a graduate of the Dearborn Medical College, Chicago, in 1906, died at his home on May 15.

## Correspondence.

### OUR LONDON LETTER.

(From Our Regular Correspondent.)

KING EDWARD'S HOSPITAL FUND—CEREBROSPINAL DISEASE AND TREATMENT—JOINT COMMITTEE OF CLERGY AND DOCTORS—OBITUARY.

LONDON, May 8, 1914.

AT the annual meeting of King Edward's Hospital Fund on the 1st inst., the Council had a successful year to report. The Hon. Treasurer, Lord Rothschild, mentioned that as a result of the installments of the late Sir Julius Wernher's already received, the investments of the Fund were brought up to £2,000,000. Another legacy to which he thought he ought to refer was the Harman bequest of ground rents, worth £1,382 a year. The surveyor's report, recently received, estimated the value of this at £25,000.

The Hon. Secretary, Sir Savile Crossley, presented the draft report of the Council for the year 1913, showing the total receipts, £187,704 odd, of this the amount distributed among the hospitals was £151,000, while the £6,500 remaining went to sanatoria and convalescent homes taking London patients.

Statistics show that the cost of working hospitals increased in the last year by as much as £22,000, and this can hardly be altogether due to more costly methods of treatment since it does not nullify the previous tendency to economy. To assist separate hospitals to ascertain how their own expenditure is affected by special or avoidable causes tables have been given in the report of the Fund comparing averages at various institutions.

The uniform system of accounts recommended, having given rise to some discussion, a joint committee of the King's Fund, the Secondary Fund, and the Saturday Fund held consultation with some hospital secretaries, and the three funds eventually issued a memorandum containing suggestions and regulations designed to promote uniformity in the statistics of the various hospitals. Coming with such influence it may be hoped that the scheme will meet with general acceptance.

The diagnosis and treatment of cerebrospinal syphilis, including tabes and general paralysis, was the text of a most important communication to the Medical Society of London on the 27th ult. by Dr. Purves Stewart. He treated the subject with great skill from the outset, in which he insisted on the existence of a preclinical stage which it was desirable to recognize. This he said can be accomplished by examination of the blood and the cerebrospinal fluid.

It will be remarked by most practitioners that nearly if not all their patients do not come to them in this preclinical stage, so that however acute they may be in detecting early symptoms they will almost always be too late. The examination of the fluids will remain, therefore, in the hands of specialists, as will for the most part the treatment proposed—which is the latest attempt to get at the spirochetes in these same fluids. For though mercury and salvarsan are fatal to these organisms they require to attack them directly in the tissues infected. Some substances can pass from the blood stream into the cerebrospinal fluid, *e.g.* alcohol; others cannot, and among these mercurial and arsenical salts. It is, therefore, in order to reach the organism or its toxin that the remedies have been injected in different cases by three routes —intravenously, intraspinally and intracranially. Dr. Stewart said that the most thorough method of attack in general paralysis would be by all three routes concurrently, and that it may be in the future this combination may be adopted. He did not claim that we have as yet a cure for this or tabes, but in suitable cases may obtain arrest, though only time can show if that will be permanent. Salvarsanized blood serum has been used here and in Edinburgh, also in New York. In Paris quite recently Ravcust has introduced neosalvarsan—a 6 per cent. solution in distilled water —into the spinal theca by a very fine syringe and lumbar puncture needle, after withdrawing some fluid for examination. Dr. Stewart has adopted this route during the last six months. Of the intracranial routes there are several, and he recommends the selection of the one least likely to damage the brain structures, and says cortical applications for this reason are preferable to intraventricular. It is to be considered whether the risks of repeated cranial operations can be justified unless they can be proved to be more efficient than intraspinal injections.

Dr. Stewart found enesol useful against the lightning pains, and it could be given by simple hypodermic injection. He had employed sodium nucleinate by large intramuscular injections, as studied by Donath, for the purpose of inducing artificial pyrexia, increased temperature, being known to be beneficial in general paralysis. Urotropin was also useful in general paralysis; taken by the mouth it is partly eliminated in the cerebrospinal fluid as formic aldehyde. He then related cases treated by the combined intravenous and intrathecal method with salvarsanized serum or neosalvarsan.

In the discussions of this paper Mr. C. A. Ballance stated that in ordinary cases of syphilis he thought the best treatment was intramuscular injections of mercury combined with intravenous salvarsan. A rise of temperature could be produced by injecting Coley's fluid. The arachnoid being very definitely separated it would seem proper to inject into the subarachnoid space rather than into the subdural. He thought it no more dangerous to inject into the intracranial subarachnoid space than into the spinal. He made an opening into the skull immediately in front of the bregma and passed a fine canala three inches long through the anterior part of the corpus callosum into the anterior cornu of the lateral ventricle. He used 30 to 60 c.c. of salvarsan solution, preceded and followed by a little saline, in five cases but he could not speak of the benefit, though no complications occurred. Dr. Batten had tried sodium nucleinate in two cases without benefit. He had also tried salvarsanized serum in one case without effect. He considered the intrathecal method dangerous. Dr. Armstrong-Jones had given up mercury in late general paralysis. Pneumonia was frequent in these cases, but they did not appear to improve from the high temperature as some other forms of lunacy did. Almost complete recovery could be seen in patients who seemed to have definite parenchymatous degeneration, and that without any treatment at all. He had found little benefit from neosalvarsan, and he considered lumbar puncture dangerous. Piercing the frontal bone seemed difficult too, though sixty cases had been recorded. In 330 cases of general paralysis the average duration from admission to death had been sixteen months. Dr. Gordon Lane said sodium nucleinate led to increase of the red corpuscles and a leucocytosis, mostly of the large lymphocytes.

The President, Sir David Ferrier, complimented Dr. Stewart on the critical way in which he had stated his conclusions, but felt some disappointment with the results. It could not be said that any case had been cured by intrathecal treatment. In the only case he had seen neosalvarsan tried the result was disastrous, and symptoms being intensified.

A joint committee of clergy and doctors formed as a result of conferences between members of the two professions which met in 1910 and 1911 to inquire into spiritual faith and mental healing, has issued a report this week. They strongly deprecate the treatment of disease by unqualified persons, while laying stress on the importance attached to spiritual influences as contributory to recovery.

The death occurred on May 1 of Lt.-Col. J. A. Shaw, late of the R. A. M. C. He served in the Soudan expedition in 1882, and was mentioned in despatches, receiving a bronze star with the clasp. He was again in the Soudan in 1887, and received similar distinctions. He graduated in 1862-63 at the Queens University, and took F.R.C.S.I.

Dr. Richard Hughes, who died at Hitchin, M.B.Lond, 1880, is said to have practised for a time at Vienna, Berlin, and Manchester.

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**Tonsillitis and Appendicitis.**—L. Verdelet reports two cases which show the intimate relationship between affections of the pharynx and intestinal troubles and particularly the important rôle which tonsillar infection may play in the genesis of appendicitis.—*Gazette Hebdomadaire des Sciences Médicales de Bordeaux.*

## OUR VIENNA LETTER.

(From Our Regular Correspondent.)

A CASE OF BENZINOMANIA—PALLIDIN REACTION—IRRADIATION OF THE THYMUS IN CASES OF GRAVES' DISEASE—FAMILIAL ICTERUS—SUGGESTIVE THERAPY IN CHILDREN—APHTHAE TROPICAE (SPRUE)—HYPERNEPHROMA OF THE AUDITORY CANAL.

VIENNA, March 1, 1914.

A CASE of benzinomania was presented by Schmelz before the Vienna Medical Society. The patient was a child who had acquired the habit of pouring benzine on a handkerchief and inhaling it. Interdiction and punishment were of no use. The child stated that she has pleasant dreams during the benzine intoxication. Resorting to hypnosis, the speaker suggested to the child a disgust for benzine and an inclination to vomit while inhaling it and thenceforth the girl did not inhale it any more. In the literature there are described only two cases of benzinomania.

An accessory to the Wassermann reaction of great value is the pallidin reaction devised by Klausner and Fischer. Pallidin is an extract of lungs affected with pneumonia alba. One can obtain the same reaction with an extract of the lymphatic glands of children affected with hereditary syphilis. K. Müller demonstrated the cases of two children in whom the syphilitic reaction was obtained with an extract of lymphatic glands. The extract was inoculated intracutaneously or cutaneously in the upper arm. At the end of 24 hours there appeared a papule with an erythematous halo. After 48 hours the reaction reached its highest point. Sometimes a lymphangitis appeared. The intracutaneous vaccination gives a more marked reaction than the cutaneous one. The reaction is specific for tertiary and hereditary cases.

Starting from the viewpoint that in addition to the thyroid, the thymus also plays a rôle in the etiology of Graves' disease, and that surgeons have had pronounced success in performing thymectomy in cases of this condition when thyroidectomy had failed, Stoerk has subjected the region of the thymus to the action of the Roentgen rays. In the Society of Internal Medicine and Pediatrics he presented 4 cases showing the typical symptoms of this disease: trembling, palpitation of the heart, nervousness, general excitement, loss of weight, exophthalmos etc. The upper part of the sternum was irradiated energetically several times. After every irradiation the number of the leucocytes and lymphocytes in the blood increased and fell again to the normal soon afterward. In one woman the thyroid increased in size. This method of treatment has not yet been perfected. In microscopic preparations of an irradiated thymus of the rabbit, Stoerk showed that the volume of the organ decreases and that the gland undergoes induration. In addition the gland shows a pronounced colloid formation and an increase in the follicles.

Before the same society Prof. Eppinger presented two brothers affected with familial icterus. The mother, a grandmother, and an aunt of the patients, and a child of one of them, were also icteric. This type of jaundice shows some traits similar to the acquired hemolytic icterus, and like the latter, it is to be traced to a disease of the spleen. On one of the patients splenectomy was performed some time ago. The icterus disappeared within nine days and has not returned. The second patient was also to be subjected to this operation.

Professor Hamburger contributed a further example of suggestive therapy in children in a case of chronic intermittent nervous diarrhea in a boy. The patient had from time to time attacks of diarrhea, in which he had from seven to ten liquid stools during the day or night. In spite of these he was in a good state of nutrition. The symptoms were such as to suggest a nervous origin for the diarrhea. The patient received, twice a day, 5 drops of tinctura amara. The diet was not changed. The attacks of diarrhea stopped completely.

Hugo Salomon demonstrated the intestine removed from a patient who had died from aphthæ tropicæ (sprue). A man 30 years of age had suffered from a gradually increasing diarrhea for several years, with the appearance from time to time of an eruption of vesicles on the abdomen. These vesicles disappeared temporarily, but recently they were continually in evidence. The diarrheic stools had an alkaline reaction, sometimes contained blood and always contained mucus. The diarrhea did not respond to any form of treatment. The patient died finally from inanition. At the autopsy a condition of irritation of the small and large intestine was found. There was also a marked edema and attenuation of the intestinal wall, and at the lowest portion of the jejunum about twenty polypi were found. In the vesicles present in the mouth, which vesicles gradually turned into small ulcers, the *Oidium albicans*, thrush fungus, was found. Aphthous stomatitis has no uniform etiology.

The rare localization of a metastasis from a hypernephroma was indicated in a case presented by O. Benesi before the Vienna Medical Society. The patient had a swelling like a follicle in the left auditory canal, which swelling when touched with a probe bled slightly. The patient also had ringing in the ears and was somewhat deaf. Exploratory excision revealed a perithelial tumor, which was supposed to be a metastasis from a malignant hypernephroma. Further examination demonstrated the presence of a tumor of the left kidney.

## OUR LETTER FROM THE PHILIPPINES.

(From Our Regular Correspondent.)

A CHOLERA CARRIER FROM AN UNINFECTED COUNTRY—A NEW MALARIAL MOSQUITO—EXTRACT OF RICE POLISHINGS IN THE PROPHYLAXIS OF BERIBERI—GOOD EFFECT OF DISPENSARIES IN THE MORO PROVINCE—SMALLPOX IN SAMAR—NATIVE DOCTORS FOR THE CONSTABULARY—PERSONALS.

MANILA, P. I., March 28, 1914.

It may perhaps be remembered that some time ago a case of beriberi, in a Chinaman, was reported as having arrived on the S.S. *Prinz Sigismund* at Manila from German New Guinea at 8 o'clock in the morning and that death took place later on the same day. Upon autopsy it was found, in addition to beriberi, that he had been a true cholera vibrio carrier. A further investigation of this matter shows that this Chinaman had been a permanent resident of Rabaul, German New Guinea, for a number of years and that he had embarked on the vessel eleven days previously. These facts were communicated to the officials of German New Guinea, who state in reply that in accordance with the best information available no cholera has ever occurred among residents of New Guinea. In view of the foregoing, it is most difficult to account for the manner in which this case may have been infected with cholera vibrios. The vessel came directly to Manila without any stop en route. The only hypothesis which has suggested itself is that perhaps some members of the crew, most of whom are recruited at Canton or Hongkong where cholera exists almost constantly, may be cholera carriers and have infected the beriberi victim on the voyage between New Guinea and Manila.

The Bureau of Science is conducting a number of investigations with regard to the possibility of the *Myzomyia rossii* mosquito being responsible for conveying malarial fever. The preliminary experiments apparently confirm the observations of Banks, made some years ago, that this mosquito is capable of conveying malarial infection.

Among the legislation passed by the Philippine Legislature is an act appropriating a small sum to the Bureau of Science for the purpose of preparing and distributing an extract of rice polishings with the hope that its administration will reduce the incidence of beriberi, particularly among children.

The effect of the dispensaries that are being established throughout the Moro Province by Major E. L. Munson, the health officer for that province, is becoming apparent through better public order which prevails among the Moros in the districts in which the dispensaries are in operation. The work of the government in this direction is being greatly aided by the different church denominations that are also opening up dispensaries. Recently Mrs. Lorillard Spencer of New York opened a dispensary and an industrial school in Jolo. It is being generally recognized that furnishing medical relief to primitive peoples does more to win them to the ways of civilization than stationing regiments of soldiers among them.

Smallpox in epidemic form has made its appearance in the province of Samar and a few cases are reported in Surigao, which is in Mindanao and close to Samar. The cause for the outbreak is due to the failure effectively to vaccinate the children that were born since the last systematic vaccination of the residents of Samar took place. It has been the practice for the Insular Bureau of Health to vaccinate all the residents of a province and then in order to meet the demands for more local autonomy to depend upon the local officials to vaccinate at six months intervals all children that are born in the interim. Experience shows, however, that the local officials either will not or cannot carry out this vaccination successfully, with the result that smallpox makes its appearance and hundreds of lives are sacrificed. Smallpox has invariably been stamped out in every province which was vaccinated by the central Bureau of Health. The bill which was introduced into the last legislature which had for its object the more central control of sanitation of the provinces and which would largely have corrected conditions of this kind, was defeated.

Recently there has been much agitation against appointing more American doctors to fill vacancies in the Constabulary, as a result of which it has been semi-officially announced that only Filipinos will be named hereafter.

Dr. W. E. Woodbury, who has been Superintendent of the Philippine General Hospital during the past few years, has resigned and has returned to the United States. Dr. John E. Snodgrass, formerly Assistant to the Director of Health, has succeeded him.

Assistant Surgeon D. C. Turnipseed of the U. S.

Public Health Service, has completed his term of duty in the Philippine Islands and has been ordered to proceed to San Francisco for assignment. Dr. S. K. Carson of Iloilo, has been named as Acting Assistant Surgeon in the U. S. Public Health Service and will fill the vacancy left by Dr. Turnipseed.

## Progress of Medical Science.

### Boston Medical and Surgical Journal.

*May* 14, 1914.

1. On Territorial Autonomy in Cerebral Circulation and Its Role in the Genesis of Symptoms in the Psychoneuroses. J. W. Courtney.
2. Ten Tests by Which the Physician May Determine when a Patient Is Cured of Gonorrhea. C. M. Whitney.
3. Some Hygienic Tests Applied to Orthopedic Conditions. H. W. Marshall and H. L. Langnecker.

**1. Territorial Autonomy in Cerebral Circulation and the Psychoneuroses.**—J. W. Courtney postulates the existence of the power of independent dilatation and contraction on the part of the vessels of the brain. One may logically assume that this organ, in common with other parts of the economy, is provided with an identical autonomic circulatory apparatus, and receives under normal circumstances a supply of blood nicely proportioned in quantity to the functional activity of the moment. When one considers that this activity is a constantly changing one with regard to both area and intensity, one may carry this assumption further and safely postulate the existence of a territorial autonomy in cerebral circulation. Physiologically there is presumptive evidence of this condition on every hand. Pathologically there are two forms of presumptive evidence of the existence of cerebral territorial circulatory autonomy: direct and indirect. The first is clearly manifest when the cranium is opened and certain portions of the cortex are observed in cases in which the brain has been contused by a diffused traumatizing force. Here one not infrequently finds in the absence of all discoverable pressure from within or without, cortical areas that are absolutely pulseless side by side with others which are pulsating normally. Indirect evidence on the point in question is derived from observations in regions other than the brain, whose vessels are supplied by the autonomic system. The author assumes that the disordered brain function underlying hysteria is directly traceable to changes in vascular tension. The mode of onset, the distribution and the general behavior of hysterical symptoms all accord with such a view. In the emotional induced crises one sees very clearly evidence of the varying degrees with which different brain areas respond to the change in vascularity. Beginning with small facial muscles the motor excitement affects progressively more numerous muscles and larger muscles and finally ends in sardonic laughter and violent contortions. Phenomena in the intellectual sphere, such as changes in the personality, are explainable on precisely the same ground.

**3. Hygienic Tests Applied to Orthopedic Conditions.**—H. W. Marshall and H. L. Langnecker state that medical literature of the past shows scanty hygienic data applied to orthopedic cases. Practically none of the older records can be considered complete or adequate in showing quantitative variations which occur from time to time. An attempt has been made by the authors to tabulate in more available form some of the more easily measured normal functions and conditions, arranging them in a way that they can be understood in a glance, and showing variable proportions among different combinations, as well as the absolute degrees each measurement exhibits. The relation of each observed condition to the average figures for the same condition among collected large series also is roughly indicated. Data pertaining to normal individuals have been set down arbitrarily in a table at points marked off upon a straight line. Variations from these averages have been indicated in a convenient way upon perpendicular lines drawn through the straight line of averages, one for each average figure. Each perpendicular has then been divided into a scale to show degree of variations possible for each separate condition. Having selected this method of recording results, patients have been weighed, measured, tested with spirometers, blood pressure apparatus, dynamometers, etc., and from results obtained a curve has been plotted for each individual. Using the table as the pattern for all records, sheets of thin paper have been placed over the table and straight lines drawn upon the blank sheets to coincide exactly with the straight line of averages of the table. Then various numbers obtained from each patient are marked off upon the individual sheets by looking through them to the right places upon the proper perpendiculars of the table. Points thus located then have been joined together into a continuous irregular line. These irregular curves show easily the variable combinations, the deviations of each variable from the average, and the changes that occur from time to time.

### New York Medical Journal.

*May* 16, 1914.

1. Salvarsan a Valuable Treatment of Brain Tumor Symptoms Dependent upon Syphilis. J. Collins.
2. Constitutional Dysmenorrhea. S. W. Bandler.
3. Apraxia in Relation to Aphasia. J. H. W. Rhein.
4. Anarthria and Its Relation to Aphasia. T. H. Weisenburg.
5. The Need of Hospitals for Whooping Cough in New York City. G. R. Pisek.
6. Kidney Disease with Special Reference to the Test for Functional Capacity. W. E. Robertson.
7. Tropical Malaria and Its Causes. C. S. Braddock.
8. Oral Sepsis of Dental Origin. W. H. Haskin.
9. Shock. E. Boise.
10. Causes of Gastrointestinal Stasis. H. S. Graham.
11. Alcohol Acidemia. S. Stern.
12. Uterus Duplex Cum Vagina Bipartita. G. R. Smith.

**1. Salvarsan and Brain Tumor Symptoms Dependent upon Syphilis.**—J. Collins states that during the past four years he has encountered at the Neurological Institute several patients who had fairly typical histories and physical signs of brain tumor, which have yielded very promptly to salvarsan medication. None of these cases was suspected to be of syphilitic origin. The pathological process in the author's cases was predominantly meningeal. In the first case there must have been, in addition to meningeal involvement, an increase of intracranial pressure, probably due to increase in the intraventricular fluid, constituting in reality a hydrocephalus. In no other way can the papilledema be satisfactorily explained. In the second case the somnolency was due to a similar increase of intraventricular pressure. Brain syphilis displays itself in one of three forms, affecting the blood vessels, or meninges, or producing a new formation sufficiently circumscribed to be considered a tumor. The meningeal variety is by far the most common. It affects predominantly the base of the brain and the convexities. The first two cases were striking examples of the former, the third case was an example of the latter. When the meningitis is of the gummatous variety, which it is usually, the symptoms accompanying it are most complex and desperate, and one has to depend upon the serological examination for the diagnosis. On the other hand, when the meningitis is of the simpler exudative variety, the diagnosis is more readily made clinically. Headache is the chief and most constant symptom. It is alleged to be worse at night, but this

is by no means always so. Scarcely any two patients describe this pain in the same way or localize it in the same place. The next most common symptom is paralysis of one or more of the eye muscles, and the motor oculi is often affected. In the third of the author's cases the pathological process was a convex meningitis.

2. **Constitutional Dysmenorrhea.**—S. W. Bandler notes that preceding the menopause, instances of constitutional dysmenorrhea become frequent. There is the type of case in which the annoyances have been present for a varying number of years from puberty on, or else have developed at a later period, or have come on after marriage, or have been aggravated by various circumstances. Then comes another and important type, the cases into whose histories these annoyances have come as a new process. These patients in their earlier years had slight, if any, premenstrual annoyances. As they approach the period of life when they look forward to the menopause their menstruation continues and even grows stronger, with or without intervals of amenorrhea, and marked cyclic states of irritability appear. These cases are in a large number of instances examples of hyperthyroidism; and some of them are cases of actual or relative hyperthyroidism. Besides one finds instances of the very opposite type, in which a phlegmatic and depressed state results, a condition often due to hypothyroidism. The cause of this dysthyroidism lies in the thyroid glands and ovaries. Either the latter function with marked energy, or overshadow the thyroid activity, or they actually overstimulate or rouse the thyroid gland, or else they work with less than their former power, but the thyroid fails to regress with equal degree, and a state of cyclic hyperthyroidism results. The administration of thyroid gland extract between menstrual periods and before menstrual periods, serves to aid in making the diagnosis. In the hyperthyroid cases the premenstrual annoyances are brought out in the intervals, or are brought on earlier, or are accentuated by the administration of thyroid extract. Among the medicinal methods, preparations of bromides and of valerian, and not infrequently ovariin, help to diminish the annoyance. In the hyperthyroid or hyperovarian type small doses of thyroid are of special value. In some of the hyperthyroid cases small doses of opium and belladonna are absolutely necessary to give the patient relief, not so much from pain and discomfort as from the irritability and often almost maniacal restlessness which typifies these hyperthroid cases. In the hyperthyroid form, or hyperovarian type, thyroid be given.

3. **Apraxia in Relation to Aphasia.**—J. H. W. Rhein points out that the relation that apraxia holds to the subject of aphasia has been hitherto exemplified in connection with certain forms of aphasia only, namely, motor aphasia, agraphia, amimia, and amusia, but the recent work of Liepmann shows that not only motor aphasia but every form of expressive aphasia and apraxia are similar. Before reviewing Liepmann's ideas without which no discussion of the relation of apraxia to aphasia could be complete, the author refers to some of the features of apraxia in order to show clearly the bearing one has on the other. Apraxia is an inability to perform purposeful movements, while at the same time the object and its use are recognized and the limbs can be readily moved; in other words they are not paralyzed. The apraxia is usually unilateral, affects simple movements, and gives rise to amorphous instead of purposeful movements. There is recognized also an ideatory apraxia which affects mainly the manipulation of objects, for example, a cigar is rubbed against the match box in an effort to light the cigar. This is called association apraxia by Bonhoffer. There is then the Glied-kinetic apraxia of Kliest in which movements which arise from practice, such as writing, drawing, and knitting are implicated. This is the cortical apraxia of Heilbronner. Finally, there is amnesic apraxia in which the subject forgets, on command or invitation, how to perform certain purposeful movements. While aphasia may or may not accompany apraxia they are often associated in the same case.

4. **Anarthria and Its Relation to Aphasia.**—T. H. Weisenburg defines anarthria as an inability to articulate words, and by dysarthria a less degree of difficulty in articulation. At least this is the meaning that has always been ascribed to these words until Marie interpreted anarthria differently. In the usual accepted view the anarthric speech is slow, weak, monotonous, indistinct and sometimes hesitating or scanning. This impairment varies in different cases, and is the result either of an involvement of the motor nuclei in the medulla and pons, that is, the motor nuclei of the twelfth, eleventh, tenth, ninth, seventh, and fifth cranial nerves or of their central connection between the above mentioned nuclei and the cortical centers in the lowest portion of the precentral convolution. In other words, it occurs either in true bulbar or pseudobulbar palsy. Marie, and later Moutier, however, define anarthria as a more or less pronounced disturbance in the articulation of words, not dependent upon paralysis of the lips and tongue. Possibly it is a kind of incoordination or ataxia. It often exists pure in the isolated state associated with no other changes, in which case it is the anarthria of Pierre Marie. An individual often young (syphilitic or cardiac) is the victim of a right-sided hemiplegia. When he recovers from his coma or somnolence, he cannot speak. His tongue though not paralyzed does not obey his will. He understands all, but says nothing. There is but one symptom, the suppression of articulate speech. Sometimes monosyllables are preserved, and are used for every attempt of speech. Communication by gesture is perfectly well done.

9. **Shock.**—E. Boise believes that the cause of the low blood pressure in shock is imperfect filling of the heart and arteries, and that this imperfect filling is due, not to a weakened venopressor mechanism, but to a tonic contraction of the heart by reason of which it cannot relax sufficiently to receive blood from the engorged veins. The author bases this conclusion on the following facts: First, on his charts, as made by the myocardiograph during series of experiments; second, on the fact that the author has seen the heart, under continued stimulation, grow small and harder; third, on the evidence of Henderson, who states that rapidly induced acapnia may cause such a severe cardiac hypertonus that death results from cardiac tetanus; fourth, on the contributory evidence of Groedel, Mowitz, Dietelen, and others who state that in the so-called collapse of athletes after severe and prolonged exertion they have, with the orthodiagraph, seen the heart grow smaller and firmly contracted rather than acutely dilated, as has been heretofore believed and taught.

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**Journal of the American Medical Association.**

*May 16, 1914.*

1. The Symptomatology of Trifacial Neuralgia. H. T. Patrick.
2. Syphilis as a Public Health Question. H. J. Nichols.
3. "Chaparro Amargosa" in the Treatment of Amebic Dysentery. P. I. Nixon.
4. Experience with Crotalin at the Oakbourne Epileptic Colony. N. S. Yawger.

5. The Normal and Pathological Physiology of the Visceral Nervous System, with Especial Reference to Vagotomy and Sympathicotony. J. M. Wolfsohn.
6. The Surgical Treatment of Postoperative Palate Defects. G. V. I. Brown.
7. Medical and Surgical Work on Board a U. S. Battleship. C. M. Oman.
8. The Comparative Value of Modern Functional Kidney Tests. W. E. Stevens.
9. A Case of Tay-Sachs Amaurotic Idiocy with a Positive Wassermann Reaction. G. E. Price.
10. How Deep Should the Tube Be Introduced in Intratracheal Insufflation? S. J. Meltzer.
11. The Cultivation of the *Plasmodium falciparum* in Vitro. T. G. Miller.
12. Results of an Improved Public Water-Supply at Cohoes, N. Y. A. J. McLaughlin.
13. The Treatment of Fractures by Autoplastic Bone Pegs. C. Davison.
14. The Incidence of Fibrinous and Bronchocatarrhal Pneumonia in the Philadelphia General Hospital. R. N. Willson.
15. The Etiology of Typhus Fever (and Brill's Disease). H. Plotz.

**2. Chaparro Amargosa in the Treatment of Amebic Dysentery.**—P. I. Nixon states that one is indebted to the Mexicans for the name "chaparro amargosa." It means "bitter bush." It has been a domestic remedy among the Mexicans of Southwest Texas and Mexico for many years. It is said that General Zachary Taylor's soldiers learned its secrets during the Mexican War and profited not a little from its use. Botanically it is classified as *Castela nicjolsoni*, Hook, and belongs to the Simarubaceæ, of which family quassia and simaruba are also members. Putegnat states that "it is hardly to be distinguished from the entire-leaved plants of the Simarubaceæ," but places it in "the natural order Ochnaceæ." The first attempt to bring this remedy before the profession was made by Putegnat of Brownsville, Tex., in 1883. He studied the plant botanically and chemically and recommended it as an antiperiodic and incidentally mentioned that it had been used in cases of diarrhea and dysentery. Chaparro amargosa is a small thorny bush, which is indigenous to Southwest Texas and Northern Mexico, growing on thin rocky mesquite or post-oak land and having an especial tendency to be found on small rocky hills. It grows to be a bush two or three feet in height, its size depending on the comparative richness of the soil on which it is found. Its leaves are small and lanceolate, its flowers pink and very small. The matured fruit is a red berry which is about the size of a pea. All parts of the plant from the root to the berry possess the characteristic bitter taste and medicinal properties. It is on the market as a fluid extract, the dose being from one to three fluid drams before meals. The author reports ten cases of undoubted amebic dysentery of from three weeks' to four years' standing. Nine patients were given the infusion of chaparro amargosa and one the detannated fluid extract; all were cured and there apparently was no recurrence so far as could be determined, the period of freedom from symptoms ranging from ten months to two years, with the exception of the last case. In only one case was a living ameba found in the stools after treatment was given. The cases averaged less than two days before the stools became normal. There were no liver abscesses or other complications. The experimental data proved the amebicidal action of chaparro amargosa no less surely than did the clinical results, the drug undoubtedly having an elective affinity for the protoplasm of *Entameba histolytica*.

8. **Value of Kidney Tests.**—W. E. Stevens states that in normal cases the time of appearance of sugar and phenolsulphonephthalein is comparatively the same on both sides. In normal cases the phloridzin, phenolsulphonephthalein, and urea tests show almost identical values for both kidneys, their efficiency as comparative tests thus appearing to be about equal. In pathological cases all three tests show almost equally low values on the diseases as compared with the healthy side, thus demonstrating their almost equal practical value. The simultaneous application of the preceding tests tends toward greater accuracy of results, is not especially time consuming, is not complicated and does not require more than the ordinary skill, which can be attained by an intelligent nurse. Moreover it gives positive assurance as to which kidney is performing the greater amount of work, thus rendering unnecessary a reputation of ureteral catheterization for the purpose of gathering additional evidence regarding renal functions. In pathological cases a coincident diminished functional value on one side in all three tests points unmistakably to a marked defect in the corresponding kidney. This in the presence of a normal functional value on the opposite side, and satisfactory total functional values as ascertained by blood cryoscopy, the bladder phenolsulphonephthalein test, etc., would permit of the removal of the diseased organ. A single renal functional test may lead to erroneous deductions and does not give sufficient assurance to justify a radical operation such as removal of the kidney. Prior to operation, comparative functional tests should be strengthened by tests of total renal function. The urea test consumes the least time and is accompanied by a minimum of discomfort to the patient. Moreover, it is not based on the elimination of a foreign substance. As compared with the phloridzin test the phenolsulphonephthalein test is subject to fewer technical errors and is less time consuming, a factor of no little importance to the patient as well as to the physician. On the other hand, the quantitative estimation of the excreted dye even with the Dubosecq colorimeter is subject to a not negligible amount of error, while following phloridzin injection the estimation of sugar by means of the Lohnstein saccharimeter is mathematically correct.

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## The Lancet.

*May* 16, 1914.

1. Some Modern Theories Concerning Hysteria. J. A. Ormerod.
2. Massive Collapse of the Lungs Following Abdominal Operations. T. R. Elliot.
3. Tumors of the Urinary Bladder. R. H. J. Swan.
4. Death from Hyperacute Streptococcal Infection Following Radical Removal of Cervical Tuberculous Glands with Sinuses. G. Jefferson.
5. Congenital Icterus. S. Sheill.
6. The Role of the Crucial Ligaments in Hemarthrus and Injuries to the Knee. F. M. Corner.
7. A Case of Carcinoma of the Breast in a Male. H. V. Welsch.
8. A Note on the Aspiratory Function of the Heart. H. W. Verdon.

**2. Massive Collapse of the Lungs Following Abdominal Operations.**—T. R. Elliot states that in the Bradshaw lecture of 1908 W. Pasteur discussed the nature of massive lobar collapse of the lungs, as contrasted with the scattered lobular collapse that occurs passively when the bronchioles are obstructed by secretion and the alveoli are slowly emptied by absorption of their air into the circulating blood. The authors report eleven cases of postoperative collapse which agreed closely with Pasteur's description. One feature he laid little stress on—and this feature the authors regard as critical. All had mucopurulent expectoration and fever, 101° to 103° F., preceding the collapse. There is no reason why fever should develop in a simply nonseptic case with reflex inhibition and "active collapse." This fever, which makes the resemblance to pneumonia all the closer, is caused by a purulent bronchitis perhaps determined by a preceding infection of the air tubes. Together with this, some unknown cause, either thoracic or abdominal, produces a reflex immobility of the diaphragm and as the combined result of these two disorders of respiration the lower lobe of the lung undergoes pas-

sive collapse throughout its mass. This may occur at any time in the first week after the operation. Since the volume of the collapsed lung is much reduced, movements occur to restore the balance of intrapleural pressures and the heart is displaced to the affected side, while the contralateral lung is overdistended. Pain and cyanosis develop when the displacement is rapid and extreme. At first there are immobility, a dullness of percussion note, and a weakness of breath sounds on the collapsed side, whereas the other may be so hyperresonant as to resemble the state of pneumothorax. Later, as the bronchial airway opens up, the breath sounds become tubular with egophony and whispering pectoriloquy. All the signs vanish in two or three days if the right diagnosis is made and active treatment is adopted. Otherwise the collapse may persist, the infection may spread through the lung, and pleurisy or true pneumonic consolidation develops as a complication. The chief criteria are fever, the greenish mucopurulent sputum, and the displacement of the heart. These together give the distinction from pneumonia or pulmonary embolism, the latter disaster being in the worst cases suggested by the acute onset of pain and cyanosis. The aim of treatment is to open up the lung before the infection spreads into its substance. Expectorants are given with potassium iodide, the patient is encouraged to make full inspiratory efforts, especially of an abdominal type, and if possible for five minutes every hour despite pain that may be felt from the abdominal stitches. If the abdomen has been tightly bandaged this impediment to breathing should be slackened. It is conceivable that the worst cases of cyanosis and pain might be relieved by an intrapleural injection of oxygen, in order to restore the balance of volume and push back the displaced heart and the overdistended lung. Fortunately these urgent conditions are rare, and the authors have had no occasion to try this method since the possibility of such a line of treatment occurred to them.

**4. Death from Hyperacute Streptococcal Infection.**—G. Jefferson concludes that the radical removal of tuberculous glands of the neck while a rational procedure, is not unfraught with danger. This is especially the case in the presence of a sinus. Two cases operated upon by the author died from a fulminating streptococcal infection, one twelve hours, the other twenty hours after operation. The exact source of infection was not discovered, but was probably the walls of the sinuses present. Prophylactic treatment should be carried out for a few days before operation—the sinuses should be well swabbed out with iodine or similar antiseptic. The wound should be well washed out with saline before it is closed and drainage should be employed, preferably through a separate stab wound in the skin flap. In children at least probably no treatment will avail when once the bacteriemia is established.

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## British Medical Journal.

*May* 9, 1914.

1. The Cause and Cure of Cancer Viewed in the Light of Recent Radiobiological Research. W. S. L. Barlow.
2. Radium in the Treatment of Malignant Diseases. J. R. Riddell.
3. Intramedullary Tumor of Spinal Cord, Treatment by Laminectomy and Application by Radium. J. M. Clarke.
4. On the Respective Advantages and Disadvantages of *X*-rays and Radium in the Treatment of Cancer. F. H. Johnson.
5. Painful Shoulders and Treatment by Physical Measures. J. J. Grace.
6. Treatment of Neuritis by Electrical Methods. W. F. Somerville.
7. Interlobar Empyema. G. Marshall.
8. Veronal Poisoning: Recovery after 100 Grains. H. R. Souper.

**1. Cause and Cure of Cancer.**—W. S. L. Barlow suggests that in radiations, and particularly in radium radiations, there is an agency which might well serve as a cause of cancer to the exclusion of all others. The author's grounds for making this statement are as follows: (1) Radium is widely distributed throughout nature in such quantities as have been shown capable of inducing accelerated division of cells. (2) Bacteria suspended in a radium-containing fluid collect the radium from that fluid. (3) The alpha rays of radium cause the disappearance of Altmann's granules from normal cells which contain them, while Altmann's granules are absent from the essential cells of malignant growths. (4) The element radium may occur in normal tissues, but if present is found on an average in much smaller quantity than it is found in carcinomatous tissue (whether primary or secondary) or in the tissues of carcinomatous patients. (5) Whereas gallstones unassociated with carcinoma of the gall bladder contain no radium or at most traces but little outside the range of experimental detection, gallstones associated with primary carcinoma of the gall bladder always contain relatively large amounts of radium. (6) Exposure to *x*-radiation over long periods is liable to be followed by carcinoma of the exposed parts. Although a cause of cancer, radium at the same time acts as a cure. The grounds upon which the author bases this belief are the following: (1) In a sufficient dose radium and other radiations are capable of killing every type of cell met with in cancer. (2) The action of radiation upon cells is selective, or conversely, all varieties of cells are not equally vulnerable to radiations. (3) There is some evidence that an active immunity is produced as the result of acting upon malignant cells with radium. The author offers the following practical considerations: The microscopic examination by a competent morbid histologist should be made of every case subjected to radium treatment. The amount of radium in use should be verified periodically by a competent physicist. It should be recognized that the metabolic processes of every patient after exposure to a considerable dose of radium are profoundly modified at least for a time. Treatment with radium should not follow immediately upon operation. If radium treatment of a malignant new growth be decided upon, such treatment should not be preceded by complete removal of the main part of the growth. Whatever may be the case in the future, for the present radium treatment in malignant disease should be confined to those cases for which modern surgery cannot offer a fair prospect by operation.

**4. X-rays and Radium in the Treatment of Cancer.**—F. H. Johnson concludes that in early cases, whether for preoperative or postoperative irradiation, the Roentgen bulb is to be preferred to the radium tube. When surgical removal is impossible, a tube of radium should be buried in the center of the tumor, but the *x*-rays should be used on the growth including the surrounding area, and any organs in which a metastasis is likely to occur. This combined treatment may result in some actual necrosis in the immediate neighborhood of the radium, but as long as this is confined to the interior of the neoplasm, no harm will result. Finally, radium therapy is the method of choice in cancer of the vagina, uterus, and rectum, but even here *x*-rays form a useful adjunct, so far as adjacent parts are concerned. Also, in practice one finds that one has to wait at least three or four weeks to obtain a supply of radium. Nothing less than 50 milligrams is of much value, and the market price of this is $4,000 to $5,000. Consequently, most institutions are com-

pelled to hire their supplies, and pending the arrival of the latter, the *x*-rays should be used vigorously in all cases. Even uterine, rectal, and esophageal cancer can usually be held in check during the unavoidable period of waiting. There are today thousands of cancer patients who believe, and whose friends believe that they are being left to die because sufficient radium is not available to treat them. This belief adds greatly to their mental distress, and the author has endeavored to show that this belief for the most part is erroneous. The Roentgen rays skilfully applied are of service in relieving pain, preventing ulceration, and causing the shrinkage or disappearance of external growths. Active life can be prolonged almost always for months, and sometimes for years. In pelvic cancer the insertion of a radium tube appears to be of greater value, but there is as yet little evidence to show that the results of the new therapy are, on the whole, more lasting than those of the older method.

### Berliner klinische Wochenschrift.

*May* 4, 1914.

**Work of the Athletic Scientific Laboratory at Charlottenburg.**—Nicolai and Zuntz have made a special study of the filling and emptying of the heart under stress, especially in sports. An important premise is as follows: All sudden changes in the size of the heart depend upon previous changes in the blood vessels. We must differentiate between acute and chronic conditions. Military service and hard mechanical labor are known to increase the size of the heart, and the same thing happens to race horses and coursing hounds. The wild animal of many species has a larger heart than his domesticated brother, and in some birds this is conditioned by rarefaction of the upper air. The ski runner and the swimmer show a gradual enlargement of the heart. Recent work along these lines has been carried out chiefly by means of the *x*-ray, and the general conclusion has been that in the single efforts the heart enlarges not during but after the latter. The authors studied numerous subjects in regard to the period of effort, the immediately subsequent period and the period half an hour after the effort. The subject studied worked on a sort of treadmill, with *x*-rays photographing the heart. It is easily seen that during the exertion the heart enlarges, and also that as soon as the exercise terminates the heart suddenly resumes its normal size. In heart strain in general there is always a blood reserve, the organ is not entirely emptied. This reserve is available in sudden demands upon the heart's activity.

**The Proteolytic Enzyme in the Serum of Normal and Diseased Subjects.**—Saxl, in a brief report on this subject, sums up the work of some recent investigators, notably Sörensen, in this field. He regards the action of autolytic enzymes as *nil*. He has tested the sera of the healthy, the pregnant, the mildly ill, and severely ill for evidence of proteolytic and peptolytic enzymes. It is probable that in the cases of cancer and gestation, ferments of tryptic-creptic character exist in the serum; and that in other subjects pepsin like enzymes predominate. As a rule, tested by Witte peptone, the serum possesses proteolytic activities. The author will continue this line of research.

**Possible Prevention of Paresis by Salvarsan Medication.**—Wechselmann reports a case which is at the same time a retort to Oppenheim's recent assertion that certain alleged claims of recovery from metasyphilis in the Lankwitz clinic were unfounded. The patient in question, already treated with salvarsan and Hg, had been abandoned to his fate in an asylum. The author, at the request of the family, sought him out and found him isolated and raving, pulse bad. After an injection of salvarsan there was marked rapid improvement, which, of course, could be accounted for as a spontaneous remission. Leaving this possibility out of consideration the author proceeded to a second and third injection, and after each one further improvement was noted. At the end of two months the pupillary and patellar reflexes were normal, there was good speech and reckoning, no Romberg and only slight tremor of tongue and fingers. Psyche normal. Wassermann reaction negative. Later patient with other symptoms in abeyance, developed epileptic attacks, some being atypical in character. Salvarsan was resumed. The attacks abated in number and severity. Suggestion of a focal lesion. The Wassermann reaction remained negative.

### Deutsche medizinische Wochenschrift.

*April* 23, 1914.

**Lithogenic Icterus.**—Riedel sums up his article as follows: the icterus which appears after a stone enters the choledochus, is mechanical only to a slight and transitory extent; its causation is almost exclusively inflammation of the bile passages, which is propagated to the liver parenchyma. Inflammatory icterus in the narrower sense arises from the propagation of inflammation from the gall bladder to the overlying liver substance, in acute attacks. It has not been shown that the swollen glands in the ligamentum hepatoduodenal exerts as strong a pressure on the deep bile passage as to give rise to mechanical icterus. A protracted impaction of a stone in the ring of Vater's papilla should be of rare occurrence. Should cholecystotomy come into question a trial incision parallel with the costal arch and some 2 cm. distant therefrom has notable advantages, because it permits prolongation in either side and especially upwards to the angle between the costal arch and base of the ensiform process. Duodenotomy is only exceptionally indicated in stone at or within the papilla. Ordinarily cholecystotomy is quite sufficient.

**Treatment of Syphilis with Combined Hg-Salvarsan.**—Scholtz, after a general summing up, states that when all arguments have been heard, we must still abide by the contention that a combination of salvarsan and mercury, properly administered, gives us surpassing results with no noteworthy risk to the patients. A judgment as to salvarsan, its advantages and drawbacks, can be reached only through an equivalent series of controls; while a judgment of salvarsan purely as a medicament, with its advantages and dangers, cannot be stated summarily, but only has reference to individual forms of treatment.

**Prevention of Afterpains in Local Anesthesia.**—Schlesinger speaks of the intense afterpains in analgesia of the fingers. These are so great as to make "painless operations" a mockery. In all operations on digits injections should be made only where loose tissue exists, naturally in the interdigital webs. One should always avoid injecting into inflamed tissues. This precaution will do away with a large proportion of afterpains. The latter are not due so much to chemical peculiarities of the fluids injected as to its physical properties. Hence there is no chance for a chemical neutralization.

**Serous Cysts of the Pancreas.**—A. and P. Behague state that the diagnosis of this condition is based upon the following symptoms: emaciation, vomiting, the signs of pancreatic insufficiency, celiac neuralgia, and the presence of an immovable tumor surrounded by an area of resonance, above all after insufflation of the stomach.—*Le Bulletin Médical.*

# Insurance Medicine.

## THE LATE DR. J. W. LEWIS.

By T. D. CROTHERS, M.D.,

HARTFORD, CONN.

THE recent death of Dr. J. W. Lewis, of Hartford, Conn., calls attention to a man who at one time was the most widely known physician in this country. He was not often seen at medical society meetings or noted as the writer of papers in medical journals, but in the private consulting rooms of physicians and surgeons and lawyers, and in conferences, in homes and hotels, he was a very familiar figure. He was born in Greenport, L. I., graduated from New York University in 1853, and in 1861 became Surgeon in the Civil War, and was distinguished as an executive officer both in the hospitals, and in field service.

In 1868 he became connected with the Travelers Insurance Company of Hartford, as a Medical Director and Adjuster in the claims department. The Travelers was among the first to take out accident insurance in this country, and its policies sold everywhere. Hosts of disreputable men holding policies claimed all sorts of injuries and accidents, and the effort of the company to discriminate between the real and the false was a great task at first. Dr. Lewis displayed a very acute analytical mind and diagnostic skill in medical and surgical problems. Almost innumerable questions were constantly raised along medicolegal lines, which required the highest kind of inductive and deductive reasoning, as well as acquaintances with law and medicine and its applications to the events of everyday life. These facts were not settled in the office of the company. Dr. Lewis went out and made personal examinations, particularly of the doctors who certified to the injuries, as well as interviewed the claimants. This he did in a most quiet, unofficial way, making free notes of the facts and opinions, gathering about the case and estimating them with a detective skill of Monsieur Lecoq or Allen Pinkerton. Surgeons were astonished at the exhaustive studies made of disputed cases and attorneys were overwhelmed with confusion to find superior information and more exact deductions from groupings of facts which they thought they had understood. Dr. Lewis combined a certain judicial temperament in the grouping of facts with a detective skill to know where they could be found. He also made himself familiar with the work of all the leading surgeons of the country, particularly on questions where there was responsibility and obligation, and in this he was recognized as an eminently just, and fair man, never taking advantage to advance the interests of the company.

Thus, year after year, this mild, gentle, soft-spoken man traveled about the country, unobserved, gathering facts and data, and laying the basis for a life-insurance medical jurisprudence, which before his time was in a very chaotic state. He established rules for the examination of disputed claims, and indicated ways and means in which fraudulent claims could be detected; and with this made an enormous personal acquaintance with active working medical men, all over the country, and particularly those, whose work came in question by the insurance companies. In this field he was a pioneer, and although rarely seen in court, his work was shown in most critical exhaustive studies of facts real and alleged. He was a very close observer and kept copious notes of all the facts, and thus was able to verify the conclusions that he reached.

Dr. Lewis's life was full of most romantic incidents in which he figured as a physician, detective, and judge in a remarkable way. He has left very tender memories among his associates and the friends who knew him.

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**When a Physician Is Claimant for Accident Insurance, Is Self-Treatment Allowable.**—The conditions of insurance of most of the German accident companies render the claim and payment of the insured's daily stipend dependent on the fact that the medical treatment is continued, and that persistence of a restriction of ability to work resulting from the accident does not in itself suffice for the maintenance of such a claim. One may now ask what is to be understood in regard to continuance of treatment; whether by others, or, in case the claimant is a physician, by self-treatment?

On March 22, 1913, a County Court judge found for the defendant company on the following grounds: There is no doubt that the complainant, as physician, and by reason of the court's knowledge of his personality, and of his official status as county physician, has bestowed upon himself the self-treatment in question, to his best knowledge and conscience, and had made an estimate of his inability to work. There is involved here a principal issue, which must be applicable to all questions of the kind. Section 5, No. 2, of Insurance Conditions, requires first of all that the insured must without delay, and thereafter continuously until cured, call in a physician. Section 8 determines that the compensation will be reckoned at the end of each month on submission of medical attests as to the degree of disability and the uninterrupted duration of medical treatment.

These provisions interpose between the insurer and insured a third disinterested person, specially educated to judge of the facts upon which the compensation is reckoned.

Suppose the insured to have this training himself, self-treatment and self-appraisement of occupational disability, the participation of the disinterested third person will be eliminated.

This is, however, just as little to be approved of as the converse, viz., that the insurer, having eliminated the insured, should, through its own medical staff, undertake the treatment of the insured and permit itself to determine the occupational disability of the same. Therefore the self-treatment of the claimant does not suffice him to sustain a claim for compensation. The circumstance is also not changed, that the treatment from May 5 on was relatively simple, and that the claimant as physician could judge technically as to the further course of the treatment as confirmed by the witness, Dr. A. The proof that complainant from May 5, 1912, was under the continuous treatment of Dr. A. was not forthcoming, for the latter only announced that complainant had said to him after May, 1912, on occasion, that the injured hand was still partly unfit for use; he, witness, however, did not know whether Dr. A. merely asked his opinion as to the interval between May 5 and July 1, or wanted his advice as a physician. This question of Dr. A. by complainant, as to continuance of the prescriptions before May 5 cannot be regarded as persistence of medical treatment. It was this point which decided against the plaintiff.—*Ztschr. f. Versicherungsmedizin*, August, 1913.

# Book Reviews.

Die Auffindung von Arzneimitteln. Festrede gehalten am Stiftungstage der Kaiser Wilhelms-Akademie für das militarärztliche Bildungswesen, 2. Dezember, 1913. Von Arthur Heffter. Price 1 mark. Berlin: Verlag von August Hirschwald, 1914.

This address takes cognizance of the changes that have taken place in our knowledge of drugs in the last few decades, the remarkable contributions made to the pharmacopœia by the rise of the pharmaceutical-chemical industry, how remedial agents are discovered, how humanity has attained possession of its drugs, and how it has augmented these. Our knowledge of medicines is epitomized from the dawn of history to the present time.

Diagnostic Methods. A Guide for History Taking, Making of Routine Physical Examinations, and the Usual Laboratory Tests Necessary for Students in Clinical Pathology, Hospital Internes, and Practising Physicians. By Herbert Thomas Brooks, A.B., M.D., Professor of Pathology, University of Tennessee, College of Medicine, Memphis, Tenn. Second Edition. Revised and Rewritten. Price $1.00. St. Louis: C. V. Mosby Company, 1914.

This excellent little book is intended for medical students, hospital internes, and physicians who have limited amount of time to give to laboratory work. Up-to-date and reliable laboratory tests have been incorporated in a clear, concise manner. The Wassermann reaction and the complement fixation test for gonorrhea are included, besides the usual topics on sputum, blood, gastric and intestinal contents, serous fluids, tuberculin diagnosis, etc.

Ulcer of the Stomach. By Charles Bolton, M.D., D.Sc. (Lond.), F.R.C.P. (Lond.), Director of Pathological Studies and Research, and Lecturer in General Pathology, in University College Hospital Medical School; Physician (with charge of out-patients) to University College Hospital. Price $4.20 net. New York: Longmans, Green & Co.; London: Edward Arnold, 1914.

The subject of ulcer of the stomach presents many problems from the clinical and experimental viewpoints. The theories that have been advanced to explain the origin of gastric ulcer are legion. The author has broken new ground in the study of this subject and has combined with his bedside observations those of the consulting room, the out-patient clinic and the laboratory. The result of his extensive studies is a substantial volume of 396 pages, in which every phase of ulcer of the stomach is discussed in detail. The author purposely excludes the subject of duodenal ulcer on the ground that the latter condition differs from gastric ulcer in having a different origin, in being exposed to different influences, in having its own typical clinical history, and in responding in a different manner to treatment. In discussing the causes that give rise to the initial lesion that precedes the formation of an acute ulcer of the stomach, the author finds that bacterial infection of the body accounts for a large number of acute gastric ulcers. Many of these are due to terminal infection. Other causes are cutaneous burns and irritant substances introduced by the mouth. Alcohol and acid foods excite a gastritis which is a common cause of acute ulcer. Venous congestion of the stomach is an undoubted cause, while aseptic plugging of an artery is a rare cause of acute ulcer. This condition also results from pressure necrosis by a tumor, and also from injury to the epigastrium. It is possible that endogenous poisons of metabolic or other origin may be responsible for some of the ulcers occurring in kidney and liver diseases. As a result of a series of experiments the author has found that acute ulcer failed to appear if the gastric juice were put out of action. A hyperacid gastric juice produced a more extensive ulceration than a juice of the normal acidity. The gastric juice is unable to attack the healthy wall of the stomach. It is only the damaged tissue that is affected by the gastric juice. These are but a few of the facts which the author has gleaned and collated in a section of this work, comprising nearly 100 pages. The symptomatology of acute and of chronic ulcer, their diagnosis and prognosis, and their medical and surgical treatment are all accorded similarly full attention. The complications and sequelæ, such as cicatricial contraction, gastric adhesions, subphrenic abscess, gastric fistulæ, and cancer are all given ample discussion. To each section there is appended an extensive bibliography. The book contains a series of thirty-five photographic plates and fifteen figures in the text. It is well written and represents the latest word on the subject of ulcer of the stomach. The typography, paper, and binding are fully in keeping with the importance of this work.

Das Schicksal von Patienten mit Keratitis Parenchymatosa auf Hereditarluetischer Grundlage. (Syphilis und Auge. VIII. Mitteilung.) Von Priv.-Doz. Dr. Igersheimer, Oberarzt der Universitats-Augenklinik zu Halle a. S. Price Mks. 1.50. Halle a. S.: Carl Marhold Verlagsbuchhandlung, 1913.

This article by Dr. Igersheimer occupies 52 pages. The subject is considered under four headings: First, the history of the eye affected by interstitial keratitis; second, the history of the condition of other parts of the body; third, the result of interstitial keratitis; fourth, the prophylaxis. The work is based on an exhaustive study of quite a large number of cases. The various aspects of the condition have been carefully considered and ably presented. As a review of this manifestation of syphilis the brochure is of much interest. It may be read with profit by all who are engaged in studying the subject.

Defective Ocular Movements and Their Diagnosis. By E. M. Landolt (Paris). Translated by Alfred Roemmele, M.B., Ch.B., and Elmore W. Brewerton, F.R.C.S. Price $2.00. London: Henry Frowde, Oxford University Press, Hodder & Stoughton; New York: Oxford University Press, American Branch, 1913.

This little volume of 100 pages presents a careful study of defective ocular movements and their diagnosis. Pathology is preceded by a short summary on anatomy and physiology. The various anomalies of the ocular muscles are discussed. The methods of examination employed for the diagnosis of strabismus are described and illustrated. About 40 pages of the work are devoted to a discussion of the causes of defective ocular movements. This work is most admirable. It may be read with profit by all who are engaged in the study and treatment of anomolies of the ocular muscles.

The Practical Medicine Series, Volume X., Nervous and Mental Diseases. Edited by Hugh T. Patrick, M.D., Professor of Neurology in the Chicago Policlinic, Clinical Professor of Nervous Diseases in the Northwestern University Medical School, ex-President Chicago Neurological Society, and Peter Bassoe, M.D., Assistant Professor of Nervous and Mental Diseases, Rush Medical School. Price $1.35. Chicago: The Year Book Publishers, 1913.

The book serves the usual valuable purpose of the series by affording the busy man a concise statement of the recent advances made in the diagnosis and treatment of nervous and mental diseases. Many interesting cases have been cited.

The Practical Medicine Series, Volume IX., Skin and Venereal Diseases, Miscellaneous Topics. Edited by W. L. Baum, M.D., and Harold W. Moyer, M.D. Price $1.35. Chicago: The Year Book Publishers, 1913.

In addition to a résumé of the year's literature of skin and venereal diseases, the book devotes some space to the consideration of such general subjects as Medical History, Medical Economics, Sociology and Eugenics. The volume proves both interesting and instructive.

L'Enfant et Son Médecin. Guide Pratique de L'Hygiene et des Maladies de L'Enfance, de o à 15 Ans. Par le Dr. Albert B. Ball, Ancien Interne des Hôpitaux de Paris, Assistant de la Consultation de l'Hôpital Trousseau; Inspecteur de la protection des enfants du 1er age; Médecin des établissements scolaires de Paris; Laureat de la Faculté de Médecine. Deuxieme édition, revue et considerablement augmentée. Price 6.50 francs. Paris: A. Maloine, 1914.

This small volume is printed on thin paper, so that the 375 pages form a thickness of only three-eighths of an inch. The type is small, with the result that considerable matter is comprised within the text. This deals with the subject of pediatric therapeutics and indications, dosage, methods of examination, hygiene, cludes the management of emergencies, therapeutic infeeding, general therapeutics, and surgical definitions.

## Special Article.

# THE DISTRIBUTION OF DUTIES AMONG THE DEPARTMENT OF HEALTH, THE DEPARTMENT OF PUBLIC CHARITIES, AND BELLEVUE AND ALLIED HOSPITALS.*

By S. S. GOLDWATER, M.D.,

NEW YORK.

COMMISSIONER OF HEALTH.

THOSE duties and functions of the Department of Health which are entirely apart from the management of institutions may be assumed properly to belong to the Department of Health, and to be outside of the scope of the present discussion.

A borderline question is the proposal that hospital "social service" should be expanded, enabling hospitals to undertake the duty of instructing the public in matters of hygiene. This proposal arises from the inadequacy of the educational work heretofore performed by the Department of Health. The institution of adequate preventive work by the Department of Health would render unnecessary the establishment by the hospitals of the proposed "health centers."

The health center plan, conceived as an extension of hospital activity, is not broad enough to meet the requirements of preventive medicine. Conditions which contribute to the causation of disease can be adequately controlled only under a system which includes: (1) Factory, store, and office supervision; (2) regulation of dwelling construction; (3) universal periodic physical examination of individuals for the detection of disease in its incipiency.

The development of a comprehensive program of preventive medicine does not lie within the scope of hospital management as such, although it might conceivably be entrusted to the same authority which exercises supervision over hospitals.

In the present discussion we must confine ourselves to a consideration of the principles of the management, by the municipality, of institutions for the treatment of the sick. The question which should primarily engage our attention is not "the proper distribution of duties among the Department of Health, the Department of Charities, and the Board of Trustees of Bellevue and Allied Hospitals," but rather the question of the proper organization and the efficient management of hospitals.

It is conceivable that either a large board of trustees, a smaller board, or a single commissioner, might satisfactorily administer the city's hospitals. Nine ideally organized hospitals, distributed among three city departments in three groups of three hospitals each, would serve the city far better than a group of nine hospitals, improperly organized, but under single control. Central control offers certain economic advantages, and tends to produce uniformity of method. But uniformity may be established on a low plane as well as on a high one, and is not an end in itself.

I do not appear in this discussion as the champion of the Health Department as against other departments of the city government; and I do not urge the continued control of institutions by the Department of Health merely because such institutions have been heretofore managed by that department. In fact, I see no good reason why any hospital need actually be administered by the Department of Health.

The primary function of the Department of Health is to prevent, not to treat disease. In the case of contagious diseases, there is an obvious relationship between hospital isolation and the prevention of epidemics, but the sanitary requirements could be met quite as satisfactorily in contagious wards attached to general hospitals as in the "contagious" hospitals of the Department of Health. For example, the Kingston Avenue Hospital for contagious diseases is contiguous to the Kings County Hospital. Now, if Kingston Avenue Hospital were a subdivision of Kings County Hospital, the public would be just as effectually protected as under the present arrangement, always provided that the rules necessary for the prevention of infection were enforced as effectually as they are to-day. The sanitary supervision of contagious wards in general hospitals should always be entrusted to the Department of Health; but beyond the exercise of such supervision, the Department of Health need not enter the institutional field. If, then, there is no valid reason for assigning to the Department of Health the actual administration of hospitals, we are free to consider the organization, distribution, and correlation of hospitals, without regard to the Department of Health.

Before considering the main question it is proper to ask what we expect the hospitals of the city to accomplish, and to inquire what form of hospital organization will be most likely to yield the best results. The mere supervision of the hospitals is of secondary importance.

The primary function of the hospital is to cure disease; failure to cure is unavoidable in some cases, and in such cases it is the business of the hospital to relieve suffering. A hospital which fails to cure a patient who is theoretically curable, fails to that extent to perform its proper function; a hospital which does not give relief where relief is possible, likewise fails in its duty.

The essential resources of a hospital for dealing with disease are the physical plant, the medical staff and the nursing staff. While it is impossible, within the limits of this discussion, to consider these resources in detail, we may say: (1) that the hospital must be of sanitary construction, and must be amply equipped with appliances for the investigation and treatment of disease; (2) that the medical staff must be so constituted as to be able to give to each patient the benefit of all the scientific and technical resources of modern medicine, and these resources must be immediately and actually available; (3) that the nursing staff must be sufficient in number and of the best quality.

If, as I believe, there is not a single municipal hospital in the City of New York to-day, which is so organized that it is able to meet these requirements, an "improved plan of hospital organization" for the City of New York must address itself rather to the fundamental question of internal hospital organization, than to the question whether it is best to lodge hospital control in the Charities Commissioner, a Health Commissioner or the Board of Trustees of Bellevue and Allied Hospitals.

The subject of hospital treatment is the patient and not the disease; and therefore the hospital must include in its physical equipment and in its medical organization the means of dealing with any physical condition, with any complication of diseases, expected or unexpected, in any individual patient. In medical practice there is no sharp line of demarcation between medicine and surgery, nor between regional and systemic infection. A hospital which can treat a straight case of typhoid fever, but which is powerless to bring swift surgical relief when perforation of the intestine occurs, is a poor instrument for the treatment of disease, unworthy to represent modern medicine. Obviously, such a hospital is not a safe refuge for a patient who has typhoid fever. Similarly, a hospital is defective if its staff includes only expert otologists; for the patient with ear disease may have an infection of his knee, or an ulcer of the stomach, or pneumonia, or a mental obsession—conditions which otologists are admittedly incompetent to deal with. Time is lacking for further illustration, and so I shall simply state, in relation to this point, that no hospital can give satisfactory service, in all emergencies, which is not a full-fledged, general hospital, representing in its clinical organization, in its laboratory organization, in its therapeutic equipment, all that modern medicine is able to contribute of technical skill and expert knowledge to the investigation and treatment of disease.

Modern medicine thrives best in the atmosphere of a general hospital; the medical student is best educated in a general hospital; the hospital patient fares best in the general hospital; hence the typical hospital unit of the proposed "better system" which the city aims to establish, must be a general hospital. The recognition of this truth is a prerequisite to effective hospital reform. The establishment of real general hospitals will quicken medical investigation, will place adequately equipped laboratories, which small hospitals cannot afford, at the disposal of clinicians generally, will tend to correct the specialists' tendency toward narrowness, will facilitate sound medical teaching, will insure a more adequate training of nurses, will abolish the stigma which now attaches to infectious diseases, will improve the clinical work and the nursing service in contagious wards, will promote the standardization of hospital construction, equipment and administration, will develop a trained body of hospital administrators, will discourage the multiplication of poorly equipped special hospitals, and will aid in the standardiza-

* An outline of remarks made at the New York City Conference of Charities and Correction, Wednesday, May 20, 1914.

tion and proper utilization of morbidity statistics.

If the central feature of the improved hospital system is to be the general hospital, will there be no place left for any other type of institution? For chronic diseases and for convalescents, yes; for acute diseases, no. There are so many thousands of persons suffering from tuberculosis that to attempt to provide for them in general hospitals would be to increase unduly the size of such hospitals, and so to complicate their administration that more would be sacrificed by the patients of the hospital generally than would be gained by the tuberculous patient who, in exceptional circumstances only, requiries such services as only a general hospital can give. The same is true of the insane, whose large and increasing numbers make their care in general hospitals impossible, though general medicine and the public would profit by the inclusion in general hospitals, of observation wards for mental diseases. Nor is there any question that the incurable insane, as well as others, occasionally need the services of a general hospital—the demands upon the infirmary at Ward's Island amply testify to this.

For the tuberculous, for the insane, for the incurable, for crippled children, and for convalescents, special institutions may properly be provided, but not for gynecological cases, not for eye cases, not for diseases of the nervous system, nor for other regional or systemic specialties too numerous to mention; for all of these, suitable units, forming coordinated parts of the general hospital, should be provided.

The ideal general hospital will be large enough to accommodate all branches of medicine and surgery, and the clinical units will be of sufficient size to permit of economical construction and administration and of the grouping of different classes of patients in a manner favorable to clinical research. So large the general hospital should be, but no larger. When a general hospital planned on these lines is fully occupied, the demand for additional beds should be met, not by increasing the size of the hospital already built, but by erecting a new one. The number of institutions to be thus provided by the city will be considerable.

In proposing what I believe to be the best type of hospital, I do not mean that nothing is to be left to individual initiative, nor that special genius for organization and administration shall have no opportunity to manifest itself. The hospitals of the city will thrive best if to each institution is left a large measure of autonomy. It is one of the peculiarities of institutional management that no institution can thrive which is wholly governed from without. This point I wish especially to emphasize, because it has apparently escaped the attention of those who have hitherto contributed to the discussion of the question.

Paris, with its large number of district hospitals, presenting an almost perfect system on paper, affords a striking illustration of a company of institutions which languish under rigid rules, promulgated by central authority. No central authority, whether commissioner or board, can ever take the place of a number of local authorities, each actually engaged in the conduct of a given institution, feeling its stresses day by day, contributing to its success, answerable for and conscious of its failures, studious of the achievements of its rivals, independent, aggressive, ambitious, constructive, but above all else, responsible.

The way to improve the hospitals of the city is to place them in the hands of the Commissioner of Charities if he is ready to accept the foregoing principles, or in the hands of the Board of Trustees of Bellevue and Allied Hospitals, if they will subscribe to what is here set down as the fundamental basis of effectual hospital organization. If neither of these departments will agree, then the Department of Health, notwithstanding its present burdens, is willing to be regarded as a receptive candidate.

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**Grouped Comedones.**—J. M. H. McLeod reports the case of a girl, aged two years. An eruption began when the child was aged one, and was probably the result of camphorated oil and turpentine which had been rubbed on the skin by the mother, as the child suffered from bronchitis. The eruption was present chiefly on the upper part of the back, on the shoulders, and on the chest, and to a less extent on the forehead and cheeks. The lesions consisted of grouped comedones, acne pustules, white pitted scars, and minute fibrous thickenings dotted over with pits.—*Proceedings of the Royal Society of Medicine.*

# Society Reports.

## MEDICAL SOCIETY OF THE STATE OF NEW YORK.

*One Hundred and Eighth Annual Meeting, Held in New York City, April 27, 28, and 29, 1914.*

(Special Report to the MEDICAL RECORD.)

(*Concluded from page* 965.)

### SECTION ON PEDIATRICS.

*Thursday, April 29—Third Day.*

**Presentation of Cases of Sporadic Cretinism.**—Dr. CHARLES HERRMAN of New York presented this paper in which he gave a summary of forty-one cases of sporadic cretinism that had come under his attention during the past fifteen years. He also presented a number of illustrative cases. He stated that in this series of 41 cases, 30 were females and 11 males. A large number of the patients in this series were observed at a very early age, 16 being under two years of age, and 8 of these under one year. Dr. Herrman expressed the belief that in the majority of cases the disease was congenital, because so many cases came under observation with distinct symptoms before the end of the first year, and because so many coming under observation later gave a history of having had significant symptoms since birth. He did not believe that the mother's milk contained substances which counterbalanced the deficit of thyroid in these infants, because a number of the patients showed distinct symptoms while at the breast. All cases of myxedema were not necessarily due to absence of thyroid gland. In a case in which both Hochdinger and Kassowitz had made the diagnosis of myxedema due to congenital absence of the thyroid gland as no thyroid could be felt, the patient died, and at autopsy the thyroid was found to be present, but markedly infiltrated by a growth of new connective tissue. This case also illustrated how difficult it was to palpate the thyroid gland. In this series twenty-five of the patients were Russian Hebrews. Making allowance for the fact that at a number of the clinics in which these cases were observed a large percentage of the patients were Hebrews, still the large proportion was striking. The series offered an unusual opportunity for studying the effect of long treatment, for thirteen were under observation for more than five years and of these seven were observed for from ten to eighteen years. As to consanguinity, in only four cases were the parents related, and three of these cases were in one family. A distinct history of constitutional disease in the family was not common. The Binet-Simon test was of very great value but had its limitations, being only applicable to children whose intelligence corresponded to that of a child of four years. The results obtained by this method compared with the intellectual development as shown by the patient's grading in school corresponded pretty accurately. The data presented in respect to physical development, mental development, retardation of mental and physical development, and the age at which treatment was begun seemed to justify the following conclusions: (1) Under thyroid treatment, if begun early, the physical development might reach normal. (2) When treatment was begun late the physical as well as the mental development might remain much below the normal. (3) The improvement in the mental development was never as great as in the physical development. (4) The earlier the treatment was begun the better the result as far as mental development was concerned. (5) In congenital cases, if the treatment was begun after the first year, a marked intellectual retardation persisted. The later the treatment was begun the more marked would be the retardation. (6) In order to obtain good results the treatment must be regular and continuous. A case presented well illustrated this point. While the treatment was regular the increase in height was three and one-half inches in a year, whereas during the periods when it was irregular it was as low as three-quarters of an inch in a year. (7) In the acquired as against the congenital form, the intellectual development was less retarded than the physical development.

Dr. WALTER W. STRANG of New York said Dr. Herrman had been very fortunate to have had the opportunity of observing so many cases of this kind. Dr. Herrman had shown that the mental development in

these cases was not what they had been led to hope for in the earlier papers on this subject. One thing that was very disappointing in dispensary work was the inability to keep the patients under treatment. In the Hospital for the Ruptured and Crippled they divided these patients into two classes, the severe, and the less severe or hyperthyroid cases. The increase in the physical development in the latter class was extremely marked. It was doubtful if anyone else had seen so many cases and there was no doubt but that this paper would be a great help in making the literature of this subject.

Dr. Charles Herrman of New York called attention to the first patient presented who was now twenty-two years of age and had been under observation for eighteen years. His physical development was retarded five years and his mental development ten years. Few cases had been under observation for such a length of time.

**Recurrent Bronchitis in Children.**—Dr. Charles Gilmore Kerley of New York presented this paper. He called attention to the fact that in children subject to recurrent attacks of bronchitis there was an underlying condition which was common to the difficult feeding cases, eczema, recurrent vomiting, and bilious attacks, and that these children were frequently the offspring of parents who suffered from disturbed metabolism. They frequently bore cow's milk and sugar badly, and exhibited a lessened resistance. Recurrent bronchitis was much like other recurrent conditions. It was more apt to come on during cold months when the eliminative functions of the body were less active. It had been found that 41 per cent. of the cases of recurrent vomiting suffered from recurrent colds. A diet having an excess of fats and carbohydrates seemed generally responsible for recurrent bronchitis in children. When the carbohydrate content of the diet was cut down in such cases a marked improvement usually ensued. Milk and sugar were not necessary to the child after the age of one year or fifteen months. Cane sugar was not recognized as a food until three hundred years ago. Countless millions of human beings had lived their span of life without it. The author reviewed the history of cane sugar since 325 B. C. to show that it had only been recognized in medicine and as a condiment until the sixteenth century, and that it was in no sense a necessary ingredient of food. Dr. Kerley presented a number of children whose histories showed that they had been reduced to a state of chronic invalidism by recurrent attacks of bronchitis and who were restored to a normal healthy childhood by proper regulation of the diet. It was his custom to reduce the amount of carbohydrate in the diet by cutting off the cow's milk entirely or else giving only a pint daily of skimmed milk. Sugar was forbidden and the fat content of the diet greatly reduced. Many of the parents feared that the children were being starved, but, on the contrary, they very generally gained in weight quite rapidly after the removal of the sugar and fat from their food. These children were of the so-called lithemic type and so he gave them some alkali (usually salicylate of bicarbonate) and kept the bowels open. There was a certain class of cases in which thyroid extract seemed to be indicated and these he gave one-half grain twice a day.

Dr. Charles Herrman of New York said that in 1905 Czerny of Berlin had described under the title of "Exudative Diathesis" a congenital constitutional anomaly, the chief characteristic of which was a peculiar sensibility of the skin and mucous membrane to an exudative inflammatory condition which manifested itself in the form of eczema, intertrigo, papular urticaria, a geographical tongue, rhinitis, laryngitis, and bronchitis of the recurring asthmatic type. He later added manifestations in the gastrointestinal and urinary tract. Dr. Herrman believed it would be better to consider these attacks of recurrent bronchitis as simply one manifestation of the exudative diathesis. The condition might also in some respects be compared to measles, the difference in appearance being due to the difference in structure of the tissues involved and to the different manner in which they reached to the same irritating agent. The speaker called attention to the fact that in a paper read before the American Pediatric Society in 1911 he had described recurring attacks of loose mucous stools in patients presenting the other symptoms of the exudative diathesis. In the same paper he had called attention to the frequency of sprue in infants who later showed the other manifestations of this diathesis. Finally the blood showed a distinct eosinophilia in those patients who presented cutaneous manifestations and in those with attacks of bronchitis of the recurrent and asthmatic type. Czerny in his original paper outlined the diet as follows: In young infants breast feeding should be continued if possible; if cow's milk must be given it should be in smaller quantities and low in fat. No sugar should be added. Cereals and broths should be given early. For older children cereals and vegetables were allowed but very little milk, no cream, no butter, no sugar, or eggs. Eppinger and Hess included the manifestations of the exudative diathesis in infants as due to vagotonia and on this basis Krasnogorski had given atropine with excellent results, especially in those cases with eczema and recurrent bronchitis. It was necessary to give this drug until distinct physiological effects were observed. He had used this treatment in a few cases with satisfactory results. After the removal of adenoids or tonsils in children with this diathesis the dietetic and hygienic treatment was most important if one hoped to prevent a recurrence. The good effect of thyroid therapy in these cases was due to its marked stimulating effect on the metabolism.

Dr. Anna W. Williams of New York asked if these children with recurrent bronchitis showed a tendency to follicle formation in the conjunctiva as in the nasopharynx.

Dr. DeWitt H. Sherman of Buffalo said it was interesting to learn of the influence of toxicity due to gastrointestinal fermentation upon the upper air passages. The focal point seemed to center in the follicles, with changes in the mucous membrane not inflammatory in type. In those cases which had come under his attention a reduction of sugars or fats, either one, was productive of good. Was it not possible that the same chronic bronchitis was a misnomer? Did not the trouble lie more in the follicles at the base of the tongue or in other adjacent parts. This might be possible since local treatment was so beneficial. Dr. Kerley mentioned rheumatic pains as being relieved by the reduction of fats and sugars, allowing a moderate amount of skimmed milk. Did he consider these rheumatic pains to be relieved by the rather high protein diet he seemed to give or by the alkalies and salicylates given in association with the diet?

Dr. Thomas S. Southworth of New York said Dr. Kerley had spoken of older children with chronic bronchitis having asthma. He was not speaking of the older children, but in very young children asthma might be due to cow's milk. Such a case had come under his observation last summer in an infant fed partly on breast milk and partly on cow's milk. As soon as the cow's milk was removed from the diet the asthma disappeared. Such cases were undoubtedly extremely rare.

Dr. C. G. Kerley of New York said that in reply to Dr. Sherman he would say that the diet employed was not a high protein diet. With the milk skimmed and the quantity reduced the protein content of the diet was reduced. Red meat was allowed three times a week, chicken twice, and fish once. As to the inhalations, they were used in the acute period, and only for two or three nights. The cases he had discussed were chronic cases that had been going on for years, so the inhalations were not responsible for the cures. In reply to Dr. Williams' question, Dr. Kerley said he had not found these children more subject to conjunctivitis than others. As to the coated tongue at the times of the attacks of bronchitis there was no evidence of intestinal disturbance. The urine was negative and there was normal bowel action. The tongue had been found coated regardless of whether there was constipation or not.

**Causes and Treatment of Chronic Conjunctival Affections in Childhood.**—Dr. Anna Wessels Williams of New York presented this communication in which she reviewed the results of the bacteriological study of conjunctival infections in the lower east side of New York. She stated that they had summarized their studies as follows: (1) The written descriptions of trachoma did not agree as to a clinical or a pathological entity. (2) Among the children of sixty public schools in the crowded lower east side of New York City (supposed to be a hot bed of trachoma) during the past four years they had found no cases of conjunctival affections answering in their entirety to the classic description of trachoma. (3) None of the 3,000 and more cases of follicular affections in these children had developed cicatrical changes due to infection; on the contrary, the great majority of them now present

normal conjunctivas. These results were attributed chiefly to the following measures. (1) The carrying out of preventive methods of treatment such as ophthalmia schools and school clinics, summer camps, mothers' demonstration classes, home instructions, and "follow-up" work. (2) More minute care of acute as well as of chronic cases, including the specific treatment given at clinics and the follow-up work in the homes. (3) Non-operative procedures in a large number of cases formerly operated upon. (4) Trachoma inclusions were nests of growing bacteria in epithelial cells hemoglobinophilic bacilli in certain cases of papillary conjunctivitis, gonococci in certain cases of gonorrheal conjunctivitis, and possibly other bacteria in certain other cases of conjunctivitis. (5) If trachoma was present or should be introduced among our school children it might be controlled by methods which were within practical limits.

Dr. ANNA I. VON SHOLLY of New York said that in dea ing with the problem of "sore eyes" in the lower east side of New York they had found that the method of excluding the children from school was an inadequate one. The children used the excuse "sore eyes" for remaining out of school and when not in school there was difficulty in getting them to submit to regular treatment. The important factor in eliminating this infection was to get the children early and to keep them under constant treatment. In order to accomplish this a special ophthalmic class was formed where all children excluded from other schools in that neighborhood were segregated. In addition to this school they had a clinic for eye diseases twice a week during school hours so that the treatment formed part of the routine school work. In some instances the children were segregated in the class room. When this was done special care was exercised in regard to cleanliness of the school room, desks, etc. By keeping the children under supervision they were not only able to treat them continuously but were able to give instruction in personal hygiene and the prevention of the spread of the infection. During the school year 1912-1913 they had had 312 pupils in the special classes, while during the year 1913-1914 they had had only 155 pupils. It was too soon, however, to say that the incidence of the disease had decreased.

Dr. LOUIS C. AGER of Brooklyn said that several years ago he had been inclined to think that many of the children excluded from school for trachoma did not have that disease, but enthusiasm centered on trachoma. He was glad that the research work had shown that trachoma was not as prevalent as it was thought to be. He also expressed the opinion that the very vigorous treatment used in some cases of conjunctivitis was unnecessary and was responsible for some superficial cicatricial contractions.

Dr. ANNA W. WILLIAMS of New York said they did not exclude the cases of folliculosis or of follicular conjunctivitis and not those with papillary conjunctivitis unless there was a secretion.

**Subacute and Chronic Intestinal Infections.**—Dr. ELIAS H. BARTLEY of Brooklyn presented this paper in which he discussed that class of intestinal infections that usually came on late in the summer and secondary to one or more acute attacks of diarrhea. Infection usually occurred sooner or later in these cases. One form of infection of the intestinal canal had been but slightly studied and that was the streptococcus infection. The author divided these cases into three classes: (1) Those in which there was chiefly carbohydrate fermentation with the production of organic acids, much flatus, colic, and a tendency to diarrhea. (2) Those in which the proteoclastic organisms had gained the ascendancy, and the lactic and butyric organisms had failed to keep pace with them. The intestinal contents were alkaline, there was less flatus and colic, but more fever and toxic symptoms, and more profound nervous disturbance. (3) The cases of streptococcus infection and perhaps other highly toxic infections. The subject of treatment he summed up as follows: To change the intestinal culture medium he used a lactofarinaceous diet. If one wished quickly to disinfect the digestive canal calomel would accomplish this best. If one wished a long-continued effect in diminishing the activity of the intestinal bacteria one should select hydrochloric acid, menthol, thymol, or bismuth subgallate if the trouble was conceived to be in the stomach. If one conceived the chief trouble to be in the intestines salacetin, ichthalbin, ichthoform, thymol, or small doses of calomel with benzoate of sodium might be selected. For the removal of the bacteria and their toxins in conjunction with the above antiseptics an emulsion of castor oil or olive oil might be used. Out-door air, a high dry climate and other hygienic measures with tonics would be helpful for improving the appetite and invigorating the system generally.

Dr. H. A. GRIBBON of Poughkeepsie said that in regard to the acute cases Dr. Bartley had covered the ground well. He did not use so many drugs and he did not believe Dr. Bartley did. He took exception to the salacetin. Some of these cases of continued diarrhea following acute infection were not true infection but anaphylaxis due to primary sensitization to cow's milk. In many cases children were sensitized to the proteid of cow's milk and it was hard to get over it. Sometimes a diarrhea was toxic through absorption. It was not advisable to withhold nourishment too long. They must try to find the right time to recontinue feeding. *Eiwciss milch* gave very satisfactory results because the children stood the casein proteid, with the exception of those who had been sensitized. Boiled skimmed milk was often tolerated after five or six days. If the case was one of long standing then one had to wait longer before giving it. He had had fairly good results with the *Bacillus bulgaricus*, especially among poor people, as it was something that they could give and drugs were of little effect.

Dr. DEWITT H. SHERMAN of Buffalo said that Dr. Bartley had referred to the cases of streptococcus infection but did not mention the use of vaccines or serums. They had used vaccines in Buffalo, not only without good results, but often with decidedly bad results, the condition of tetany occurring in two or three instances. As regarded the use of serums the results were different. While they were not as useful as in selected cases of tonsillitis, yet they seemed often to turn the tide and to assist in a much more rapid recovery. He felt that in proper cases they were deserving of serious consideration.

Dr. JOSEPH ROBY of Rochester said it had occurred to him that possibly the use of gentian violet might be effective where the infection was due to Gram positive organisms. The effect of gentian violet on Gram positive organisms in the test tube was so remarkable that we might in the future hope something from it; however, it did not do so well in the presence of blood serum as in the agar tube.

Dr. W. MORGAN HARTSHORN of New York said that he wished to emphasize the value of *Eiweiss milch* in acute and subacute toxic cases. At Roosevelt Hospital they had used it in cases that had resisted the usual treatment. The protein milk obtained from fat free milk, prepared by the Walker Gordon Company, was followed by immediate and striking effect.

Dr. THOMAS S. SOUTHWORTH of New York said he had found that Keller's malt soup had a definite place in the treatment of subacute and chronic cases. Made up in fat-free milk it supplied the lack of fats and carbohydrates. Aside from the *Eiweiss milch* there was nothing that changed the bacterial content of the intestinal tract more quickly where there was a putrefactive process present. It was well borne in the mucoid type of disease. In the group of cases classed as colitis it was well not to permit the child to get to the extreme point of reduction that formerly prevailed, and this could be to a large extent prevented by giving proper food and not waiting too long before giving the types of food necessary to keep the fat of the body up to a reasonable point.

Dr. ELIAS H. BARTLEY of Brooklyn said he had tried the *Eiweiss milch* but got no better results from one form of fat-free milk than from another. In regard to the vaccines he did not try the serum but had used autogenous vaccines from hemolytic streptococci and got no benefit.

**The Early Diagnosis of Congenital Syphilis.**—Dr. CARL G. LEO-WOLF of Niagara Falls read this paper which was based on work done at the Orphan Asylum of the City of Berlin under Professor Finkelstein. He confined himself chiefly to those symptoms of congenital syphilis which were often overlooked, but which if found in the first few days or weeks of the child's life were of great diagnostic importance. He stated that those instances in which the mother was infected during pregnancy and transmitted the disease to the fetus through the placenta or at the time of parturition had not attracted attention to the extent that other modes of transmission had done. He concerned himself especially with those children who were born apparently clean, but in whom one could find on care-

ful examination changes in different organs; also with those in whom the intrauterine course of the disease had run out and who were born apparently healthy so that one could not find anything abnormal with any of the organs, but who were weakly and did not thrive and who would later on have relapses of the disease, and finally with those children who were born healthy but in whom the disease would appear sooner or later. The author called attention to the dilated coronary vein, the vein at the bridge of the nose, the saddle nose, the rhinitis and the optic neuritis as symptoms of congenital syphilis. This latter symptom he said would be found with relative frequency. Japha had found it in 66 per cent. of the infants with congenital lues, and Heine in 83 per cent. He called attention to the diffuse infiltrations like leucocyte infiltrations found in inflammatory conditions. This infiltration sometimes led to the formation of rhagades and sometimes to a swelling paralleling the border of the lips, the color of which was an opaque white. This form of infiltration would be found on the trunk also, but its most frequent location was on the palms of the hands and the soles of the feet. It was of the greatest importance to differentiate this infiltration from the decubitis frequently found on the feet of infants, and here again especially on the heels. They further found this infiltration around the roots of the nails. The color of luetic infants was a peculiar gray which could be easily recognized when compared with the rosy complexion of a healthy infant. After the sixth week of life the skin was apt to present the familiar *"café au lait"* color. Another symptom which might not be called an early one was macular exanthema which appeared first on the soles of the feet and which consisted of brownish purple, lentil-sized, deep-seated spots which were better seen from a distance; later this exanthemata spread over the entire body. At the umbilicus one saw in some cases a thickening and reddening remaining after the falling off of the cord and which developed into a deep-seated, sharp-edged, dirty looking ulcer, which readily yielded to antisypilitic treatment. The *x*-ray would show in the long bones and indistinct epiphyseal line. Another symptom of importance was the swelling of the cubital glands, which were not as easy to find as the text books would have one believe. The two neighboring nerves might be affected, causing the child considerable pain. The author called attention to the pseudo-paralysis of Parrot which was frequently seen in the elbow but might be found in the shoulders and the legs. It must be differentiated from brachial plexus paralysis due to birth injury. Syphilitis periostitis was not often found in the first phalanges of the fingers and the toes, but also affected the bones of the skull. One symptom which should always make one consider the diagnosis of congenital syphilis was eclamptic seizures in infants under three months of age, especially if they did not yield to antispasmodic sedatives. An enlarged spleen was one of the most constant symptoms. A rare early symptom was albumin in the urine without a general condition which would generally be expected in such a seemingly grave condition, and a prompt disappearance of this symptom on the administration of potassium iodide. Another infrequent symptom was hoarseness without any pathological findings in the pharynx or larynx. Still another early symptom was infiltration of the testes, a true orchitis, while tuberculous infection caused an epididymitis. In that class of infants mentioned which did not thrive under the best of care it might be found that they would thrive on antisyphilitic treatment without any other change. In the first few weeks of life the Wassermann reaction might fail one.

Dr. THOMAS F. ELLIS of Brooklyn called attention to the frequency of involvement of the central nervous system in cases showing optic neuritis. The spirochetæ had been found in the brain in infants but the late infections of the central nervous system in infants had not been carefully studied. In infant tabes the normal findings in the spinal fluid were essentially different from tabes established in the quaternary disease.

Dr. GEORGE DOW SCOTT of New York thought that perhaps Dr. Leo-Wolf had not laid enough stress on these cases born with apparently nothing the matter with them, excepting an indisposition to nurse, pale skin and mucous membranes, or a slightly crinkly skin. These cases were apt to be overlooked by the general practitioner. In such cases antisyphilitic treatment for the mother might be beneficial and also for the infant, even if the Wassermann was negative during the first few weeks.

Dr. LEO-WOLF said he thought he had spoken considerably on the subject of optic neuritis. There was a new ophthalmoscope in which one could get a view of the optic nerve so that any one could see it; this would give one an opportunity to detect cases which had hitherto passed unobserved.

## MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

*Stated Meeting, Held March* 23, 1914.

THE PRESIDENT, DR. T. PASSMORE BERENS, IN THE CHAIR.

**Report of the Committee on Legislation.**—Dr. CHARLES H. CHETWOOD, in behalf of the Committee, presented this report, which stated that this Committee, in line with the State Legislative Committee, had been endeavoring to arouse active opposition to prevent the passage of bad legislation bearing upon matters in which the medical profession was interested. There seldom had issued from any Legislature such a number of foolish, and in many instances, pernicious bills of this character, as had appeared at this session. They had effectively opposed the cocaine and kindred drug legislation, with the expectation of getting a bill that they could afford to support. They were especially interested at this time in raising their voices in opposition to Assembly Bill 465, Senate Bill 281, and Senate Bill 710, known respectively as the Osteopathic Bill, the Naturopathic Bill, and the Chiropractic Act. Both the State and the County Legislative Committee had sent out circular letters to all of their members. They had furnished a list of every district, with the names of the Assemblymen and Senators, and had furnished printed postals to be sent to each of them. There should be no difficulty in anyone finding out the number of his respective district, and then, by consulting the list, the names of the Senator and Assemblymen could be determined. In appealing for personal activity on the part of the members, they had received some satisfactory responses. It had been stated that the Osteopaths would not obtain any more legislation this session, but the Naturopath Bill and the Chiropractic Act were still more objectionable, and were another move toward tearing down the standards raised during the past few years. It would seem that the argument in form of a Pure Food Law and Drug Act, requiring the proper labeling of packages and merchandise sold to the public, should alone be sufficient to kill such legislation as attempted to foist upon the public fake doctors in the guise of regularly licensed practitioners. Dr. Chetwood read a letter from Dr. Paul Z. Bebert relating his experience in endeavoring to use his influence with the Assemblyman from his district. After considerable discussion this Assemblyman admitted that all he knew about the bill was that it had been recommended to him by a friend of his who said he had been cured by the method. He said that if the bill was not genuine he would not give his support to it, and was of the opinion that the bill would not pass the House. Senator Boylan in an interview maintained with great courtesy that the Chiropractic Act could not interfere with the practice of medicine, as the Act prohibited the Chiropractors from using drugs, medicines, or surgical instruments. He also urged that many eminent men whom he knew were taking the treatment and were benefited by it. On the morning of March 23 a telegram was sent to the Hon. Robert F. Wagner which read: "In the interest of good legislation and of the public at large we respectfully protest against the Naturopath and Chiropractic Bills." (Signed) T. Passmore Berens, President; John Van Doren Young, Secretary; Charles H. Chetwood, Chairman Legislative Committee. Another telegram was also sent at 8 o'clock in the evening from the Medical Society of the County of New York, at that time in session, conveying the serious protest of the Society against the passage of the Naturopath and Chiropractic bills.

**Antityphoid Vaccination in the Army During 1913.**—Major FREDERICK F. RUSSELL, U. S. A., presented this communication. He declared that the results with antityphoid vaccine during former years had led them to expect much from the measure, but that the remarkable records of the past year had far surpassed expectations. In the entire army of over ninety thousand

men only three cases of typhoid fever, with no fatalities, had occurred during the year 1913. The year 1912 marked the beginning of compulsory vaccination in the army for all persons under forty-five years of age, but the full effect of such vaccination was not immediately seen since five times as many cases occurred during that year as during 1913 and it was very possible that the rate had now reached an irreducible minimum. Major Russell exhibited a number of charts showing the gradually diminishing morbidity and mortality rates from typhoid fever from the time of its introduction in 1909 until the present time and also showing the effectiveness of sanitary measures previous to the introduction of vaccination. The best record obtained by sanitary measures was noticed in 1908; vaccination beginning in 1909 had steadily diminished the number of cases until in 1913 the rate was reduced to five cases per 100,000 men. What this signified might be appreciated when one realized that the civil death rate (not case rate) in the registration area of the United States was 16.5 per 100,000 of population for the year 1912, the last for which the statistics had been published. There was in the year 1913 only one one-hundred-sixty-seventh of the loss of time from duty because of typhoid fever which occurred during the record year 1908, before the introduction of vaccination. These charts were absolute proof of the efficacy of the typhoid prophylactic. In answer to the question as to whether there had been any harmful effects produced by this typhoid prophylactic it might be definitely and decisively answered by the plain statement that no harmful effects had been produced. In the surgeon general's annual report were records not only of typhoid fever, but of all other diseases affecting the soldier's health. Since these records could be consulted by all only two points would be considered. First, the diseases which were more prevalent during 1912 than during the decade ending 1911, and, second, what, if any, had been the effect of vaccination on the rates for tuberculosis? In the surgeon general's report only eight statistical groups of diseases showed an increase in the case rates per 1,000; these were eruptive fevers, other than measles, smallpox, and typhoid fever; diphtheria, mumps, cancer, and other malignant growths; diseases of the brain and spinal cord; pleurisy, tonsillitis, and other diseases of the pharynx, and appendicitis. There was no reason for believing that the antityphoid vaccination was in any way responsible for these changes. In answer to the second question, it was found that the case rate for tuberculosis of all kinds showed a decrease from 4.51 per thousand for the decennial period ending in 1911 to 4.49 for the year 1912, a decrease of .44 per cent. That it was also shown that tuberculosis not only had not increased since the introduction of typhoid vaccination, but that it had actually decreased, a result due no doubt to the improved sanitation and to the care exercised in the physical examination of recruits. In the annals of medicine there was only one other campaign with which to compare this, and that was the practical extermination of smallpox by vaccination. It had been pointed out that in the suppression of infectious diseases, sanitarians encountered two types of infection, one requiring an intermediate host for the completion of the life cycle of the parasite, or its conveyance from the infected to new victims, and the other composed of diseases of mankind only, the disease passing directly or indirectly from one human being to another. Typhoid fever belonged to the latter class of diseases and for this reason the results here given should only be compared to the results obtained against other diseases of the same class.

**The Practical Application of Vaccines and Serums.**—Dr. JAMES GARFIELD DWYER read this paper. He said that he had treated from 300 to 400 cases of various kinds with autogenous vaccines, including about sixty cases of tuberculosis treated with tuberculin. He had also treated between 300 and 350 cases with the Hiss leucocyte extract. The cases treated with vaccines comprised many different kinds and infections with many different organisms. Vaccines were made up of organisms that had generally been looked upon as saprophytes, but which had been found so constantly in such conditions as chronic discharging ears, chronic tonsillitis, etc. They had in vaccines and serum the first practical remedies that had been put in use to any great extent that approached the treatment of infections along thoroughly rational and logical grounds. The first essential in the use of such therapeutic measures was to make an absolutely accurate and careful bacteriological diagnosis, that was, the causal organism must be identified and a vaccine used made from this organism. That was why so many condemned the use of vaccines and did not get good results because they were probably using a stock vaccine which did not contain the specific organism. In a true septicemia he was not in the habit of not using autogenous vaccines as, according to their present understanding of opsonins, the use of such was contraindicated. In locally acute, subacute, and chronic infections the vaccines found their greatest field of activity. In some systemic infections, where the organisms were simply feeding into the circulation, probably the guarded use of vaccines was indicated, but it was hard to draw the line. In the systematically acute cases, the very acute, the use of leucocyte extract was indicated, and had in his hands given very encouraging results, especially in lobar pneumonia, septicemia, and in erysipelas. Reports on erysipelas and the treatment of other infections had already been published in various journals. (See MEDICAL RECORD, September 13, 1913.) During the last five years Dr. Dwyer had treated a series of cases with autogenous vaccines and also a series with the Hiss leucocyte extract and he said he would report shortly on the practical points that had impressed him as time went on. The series treated with vaccines now comprised about 400 cases or more in the vaccine list, and with the leucocyte extract over 400. Under the vaccine list he had placed those treated with tuberculin. The list comprised the following, classified according to the offending organism: Tubercle bacillus, 60; the staphylococcus group, comprising the aureus, albus, and citreus, over 200; streptococcus, 70; gonococcus, 5; pneumococcus, 17; *Bacillus pyogenes*, 27; *Bacillus mucosus capsulatus*, 20; *Micrococcus catarrhalis*, 14; bacillus of Morax-Axenfeld, 10; acne bacillus, 12; *Bacillus coli*, 6; mixed infections with such organisms as pseudodiphtheria, proteus, etc., about 40, the latter comprising such organisms as were found in chronic discharging ears. They reported only such cases as persisted in the treatment. Analyzing the cases they found that the series treated with tuberculin comprised cases of chronic tuberculosis of the lungs, of the intestines, cervical glands, larynx, iris, cornea, and also cases of episcleritis, phlectenular keratitis, and conjunctivitis. They generally used the bacillus emulsion of tuberculin and started with a dose as low as 1-100,000 and then gradually worked up, according to the serial dilution method. On the whole, the results had been very encouraging and although the treatment continued over a period of months, he thought that the results were better and more lasting than obtained with other methods, and he referred especially to such conditions as cervical adenitis. He gave a typical history of such a case. Briefly the conclusions to be deduced were the following: (1) In acute constitutional disease, such as pyemia, septicemia, and sapremia, the vaccines were contraindicated. In such cases, the leucocyte extract found its greatest field of usefulness and would often save cases which were apparently hopeless. Some authorities did not use vaccines in such cases, with the admonition to avoid the negative phase by proper dosage and very guarded administration. This sounded easy, but it was an entirely different matter to apply such to a case. Therefore, use the extract of leucocytes in such cases and avoid vaccines calling for active immunization. (2) In the locally acute, without systemic symptoms, subacute and chronic cases, the vaccines found their greatest field of usefulness and would be found to act almost as a specific. He had had no experience with the leucocyte extracts in such cases, but they should be effective, especially in the subacute and the locally acute and certain types of chronic cases, in which the diseased focus was not walled off by a firm, hard, fibrous wall. However, the results had been so good with the vaccines that he had not felt the necessity of using any other agent. (3) In all cases use autogenous vaccines in preference to stock ones, as the results would be better and surer, and the administrator knew exactly what he was administering. (4) Make fresh vaccines frequently, so as to insure their greatest potency. (5) Be guided in the administration by the clinical symptoms, but at the same time do not neglect to calculate the opsonic index. In the majority of cases it was just as reliable as a blood count was. (6) Do not use tuberculin in tuberculosis when general constitutional symptoms were present, that was, when the patient was in the pyrexial stage. First, localize the process

as much as possible, and then start the treatment, interrupting it if the condition again becomes general. (7) Give small doses, often repeated, rather than large doses seldom repeated. In all cases start in with a minimal dose and then increase it. (8) Always have in view, even in the simplest case, the danger of anaphylaxis or hypersensitization. This was no negligible quantity. (9) Always combine with the vaccine treatment the other general medicinal and hygienic measures. The vaccine therapy was not a cure-all. (10) If one had a case of septicemia, such as that which followed sinus thrombosis, and surgical measures had been exhausted, do not wait until the patient was in *extremis* or moribund, but start the use of the extract early, so as to give the patient the best chance. The extract was not a miracle worker. Most of the cases he reported were very far gone and were really in the final stage. A more severe test of the efficacy of an agent could not have been devised.

**Statistical Analysis of Erysipelas Cases.**—In the early cases treatment was begun within three days of the appearance of the lesion; in the late cases, treatment was begun later than three days after the appearance of the lesion. The total number of cases treated was 148; 43 recovered, giving a mortality of 3.39 per cent. The average duration of treatment was 3.18 days. The number of recoveries under the age of one year was 8; the percentage of recoveries under one year of age was 66.6. The general mortality rate was 3.39 per cent. (all cases). The mortality among patients over one year of age was 0.99 per cent. The recoveries gave 99.1 per cent.

**Cancer.**—Dr. Francis Carter Wood said that owing to the lateness of the hour, he would confine himself to a discussion of radium therapy of tumors. Much of the published work on this subject was utterly unreliable because of the lack of microscopical examination of the radiumized growths. Without such an examination no case should be considered as of any importance in judging of the value of radium therapy. It was astonishing how few cases of reported cures complied with this criterion. A second point of the greatest importance was the separation of different types of cancer into carcinoma and sarcoma, and a further subdivision into benign and malignant varieties. The medical profession at large did not seem to be aware of the fact that the so-called giant cell sarcoma of the gum was practically a benign tumor, only two to three per cent. recurring after operative removal. Some of the small epitheliomata, especially those of the basal cell type, occasionally remained quiescent for ten to fifteen years, and could hardly be considered as malignant. That these benign types of what was morphologically carcinoma or sarcoma yielded readily to radium in a large number of instances was well known, but occasionally even these forms might be resistant or might be stimulated by the treatment, though the microscopical examination gave no clue to the prognosis. It was generally acknowledged even by those most enthusiastic in the application of radium, that carcinomata of the breast or of the internal organs did not yield to radium, with the sole exception of benign adenocarcinomata of the body of the uterus and of carcinomata of the cervix. Even in the latter instances, however, recent publications in Germany stated that clinically healed cases were recurring after six months or a year. With our present knowledge of radium it seemed far from justifiable to treat any operable malignant tumor with radium. In inoperable cases or recurrences radium was an admirable palliative agent, because it undoubtedly reduced the secondary deposits when they were superficial. The speaker had never observed any effect from radium at a greater depth than one to two inches.

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## NEW YORK NEUROLOGICAL SOCIETY.

*Stated Meeting, Held March 3, 1914.*

The President, Dr. Smith Ely Jelliffe, in the Chair.

**Diastematomyelia of Henneberg.**—Dr. Jelliffe showed a series of microscopic slides of spinal cord sections illustrating this form of spina bifida. Irregular or abortive types of reduplication of the cord were fairly well known, and in these sections the reduplication was well shown. So far as the work of Sibelius was concerned, we had here a fairly good confirmation of his view regarding the development of the horns of the cord, and the forms of the relative types in cases of this kind.

**Angioma of Brain.**—Dr. Jelliffe also showed microscopical specimens obtained at autopsy. The case was one of epilepsy of long standing, with the final development of the status epilepticus and death, and the anatomical finding of an angioma of the frontal lobe. This case was described in detail by Dr. J. Sweasy Powers of Berlin in Alzheimer and Lewandowsky's *Zeitschrift*, Vol. XVI.

**Paralysis Agitans; Motor Pathology.**—Dr. Jelliffe also presented a series of serial sections from a case of paralysis agitans which illustrated the paucity of the fibers in the internal capsule, especially in that group of fibers which were derived from the development of the cerebello-rubro-spinal system. There were a sufficient number of slides to show the incompleteness of the fibers on one side of the internal capsule. This finding, the speaker suggested, bore upon the development of the present day study of tremors and irregular motor reactions, such as were found in multiple sclerosis, Huntington's chorea, the lenticular degeneration of Wilson, and the group of analomous motor phenomena which had been studied for a number of years and were now regarded as due to disorder or defects in the extrapyramidal tracts.

Dr. I. Abrahamson said that cases of tumor of the midbrain involving this region might show a tremor resembling that of paralysis agitans, but it was decidedly coarser and had greater amplitude—almost like a caricature of that of paralysis agitans.

Dr. Jelliffe said the statement made by Dr. Abrahamson opened up the entire subject of our attitude toward this group of disorders. When we used the term "typical paralysis agitans," the question at once arose, was there such a thing? The condition rather represented a syndrome, a group of symptoms, which, when they came together, we theoretically regarded as paralysis agitans. What we regarded as paralysis agitans was more or less of an arbitrary concept.

Dr. Charles L. Dana said that according to his experience with paralysis agitans, about 90 per cent. of the cases showed the same method of development, they pursued the same course, had the same symptons, and the prognosis was about the same. If this combination did not constitute a clinical type, then the speaker said he was at a loss how to describe one.

Dr. Jelliffe said that in the study of the heredity of Huntington's chorea, three distinct trends had been found, namely, the motor phenomena, the mental phenomena, and the age factor. These trends might appear in different families, but when the three occurred in the same individual, then a typical situation which might be termed Huntington's chorea was present. The speaker said he regarded paralysis agitans in the much the same light; that it represented a syndrome or combination of factors rather than a clinical entity.

**A Modified Instrument for Use in Lumbar Puncture.**—Dr. I. Strauss showed an instrument for lumbar puncture which he had employed for several months with entire satisfaction. He had found the old-style needle rather unreliable, and this instrument contained certain modifications by which the flow of spinal fluid could be regulated.

**Analysis of Some Substitution Reactions.**—Dr. C. P. Oberndorf, in a paper on this subject, said that in 1909 Lowenfeld discussed a topic to which psychiatrists had hitherto devoted little attention; namely, those dreamlike states in which, as he said, "usual impressions, customary sights, and occurrences appear altered to the patient, as though they were unknown, strange, or the product of phantasy, and in which the patient feels as though he were in a dream or half asleep, hypnotized or moving in his sleep." Abraham, approaching this phenomenon from an analytic standpoint, had differentiated three stages of dreaminess, the first of which was dependent upon a phantastic trend of thought; the second, upon an alteration in consciousness, and a further, third stage of emptiness of consciousness which the patient might designate as a standstill of thought. He concluded, as the result of several carefully studied cases, that these states often represent a substitutive activity for masturbation which has been discontinued. Most of the patients in which such symptoms appear, Dr. Oberndorf said, belonged to that class of neurotics who began masturgation early in childhood, and who later engaged in an unrelenting struggle to overcome the tendency. Although failure repeatedly attended their efforts to

relinquish the habit, various expedients, some psychical, some physical, and others again punitive, were invoked to prevent sexual excitation, and more especially ejaculation. Not infrequently such a struggle resulted in an ostensible conquest of the habit, and all physical manifestations might vanish, but unconsciously a demand for some substitution to satisfy the irrepressible libido persisted. This conflict between the wish and repression unconsciously found a solution in the form of a compromise, but the significance of this substitution compromise was either not recognized by the individual, or, if its true nature was suspected, it was either condoned as being less pernicious, or welcomed as being less obvious to outside observers. The substitution reaction was then permitted to proceed unrestrained until it interfered with the individual's normal activities or attracted the attention of his environment as being an abnormality. Dr. Oberndorf then gave a brief analysis of three cases coming under his observation to illustrate the transition to and substitution of dreamy or abstracted mental states, which in two of the cases had been almost conscious, in the process of relinquishing masturbatory activities. The speaker said that whether or not one agreed with the interpretation of the mental states in these cases, they at least indicated that mere elaborate description of these or other neurotic conditions was insufficient without some effort on the part of the neurologist to grasp their origin and explain the motive forces and stipulations which they served to represent.

Dr. I. STRAUSS said that in one of the cases reported in Dr. Oberndorf's paper, the girl who had been in Dr. Sachs' service at Mt. Sinai Hospital and who was afterward treated in the Out-Door Department, the improvement that followed was certainly very marked. In fact, the parents considered the child well.

Dr. JELLIFFE said that in both his private and dispensary work he saw many cases similar to those reported by Dr. Oberndorf, and in the histories they gave he had been struck by the appalling prevalence of cases that had been subjected repeatedly to all the various strictly up-to-date diagnostic procedures, such as *x*-ray examinations, blood cultures, examination of the gastric contents, etc., etc., until he was led to reiterate the remark of Déjerine, "has any one taken the trouble to find out anything about your mental life?" In many of these cases, after a five minutes' talk, the outlines of their mental conditions were laid bare. The trouble in most of these cases did not lie in the intestinal tract, and the speaker said he had utterly failed to trace any connection between their symptoms and an overloaded colon or a gastrointestinal intoxication, nor could he comprehend how an elaborate *x*-ray examination or prolonged chemical tests of the various secretions had anything to do with the mental phenomena which were frequently such a striking example of a mental or psychical conflict which lay at the bottom of the whole difficulty.

**The Relief of States of High Vascular, Muscular, and Mental Tension.**—Dr. WILLIAM J. M. A. MALONEY and Dr. VICTOR E. SORAPURE presented a paper on this subject. The authors stated that according to James and Lange, an emotional state was consequent upon a physical state; that the latter was the immediate source and precursor of the emotion. According to this theory, which was well substantiated, fear developed because our heart quickened; our heart did not quicken because we feared; the tachycardia was the cause of the fear; the fear resulted from the tachycardia, and we feared because we breathed rapidly and irregularly; we did not breathe rapidly and irregularly because we feared; the hurried, shallow, gasping respirations caused the fear; the fear resulted from the hurried, shallow, gasping respiration. Fear without visceral change could not occur. Absence of visceral change implied absence of emotion. To minimize visceral change was to minimize emotion. Deep breathing slowed the heart's action. The changing of hurried, shallow breathing into slow, deep breathing, and the reducing of the heart's rate mitigated or dispelled fear. So long as the breathing was controlled and the heart slow, no considerable fear nor excitement could exist. Every emotion, every thought was externalized in muscular action. Vierordt showed that in the erect posture, the greatest degree of voluntary immobility of any person was accompanied by definite oscillation of the head. He further showed that if a person, standing as motionless as possible, expected to hear something on the right side, the whole body took up a new axis of movement; the whole body now swayed to the right. If the sound was expected from the left, the whole body swayed to the left. Numerous experiments corroborated this, and proved beyond doubt that changes in our stream of consciousness were partly externalized as muscular action. Hence, the attitude of the ataxie was partly an emotional expression—an expression of his uncertainty and fear. Complete muscular relaxation therefore promised still further to tranquilize the anxious tabetic, and, in addition, afford an unconstrained musculature receptive to education in normal movements. Dr. Maloney said he had elaborated for the relief of states of mental and muscular tension certain depressor exercises, which he used as an introduction to the treatment of ataxia by the blindfold method. In tabetics who were practising these exercises he had observed a fall of blood pressure, and the patients had reported to him that at home the exercises often led to sleep. He next observed that in a case of chronic nephritis the exercises led to a fall in the blood pressure from 220 to 192 mm. in fifteen minutes. He communicated these observations to Dr. Sorapure, who soon verified them in over 40 cases and then instructed several physicians in the exercises. These in turn reported equally good results. Altogether, over 300 observations had been made, and in more than 50 cases the effect of these exercises had been studied.

The exercises might be divided into two groups: breathing exercises and relaxation exercises. Breathing exercises: As we seldom used effort to expire, and often needed effort to inspire, expiration, throughout life, was, to a great extent, a passive, mechanical act, whereas inspiration more often was consciously performed. So inspiration was usually better controlled than expiration, and much of the trouble in teaching breathing exercises lay in training patients to govern their expiration. We first instructed the patient to breathe deeply and to pause at the end both of inspiration and of expiration. The breathing should be abdominal and should be done without jerking. One of the purposes of deep breathing was to distract the patient from obsessing thoughts and disturbing ideas; to focus his attention upon the exercises. But deep breathing quickly tired patients. Therefore, after about twelve full breaths, the patient was allowed to pass to breathing of moderate amplitude. Now all imagery was discouraged. The patient was asked to feel only the passage of air through his nasal cavities and the tactile sensations which arose from the movements of the abdominal wall against his clothes. While he was so practising, he was cautioned to keep his attention upon the sensations which accompanied his breathing. After a few minutes of "medium" breathing, the patient was taught to breathe quietly, and to attend only to the accompanying sensations. A bag of sand or shot or other heavy object placed upon the abdomen was useful to increase the muscular effort involved in breathing, so that breathing, during the exercises, might not easily lapse into an unconscious act. Instead of the sand bag, the physician's hand may be used.

Relaxation exercises: To relax the muscles, passive movements in which the muscles were alternately lengthened and shortened, were employed. The scalp, forehead, cheek, and jaw muscles of the recumbent patient were passively moved by the physician, and this was continued until wrinkling diminished or disappeared and muscular spasm was eliminated. Next, a shoulder was relaxed; then an arm. Each was dealt with separately. Each joint was passively moved until all trace of muscular tension vanished. All movements should be first passively made by the physician, and then, where possible—limbs, head and trunk—passively induced by the action of gravity.

The effects of breathing and relaxation exercises: Besides the tranquilizing of excited and anxious states and the general relaxation of the musculature, certain other physiological effects resulted. During the exercises a high blood pressure almost invariably fell. Not only in organic renal diseases, but also in cases of high blood pressure, in which no renal disease could be detected, a fall occurred. A reduction of from 25 to 30 mm. in the systolic blood pressure, as a rule, resulted from the exercises, and even greater reductions occurred. This fall in blood pressure was observed not only in cases of high pressure, but also in normal people, among whom a fall of from 10 to 15 mm. was customary. The fall, as a rule, affected almost equally the systolic and the diastolic pressure in normal peo-

ple, and sometimes there was an equal fall in the systolic and diastolic pressure in persons with organic disease, but in those in whom the blood pressure was abnormally high, the systolic usually fell to a greater degree than the diastolic.

Psychologically, the exercises produced concentration of attention and restriction of consciousness. The physiological effects were relaxation of the voluntary muscles, diminution of muscular reflexes, slowing of the pulse rate, a tendency to re-establish in the pulse the normal rhythm in time and volume, lowering of blood pressure, and a tendency to restore the normal pulse pressure. The exercises should last about twenty minutes at first. If they were continued longer the patient grew restless.

Therapeutic applications: These exercises were originally devised as an aid to the re-education of the ataxic tabetic. Obviously, they were applicable to all cases in which the relief of high vascular, muscular, or mental tension was desired. They were, therefore, taught in cases of high blood pressure, of muscular spasm, of insomnia, and other neurasthenic symptoms.

Dr. WALTER TIMME said the paper presented by Dr. Maloney began on the basis that the rapid heart action produced the fear. Personally, Dr. Timme said, he did not think that the theory was susceptible of proof, but rather the converse. For example, if we took a cat and gave it sufficient atropine to diminish the autoactivity that had control over the heart's action a sudden fright would fail to produce rapid heart action, but still the animal would be frightened. Fright may produce blanching of the sin and diarrhea, due to stimulation of the autonomic nerve ends. In other words, the results of two factors were interwoven, the two factors being the sympathetic and the autonomic systems. Referring to the blood pressure, the speaker said that while in certain cases its reduction might prove beneficial, in other cases the high blood pressure may be compensatory, and its reduction would prove injurious. With a productive inflammation of the kidney a high blood pressure was a purposeful action, by reducing it the kidney could not functionate properly. With functional conditions, of course, the reduction of a high blood pressure was beneficial, but to attempt to reduce it below its physiological limits was of doubtful efficacy. However, our thanks were due to Dr. Maloney for giving us a method which promised so much relief of high tension cases of functional character, for it was just in these cases that a lowered tension was of lasting benefit.

Dr. RICHARD B. KRUNA said he had employed exercises similar to those described by Dr. Maloney in the re-education treatment of infantile paralysis for the past eight years. He had also resorted to them in the treatment of cardiac neuroses, in conditions of disturbed innervation of muscular tissue, of increased muscular activity, such as we found in convulsive tics, and in neurotic tachycardia, and he could subscribe to the fact that by this method we could establish greater regularity of the heart's action, and that in infantile paralysis it improved the innervation of the muscles that were affected by the paralysis springing from certain segments of the cord.

Dr. JELLIFFE said he was glad that the authors of this paper, Dr. Maloney and Dr. Sorapure, had emphasized the value of the psychical element in connection with this method of treatment. He believed, however, that they would have to relinquish their contention that fear was consequent upon the quickened heart's action. If anything had been shown by the recent work on the sympathetic nervous system, it was that the James-Lange theory failed fully to account for these phenomena, and that, after all, we were not afraid because our hearts beat, nor did our hearts beat because we were afraid, but that these phenomena were the result of interrellatory phenomena operating through the sympathetic and the autonomic nervous system, using these terms as Eppinger and Hess had outlined.

Dr. MALONEY, in closing, replying to Dr. Timme, said there was no evidence to substantiate the theory that the kidneys functionated less actively under conditions of lowered blood pressure. At all events, the idea of bringing the pressure down to a danger point in nephritis did not enter into this discussion. In their cases they had noted that the systolic pressure was always lowered to a greater degree than the diastolic, and it was only in the functional conditions that a considerable fall in both the systolic and diastolic occurred.

# State Medical Licensing Boards.

## STATE BOARD EXAMINATION QUESTIONS.

NEW HAMPSHIRE STATE BOARD MEDICAL EXAMINERS.
*January 6 and 7, 1914.*

(*Concluded from page* 919.)

### PATHOLOGY AND DIAGNOSIS.

1. What is the effect on the circulation of increased pericardial pressure?
2. Describe the changes produced in the lungs by mitral stenosis, and how these changes are produced.
3. In what way may arterial disease affect the nutrition of a part?
4. What conditions would influence you in determining the malignity of a tumor?
5. What organ is most commonly affected in visceral syphilis and describe the lesion found in it?
6. Differentiate diagnosis between obstruction in common and cystic biliary ducts.
7. Differentiate between lobar pneumonia and pleurisy with effusion.
8. Symptoms of incipient tuberculosis.
9. Symptoms (*a*) of aortic regurgitation; (*b*) mitral regurgitation; (*c*) mitral stenosis.
10. Differential diagnosis in coma produced by alcohol, opium, uremia, and cerebral hemorrhage.

### OBSTETRICS.

1. Name and describe the ligaments of the uterus.
2. How and when will you use ergot in obstetrical practice?
3. Give indications for the use of hot vaginal douche.
4. Differentiate fibroid, pregnancy, ascites.
5. Mention three causes for retention of the placenta. Give treatment.
6. Discuss intrauterine irrigation following complete abortion.
7. What points should govern the duration of the lying-in period?
8. Diagnose the death of the fetus during the early months.
9. Describe the second stage of labor.
10. Under what conditions do we most often find failure of uterine contraction?

### SURGERY.

1. Enumerate suture materials in general use, and give special value of each.
2. Give technique of first aid to the injured.
3. How would you treat organic stricture of male urethra?
4. Describe and treat postoperative complications in the abdominal wound.
5. What are the indications for trephining in fracture of the skull?
6. Describe a modified circular amputation of the leg.
7. Give diagnosis and treatment of floating kidney.
8. Describe some one surgical procedure in the treatment of hemorrhoids.
9. Give symptoms of bowel obstruction and outline a surgical operation in the treatment of the same.
10. Describe the usual deformity in fracture of the neck of the femur and outline method of treatment.

## ANSWERS.

### PATHOLOGY AND DIAGNOSIS.

1. *Increased pericardial pressure* causes embarrassment of the circulation, through pressure on the auricles and great veins. Less blood goes into the right auricle, right ventricle, and pulmonary artery; the blood pressure in the pulmonary artery falls; less blood reaches the left side of the heart and the aorta, and the aortic blood pressure falls. The venous blood pressure rises.

2. In mitral stenosis the lungs may be congested and edematous, and hemorrhage may occur. These conditions may be due to back pressure or to embolic infarction, the emboli coming from the dilated right side of the heart.

3. *Arterial disease*, such as narrowing, pressure by tumors, sclerosis, aneurysms, and blood clots may hinder the flow of blood to a part and so affect its nutrition.

4. *Malignant tumors* interfere with the general health of the patient, produce a cachexia, tend to spread into

the neighboring tissues, are apt to recur after removal, and show a tendency to metastasis.

5. The organ most commonly affected in visceral syphilis, is the *liver*.

"Syphilis is met with in the form of diffuse infiltration and cirrhosis, or in the form of gummata. Either of these varieties may be found as a result of acquired or of hereditary syphilis. In the diffuse form the liver presents much the same appearances as in atrophic cirrhosis, but the connective-tissue bands are much more pronounced and the liver is prone to be irregularly contracted and lobulated. Gummata may occur in any part of the organ, and may be single or multiple, presenting themselves as rounded, yellowish, or grayish masses, ofttimes showing central necrosis and surrounded by connective-tissue hyperplasia. Complete cicatrization may lead to decided scar-formation. In addition to these forms, congenital syphilis may manifest itself in the form of a uniform, diffuse connective-tissue hyperplasia and round-cell infiltration. The liver-cells are pushed apart and are ill-developed or atrophic."—(Stengel's *Pathology*.)

8. The early manifestations of pulmonary tuberculosis are: (1) *Physical signs:* Deficient chest expansion, the phthisical chest, slight dullness or impaired resonance over one apex, fine moist râles at end of inspiration, expiration prolonged or high pitched, breathing interrupted. (2) *Symptoms:* General weakness, lassitude, dyspnea on exertion, pallor, anorexia, loss of weight, slight fever, and night sweats, hemoptysis.

9. In *aortic regurgitation*, there is a diastolic murmur, heard loudest at the midsternum opposite the upper border of the third costal cartilage, and transmitted down the sternum; the murmur is soft, blowing, sometimes rough.

In *mitral regurgitation*, there is a systolic murmur, heard loudest over the apex, and transmitted round to the left axilla and under the left scapula; the murmur is soft and blowing.

In *mitral stenosis*, there is a presystolic murmur, heard loudest over the apex, and not transmitted; the murmur is generally low-pitched, and rough.

10. The following table (from Eisendrath's "Surgical Diagnosis") gives the diagnosis:

| APOPLECTIC COMA | UREMIC COMA | ALCOLOHIC COMA | OPIUM POISONING |
|---|---|---|---|
| Deep coma; sudden onset. If any injury, only a scalp wound. | Deep coma. Slow onset unless convulsions have preceded the coma. | Can be aroused by supra-orbital pressure unless very profound. | Can be aroused unless very deep. |
| Pupils unequal or dilated. Contracted in hemorrhage into the pons. | Albuminuric retinitis. | Pupils normal or somewhat dilated. | Pupils contracted to pin-point size. |
| Pulse full and slow, often arteriosclerotic high-tension pulse. | Pulse rapid. | Pulse more rapid than normal and full. | Pulse rapid, may be irregular. |
| Respiration slow and irregular. | Respiration frequent and irregular. | Regular respiration. | Respiration very slow—may be 6 to 8 per minute. |
| Temperature higher on paralyzed side, but lower in rectum. | | May be low or normal. | |
| Urine contains trace of albumin, but may be same as in uremia. | Urine shows albumin, casts, and low urea percentage. | | |
| Hemiplegia with convulsions on one side. | | | |

6. If the obstruction is in the cystic duct there is usually no jaundice; if the obstruction is in the common bile duct there is usually intense jaundice.

7.

| PLEURISY WITH EFFUSION | LOBAR PNEUMONIA |
|---|---|
| Onset marked by chilliness persisting for a few days. | Onset acute, with rigor, lasting one hour or longer. |
| Cough is irritating; no expectoration, or, if present, catarrhal in character. | Cough more marked, and accompanied by rusty or bloody, tenacious expectoration. |
| Sputum negative; tubercle bacilli rare. | Dense aggregations of pneumococci present. |
| Moderate fever of continuous type; declines by lysis. | Fever, 102° to 104° F.; falls by crisis. |
| Prostration moderate. | Prostration extreme. |
| Unilateral distention of the thorax. | Absent. |
| Countenance pale and anxious. | Mahogany-colored flush of cheeks. |
| Limited expansion at base of chest on the affected side. | Degree of expansion slightly, if at all, inhibited. |
| Tactile fremitus diminished or absent. | Increased over area of consolidation. |
| Interspaces bulging at base of chest. | Absent. |
| Percussion shows flatness, with great resistance to the pleximeter finger. | Dullness with less resistance, and sometimes a tympanitic note. |
| Diminished or absent breath-sounds over effusion the rule. Respiration murmur diffuse, distant, and generally unaccompanied by rales. Bronchial breathing may be present over the entire affected side. | Harsh bronchial breathing and presence of rales in first and third stages, unless a bronchus is plugged. |
| Friction sound heard in early and late stages. | No friction murmur; rales present. |

—(From Anders and Boston's *Medical Diagnosis*).

OBSTETRICS.

1. The LIGAMENTS OF THE UTERUS are: (1) *Broad ligaments*, which extend outward on each side from the side of the uterus to the side of pelvis. (2) *Rectouterine ligaments*, which extend backward from the intraperitoneal portion of the cervix uteri to the peritoneal investment of the rectum. (3) *Round ligaments*, which extend from the uterus just below the Fallopian tubes, through the inguinal canal to the labia majora. (4) The *ovarian ligaments*, which extend from the superior part of the uterus, behind the Fallopian tubes, to the inner end of the ovary. (5) The *uterosacral ligaments*, which extend from the highest part of the cervix uteri to the sides of the sacrum opposite the lower border of the sacroiliac synchondrosis.

2. "The use of ergot favors uterine contraction and retraction. Ergot may be given hourly as a routine, in half dram doses of the fluid extract, until three doses have been taken, or used only when there are signs of relaxation, as a prophylactic against postpartum hemorrhage. Postpartum inertia is not uncommon when the patient has been the subject of hydramnios, twins, etc., or has been subjected to a long general anesthesia, or is exhausted, with a rapid pulse and low blood pressure. Ergot is best used hypodermatically in the form of ergone (25 min.), or ergotole (25 min.), combined with pituitrin (1 ampoule). The generous use of ergot in the puerperium is of value also as a prophylactic against puerperal infection, since it tends to prevent the formation and the prolonged retention of blood clots within the uterus, and by its action on the muscular fibers tends to close the lymphatics and blood vessels against absorption. Moreover, by thus limiting the blood supply it promotes involution."—(Polak's *Obstetrics*).

3. INDICATIONS FOR HOT VAGINAL DOUCHE.—*Before labor:* 1. To induce premature labor. 2. As a prophylactic in cases of suspicious or undoubtedly infective vaginal discharge. *During labor:* As preliminary to version, forceps, or embryotomy. *After labor:* 1. Many obstetricians give a routine douche for the sake of cleanliness. 2. In case of foul lochia. 3. After repair of perineal lacerations. 4. As an element of treatment of puerperal sepsis.—(From Scott's *State Board Obstetrics*).

4. *Pregnancy:* The tumor is hard and does not fluctuate, is situated in the median line, and may give fetal heart sounds and movements; the cervix is soft, and the other signs of pregnancy are present. The rate of growth of the tumor and the general condition of the patient's health may also help in arriving at a diagnosis.

*Uterine fibroid:* Menstruation is irregular and sometimes very profuse; absence of the signs of pregnancy; the tumor is nodular, firm, irregular in outline, and while generally placed somewhat centrally is not in the median line, and is not symmetrical; the rate of growth is irregular, being, as a rule, slow, and sometimes extending over years.

*Ascites:* Absence of the signs of pregnancy; the abdomen is distended, but the shape varies with the position of the patient; on lying down there is bulging at the sides, the tumor fluctuates, and percussion shows dullness in the flanks, with resonance in the median line, but the dullness varies according to the position of the patient.

5. RETAINED PLACENTA—*Three causes:* Inertia uteri, endometritis, or morbid adhesion of the placenta to the wall of the uterus. *Treatment:* "A finger—one or two—must be insinuated between the uterus and placenta at some point already partially separated, or, if no partial separation exists, at a point where the placental border is thick, and then passed to and fro, transversely, through the uteroplacental junction, acting like a sort of blunt paper knife, until separation be complete. Another mode is to find or make a margin of separation as before, and then peel up the placenta with the finger-ends, rolling the separated portion toward the palm of the hand upon the surface of the still adherent part. Great care is necessary to avoid peeling up an oblique layer of uterine muscular fiber, which might split deeper and deeper until leading the finger-ends through the uterine wall into the peritoneal cavity. Should such a splitting begin, leave it alone and recommence the separation at some other point on the placental margin. It is sometimes only possible to get the placenta away in pieces. These should be afterward put together and examined to indicate what remnants are left behind. It may be quite impracticable to get out every bit, but small remnants or thin layers too firmly adherent for removal do not distend the womb enough to create hemorrhage from their bulk, and the subsequent danger of septicemia from their decomposition may be obviated by injecting warm (2 per cent.) creolin water into the uterus twice daily, until everything has come away."—(King's *Obstetrics.*)

6. If the abortion is complete, and there is no septic or other pathological condition present there is no need for an intrauterine douche.

7. Points which should govern the duration of the lying-in period, are the character and duration of the labor, the presence or absence of complications, the condition of the uterus, and the strength of the woman.

8. Diagnosis of the death of the fetus during the early months is difficult. The chief signs are that the uterus ceases to grow, the abdomen does not enlarge, the breasts either cease enlarging or become smaller again, the temperature of the cervix ceases to be higher than that of the vagina. The mother experiences vague symptoms of malaise, languor, heaviness, depression, chilly sensations and anorexia.

9. *During the second stage of labor,* examinations should be made only when necessary. In multiparæ the membranes may be ruptured with the finger or with some aseptic instrument. Care should be taken not to injure the child's scalp or the lower uterine segment. The pain may require the administration of chloroform or ether, but not to the extent of complete anesthesia. The expulsive force of the abdominal walls may be increased by directing the patient to pull upon a sheet firmly secured to the foot of the bed. Attempts may be made to prevent laceration of the perineum by making firm backward and upward pressure against the occiput during the pains; by restraining voluntary expulsive efforts during the pains; and by securing expulsion of the head between the pains. The head should be supported when born; the eyes should be cleansed with sterile water; and if the cord is coiled about the neck, it should be loosened or slipped over the head. Delay in delivery of the shoulders may be overcome by stimulating the uterus by friction through the abdominal wall or traction. The cord is ligated and cut when pulsation has ceased, and the child is placed by the mother's side with its face turned away from the maternal discharges.—(*Pockct Cyclopedia.*)

10. *Failure of uterine contraction* may be caused by: "Overdistention of the uterus from plural pregnancy or polyhydramnios; distention of the bladder or rectum; obliquities and displacements of the uterus; thinning of the uterine walls resulting from frequent and quickly repeated labors, or from degeneration of the uterine tissues; precocious or advanced age; general debility or feebleness of the woman from previous diseases, enervating habits, heat of climate, or of season, or the air of a superheated room; exhaustion of the woman from hemorrhage or from lack of sleep or food. Uterine action is sometimes inefficient from uremia, and when there is morbid adhesion between the fetal membranes and uterine wall. Mental emotions: fear, grief, surprise, anxiety, disappointment, and the presence of offensive persons or things will produce it. These last named causes may depend upon idiosyncrasy or unaccountable personal antipathies."—(King's *Manual of Obstetrics.*)

SURGERY.

1. *Suture materials:* (1) Silkworm gut, used only on surfaces, from which it may subsequently be removed. (2) Silk, used in abdominal surgery, for suturing intestines and tying pedicles. (3) Catgut, used for buried sutures. (4) Kangaroo tendon, used for bone, and as an absorbable suture which will last a long time. (5) Silver wire, used for bone.

2. The nature of first aid to the injured will depend upon the injury. If a layman is rendering first aid, his first duty is to keep the crowd away, allow the injured one to get fresh air, see that the injury is not made worse, combat shock, check hemorrhage, place the patient in the most comfortable and safe position, and keep him warm and sheltered.

3. *Organic stricture of the male urethra may be treated* by: Gradual dilatation, continuous dilatation, excision of the stricture, external or internal urethrotomy, urethrectomy, or the operation of Wheelhouse or Cock.

4. *Post-operative complications in an abdominal wound,* are: (1) *Stitch-hole abscess;* the infected sutures should be removed, and their tracts syringed with hydrogen peroxide; this should be done daily; a thick gauze compress soaked with a 1:1000 solution of mercury bichloride is then applied, and covered with the usual dressings. (2) *Suppuration in the wound;* open the abscess, with all blind pouches or cul-de-sacs, irrigate the wound with hydrogen peroxide, and dress as in case of stitch-hole abscess. (3) *Ventral hernia;* this requires either a support or binder, which is merely palliative; or another operation.

5. *Trephining, in cases of fracture of the skull,* is indicated in: Simple fractures with pronounced depression; compound fractures with much depression; punctured fractures; any fracture where there are distinct cerebral symptoms.

6. "*Modified circular amputation of the leg.*—Cut semilunar skin-flaps, lay them back, and cut circularly to the bone at the edge of the turned-up flap. Another method of modified circular amputation is by adding to the circular cut a vertical incision down the front of the leg. In sawing the bones of the leg the surgeon, who stands to the outer side of the right leg or to the inner side of the left leg, divides the fibula first, and at a higher level than the tibia, and bevels the anterior surface of the tibia. In sawing the left fibula the saw points to the floor; in sawing the right fibula it points to the ceiling."—(Da Costa's *Modern Surgery.*)

7. In *floating kidney* the *symptoms* may be entirely absent in some cases. They consist of aching pain in the loin, nausea, vomiting, and constipation. Attacks of renal colic and intermittent hydronephrosis may occur from kinking of the ureter. A movable tumor can be felt in the region of the kidney.

*Treatment* consists in improving the general health and wearing an abdominal belt with a pad. When this fails, or there are attacks of colic or hydronephrosis, nephrorrhaphy should be done.

8. "The application of the ligature is an easy and useful method. It is not so rapid as the cautery, is followed by more pain, healing requires a longer time, and stricture is more common. In this operation, after anesthetizing, stretch the sphincter and treat each hemorrhoid separately. Catch a pile with a pair of forceps or a volsellum, pull it down, and cut a gutter through the skin-margin if the pile is of the mixed variety; tie the small piles without transfixing, but transfix the large piles; tie with silk (coarse silk for the large piles, finer silk for the small piles); cut off

each tumor beyond the thread, and cut the ligatures short. Treat the other piles in the same manner. Irrigate with hot normal salt solution. Do not insert packing. Apply a gauze pad and a T-bandage. Give some morphine to lock up the bowels, and keep the patient on a light diet for three days, at the end of which time a saline may be given. Just before the bowels act remove the dressings and give an enema of warm water or of glycerin. After the movement wash out the rectum first with dilute peroxide of hydrogen and next with hot salt solution, dust with iodoform, and apply a gauze pad over the anus. Irrigate daily until healing is complete. After the tenth day examine with a speculum to see that the ligatures have come away; if any are found in place, remove them."—(Da Costa's *Modern Surgery.*)

9. *Symptoms of acute intestinal obstruction:* "Sudden severe pain referred to the umbilicus comes on, perhaps, after an effort. Shock, evidenced by a weak pulse, a cold, clammy skin, and a subnormal temperature, accompanies the pain. The pain, intermittent at first, becomes continuous. Vomiting is persistent, and soon becomes fecal smelling. The patient becomes exhausted by the vomiting and inability to take food. The abdomen beeomes distended, and if the obstruction is not relieved, perforative peritonitis follows, so that the patient dies in about seven to ten days from the onset. Constipation is usually absolute, though the lower bowel may empty itself at first."

*Treatment:*—"The only thing that can give the patient the chance he ought to have is immediate operation. It is advisable to wash out the stomach before the operation, so that intestinal contents may not be vomited and inhaled during the operation. Three objects are aimed at: (1) To empty the distended bowel above the obstruetion; (2) to relieve the obstruction; (3) to treat the strangulated intestine. In eases that are almost moribund, the abdomen should be opened with cocaine or eucaine anesthesia; a distended coil is pulled out and tapped, a Paul's tube being subsequently tied in. The peritoneal cavity is protected with gauze packing during these manipulations. The bowel is stitched to the abdominal wound after the feces and flatus have drained away. No attempt at relief of the obstruction can be made in these cases till a later date, and, of course, under the circumstances a high death-rate must be expected.

In less severe cases the abdomen should be opened in the midline below the umbilicus, and a systematic search made for the cause of the obstruction. The hernial orifices are first examined, then the cecum. If the cecum is distended, the obstruction lies below it; if collapsed, above it. In the former case the sigmoid should next be examined. If collapsed, the colon must then be traced backwards till the obstruction is found. If the cecum is collapsed, the intestine must be pulled out a foot at a time and examined, beginning with the ileum, and replacing it as each part is done with. If the intestine is much distended, several coils may be tapped and emptied, to facilitate the search."—(*Aids to Surgery.*)

10. If the fracture of the neck of the femur is *intracapsular*, there is very apt to be fibrous union with false joint; if the fracture is *extracapsular*, shortening is very common.

*Treatment of intracapsular fracture:* "Fibrous union nearly always occurs in old people, as the blood supply of the upper fragment depends solely on the obturator branch running in the ligamentum teres. Then, old people often die of hypostatic pneumonia if kept lying long upon the back. If the patient be young, he should be put upon a long Liston splint, with extension, for six weeks. The same should be tried with old people, but the moment the respirations begin to increase the patient must be got up, wearing a Thomas' hip splint. Impaction favors bony union, and so should not be broken down."

*Treatment of extracapsular fracture:* "Unless there is great deformity, it is not advisable to break up impaction. Bony union always occurs. The patient should be anesthetized, and traction kept upon the leg during fixation. A stirrup extension is first put on, and then the leg is firmly bandaged to a long Liston splint, with the eversion corrected. The chest is fixed to the splint by a binder; the foot of the bed is raised, and a weight of eight or ten pounds is put on to the cord of the stirrup extension. Hodgen's splint may also be used. Union occurs in six weeks."—(*Aids to Surgery.*)

BULLETIN OF APPROACHING EXAMINATIONS

| STATE | NAME AND ADDRESS OF SECRETARY | PLACE AND DATE OF NEXT EXAMINATION† |
|---|---|---|
| Alabama* | W. H. Sanders, Montgomery | Montgomery |
| Arizona* | J. W. Thomas, Phoenix | Phoenix....July 7 |
| Arkansas | W. S. Stewart, Pine Bluff | Little Rock |
| California | C. B. Pinkham, Sacramento | Los Angeles....June 16 |
| Colorado | David A. Strickler, Empire Building, Denver | Denver....July 7 |
| Connecticut* | Chas. A. Tuttle, New Haven | New Haven....July 14 |
| Delaware | J. H. Wilson, Dover | Dover....June 16 |
| Dist. of Col'bia | Geo. C. Ober, Washington | Washington....July 14 |
| Florida* | E. W. Warren, Palaka | Palaka....June 17 |
| Georgia | C. T. Nolan, Marietta | Atlanta.... Augusta....June 3 |
| Idaho* | J. F. Schmershall, Jerome | Wallace....Oct. 6 |
| Illinois | A. Sawyer, Springfield | Chicago....June |
| Indiana | W. T. Scott, Crawfordsville | Indianapolis....July 14 |
| Iowa | G. H. Sumner, Des Moines | Des Moioes....June 11 |
| Kansas | H. A. Dykes, Lebanon | Kansas City....June 9 |
| Kentucky | J. N. McCormack, Bowling Green | Louisville....June 3 |
| Louisiana | A. B. Brown, Cusach's Bldg., New Orleans | New Orleans....June 4 |
| Maine | F. W. Searle, Portland | Portland....July 7 |
| Maryland | J. McP. Scott, Hagerstown | Baltimore....June 16 |
| Massachusetts* | W. P. Bowers, State House, Boston | Bostoo....July 14 |
| Michigan | B. D. Harison, 205 Whitney Building, Detroit | Ann Arbor....June 9 |
| Minnesota | T. McDavitt, St. Paul | Minneapolis....June 2 |
| Mississippi | S. G. Jackson | Jackson....Oct. 13 |
| Missouri | J. A. B. Adcock, Jefferson City | St. Louis....June 15 |
| Montana* | Wm. C. Riddell, Helena | Helena....June 30 |
| Nebraska | H. B. Cummins, Seward | Lincoln.... |
| Nevada | S. L. Lee, Carson City | Carson City....Nov. 2 |
| N. Hamsphire | Henry C. Morrison, State Library, Concord | Concord....July 1 |
| New Jersey | H. G. Norton, Trenton | Trenton....June 16 |
| New Mexico | W. E. Kaser, East Las Vegas | Santa Fe....July 13 |
| New York | H. H. Horner, Univ. of State of New York, Albany | New York... Albany.... Syracuse.... Buffalo.... June 23 |
| N. Carolina | B. K. Hays, Oxford | Raleigh....June 7 |
| N. Dakota | G. M. Williamson, Grand Forks | Grand Forks....July 2 |
| Ohio | Geo. H. Matson, Columbus | Columbus....June |
| Oklahoma | J. W. Duke, Guthrie | Oklahoma City.... |
| Oregon | B. E. Miller, Portland | Portland....July 7 |
| Pennsylvania | N. C. Schaeffer, Harrisburg | Philadelphia....June 7 |
| Rhode Island | G. T. Swarts, Providence | Providence....July 1 |
| S. Carolina | H. E. Boozer, Columbia | Columbia....June 7 |
| S. Dakota | P. B. Jenkins, Waubay | Deadwood....July 9 |
| Tennessee | A. B. DeLoach, Memphis | Memphis... Nashville... Knoxville... |
| Texas | W. L. Crosthwaite, Waco | Austio....June 23 |
| Utah | R. W. Fisher, Salt Lake City | Salt Lake City July 6 |
| Vermont | W. Scott Nay, Underhill | Burlington....July 14 |
| Virginia | Herbert Olen, Norfolk | Richmond....June 23 |
| Washington* | C. N. Suttner, Walla Walla | Seattle....July 7 |
| W. Virginia | S. L. Jepson, Wheeling | July |
| Wisconsin | J. M. Beffel, Milwaukee | Milwaukee....June 30 |
| Wyoming | J. B. Tyrrell, Laramie | Cheyenne.... |

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for all the details regarding the examination in any particular State.

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**Osteoperiostitis of Upper End of Femur.**—H. A. T. Fairbank reports the case of a girl, aged five years, who was brought to the out-patient department of the Great Ormond Street Hospital in July last with a history of wasting and pain in the right leg. Nothing definite could be made out at first. On subsequent visits complaint was again made of pain in the leg. This pain occurred particularly when the child got up in the morning. Tenderness in the adductor region was notieed, but no swelling or thickening of the femur. In September a skiagram showed a thickening of the upper part of the shaft and neck of the femur. The thickening now present could then be felt in the region of the lesser trochanter. When asked to point to the site of the pain the child always pointed to the inner part of Scarpa's triangle. The child limped slightly. She was admitted to the hospital for rest and investigation. Beyond the thickening and tenderness at the upper part of the femur nothing could be made out. There were no signs of disease elsewhere. The right hip-joint seemed to be normal. No history of specific disease could be obtained and the Wassermann reaction gave a negative result. Mercury and iodides were given without effect. The temperature was never above 99° F. So long as the child was in bed she was free from pain, but as soon as she was allowed to get about again she complained of the pain. Her past history contained the facts that she had "bleeding piles" a few months previously and lost much blood, and that she had pneumonia four years previously. There was no history of traumatism. The skiagrams suggested an inflammatory lesion, not a new growth. The case is reported on account of the obscurity of the cause. It is suggested that an operation should be performed with the object of cutting a deep groove in the affected portion of bone.—*Proceedings of the Royal Society of Medicine.*

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## Original Articles.

### CERTAIN ASPECTS OF THE MIDWIFE PROBLEM IN RELATION TO THE MEDICAL PROFESSION AND THE COMMUNITY.*

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NEW YORK.

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I am very glad, indeed, to respond to this invitation to place before the members of the medical profession in Syracuse certain aspects, both old and new, of this important question. The increasing interest in medical subjects on the part of the lay public has rendered it necessary for the medical profession to recognize and give renewed attention to certain problems which concern not only the profession, but the community. Among these there is scarcely one that is in such great need of our best services and discussion as that connected with the midwife and her activities. The question is one which must be considered from two points of view. One of these deals with the purely medical phases of the situation; the other with the sociological. Each of these constitutes a distinct subject and requires separate consideration. Every community, whether large or small, must sooner or later come face to face with some phase or other of these questions which will require its best efforts at a suitable solution. I shall endeavor to present the matter not from the viewpoint of the metropolis, but will bear in mind the conditions as they exist in the smaller city. Although the details may vary, the general situation is the same, except in degree. It is not my purpose to burden you with a consideration of statistical details. These have already been compiled by others and are readily obtainable in the reports of the American Association for the Prevention of Infant Mortality and from other sources.

The physician usually regards the midwife as a factor in the community whose position is determined by necessity or tolerance. As the custom of employing women during attendance in childbirth is as old as the race, her control or elimination becomes a most difficult question to solve, as those who would be most directly benefited are very apt to accuse physicians of a selfish interest in this matter. It is quite true that the interest displayed by the medical profession is a selfish one, but not in the sense assumed by the laity. The profession at large is desirous of affording to the public the best services acquired by its accumulated knowledge, and no severer critics of the shortcomings of medical men exist than their fellow practitioners. It is this constant aim and desire to improve its knowledge of the body and its ailments that serves to keep the medical profession in the foreground of humane activities.

One of the most essential factors in the practice of medicine is a knowledge of the physiology of reproduction and all that goes with the same. Among physicians this knowledge is acquired only after thorough study and observation, with practical experience in the delivery of pregnant women, whenever this can be obtained. Unfortunately the fact that pregnancy and labor is, or is believed to be, a physiological process has so dominated the lay public, and many physicians, that insufficient thought has been accorded to this important subject. This is shown by the tolerance which has been granted to a certain class of women who practice their calling as attendants in labor simply because the birth act is considered a normal process in the life of women and therefore does not require much attention. Our knowledge of obstetrics, like that of other branches of medicine, is a development of comparatively recent times, and, although the essentials of both theory and practice have not been largely departed from in recent decades, there are other important questions which demand solution and have been accorded increasing attention. If the race is to be perpetuated in a normal and orderly manner, greater thought must be given to breeding of the individual and to the care of women during pregnancy, labor and the puerperium. The statement has been made that over 75 per cent. of gynecological diseases have some relation or other to the generative tract in its relation to the acts of reproduction, and we know well the whole organism bears a very close and intimate relation to this important set of organs. Acknowledging that the above is true, can we as physicians flatter ourselves with the idea that we have accorded to woman as a mother the attention which she deserves? Have we not been satisfied to treat the results and consequences of pregnancy and labor, rather than to do away with the causes? The attendance on a woman during her pregnancy and labor is not considered an agreeable branch of medicine by most practitioners, and the family doctors, so-called, have usually considered it necessary to take care of the confinement cases in order to retain their hold on the family. Fortunately the medical student of the present day is better equipped to do this work because he has been favored with actual clinical experience in obstetrics during his college course or soon after. But even then, in many instances, the importance of the subject is not sufficiently impressed on his mind, and the particular work in obstetrics is often merely taken up because of the requirements of the State Board of Medical Examiners. It would be much better, perhaps, for this requirement to be omitted altogether, rather than have such knowledge acquired under circumstances that do not fit a practitioner for properly carrying out the same.

It is this acquiescence to established customs, in

*Presented at a meeting of the Academy of Medicine of Syracuse, New York, April 7, 1914.

addition to certain economic questions, which has allowed the midwife to gain such an extended foothold. In foreign countries the condition has been much more satisfactorily dealt with than with us, and schools of midwifery have been established under government supervision and aid, which will insure to those people who are compelled to employ them, midwives who have at least had a satisfactory training. Strange to say, although the midwives of most foreign countries are far above the average found in the United States, they are by no means entirely satisfactory to the medical profession. In Germany particularly, where the system has been developed farthest, the lack of initiation and improvement on the part of most midwives is recognized in the movement to compel midwives to take extension courses in obstetrics in order to keep them in touch with the advances in this branch of medicine and to insure their adherence to the same. In comparison, the conditions in our own country must be acknowedged as most deplorable. I need not enter into further details of the subject, except merely to remind you that the control of midwives with us is usually left entirely to the local community, and that no general control is exercised in most States over these women. We are only now beginning to educate candidates for the practise of midwifery in the essentials of obstetrics, and such instruction is still limited to a very few properly organized schools. As the midwives are demanded mostly by our foreign born population, the necessarily large number required can hardly be recruited from these institutions, and we find that the great majority when licensed can obtain the privilege of practising by presenting credentials from foreign or other institutions that are seldom investigated. When a license has once been received, very little attention is paid to subsequently supervising the holder thereof, and, notwithstanding such laudable efforts in the City of New York, the midwife situation, even in this particular community, is certainly not in a condition for favorable comment.

There are certain economic question to be considered as regards the practitioner of medicine that may be briefly referred to in this connection. It is generally claimed that the fee obtainable from poor patients during confinement is not sufficient to repay the regular practitioner for his time, and that, as already stated, in many instances the drudgery of such attendance is assumed in order to retain the family practice. While this is a point of apparently great practical importance and a favorite argument, it is not a logical stand to take, and there is no more reason for shunting off this class of practice than any other which may prove more agreeable. By acquiescing in such a state of affairs the profession lays itself open to great blame for what is actually neglectful treatment of one of the most important functions of a woman's life.

In view of the interest which the public of the present day takes in medical matters, it also seems necessary to accord to the midwife problem greater attention on the part of the laity. The various questions of moral uplift that we find so largely discussed at the present time are not always relished by those for whom they were intended. Among other things, it is a difficult matter to demonstrate to the wage earners the necessity of expert care during pregnancy and labor. Such women are accustomed to regard a certain amount of discomfort and obstetric complications as a part of their lives and accept the results of the complications with equanimity. Unfortunately this does not only concern themselves, however, but if crippled from the results of child bearing, the effect is manifested not only on their own family but on the community, as the latter must put its hands in its pockets to provide such an invalided woman with care and attention which might have been avoided under other circumstances. The conservation of human life and energy should make us regard a mother as a *sine qua non* of our community existence. We most carefully guard against the inroads or spread of contagious diseases, but what do we do, collectively speaking, to combat certain avoidable complications of pregnancy? It is but necessary to remind you of the large number of cases of puerperal fever which occur, notwithstanding our present-day knowledge of asepsis and antisepsis. This is a matter for which the profession is to some extent responsible, and we will have been very remiss in our duty if we fail to properly recognize this unfortunate condition and not inform our fellow citizens accordingly. Puerperal sepsis is not entirely due to the midwife, the doctor must bear a share of this blame. Yet it cannot be gainsaid that the midwife is the direct cause of a great number of such cases in addition to blindness and other avoidable complications of pregnancy.

Having thus briefly outlined the subject for discussion, what shall we do to correct and improve the situation? Shall we eliminate the midwife, educate her, or provide a substitute? The question is one that is not easily answered. It must be approached in a broad, open-minded manner, without personal prejudice for or against this class of women, whom we can only regard as a relic of the days of the barber surgeon. We are dealing with a condition, and not a theory, and, willingly or unwillingly, we must face and treat it. The midwife has a large following among a class of people almost invariably foreign born, who are the muscle and brawn of the nation. They are needed to do our hard and largely unskilled labor. Among such people the custom for centuries to employ only a woman in labor has resulted in a prejudice which it will be difficult to overcome. If the demand is present the supply will follow. Is there no means by which we can overcome this prejudice, by which we can substitute agencies which will afford a satisfactory solution of the problem? I believe it is possible to accomplish this result, but it must be done in a spirit of consistency. The reform, however, must take in the doctor as well as the midwife. It must include a reform in the home, in housing conditions, in the relief of poverty and in the consideration of many other sociological problems. It is a matter of congratulation as regards the doctor, that greater responsibility is now acknowledged by the average physician than a few decades ago in the matter of confinements. Our medical colleges are beginning to supply the need for better obstetrical training of their graduates, especially since the epoch-making report on this subject a few years ago by Prof. J. Whitridge Williams. If this movement of reform among the profession continues we can leave this phase of the question for the present, in the realization that the steps which are necessary to solve the midwife problem will reflect the shortcomings in this field among the members of the medical profession itself.

What shall we do, however, with the midwife system as it is at present constituted? There is no question at all in the minds of thinking persons that our present midwife system can only be regarded as disgraceful. That much being admitted, what shall

we do to overcome this state of affairs. The State must either regulate the activities of these women within its borders, or the individual community must attack the problem as it presents itself. This will require the education of those classes of the population who are liable to patronize the midwife, to the necessity for better care during their pregnancy and confinement. This is necessarily a slow process, but there is no work which can be undertaken by the medical profession that is more deserving of the support of the community. We must either provide a thoroughly educated midwife and keep her educated, or we must provide a suitable substitute agency. In a small community the substitute agency which can be provided in larger cities is often out of the question. A maternity hospital is an expensive thing to manage, and it cannot by any means take care of all those who ought to be reached. The problem can be attacked in another way, however. A pregnancy clinic may be conducted at comparatively small expense, which can be placed in charge of a competent nurse, who shall have received a thorough training in an obstetrical hospital and be prepared to make the necessary antepartum visits, recognize abnormalities, do the ordinary urinalysis and report results to a physician who shall be in direct charge of this work. Now, as to the latter. The increasing attention which is being given to the proper care and delivery of women during pregnancy and childbirth will in time demand the education of specially trained physicians in every community. There is no better way to acquire such training than by actual attendance on an extended series of pregnancy cases. The field is open to the younger physicians recently graduated from medical colleges and hospitals, to take up this branch of the work and limit themselves to a large extent to obstetrics. Two or three young physicians could actually do most of the confinement work in a small city, particularly if antepartum supervision and the greater number of postpartum calls could be left to properly trained nurses supplied by the community.

It is quite generally admitted that the midwife system is largely retained for economic reasons, and one of the great arguments advanced by those who advocate the retention of the midwife is that she gives her services as a nurse in addition to being an attendant during labor. I do not believe that the facts strictly bear out this contention. The midwives of a lower grade undoubtedly supervise the household, bathe the baby, cook and clean after a fashion, if they remain as residents in the house for the time being, but this does not apply to those who consider themselves of a higher status. The latter, as I have observed them, attend a woman in confinement, just as a physician would. They are called when the pains begin; they then examine the patient and usually leave until some time when the pains are stronger. After the delivery of the child and placenta they merely remain to straighten out things and then take their departure, making postpartum calls just as a physician would. This class of women to my knowledge does not look after the household or do any nursing in the sense in which we ordinarily apply this term. If we acknowledge the truth of the contention that certain midwives, however, do act as nurses, it seems to me that a possible solution of the question could be arrived at by furnishing a substitute agency with this in mind. If visiting nurses could be supplied by the community to attend women daily for a fixed charge in order to eliminate the tendency to pauperizing, but free when necessary, one factor in favor of the retention of the midwife would be immediately eliminated, and such nursing by more carefully trained and efficient women could be made to include the prenatal as well as the puerperal period. In this way the patients would be kept under closer observation, and any abnormalities reported immediately to the physician in charge of the service. This might well be regarded as a prophylactic measure and by preventing trouble would save a great deal in the end as the number of cases of eclampsia, puerperal sepsis, etc., would be largely reduced in consequence.

Having briefly referred in the foregoing remarks to a number of the salient features connected with the midwife question in general and its possible solution, you will naturally ask what can be done with the problem as it exists in communities such as Syracuse. As I have already stated, the difference between Syracuse and New York is one of degree only. The actual conditions as regards the clientèle of the midwives, their homes and social status are practically the same and similar remedies may be applied with certain modifications. In this connection I might refer with advantage to a report made at the last (1913) meeting of the American Association for the Prevention of Infant Mortality by Dr. Bennett, of Manchester, N. H. He spoke as follows:

"We have a scheme for eliminating the midwives in the smaller cities. Manchester's industries are largely textile and shoe manufactories. They employ between them about 23,000 operatives. The operatives are largely of foreign extraction—French Canadians, Germans, Greeks, Poles, and other nationalities. The wages paid are small—lower in the textile mills than in the shoe factories. There were last year 2,149 births in the city. Of these 94 were delivered by midwives, of which there are six in our city. Two of these delivered one case each, one delivered 5, and the remaining three delivered 11, 28, and 48, respectively. The midwife who delivered the highest number of cases is the only one in whom we are very much interested. Next year she leaves us, seeking more lucrative fields. She is going to New York City. The agency that has made her business unprofitable is the District Nursing Association. The percentage of mothers who are unable to afford either a family physician or hospital care is approximately 11 per cent.; of these 6.6 per cent. have been delivered by the Nursing Association and the remainder by midwives. The executive head of the obstetrical department of the District Nursing Association is a physician. Patients are required to pay what they are able. The Metropolitan Life Insurance Company has cooperated with us, paying for the mothers who are insured in that company in its Industrial Department. In Boston the criticism was made by Mr. Green that in this we were encouraging industrial insurance among the poor. We think that criticism is not justified. In the first place in an industrial center instalment insurance will prevail, whether there is savings bank insurance or not. The little work we did will not increase in any way the amount of such industrial insurance. We are simply taking care of those mothers who would otherwise go to the midwives. Obstetrical service is given by the younger men as they come to town. They are looked up and their records gone over, and if favorable they are requested to donate to the

association their services, subject to call for two or three months a year, as the case may be. The question was asked (in Boston) how we were able to secure their services. It is simply a matter of custom. The older men began donating their services at the organization of the association, and as their practice increased they simply asked the younger men to do their share. Of course, there are many things that an older man can throw to the younger men in return. It also increases a new man's practice, and ultimately it brings him in good standing with the older men and gives him their stamp of approval in the community. The wage that is paid in cities of this class is low. In Manchester the operatives are employed a larger percentage of the year than in any other shoe or textile city in America; this steady employment to some extent removes the problems of poverty that some of the other cities have to deal with."

This and similar statements may serve as a basis for a propaganda for the work in other cities. The situation in each community should be studied by a committee designated, not as a "committee on midwives," but on "proper obstetric care." If a community will regard this question in the same aspect as certain sanitary requirements now looked upon as of general rather than merely of individual importance, it will place the matter in a different light. A patient with smallpox or scarlet fever must be subjected to certain quarantine and other regulations for the benefit of the community. We insist on properly qualified medical attendance to prevent the spread of contagion, although the individual treatment may be a matter of choice. A woman pregnant should be regarded as an equally uncertain factor in another aspect, unless she receives proper care before, during and after confinement. This is demanded if we assume that a healthy mother is the greatest asset which the community possesses, and that she shall not be subjected to any unnecessary risks in her most essential function of child bearing. But how can we bring about such ideal conditions? Will it not interfere with the great American "liberty of person," and be, accordingly, resented by those whom it would benefit the most? Education of the women is the answer—a knowledge which will lead them to demand for themselves the best care during this period and if their means will not permit, then let the community step in and assist them.

Those classes of our population who can afford to employ a properly trained physician need not be considered here, but the thousands to whom the advent of a baby after the first usually means an increase in care and worry, with consequent neglect of those who have gone before, require our practical sympathy during this critical time. These women naturally turn to a member of their own sex for moral as well as physical aid. Why not educate them to the fact that it is possible to secure both from sources which are reliable. If the entering wedge has once been secured it will be simple enough to do the rest. The local committee on obstetrics already referred to can organize and supply this need with the exercise of a little tact, patience, and —some money. If a maternity bureau were established in a convenient locality under the immediate supervision of a properly trained resident nurse, applications for assistance during pregnancy and labor could be made at certain established hours, and the cases assigned to physicians preferably among the younger men or women practitioners in the community who would agree to attend the woman during her labor for a definitely fixed fee, or, in case the patient is unable to pay, would be reimbursed if possible by the town. If this work is conscientiously carried out by physicians it will soon redound to their individual credit in furnishing them with family practice in other lines and thus aid in their establishment. Assistance during labor when necessary might be secured from the older established physicians in the community, and the district nurse or nurses now so generally found in smaller cities and towns could likewise be called upon to assist at the labor and to make some of the necessary postpartum visits. Help in the household is very essential during the lying-in period and could be supplied by women employed for this purpose by funds furnished from private or municipal sources. Such women should have nothing whatever to do with the obstetrical conduct of the case.

If poor families can by a process of gradual enlightenment be made to understand the value of such services and not be made to feel that they are the subject of charity, the ignorant and otherwise undesirable midwife would soon find herself without an occupation and would gradually disappear from the field. On the other hand, those midwives who are capable and have received a careful training would be compelled to use their best efforts to compete with this movement in order to be retained by families who still insist on their own choice in such matters. In fact the element of competition would be more effective in elevating the status of the midwife than any system of supervision. However, my own impression is that we shall never obtain a sufficient number of such ideal, properly educated midwives in this country or be able to adequately supervise them if we could. After such a class has been developed it will be time enough to consider the altered situation, but in the meanwhile we must deal with actualities and not probabilities. At the present time, for example, there is but one adequate school of instruction for midwives in New York State. During the three years of its existence only a comparatively small number of women have graduated from the same, and a perusal of the necessary qualifications and the course of instruction shows this to be much in advance of the mental qualifications of most women who ordinarily take up this line of activity. I have no desire to decry the very laudable efforts of those who are supporting the Bellevue School of Midwives, but it will take a considerable period of time to test the system. In the meanwhile the situation as it exists to-day must be altered.

In conclusion, there is one factor which I desire to mention that may be of great assistance in the matter—the support of the local press. If a more direct, helpful, and unselfish relation between the press and the work of such agencies could be established a great gain to the community would soon result. Newspaper editors and proprietors are recognizing in daily increasing numbers the value of adequately representing their communities in public health questions and the subservience to patent medicine and similar influences is fortunately lessening. What greater service can they do than by extending their support in such matters in ways to be developed as the occasion may require?

The high ideals referred to in my previous remarks are in reality not as incapable of attainment as would appear from a superficial observation. Education is the key which will open the door to better conditions. We need here, as in other walks, more sensible training in the elementals which go to make

up our life. The problem is largely in the hands of women themselves and in the striving which has now become so widespread toward the newer feminism, attention to the diffusion of knowledge regarding woman and her functions seems to me much more important than the desire for higher political ideals.

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## DEFICIENCY OF CHLORIDE OF SODIUM IN THE ETIOLOGY OF NEURASTHENIA.

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I have long believed that many cases of neurasthenia are due to defective circulation in the brain and great nerve centres, which is caused, amongst other things, by debility of the heart muscle. This I have already pointed out in my book on "Uric Acid in the Clinic," p. 84, *et seq.* It is obvious that chronic underfeeding or starvation is a cause of muscular weakness throughout the body, which eventually affects even the heart muscle. I have elsewhere (Transactions of the Section of Medicine, International Medical Congress at London, 1913) written about underfeeding, but in this paper I wish to point out that deficiency of salt in the body may produce effects more or less identical with those caused by underfeeding, because deficiency of salt leads to ever-increasing failure in the digestion and absorption of food till the nutrition of all the muscles, including that of the heart, suffers.

It seems clear that the cardiac debility, which is the cause of defective cerebral circulation, may be produced by: (1) Chronic underfeeding, which is rather common among many classes in this country at present, and has for years been a failing among vegetarians: (2) non-absorption of food due to (a) improper food; (b) weak heart, which causes imperfect circulation and so imperfect functioning of the digestive organs; (c) deficient chlorine in the body, causing deficiency of hydrochloric acid in gastric digestion.

I will now give notes of the case that drew my attention to the last mentioned cause.

Some eight years ago a patient in the early fifties came to me suffering from what I took to be neurasthenia, his case being like a good many more of this kind recorded in "Uric Acid in the Clinic." He had a very marked and obstinate dyspepsia and was losing weight rapidly; so, as he did not improve on tonics, I advised him to do a rest cure in the country. In two or three months he was able to return to his business. He had been a vegetarian and an abstainer from salt for several years, and had recently been taking some alkali, chiefly sodium bicarbonate, for some rheumatism from which he had often suffered. One symptom noted in this patient, which at the time I by no means understood, was that he used to complain that soon after he had swallowed a meal there came a gurgling which was both felt and heard in the epigastrium and right hypochondrium, and he then suffered from a feeling of emptiness as if his meal had slipped away and been lost. On this he founded the fixed idea that his stomach was contracted and could not contain his food. I now see that this was a sign that gastric acidity was deficient, for it is said (*British Medical Journal*, 1912, Vol. I., p. 1243,) that deficient acidity increases the rapidity with which the stomach passes its contents through the pylorus, and we thus had a sign of a condition which I have little doubt was present in this case—namely, deficient gastric acidity from want of chloride in the body. On several occasions during the worst part of his illness the urine was alkaline and phosphatic, and the same phenomenon was present on one or two occasions in this second illness, so that alkaline and phosphate urine may be an indication of a deficiency of chlorine in the body. When he was being fed up no special point was made of the administration of salt, but he no doubt got some in the cooked foods he was given, which included meat for a time.

Some four or five years later this patient returned saying that he felt as if the same trouble was coming on again. He was losing weight and had some dyspepsia, though this did not apparently cause so much pain and trouble in connection with his gastric digestion as on the previous occasion. There were the ordinary signs of cardiac debility, and I gave, as usual, a heart tonic, but I also had the urine collected for some days and found that urea was falling lower and lower, in spite of a steady supply of easily digestible food, so that at last the ratio of proteid metabolized to proteid taken fell on some occasions nearly 50 per cent.—*i. e.*, out of 1,200 grs. of protein taken only 600, 700, or 800 were converted into urea. I inquired about salt and found that he was still abstaining from it, though it was his habit to take it if he felt a distinct desire for it. When he takes much salt he suffers from nasal catarrh and other signs of chloridism, and had thus concluded that it was not necessary to take it regularly. It then occurred to me that some part of this patient's trouble might be the parallel of that seen in animals when chloride of sodium has been left out of their food, and so I ordered him to take a full supply of salt with his food every day, and to continue it till he got some signs of chloridism. And now we come to a remarkable point, that this patient who was so sensitive to chlorides and had often before got chloridism as soon as he took any salt, on this occasion had no sign of it until he had been on a good daily supply for some five or six weeks. The effect of taking it was a good one in every way, and from the time the salt was put on urea steadily improved till urea obtained was equal to protein swallowed. I now soon left off the heart tonic and trusted entirely to a full allowance of protein and a continuance of salt, and in a month or two recovery was complete—in fact, his nutrition and the condition of his heart became better than they had been for a long time.

Since the above case was under observation I have met a man who was abusing a sect of vegetarians (who, as I know, eat no salt) in no measured terms for having, as he said, nearly killed him. So far as I could gather his symptoms were similar to those in the above case and he had undergone a rest cure for them. He knew nothing about the importance of taking salt, about which I warned him, but no doubt, as in the above case, he got sufficient salt during the cure without its being specially ordered.

I now believe that this has been the cause of not a few breakdowns among vegetarians and others who are ignorant of the facts. In recent years I have kept a watch on salt or its absence as a possible cause of defective nutrition with results resembling those of underfeeding. I have thus seen a considerable number of cases in which an increase of salt has caused a very marked improvement in

nutrition and in the production of urea from the proteins of food. I have also met with some cases of obstinate dyspepsia in which absence or deficiency of salt was the sole cause of trouble.

After these experiences I began to study the literature of salt, and I came upon facts which appeared to suggest that common salt (sodium chloride) is one of the things in the complete absence of which human life does not flourish and will not continue. I say purposely "complete absence" because it is possible to live a considerable time, even a year or two, without swallowing any visible quantity, indeed, it may be quite intentionally left out of all foods, and yet if the body has a small store of this substance in its fluids and tissues sufficient to supply the chlorine required for the hydrochloric acid which is daily excreted into the stomach in gastric digestion, the whole physiology of the body may go on for some time without showing any noticeable departure from the normal.

The quantity of sodium chloride required by a meat eater for the digestion of a day's food is small, and for the purpose of our argument here it may be put down as from 12 to 30 grs., half a teaspoonful at most.

Chlorine is the substance that is wanted; sodium is common enough in all kinds of foods, but chlorine apparently is not so, and amongst vegetable foods almost the only ones which contain it are the nuts, and it is not a little remarkable that it is thus to be found in our natural food. The chlorine which is made use of as hydrochloric acid in the process of digestion is taken up into the blood again along with the products of digestion, and is thus used over and over again. So that as long as the body has 30 to 40 grs. of sodium chloride in its composition available for this purpose all may go well.

But when there is salt in the blood towards the end of the digestive process some part of this will pass out of the body through the kidneys and be lost. We may probably put this minimum daily loss at 8 or 10 grs., so that if 8 or 10 grs. are supplied day by day in the food (and this is a quantity which would quite easily pass unnoticed as regards taste) the body may go on functioning quite well for a considerable time.

Now nuts can supply just such a small daily quantity and a man who eats from 4 to 6 oz. of nuts per diem will thus introduce into his body a small quantity of chloride, enough probably to make up in some cases for the daily loss through the kidneys, so that he may go on well and quite believe that he is living without salt. It seems to me that there is widespread misunderstanding in regard to this matter, and my point in this paper is that apparently there must be some chloride in the human body or life will diminish, flicker, and go out as a lamp does when no more oil is available.

It seems to have been proved that certain alkaline foods tend to sweep chloride out of the body and that animals that live on these foods (herbivora, frugivora) want more sodium chloride than those, like the carnivora, whose food is more acid and does not tend to remove chloride from the body so quickly.

Bunge long ago pointed out that the administration of salts of potassium to man resulted in the removal of considerable quantities of chloride from the body. He also showed that the craving for chloride among all animals is proportional to the potassium in their food. (*Zeitschr. für Biologie*, 1873, Vol. LX, p. 138.) The fact that such a universal crave exists shows that a substance of great importance for the welfare of the body is being removed, and, as I have said, chlorine is the substance which is important and difficult to replace.

Bunge was not able to decide whether all the chlorine could be swept out of the body in this way by potassium salts or vegetable foods containing them, but the facts I now bring forward seem to show that this is possible, and that a fatal result may follow if the chlorine is not replaced within a given time, *i.e.* before nutrition in general, and heart power in particular have diminished to a dangerous extent.

These chemical considerations also explain the well known fact that while a meat eater in this country needs only half a drachm of salt or less, a vegetarian in India may require as much as ½ to 1 oz. per diem.

We learn from this two things: first, that more salt is required in a warm climate than in a cold (a fact also pointed out by Bunge), and second, that more is wanted by a taker of foods rich in potassium (fruit and vegetables) as compared with a taker of foods rich in acids (meat). The native of India, Burmah, etc., thus requires much salt for two reasons, (1) the nature of his food, (2) the heat of his climate, and we know that the same holds as between vegetarians and meat-eaters in this country.

In this also do we find an explanation of the fact that Irish peasants who eat considerable quantities of potato (rich in potassium) are in the habit of taking with them rather large quantities of salt.

On the other hand, various people calling themselves vegetarians, acting on fancy or something they have read, have given up salt, and, so far as they know, have taken none for years. Some of these people do, I believe, now and again get into serious trouble, but many on the other hand, do go on for years without, so far as they know, taking any salt. If nuts form any part of their food this may explain the matter, and many of them do, I believe, get some little salt in their food without knowing it. For instance, I was telling my opinion in regard to this matter to a vegetarian who said that he was quite well and that he had not eaten salt for years, from which he inferred that I must be wrong; but I asked him to tell me his day's food, and when he mentioned 2 or 3 oz. of cheese I asked him how much cheese he could find for me which did not contain salt?

With regard to animals, it is generally stated that they must have chloride or they will die, and, the herbivora, in the Zoological Society's gardens are all provided with salt.

Precisely the same is said of the human animal; he also becomes dyspeptic, failing more and more over the digestion of his food till finally, if he does not get salt, he may die, wasted, invaded by microbes, complaining of gastric pain, gastric neuralgia, even ulceration, with apparently incurable debility, anemia, edema of ankles, and neurasthenia, which may end in heart failure and death. Among minor signs of such alkali dyspepsia is a severe pain limited to the epigastrium and occurring in the morning hours (alkaline tide). Its great characteristic is that it ceases at once on the administration of a little salt or a few drops of a dilute acid, and it soon ceases to recur as salt is given or increased. I do not assert that want of sodium chloride is the cause of all the troubles just mentioned, but I think that further investigation is re-

quired in the light of the facts I am now bringing forward.

In such cases we must estimate both the proteins of the food and the urea produced from them, and, if we find that urea is very deficient, we should not be content to give heart tonics only, but should inquire as to the chlorides and the way in which they have been supplied to or swept out of the body.

To show some of the effects of taking salt I will give the figures from a recent case. The food taken was here equal to about 360 gr. of urea per day. Feb. 1, urea obtained 234 gr. Salt was now increased from ½ dram up to 1½ or 2 drams per day. Feb. 2, urea 281 gr. Feb. 3, 301 gr. Feb. 4, 351 or nearly normal. Salt had here been only slightly deficient and some improvement came quickly. But where the heart has been much debilitated by long-continued neurasthenia or marasmus it is necessary to continue heart tonics for a time and to do all that is possible (by rest after meals or even complete rest in bed) to take work off the heart till it has recovered its nutrition and muscle power and then the fires of life will burn up of themselves, provided that sufficient chlorine is available. So long as salt is deficient attempts to feed up fail and cause only increasing discomfort, flatulent distension, intestinal decomposition with most offensive flatus and other signs of dyspepsia with little or no rise of urea, and all these symptoms gradually subside and disappear as a sufficiency of salt is got into the body. But in cases which are chiefly due to want of chloride if it is given plentifully together with a free supply of protein it may not be necessary to give any heart tonics at all. Thus in the case first mentioned I attribute the good result entirely to the use of increased salt, which improved digestion and the nutrition of the heart and thus removed both factors in the neurasthenia, and not to the heart tonic which was soon left off and had been given apart from salt on a previous occasion without much result. I believe that both attacks in this patient were due to the same cause, and that if he had always eaten some salt or had paid more attention to his salt-crave, when he had it, he would never have suffered from neurasthenia at all. It will, of course, be noted how closely his clinical symptoms paralleled those said to be produced both in animals and man by lack of salt. It is to be noted that this patient had not only been using but little chloride for a considerable time, but he had been taking alkali which would doubtless have the effect of sweeping out the last vestige of this substance from his body.

When he first came to me I believed more or less that it was not possible to live without salt but I had forgotten the fact pointed out by Bunge that the taking of alkaline drugs or foods rich in alkali, such as potato, might precipitate the worst troubles of chloride deficiency by sweeping the body more or less completely clear of it. I believe that the future will demonstrate that my patient, though he sustained much damage from his want of chloride, was comparatively fortunate and that considerable numbers of people lose their lives or their sanity, or first one and then the other, from the cause which produced his severe illnesses.

Of course, if sodium chloride raises the acidity of the urine and of the body fluids, which it probably does to any important extent only when taken in excess of the physiological needs of the body, it will do harm in certain gouty and rheumatic conditions, *e.g.* gouty arthritis, bronchial, nasal, and other forms of catarrh and their sequelæ, and when I see patients who suffer from these troubles I have not hesitated to tell them that they should diminish or leave out salt from their food for a time. The above cases, however, seem to show that it is never wise to tell patients to leave off salt entirely and that they should be told only to reduce it to the physiological minimum, to be at once increased again if any signs of dyspepsia or neurasthenia supervene.

It follows from Bunge's facts that vegetarians, if they do not bear these points in mind, will be more liable to suffer from neurasthenia than meat eaters, for the carnivora will be able to get on with less salt, as owing to their higher acidity they do not pass it out of the body so quickly. It is thus possible that some of the tales current in the profession as to the "inevitable breakdown" which follows perseverance in a non-flesh and uric-acid-free diet for several years have originated in a misunderstanding of cases like the above, for I myself in over thirty years of experience and observation have never met with such cases of breakdown except in those who were deliberately breaking the rule of protein quantity and underfeeding. In the case above-mentioned, however, there was no breaking of the rule of quantity, but failure of nutrition and a breakdown were apparently produced by want of chloride. (See "Health Through Diet" by K. G. Haig, Lippincott, 1914.)

I have been in the habit of considering that the depression and debility produced by alkalies is due to the collemia (excess of uric acid in the blood) and the resultant defective circulation and anemia which they bring about; and it accords with this that these results are very marked when an alkali is administered to a patient who is full of uric acid, but slight if they are given to one who is uric-acid-free. Moreover, if the uric acid in the blood and urine is watched, the effects of an alkali on the circulation and metabolism will be seen to correspond accurately with the quantity of uric acid there present, and when the quantity in these fluids falls to normal the depressing effects of the alkali come to an end, at least for a time. But it now appears that in addition to this effect through collemia, alkali may eventually cause debility in both meat eaters and the uric-acid-free by sweeping chlorine out of the body and thus producing serious, even fatal, digestive failure. Here also may we find the explanation of the very widespread belief that alkalies may induce serious conditions, even ulceration, in the stomach if used too largely or too long continued. The patient mentioned in this paper had marked digestive failure together with some rather severe gastric pain in his first attack which followed a prolonged course of alkali. I am now by no means certain that the diagnosis of "gastric neurasthenia" or melancholia covered the whole of the field and that there was not at one time some organic trouble in his stomach. (See paper on "Gout of the Intestines," MEDICAL RECORD, Oct. 12, 1912.)

On the other hand I believe that some people get a craving for salt which is unnatural and excessive, just as they get a craving for tea, coffee, alcohol, or other drugs which clear the blood of uric acid and thus relieve the depression of mind, body, and metabolism which defective circulation produces. They take it because of its obvious effect, without in the least understanding how this effect is produced. I was once told by a man who had this

crave in a very marked form that it had done him great good and saved him from many diseases, and one can easily understand how this may be the case, at least in comparison with a man who takes food-poisons along with a deficient supply of salt.

But if in a food-poisoned individual salt keeps him free from disease, it does this like many other drugs and some well-known conditions of life, *e.g.* pregnancy, by keeping the blood clear of uric acid so that the capillary circulation is free.

But true freedom from disease is obtained by keeping the body free from uric acid continually, and this is possible only where none is introduced and none retained. Where this is so there is nothing to fear from the future, for the body is free from excess of uric acid through life. On the other hand, where freedom has been attained by means of salt or of other drug or retentive process, a time is sure to come when such retention can no longer be kept up and then there will be collemic troubles to an extent proportional to the quantity retained.

This very marked effect of chlorine on digestion and nutrition has made me wonder how far dilute nitrohydrochloric acid, a trusty remedy for many minor forms of dyspepsia, may have acted merely as an introducer of chlorine into the body? Some forms of the uric-acid-free diet are acid, perhaps as acid as that of the meat-eater, but those whose food contains much alkaline vegetable (*e.g.* potato) may, no doubt, soon require to increase their salt in order to avoid neurasthenia, and still more must those do so who are taking alkali for the treatment of disease.

I believe that those who do not make a habit of eating salt get a crave for it when the body is running short of chloride, and that such crave should on no account be neglected. The same occurs to those who do not take enough salt or who sweep out with alkalies or potatoes more than they put in. People who make a habit of reading or working during meals, thus overlooking the taste of their food, are liable to neglect this crave and then serious results may follow.

Whenever there are signs of a crave salt should be taken and continued till chloridism is produced, and the time taken to do this should be noted.

It follows that not only will vegetables, potatoes, and alkali sweep chloride out of the body, but any condition that increases the alkalinity of the blood will do the same.

Now nearly all wasting diseases such as chronic dyspepsia, vomiting, diarrhea, chronic pulmonary disease, and chronic enteritis of all kinds will do this, hence the marasmus in children, which follows so frequently on diarrhea, vomiting, or any catarrhal trouble of the intestines or bronchi, may be due in part to sweeping of chloride out of the body; and I have found, as a matter of fact, that very many of these cases have weak hearts due to defective muscular nutrition, and this still further interferes with nutrition and hinders recovery, producing in children conditions very closely parallel to neurasthenia in adults.

In my experience such marasmic children do very well and show a most gratifying increase in weight and strength if from 5ss to 5i or more of chloride of sodium is added to their food with a small dose of a heart tonic such as strophanthus. It is now my practice to administer chloride of sodium to all children who are suffering from such troubles, and I use it as a routine treatment in convalescence from summer diarrhea and vomiting.

I have recently also come across a case in which a patient was treated for gout rather energetically, first by alkali and later on by large quantities of potato which he used to eat three times a day. In the course of a few months he began to suffer from well-marked alkali dyspepsia with pain in the epigastrium. (See previous remarks.)

And since I have been using the treatment of the late Dr. Forbes-Ross for cancer,* I have several times met with alkali dyspepsia in patients who had been taking large doses of alkalies, and their pain was generally very promptly relieved by salt or acids. Such alkali dyspepsia is commonly found along with a slightly acid or alkaline urine or with phosphaturia. These patients also may be able to take large quantities of chloride of sodium for weeks together, without getting any signs of chloridism.

The patient who has deficient chloride in the body, will probably also exhibit other well-marked signs, such as debility, subnormal temperature, slow capillary circulation, with more or less dilatation of the heart, and possibly, as a result of this some enlargement of the liver with congestion of the stomach and duodenum, which are also the well-known clinical signs that accompany wasting and marasmus in children. Then the mere administration of salt in sufficient quantity for a few weeks may not only remove the signs of alkali dyspepsia but also the signs of debility and marasmus if the heart is not too weak for its work.

It seems clear that the quantity of salt required in any given case is greatly influenced by such factors as food, climate, and nutrition; by anything, in fact, that affects the alkalinity of the blood and tissue fluids. All factors that increase the alkalinity of the body sweep out increasing quantities of chloride and require an increased dose both to counteract this and to replace the reserve of sodium chloride which has been depleted.

Hence feeble nutrition tends to perpetuate itself if the salt factor is not taken into account, for the more feeble the nutrition the more alkaline the body and the more it will be deprived of its salt reserves.

Patients who suffer from low salt reserves often have a strong crave for sugar, fruit, and acids such as vinegar, and this I think is really a modified salt crave. When the natural salt reserves have been replaced the craves both for salt and acids disappear.

No doubt the sugar or acid does some good by keeping chloride in the body. The great improvement produced in nutrition by sugar may be due in part to its raising the acidity and keeping the salt reserves in the body, as well as to its action in keeping the blood clear of uric acid, *i.e.* improving nutrition at the cost of an increased tendency to gout or rheumatism.

In my opinion salt should be increased in every case of debility, marasmus, wasting disease, rheumatoid arthritis, and chronic catarrh (intestinal and bronchial) and the effects on nutrition and the excretion of urea watched.

It seems to me that the whole subject of malnutrition may require to be reinvestigated in the light of these facts. We have to find out on the one hand how much of our failure to treat chronic wasting disease including tuberculosis† with suc-

*"Cancer, the Problem of Its Genesis and Treatment," by F. W. Forbes Ross. Methuen & Co., London, 1912.

†See also "Metabolism and the Circulation," MEDICAL RECORD, July 12, 1913.

cess is due to the administration of drugs which are often of quite secondary importance, while the salt factor, which is clearly of the utmost importance in nutrition, is either entirely neglected or treated only inadequately with a little hydrochloric or nitrohydrochloric acid. On the other hand we have also to find out how many deaths now attributed to neurasthenia, debility, heart failure, dyspepsia, marasmus, and chronic intestinal catarrh have really been due to want of that important element in food digestion, hydrochloric acid.

## CAN CONSUMPTION BE CURED?*

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YES, most decidedly, *yes;* but this answer needs to be explained to prevent misunderstanding. On the one hand, we need to avoid too much pessimism which paralyzes effort, and on the other too much optimism, which leads to carelessness and neglect, which are very often fatal. In looking at the doughnut, we must not forget to see in it the hole. Naturally enough, as a result of the reported successes of recent years, the pendulum has now swung too far the other way, and many people have become too enthusiastic, and now seem to believe that the cure of tuberculosis is as easy as rolling off a log.

On the contrary, it cannot be stated too emphatically that, while in many cases, largely proportionate to the earliness of the stage in which it has been discovered and the proper measures applied, it can be cured; yet to reach this result is not by any means an easy task (with comparatively few exceptions), and generally requires a vigorous fight for many months and often for years, before victory can be won, in which contest certain moral qualities and strength of character play a very important part.

It is extremely desirable, therefore, that the public should entertain a correct view on this subject, in order to encourage sane and rational methods of living and treatment for the benefit of individual cases, as well as to be able to institute proper public measures for the control of the disease, and for the prevention of its spread in the community.

The comparative successes in the treatment of tuberculosis during the last thirty years or more have to such an extent stimulated the enthusiasm and optimism of some members of the medical profession that they have publicly and privately declared their belief in the possibility of the total extermination of the disease in the not-distant future; and some of them have even attempted to set the date approximately, basing their judgment on the progress already made. I confess that I have never been able to sympathize with them in these views, any more than with those who predict that the end of the world is near at hand. Indeed, I doubt if we ever shall rid ourselves entirely of this dread disease, at least as long as human nature remains as it is now, on which subject much might be said. Even smallpox, although wonderfully diminished, has not yet become extinct as predicted as a result of vaccination. Nevertheless, vaccination, if properly performed, and universally adopted, ought to be practically specific against it. But just here comes in the human element, and the mental obliquity which prevents some people from recognizing its efficacy, in spite of demonstrable proof. The difficulties in the way of the complete extermination of tuberculosis for several reasons are ten times as great as those of smallpox. The social evil and its immediate results in disease are apparently no nearer extinction than many years ago, and many moralists confess themselves almost discouraged. The reason is that here the human element and the frailties of human nature play a more prominent part than in the case of tuberculosis, and a thousand times more prominent part than in the case of smallpox.

The estimation of some enthusiasts that tuberculosis would become extinct in twenty or twenty-five years, based on figures already obtained as to its diminution, reminds me of the calculation of the faithful young wife of the impecunious artist, who after many months of fruitless toil had at last sold a picture which took him half a day to paint, for $25. "Splendid," rejoiced the optimistic wife, "$50 a day for 300 working days in the year means $15,000 yearly income. We surely can live on that."

When we consider that among the predisposing causes of consumption are poverty, dissipation, overwork and worry, to say nothing of the rest, is it strange that we should despair of the early and complete eradication of the disease, no matter how enthusiastic we may become as to our wonderful success in treating people who are not too heavily handicapped?

Can consumption be cured? Fifty years ago this question would have been answered in the negative throughout the entire world. People generally considered it a hopeless disease, and the medical profession looked at it with a folding of the hands and a grim contemplation of approaching death, which paralyzed their best efforts. If occasionally a patient got well, it was by the grace of God, and not often as a result of human endeavor. Since then there has been a great change in the outcome of the disease, for the most part owing to modern hygienic, so-called sanatorium methods, which took their real start not far from that time in Goerbersdorf and Falkenstein, in Germany, and which in this country were first heard of to any great extent in the sanatorium in the Adirondacks founded by the illustrious Trudeau thirty years ago. The younger physicians in this country, who have seen many cases get well, cannot possibly have any adequate conception of the comparative feelings of the older ones in this regard, especially of those who have largely treated this disease, how they have risen from the depths of despondency to the joys and enthusiasm of success, even if perfection has not yet been attained.

A large amount of money has been spent in recent years in the antituberculosis campaign, and much time and thought given to it, as well as hard work, and that it has been worth while is attested by the chart published in the recent report (the tenth) of the Boston Association for the Relief and Control of Tuberculosis, which shows that the death rate from the disease *since* the announcement in 1882 of the discovery by Koch of the tubercle bacillus (that is, for the last 32 years), has decreased from 420 to 150 for every 100,000 of Boston's population, while during the 32 years

*Read at the Evans Memorial, Boston, March 24, 1914.

*preceding* this discovery, that is from 1850 to 1882, the decrease was only from 475 to 425.

The great statistician, Frederich L. Hoffman of the Prudential Insurance Co. of Newark, N. J., in an elaborate and lengthy paper read before the National Association for the Study and Prevention of Tuberculosis on May 9, 1913, among other statistics, to illustrate the tendency of the tuberculosis death rate in the United States during a long period of time, brought together the combined mortality of the cities of New York, Philadelphia, and Boston for the 100 years commencing with 1812. From this it appears that there was no decided tendency toward a persistent reduction until 1882. Since that year, however, the tuberculosis death rate has persistently diminished from almost 390 per 100,000 of population in 1881 to 180 in 1912. This shows, he thinks, the most conclusive evidence on record that the deliberate, thoroughly intelligent and nation-wide campaign against tuberculosis on the principle of its being an infectious disease and transmissible from man to man, has been successful beyond expectations. Mr. Hoffman's statistics for a group of 50 large American cities show that there has been in this larger group also a persistent and very considerable decline in the tuberculosis death rate since 1882, that is, from 335 per 100,000 of population in 1881 to 166 in 1911. In England the death rate from tuberculosis has dropped nearly 50 per cent. in 40 years. In London the drop was 33 per cent. between 1901 and 1910. There has likewise been a great drop throughout the civilized world. Much testimony along similar lines could be presented. The greater part of this decline has been owing strictly to antituberculosis work since the modern campaign began. The comparatively small decline in the rate before 1882 was probably mostly due to the general improvement in public sanitation and hygiene. And yet this general improvement goes so much hand in hand with strictly antituberculosis work and is really such an integral part of it, that it is well-nigh impossible to dissociate them. Better construction of houses with reference to light and air, better drainage, better regulation of the hours of labor, better ventilation of factories, better food, less drunkenness and other improvements in the social condition of the people, would naturally tend to lower the tuberculosis death rate, even if this were not the principal object in mind.

One of the best arguments to be brought forward in favor of the curability of consumption, an argument indeed, which is absolutely incontrovertible, is that derived from post-morten examinations of persons who have had the disease and have recovered from it, and have subsequently died of some entirely different disorder, and yet in whose bodies have been found by skillful pathologists unmistakable evidences of healed tuberculous lesions. Such post-mortems are made very frequently abroad, especially on hospital patients, far more frequently indeed than in this country. This evidence has been presented so many, many times, that now it is accepted by all educated physicians, and is a conclusive answer to some scoffers who even at this late day occasionally pretend that a patient, especially in the incipient stage, who claims to have been cured of tuberculosis, never could really have had the disease at all.

Indeed these findings are so common that we are forced to believe that some people have had the disease and have recovered from it spontaneously, perhaps often without knowing that they ever had had it.

Another proof of the curability of consumption, and one which particularly and immediately interests us, comes from the reports of the modern sanatoria for its treatment, which are now so numerous throughout the civilized world, and which all tell essentially the same story, though differing in detail. Many are cured also by the same kind of sanatorium methods either at home or elsewhere outside of a sanatorium; but naturally it is very difficult to get statistics from such. Even from the reports of sanatoria it is not easy to get figures which are comparable with each other and which, therefore, can be conglomerated, for the reason that their bases of comparison are so variant. Some aim to take only incipient cases, some mostly advanced, and some all grades. The classifications of cases and results also differ in various ways, although an attempt at uniformity is being made. For instance, at our Rutland Sanatorium, after some years' trial of its own classification, the adoption of that of the National Association, for the sake of uniformity with other institutions, at once resulted in the dropping of the percentage of "apparently cured" cases discharged, because many of the patients were unwilling to remain during the three months now demanded after the cessation of all their active symptoms. Some of these undoubtedly kept up their good record after they had left, and later reached the desired goal; but of course by the terms of the classification they never became eligible to be recorded in the banner roll of the sanatorium.

The commonest classification of the stages of the disease for the past few years has been *Incipient, Moderately Advanced,* and *Advanced* (or *Far Advanced);* and for results *Apparently Cured, Arrested, Improved,* and *Not Improved.*

In discussing a subject like this a great deal depends on the precise meaning we attach to the word "cured" in this connection. When a person recovers from some diseases, he is in practically just as good condition as before he was sick, and has no further occasion to take anxious thought about the matter in relation to those particular affections. But when he has pulmonary tuberculosis, and it is not immediately fatal, several endings are common, depending largely on the amount of his disease and of his special power of resistance to it, the way it is handled, and on other factors. Some healthy people fortunately have so much lack of susceptibility to tuberculosis or a so-called immunity, either natural or acquired, that they are never touched by it in the slightest degree, in spite of exposure to contagion, and in spite of being surrounded by powerful influences favorable to its production. Half the world in this manner has an immunity against scarlet fever. Others come fairly near this high-water mark with only a *slight* susceptibility to tuberculosis. They are, as it were, struck by bullets which glance off without apparently doing much harm. They often recover spontaneously with a cure which may prove to be permanent, especially if surrounded by favorable influences, whether they are aware of their condition or not. One of the latest theories, which has gained quite a wide acceptance, is that many, if not most, of the common cases of consumption in adult life, really started in early childhood in this way, without attracting much, if any, atten-

tion, and then remained latent for years, finally to be aroused into activity under the fostering influence of overwork, bad air, or any other agency which might reduce the patient's vitality. Cases fired up in this way, including mild infections with slight symptoms, those more severe with well-marked evidences, and even some of the more advanced cases with cavities, may ultimately acquire what is practically a condition of perfect health; or they may reach what is often called an economic cure, where they are able to work to a greater or less extent; or they may drag along for years in a kind of vegetative existence, in various degrees of invalidism, where the question of whether it is worth while often intrudes itself. All of this without dying; but only those who reach perfect health should be called "cured."

The question of individual susceptibility and resistance is a very queer one, but yet it explains many things that are otherwise hard to understand. How one person, for instance, who is infected, seems to be completely overwhelmed, in spite of anything that may be done, perhaps from the very beginning; and how another at the other extreme may go free, scarcely knowing that he has been hit; with all grades between. This difference in susceptibility is seen in animals. Some are very easily infected, like monkeys, rabbits, guinea pigs, swine, and cattle; while others show a great resisting power, like dogs, cats, foxes, lions, and tigers. Some races of men, like the Indians and Negroes, are peculiarly susceptible and fall easy victims to consumption.

All phthisiologists agree that many (perhaps one-quarter or more) of those patients who have been graduated from a sanatorium as "apparently cured," backslide after returning to work, from various causes which will be considered later. This is the reason that they have been called "apparently" cured and not "cured." The adjective added was in the interest of modesty and truth. The backsliding proved either that the cure was apparent and not real, or else that a new and fresh infection had taken place.

It was hoped that this qualifying adjective would so impress the graduates with the precariousness of their condition on leaving, and the danger to them if they neglected to follow out with care the directions for future righteons living, that as little of this backsliding as possible might be expected. But unhappily some probably could not, and some would not, live up to the best light they had. Lately, therefore, many sanatoria have considered it wise to substitute for the phrase "apparently cured" their second-best designation, "arrested." The argument was that if patients on discharge simply considered their disease as arrested, and liable, if they were not careful (especially for two or three years), to flare up again, the importance of hygienic living would be more emphasized.

Whichever way you put it, the practical lesson remains that after discharge from a tuberculosis sanatorium with permission to work, the patient must consider himself constantly on probation, as it were, for at least two or three years, and to a lesser degree for a much longer time. The same principle holds good, of course, if the patient has been "cured" by sanatorium methods outside of a sanatorium. If the word "cure" is used in this disease, it must be restricted to the definition applicable only to tuberculosis. Speaking roughly then, as no absolute accuracy can be attained, statistics from a large number of sanatoria show that of the incipient, the most favorable class of cases, perhaps as an average from one-half to three-quarters on discharge are reported as apparently cured or arrested, and supposedly able to go to work. If then roughly from one-half to three-quarters of *these* stand the strain and remain well without backsliding after a probation of two or three or four years, we have not more than half of these original incipients booked for the ultimate cure, which of course is the only cure to be really considered, as it hardly counts to get folks well if they cannot remain well. If the probationary period were extended, it must be admitted that the percentage of ultimate cures would be somewhat still further reduced.

If we inquire into the results of treatment of the moderately advanced cases, the percentages naturally are a great deal lower, and the advanced or far advanced cases show an exceedingly small proportion of cures, so that if we had only the latter class to deal with, we should feel pretty near being utterly discouraged.

Speaking very roughly then, with not more than one-half of the incipient or best grade of consumption cases ultimately cured; with a very much smaller proportion of the moderately advanced cases ultimately cured, and with very few indeed of the far advanced, the picture is not as bright as it is sometimes painted. Shall we therefore, get discouraged? By no means. For in contrast to the results of fifty years ago, what success we have now is almost phenomenal, and the only way to achieve greater success is to ferret out as patiently as possible present mistakes and to try to eliminate them. We are encouraged in this hope by the fact that in properly selected cases, where there is sufficient intelligence, education, will power, common sense and financial support, our results are already far better than those just given. It behooves us then to inquire into some of the reasons why not more cases are arrested while under Sanatorium treatment, and also why, after they have been arrested, so many of them backslide when they again go out into the big world.

In the *first* place, as has been many times said, too often the diagnosis of the disease before the patient begins treatment has not been made early enough. The old comparison of the difficulty of putting out a large conflagration being so much greater than putting out a small, just-beginning fire, although trite, still holds good. Some improvement in this direction has already been made, but much remains to be done. Physicians are partly at fault, but more blame should be attached to patients, partly on account of ignorance of the first symptoms, which ignorance should be corrected by public education; and partly because, when they do know, they often resolutely refuse to accept the situation or to take the necessary steps. Early cases are arrested very much more quickly and surely. Although our Rutland Sanatorium has generally been specially reserved for Incipient cases, yet such are apt to be in the minority there, simply because they do not go. Often only one-third of the patients there are incipient.

*Secondly*, the stay of patients in the sanatorium is, as a rule, far too short. It now averages about six months. This may be long enough for a few, but not for most. The reason for the short time is at least two-fold; partly because the patient too soon thinks he is all right, and is in a hurry to get

away, and also because the sanatorium is often glad to have him go, because so many outside patients are insistent to have his vacant place as soon as possible. Accommodations even here in Massachusetts are now so few, that it often takes two months or more after acceptance, before a patient can get in, during which time he is apt to get worse.

After a so-called good case has been under treatment for a comparatively short time, he often looks rosy and plump and apparently well. He says he feels well, perhaps as well as he ever did in his life, and yet he is still a sick man, and would almost surely collapse under the strain of competition in the outside world. This we all recognize as the special danger-period for him, whether in the sanatorium or under private treatment outside. It is often very hard to persuade him to keep on with his treatment. If the patient is outside, the conscientious physician has another difficulty to encounter in apparently seeming anxious (for a consideration, of course,) to continue to treat one who looks well and says he feels well, even if he is not well. Another reason for his wanting to leave before he should, and a perfectly natural one, is that stern necessity often seems to compel it. His money is all gone and he needs to go to work, perhaps to support a family. Thus his generous feeling proves his own undoing.

*Thirdly,* before the patient gives up sanatorium treatment the so-called "rest cure" should be followed by a "work cure," to prepare him for the resumption of his work in the outside world. Too much cannot be said in commendation of the wonderful effects of rest in consumption properly applied, and of the judicious regulation and adjustment of rest and exercise. Indeed, those consumptives who egotistically think they "know it all," and who under the mistaken impression that all that is necessary is fresh air and good food, undertake to conduct their own cases, generally with disaster, oftenest fail through lack of knowledge of accurate details about regulating exercise and rest. Healthy people need exercise. Consumptives, especially at first, need rest in generous doses, but the nearer they get to the condition of health, the more exercise they need. Occasionally, to be sure, some become so impressed with the idea of rest as a therapeutic measure, that they want to continue it for the remainder of their lives. They get lazy. These are in the minority, however. But if patients do little or nothing but rest until they leave the Sanatorium, and then try to plunge at once into the competition of life, ill results may follow. The idea is now recognized, therefore, that an additional period of time should be taken, during which the mind and muscles should be so trained, under careful medical supervision as to fit them for life's work, as well as to cultivate a good general resisting power.

Now why does the disease relapse after it has become arrested, and the patient has resumed work of one kind or another? For several reasons, the first of which was given by good old Dr. Isaac Watts in his "Divine and Moral Songs for Children." "Let dogs delight to bark and bite, for God hath made them so"; "Let bears and lions growl and fight, for 'tis their nature to;" and this reason is equally appropriate to the treacherous disease tuberculosis. On this account perhaps a relapse may occasionally be necessary in spite of what anybody can do.

Poverty is another reason. It has been said, "Only the rich can afford to have tuberculosis," and poverty is certainly a great factor in inducing tuberculosis, a hindrance in overcoming it, and especially a big handicap in keeping well after a return to work, although not by any means an insuperable obstacle to permanent recovery. When we think of the homes to which so many have to return, dark, overcrowded, insanitary tenements, with surroundings such as are constantly giving rise to new cases, is it strange that some relapse? Tuberculosis is particularly a house disease and some infected houses, especially in the slums, have claimed victim after victim. Here is an enormous field for private philanthropy, if not for public appropriation, to provide healthy houses, model tenements with roof gardens, and buildings like the Vanderbilt "Home Hospital," 78th St. and John Jay Park, New York. Boards of health should certainly condemn improper buildings, fight the dust and smoke nuisances, supervise lodging houses and compel the sanitation of workshops and factories. Among the poor follow-up work is very important, and the trained visitor to inspect conditions and give advice, and the domestic science caller to teach the proper selection and cooking of food, both systems started by the Boston Association and then turned over to the public authorities, are steps in the right direction.

Improper occupation after discharge is another very effective cause of relapse. And here comes in one rather curious and unexpected fact learned in the school of experience. After an extended trial we find that the majority of patients get along much better if they go back to their former employments, provided they are not distinctly dangerous ones, than if they take up something new, which is theoretically better suited for their condition. From the observation of the remarkable effect of fresh air in the recovery from the disease, the inference was natural that to stay well the same should be continued, and that the work, if formerly sedentary and in-doors, should be changed to out doors. But the practical fact remains that the number of suitable out-door occupations open to graduates is very small, that the extra exposure and unusual strain are apt to be too much for them, that the income for one not especially trained to the new work is also small, and that this smaller income will buy less food and other comforts and necessities of life. These and similar considerations more than overbalance the acknowledged superiority of a longer period in the twenty-four hours in the fresh air. We all find also that the utilization of the worker's off-duty time is more important than that of the on-duty time, and that if the work in a well-ventilated office or shop is suited to his capacity and strength, he will generally get along well, if he has a sufficient number of hours of sleep in the open air, and is not prodigal in the expenditure of vital force in his recreation time. If he is skilled in his former work, he can earn more than in something untried. Formerly the commonest advice was to go out on a farm and work, or drive a livery team, or to deliver groceries and provisions or something of that kind. Generally the giver of this advice knew as little practically about what was involved in this work as the receiver; but on trial, if the job was obtainable, as occasionally happened, the difficulties sometimes loomed up like a great cloud.

Among different occupations recommended, none

has received stronger support than farming, and yet on account of the hard physical work, the long hours of toil and the exposure, few city people could stand the strain as farm hands. The farmer himself needs the work done, has generally too little help, and cannot afford to coddle or favor the worker. If the worker tries to run the farm himself without previous experience, he makes a financial failure of it. Besides, the average city man has no taste for farm work and really dislikes it. Small poultry work is better.

The only real good way to utilize a farm for these people is to have it connected with a sanatorium in the form of a farm colony, and to have graduates or those not far from graduation work on it under medical supervision, each as many hours as is good for him, or not at all some days, if his physical condition demands a rest. This will not be a financial success, but will confer a benefit on the workers, and will test their endurance and prepare them perhaps for other work. For years at Rutland it has been the policy to employ under medical supervision on diminished pay a certain number of graduates, who had not become tough enough to engage in outside competition, to work about the institution, mostly inside with open windows and for them it worked very well. If members of the Legislative Committee were amazed at this large force of workers on the pay roll, the fact was explained as for the benefit and further treatment (work cure) of the patient, which might prevent relapses.

Another very effective influence in favoring relapses is the spirit of *over-confidence* begotten in some of those who have finished the treatment and have gone to work again, apparently believing that they are "cured" so thoroughly, that nothing could ever happen to them again. This spirit tempts them to do all sorts of things antagonistic to their welfare, recklessly to squander their recently repaired physical assets by overwork, too much play and even by dissipation, relaxing also in the principles taught them of the hygienic life. They consider that they are cured in the sense of a cure of measles or of scarlet fever or of typhoid, with no prospect of a return of their disease, and this opinion they hold in spite of proper explanation. If the word "arrested" will make them more careful than the word "apparently cured," by all means let us use it. The great fact for them to remember is that the sanatorium treatment does not "end all," but merely starts them on the road to health, and that they cannot afford to neglect the hygienic life, and should call in extra help if things do not go just right. For this reason we may call attention to the fact that it has not infrequently happened that persons discharged as unarrested have sometimes been more successful in reaching the ultimate cure than the class now under consideration; because they knew they were not cured, and therefore were prepared to continue the fight indefinitely. So some physicians even go so far as to advise all graduates to say, not "I had tuberculosis, and am now cured," but rather, "I have tuberculosis." Human nature is such that it is doubtful if a man's whole conduct could be completely changed by a slight difference in phraseology. What he needs, after proper instruction, is to have his will power, his moral fiber, his whole character strengthened. With these and other important modifications we look to the future for greater successes than in the past.

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## AN ECONOMIC AND SOCIAL STUDY OF FEEBLE-MINDED WOMEN.

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(From the Clinic of Professor Schlapp.)

THE number of persons recognized as mentally defective is increasing disproportionately in all civilized countries. This increase is due to a complexity of factors, among which, as possible causes, may be mentioned the effects of the modern struggle for existence upon the human organism; the unrestricted and therefore very high birth rate among the feeble minded and mentally inferior at large in the community; improved methods of detecting the feeble minded; and the rising standard of mental efficiency necessary for personal maintenance in the increasingly strenuous and complex competition of modern life.

It is not the immediate purpose of this paper, however, to consider the causes of mental deficiency, but rather to consider its effects. The presence of a large number of feeble minded individuals in the social body constitutes a problem the urgency of which is in inverse ratio to the amount of exact information that is available on the subject. Tredgold* in his work published six years ago points out the need for study of the economic and social aspects of mental deficiency, and notes the paucity of data on the subject. "Until the last few years no reliable, and at the same time extensive, statistics referring to the ament as a citizen have existed. The extremely valuable ones we now possess are due in great measure to the investigations instituted by the Royal Commission of 1904. . . . I know of no similar inquiry or statistics concerning any other country."

Some progress has been made since Tredgold wrote, but as yet there are few accurate statistical accounts, statements being in the majority of cases prefaced with the unsatisfactory phase "it is estimated." This vagueness is undoubtedly due in large measure to the fact that there was formerly very limited opportunity for the collection of exact data. Institutions for the detention of the feeble minded do not include in their histories many facts that are of social and economic interest, these histories being made primarily from the medical point of view. It is also true that great numbers of mentally defective persons never are admitted to institutions because (1) guardians and parents object to their commitment, and there is no law in the majority of states to enforce commitment; (2) the institutions are inadequate for the accommodation of those who do apply; (3) for certain kinds of defectives, notably the moral imbecile, there is at present in most of the states no place of detention unless the individual has already committed a crime and has been through the court. For these various reasons the statistics of institutions of detention are inadequate for the study of the defective in his relation to society, and such studies have not appeared from such institutions.

It is believed by the writers of the present paper that a statistical study of cases which pass through the Clearing House for Mental Defectives in New

*A. Tredgold: "Mental Deficiency," 1908.

York City will be of interest to all who are immediately or remotely concerned with social problems. This Clearing House was established in 1913 as a branch of the Department of Public Charities. It maintains a professional and clerical staff whose work it is to examine mentally, physically, and socially all cases of suspected mental defect that are brought to its clinic, and to record and file the histories thus obtained, together with all available information concerning the individuals examined. Commitments to state and municipal institutions of detention are made through this Clearing House, professional advice is rendered to parents, guardians, probation officers, courts, etc., on all cases, whether commitment is desired or not, and treatment is given in those cases where therapy is indicated. The files of the institution thus become a valuable source of available data for the study of mental deficiency in all its phases. The present paper is limited to the consideration of a single group of the mentally defective, *i.e.* feeble-minded women sixteen years of age and over.

During the year 1913, and through February of 1914, 3,300 cases of suspected mental defect were examined at the Clearing House for Mental Defectives. Among these 3,300 patients, 474 women of child-bearing age (16 years of age and over) were included. One hundred and forty-seven of these women were found to be suffering from some disorder not involving amentia, and there were 46 who failed to return to the clinic for exact diagnosis, or in whose cases for one reason or another no definite diagnosis could be made. This leaves 281 who were definitely diagnosed as feeble-minded, including 113 morons, 105 imbeciles, 26 epileptics (diagnosed primarily as epileptic, but considerably below the limits of the Binet measuring scale), 22 moral imbeciles, and 15 idiots.

The figures show that by far the greatest number of those female aments who survive in the social milieu till womanhood belong among the morons and the imbeciles. These high-grade defectives are much more important from the social point of view than are the low-grade defectives. The latter either die before they reach maturity, or are placed in institutions at an earlier age because they are easily recognized as unmistakably defective, and because they constitute an intolerable burden to their families. The moron and the high-grade imbecile on the other hand are often not recognized by the layman as mentally defective. They do not constitute an intolerable burden to their families because they are able to care for their own physical needs, and because they are able to perform simple menial and manual tasks necessary in the household. Thus they grow to maturity in the family instead of in institutions.

*Nationality.*—The 281 women were first distributed as to their nationality. As would be expected, they are in this respect a very heterogeneous group, coming as they did in the majority of cases from the lower East Side of New York City. In some cases it was impossible to determine definitely the nationality of the patient. Some of them were waifs, picked up by social workers from the streets, and unable to give any intelligent information as to their origin. Others had been "rescued" when infants, and their parentage and birth were completely obscured. There are nineteen nationalities represented. (The Semitics are presented separately.) Eighty of the women had been born in Europe, and had entered this country as immigrants. The following table gives the distribution by nationality.

| *Nationality.* | |
|---|---|
| American (born in U. S. of parents born in U. S.) | 81 |
| Irish | 35 |
| German | 31 |
| Italian | 19 |
| Russian | 9 |
| Austrian | 6 |
| English | 6 |
| Negro | 6 |
| Roumanian | 3 |
| Norwegian | 2 |
| Bohemian | 2 |
| Canadian | 2 |
| Swedish | 2 |
| Polish | 2 |
| Spanish | 1 |
| Dutch | 1 |
| Finnish | 1 |
| Danish | 1 |
| Hungarian | 1 |
| Semitic | |
| Russian | 26 |
| American | 7 |
| Austrian | 5 |
| Hungarian | 3 |
| Roumanian | 3 |
| German | 2 |
| Canadian | 1 |
| English | 1 |
| Nationality not ascertained | 20 |
| Born in U. S. of parents born in U. S. | 94 |
| Born in Europe (immigrants) | 80 |
| Born in U. S. of parents born in Europe | 87 |

*Sources from Which Cases were Referred.*—The records show that about half of the whole number of cases were referred from hospitals and charitable organizations of various kinds, both public and private. The majority of cases that came from hospitals were referred from the maternity and venereal wards. There can be no doubt that the expense of caring for feeble-minded girls and women in hospitals constitutes a very considerable financial burden. At present there are no exact and extensive statistics available as to the proportion of feeble-minded women among the patients in the venereal and maternity wards.

Next to the hospitals and charitable organizations, the family and houses of refuge furnished the largest numbers. Then follow in order the New York Probation Association; social workers; settlements; courts; private physicians; asylums; the Society for the Prevention of Cruelty to Children; the Joint Application Bureau; churches; nurseries; the Council of Jewish Women; the Salvation Army; the Traveler's Aid Society.

It is seen from these records how this problem of the feeble minded touches and concerns nearly all the institutions of organized society. Particularly the charities, both public and private, are immediately concerned, for upon them falls a heavy share of the burden of these incompetents. Courts, settlements, churches, nurseries, are all involved, both socially and economically, in the problem, since upon each of these institutions rests some share of the burden. The sums of money expended in attempts to aid, to discipline, and to rehabilitate the mentally defective individuals in a community represent a truly enormous economic waste.

*Economic Status.*—An interesting question that always rises when considering this class of defectives is, How had they "floated" in the social milieu for so long? On what economic basis had they maintained themselves or been maintained? Had they been actually maintained by charity for from sixteen to fifty-four years? Or had they found some more or less secure economic basis for survival on their own account? Does our society afford a means of subsistence for the feeble-minded woman? The records reveal the following facts with respect to the economic status of the 281 feeble-minded women here considered.

| | |
|---|---|
| Living at home (usually assisting with simple tasks) | 94 |
| In domestic service (including private families, hotels, and boarding houses) | 67 |
| Engaged in simple factory operations | 21 |
| Living in institutions (orphan asylums, refuges, reformatories, etc.) | 20 |
| Prostitutes | 17 |
| Housework (living with relatives) | 13 |
| Married (supported by husband) | 11 |
| Nursemaids | 8 |
| Living with men, and doing housework (unmarried) | 7 |
| "White Slaves" (working for cadets) | 6 |
| Laundresses | 5 |
| Doing "odd jobs" | 5 |
| Working in stores | 4 |
| Errand girl | 1 |
| Wet nurse | 1 |
| Manicuring | 1 |

It is thus seen that the greatest number surviving on any one economic basis was that surviving in the medium of the family. As has already been noted, the high-grade defective, who is able to care for her own immediate personal needs, and who reaches a mental age of from eight to eleven years, is frequently not recognized as definitely defective. She is able to perform simple household tasks, such as peeling vegetables, washing dishes, sweeping floors, "taking care" of small children, etc., and thus she is of some economic value to her family, and survives in its midst so long as no situations calling for the exercise of judgment, will power, reasoning, or ingenuity arise.

The greatest number employed in wage-yielding pursuits was in domestic service. The average wage of these domestics, where any wage at all was mentioned, was $10 per month (about 30 cents per day). The highest wage received by any one of them at any time was $16 per month; the lowest was $4 per month. Most often they worked "for their board." They were employed in private families, in cheap boarding houses, in hotels, in institutions, and in brothels. Their average mental age was not quite nine years.

Next to domestic service, prostitution offered to this group of women the most frequent means of economic maintenance. This includes those who were on the streets soliciting for themselves, those who were working for cadets, and those who were living with men to whom they were not married and "keeping house." The average mental age of these wage earners was also about nine years. In some instances those working as domestics, factory girls, or nurse maids also earned casual sums by prostitution. Thus for example, one girl earning $15 per month at housework earned also $2 a week by prostitution. (Case 1,970 in the files.) Her actual age was 18 years; her mental age was 9.6 years; she was diagnosed as an imbecile.

A unique case is that of the woman who maintained herself by going out as a wet-nurse. This woman was an immigrant from Ireland. At the time of her appearance at the clearing house she was 36 years old, and had already borne five illegitimate children. This numerous offspring had been placed in foundling asylums, each infant being taken by charity at birth, and the woman being thus left free went out as a wet-nurse. Having had five children in ten years, she was able to employ herself as wet nurse much of the time. She was nevertheless chronically in trouble, and finally reached the Clearing House under the auspices of The State Charities Aid, as destitute and homeless. Her mental age (Binet) was found to be 8.6 years. She was diagnosed as an imbecile, and was recommended for institutional care.

It should be understood that these women practically never *wholly* maintained themselves in the pursuits mentioned. Nearly all of them were intermittently or chronically objects of charity also. Those not working in their own homes were in most cases really wanderers, being unable to keep any "job" for more than a few months or weeks at a time. Thus one woman employed at menial domestic tasks had had sixteen positions in less than four years, spending intervals between "jobs" in a rescue home, where much time and effort had been wasted in trying to rehabilitate her.

*Immediate Cause of Appearance at the Clearing House.*—Another question of interest that presents itself is this: Having survived until maturity, and often until middle age, in the social milieu, what were the accidents and circumstances that finally brought them to the Clearing House? Our study reveals the following immediate causes and combinations of causes that precipitated them:

| | |
|---|---|
| Ill or confined in hospitals | 38 |
| Destitute and unemployed ("lost job again") | 35 |
| Interest of some social worker | 26 |
| Sudden change in home conditions | 23 |
| Parents on own initiative at last decided to bring child | 20 |
| Sexual crimes (soliciting, incest, rape, victimization) | 20 |
| General incorrigibility | 18 |
| Arraigned in court (various misdemeanors) | 11 |
| Pregnancy (illegitimate) | 10 |
| Husband died, deserted, was imprisoned, or fell ill | 10 |
| Complaint of outsiders (neighbors, ministers, etc.) | 6 |
| Fight between mother and daughter | 5 |
| Relatives feared seduction | 5 |
| Reached age limit in children's asylums | 3 |
| Stealing | 3 |
| Grossly abused or neglected their children | 2 |
| Relatives saw the Clearing House Exhibit | 2 |
| Set fire to a mattress | 1 |
| Forged a check | 1 |
| Arrested for carrying concealed weapons | 1 |
| Lost on railroad station | 1 |
| Attacked sister with a knife | 1 |
| Fell on a stove | 1 |
| Accompanied her feeble-minded children to the Clearing House and was noted by the physicians | 1 |
| Drunkenness | 1 |
| Ran away | 1 |
| Kidnapped a child | 1 |
| Went to take an insurance examination | 1 |
| Deserted by men with whom they had been living | 2 |
| Married a man she had never seen before | 1 |
| Married a man who was already married | 1 |

It is seen from these data how accidental are the causes that bring these defectives to the Clearing House. Many of them had survived in society for more than thirty years, and might have survived for many more years had not some crucial situation arisen. Had not a particular minister assumed charge of the parish, had a relative not died, had illness not befallen, these women would still be at large in the community. No one can doubt that there are scores of women as defective as these at large in society to whom such accidents have not happened.

The immediate causes of their appearance, furthermore, constitute a long list of crimes and misdemeanors. The expense to the public, the burden upon charity, the anxiety and suffering of relatives in their attempts to reclaim these incorrigible defectives, the contamination of the normal and the healthy, the sufferings of the incompetents themselves, are all revealed in this list of "causes."

*Immoral Relations.*—This is a matter upon which reliable, complete and definite information is exceedingly difficult to obtain. We may be certain that immoral relations had been sustained in many cases where this was denied by the individuals themselves. Thus the figures given are too small, since immorality is recorded in these statistics only where it has been definitely acknowledged or proved. One hundred and thirty-two of the 281 women were definitely known to have had immoral relations. In 50 more cases immoral relations were strongly suspected, but had not been absolutely proved. Thirty-seven of the women were unmistakably afflicted with venereal disease.

*Offspring.*—Of immediate importance to the

community from both the economic and social points of view is the number of children borne by the feeble-minded. It has been indicated by various writers, especially by Dr. Hastings Hart, that the rate of procreation among defective women is very high, and that for this reason they constitute a peculiarly great social menace. Tredgold gives some statistics from the report of the Royal Commission on the subject of propagation by female aments.

In Manchester Dr. Mellard found that out of 94 women in the maternity wards, 19 were feeble-minded, all the children of these, except 2, being illegitimate. Dr. Potts found at Stoke-on-Trent that of the 17 women giving birth to children during the period of inquiry, 7 were feeble-minded, all the children being illegitimate. In Carnarvon Dr. Parry found that half the inmates of the maternity wards were mentally defective, nearly all their children being illegitimate. "It is clear," says Tredgold, "that the number of children produced every year throughout England and Wales by feeble-minded women must be very great."

The defective women here studied had borne 89 illegitimate children, which were acknowledged and could be somewhat definitely located (so we may say that they had borne *at least* 89 children), and 16 women were illegitimately pregnant at the time of their examination at the Clearing House. Twenty-four of the 281 were married, and these had borne 46 legitimate children. (Some of the illegitimate children had also been borne by those who were married.) Thus 281 feeble-minded women, most of them still under 25 years of age, had already produced at least 135 children, two-thirds of which were illegitimate, and were on the point of adding to this number at least 16 more.

The average mental age (Binet) of these illegitimate mothers was 9 years, the lowest in mentality being an imbecile 26 years old, who was 3.2 years old mentally, and who at this age had already borne 2 illegitimate children. As a matter of fact, 22 of the women had had 2 or more illegitimate children, the highest number borne by one mother being 6. This woman was a native American, who had "floated" in the community until the age of 32 years, maintaining herself by a combination of housework, scrubbing by the day, prostitution, and charitable aid. She finally reached the Clearing House under the auspices of the New York Probation Association, having been turned over by her relatives after the birth of her last child, on the grounds that "six was too many." She was 7.2 years old mentally, according to test, was diagnosed as a moron, and was recommended for institutional care.

It is the plan of the Clearing House to take up as soon as is financially possible the matter of keeping in touch with all this numerous offspring of the child-bearing women who are brought to its clinic, and in this way to trace heredity. At present it cannot be stated what percentage of the 135 children are or will be found to be mentally or morally defective. Nearly all of them are placed while infants in foundling asylums. Not infrequently they are left to charity when the mother goes out from the hospital after confinement. In one way or another they almost invariably become public charges. Many of them are placed by charitable institutions in "free homes," a procedure much to be deplored from the social viewpoint, especially in those cases where full information as to the origin and heredity of the child is withheld from those who take it.

*Summary.*—This concrete statistical study of 281 actual cases yields results that are of interest to all who are immediately or remotely concerned with social and economic matters. Nothing is estimated; nothing is guessed. Every fact recorded here is gleaned from the actual life of individuals. It would be fruitless to go into minute detail regarding each individual case, or to attempt to indicate item by item what these defective women have cost the community in hospital expenses, in court expenses, in funds for foundling asylums, in actual destruction of the life, health, and property of normal citizens; what they have cost relatives in anxiety, suffering, and pain; what they have cost charities, both public and private, in attempts to aid and rehabilitate them. But the most pathetic aspect of the problem is, perhaps, the suffering of the incompetents themselves. They are at the mercy of the vilest and most unscrupulous elements in society, helpless before suggestion, easily coerced into anything. Our data on the matter of economic status reveal that society finds a use for mentally defective females; they are to be found in the kitchens of cheap hotels, as chambermaids in boarding houses, as prostitutes on the streets, as the support of the cadet, as underpaid or unpaid nursegirls, as scrub women in hospitals, office buildings, or institutions. Thus unsegregated and at liberty they are exposed to all those dangers and undesirable contingencies which bring them finally into grave conflict with society and at last to the Clearing House. Crime and misery of all kinds arise as the direct logical consequence of their irresponsible and unprotected condition.

Our data here reveal that illegitimacy, attempted murder, theft, forgery, arson, prostitution, drunkenness, destitution, and disease are salient features of the social careers of these incompetents. It is by no means to be supposed that they reach the Clearing House at the "first offence." Practically without exception, there is in every case a "history" of incorrigibility, misery and waywardness, extending sometimes over ten or fifteen years. It is impossible to estimate just what would have been the economic and social saving to the community had all of these women been apprehended when they were children, and detained in segregation.

Since the investigation of the Royal Commission of Great Britain, appointed in 1904, and since the enactment of the Mental Deficiency Law in England, public interest in the problem of the feeble-minded has been greatly stimulated, and the recent legislation in New York and other States bears witness to the fact that there is a growing realization of the urgency of the matter. It is becoming plainer year by year that the solution of the problems of crime and destitution is inextricably bound up with the solution of the problem of the feeble-minded. To the end that society may apply itself to this problem, it is desirable that exact data should be collected, published, and made available for study by all who are immediately or remotely concerned with social welfare and social economy.

# ANGIONEUROTIC EDEMA.*

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THAT the condition angioneurotic edema is characterized by a marked inexactitude of knowledge as to its etiology and pathology, is apparent from the numerous names that have been employed in its nomenclature. Angioneurotic edema (the favorite name) edema angionerotica, giant urticaria, blue edema of Charcot, hysterical edema with vasomotor phenomena, Quincke's disease, the hysterical paroxysmal edema of Edgeworth, urticaria edematoma of Hardy, acute circumscribed edema, acute essential edema (Étienne and Gallaird), acute idiopathic edema, acute toxic neuropathic edema (de Calvi), wandering edema, hereditary edema (Fairbanks), etc. Before taking up the consideration of this disease in detail, I desire to relate the history of a case, interesting in its course, startling during its paroxyms and lamentable in its termination.

CASE I.—May 12, 1913, I was called in consultation by Dr. Graves to see a girl six years and ten months old who was suffering from an intense dyspnea which had come on in an apparently healthy child in two hours. There were the usual signs of suffocation and impending dissolution. The outside of the neck was swollen and there was a marked edema of the left side of the throat extending to all tissues inside, the soft palate, uvula and epiglottis. The edema was of enormous proportions, the epiglottis filling up the whole oropharynx. There was no time for discussion of the case, as the demand for relief was instant. An intubation tube with great difficulty was forced past the enormously swollen epiglottis and then into the larynx, where it remained indeed but a short time, but long enough to allow of a very vigorous and thorough scarification of the soft palate and epiglottis. The dyspnea gradually disappeared and the child to all appearances was well in about twenty-four hours. Albumin was found in the urine and persisted for three days only. At the time of the edema of the throat the right arm was swollen from the fingers to the shoulder. This swelling also subsided in a few hours. Here was a child apparently well. She went to school the afternoon of the attack and was at the point of suffocation before six o'clock. Naturally such an attack calls for a history and I am indebted to Dr. F. G. Graves for the following notes and history of the case previous to and following the attack just described.

D. M., girl, age six years ten months, healthy at birth, became marasmatic. At two years shoulder and arm, one side, became suddenly edematous; no pain; lasted one or two days. Had repeated attacks of similar edema twice a year. In July, 1912, she had a more serious spell, when the face was edematous, also the throat. Albumin in urine in July, 1912. Two months later no albumin found. March, 1913, had attacks of edema of face only, lasting two days. No urine examination at that time. May 12: Acute edema on left side of throat, extending to all tissues inside palate, larynx, etc., coming on inside of two hours. Albumin in urine next day; disappeared in three days. Has been fairly well since. June 16: Swelling of right leg. Thirteen ounces of urine in twenty-four hours, with albumin. June 27: Thirty-four ounces urine in twenty-four hours, no albumin; specific gravity, 1006. July 1: Large amount albumin in urine; lasted about three days; no swellings. July 28: Another attack of edema of neck, involving submaxillary glands. Following Saturday both feet and one hand swollen. No albumin showed until Sunday night. August 24: Both hands much swollen. August 25: Albumin found. August 29: Both feet swollen. August 30: Back of neck between shoulders swollen. Examination of urine showed no albumin; specific gravity, 1010. September 5: Had a swollen palate which lasted from 12 until nightfall. September 11, 1913: The patient came to my office, and examination was entirely negative, the child presenting the appearance of absolute health. November 18, 1913: Patient had an attack of swelling of the soft palate, which was apparently mild. Dr. Graves, who saw the case at this time, left. In a few minutes the girl choked up and died before the doctor could get back to the house.

Such in brief is the history of this case. I will also present the history of a fatal case of angioneurotic edema reported by F. Hablitz.

CASE II.—A sailor, twenty years of age, was found dead in his bunk. The head and neck were extremely swollen, lips and tongue edematous, mouth full of frothy fluid. Soft palate so edematous that entrance to pharynx was closed. Patient had had several attacks of swelling of neck and head, attended with difficulty in swallowing. At one time he had a swelling of the right wrist, but at the time of death there was no swelling of the extremities. The last attack began with a swelling about the left eye. A few minutes before death he sat up looking at his face in a mirror. He fell backwards, called for help in a hoarse voice, threw his arms about, frothed at the mouth and died. Post mortem showed the mucous membrane of larynx and trachea edematous and pale. There was no exudate, ulceration or hemorrhage anywhere. The mucous membrane of pharynx was also edematous. Other organs were normal. The family history of this case is interesting. A brother twenty-seven years old had attacks commencing with edema of the face or extremities followed by pain in stomach and vomiting. His first attack was at the age of seven or eight years. For a time he had two or three attacks a year, later more frequently, especially in Autumn and Winter. Aside from these attacks he was healthy. His father had similar attacks and died suddenly. A paternal grandfather and two sisters were also affected.

Etiology.[1] Of the predisposing cause of this condition heredity seems to play an all important rôle. Fritz[2] tells of a family in which eight were affected in three generations. Five died suddenly from suffocation due to edema. In reviewing the hereditary type of this disease Bullock[3] tabulates 170 cases with 36 deaths from edema of the larynx. In speaking of the hereditary factor in this disease Olsen[4] in 1888 described a family in which the disease appeared in five generations and of the 39 members of this family 19 had angioneurotic edema, 2 dying from edema of the glottis. The order of transmission from generation to generation is through affected individuals and not through healthy members of the family or as it has been stated.[5] "This is a disorder of heredity and has been traced sometimes through many generations but so far as can be judged from the recorded families it seems only to pass through individuals who themselves exhibit the liability to attack, so that normal members are not likely to transmit the tendency. When we come to investigate the exciting causes of an attack we are very much at sea. This seems to be a disease or more properly a condition in which the ingested food seems to have but little causative effect. Among the most important exciting causes[6] cold and emotional disturbances, seem to be potent and the cases occur most frequently in early adult male life." Loder states that his study leads him to believe in the presence in the blood of a lymphogogue in pathological quantities and the rapid rise of lymph pressure produces in areas of lessened resistance a sudden and rapid vasomotor paralysis.[7] "Unlike the closely allied condition, urticaria, particular articles of diet do not seem to have any influence in causing the development of angioneurotic edema."[8] Quincke regards the condition as a vasomotor neurosis under the influence of which the permeability of the vessels is suddenly increased. Anxiety, fright and worry may any of them prove

*Read before the Waterbury Medical Association March 12, 1914.

exciting causes, and Birkett reports one case of edema of the uvula and soft palate following an immunizing dose of antitoxin and further quoting this author says: "Angioneurotic edema depends upon an increased irritability of the vasodilator nerves, due either to direct or reflex central or peripheral disturbance, and in the series of cases reported by Osler in 1888 he states that the peculiarity transmitted must be either a morbid susceptibility of tissue or an inherited peculiarity of metabolism or both." In Anders "Practice of Medicine," published in 1913, we find this statement: "The pathology is obscure, the edema is supposed to be due, either to venous stasis or to some nervous influence upon the lymph channels causing them to exude liquids."

In Pembrey and Ritchies' "General Pathology" we find this: "There are certain phenomena which suggest that the endolithia either of the blood or lymph capillaries or of both are under a nervous control which can modify the amount of liquid passing through them, and the morbid condition known as angioneurotic edema, where the edema is of an intense and fleeting character involving a part of the body seems to support this theory though whether the whole nervous system is exerted on the capillary walls to the exclusion of the extravascular tissues has not been ascertained." It seems to be a mooted question whether the edema is due to excess of tissue fluid or deficient removal. When the skin is the seat of the affection the[9] "Edema is most often in the connective tissue of the derma,[10] beneath the papillæ and in the subdermoid tissue." Crocker states that everything points to the disease being primarily a vasomotor disturbance direct or reflex, central or peripheral: that a spasmodic contraction of the vessels is followed by a paralytic dilatation and stasis or retardation of the circulation in the papillary layer of the skin. Serous exudation then ensues producing acute edema. The same thing occurs in the mucous membrane and readily explains the sudden edema and enormous swelling that comes on in a few seconds or minutes. This may occur in the brain, kidney, and probably any organ or tissue in the body. Stellwagon[11] in his last edition of the "Diseases of the Skin" sums up the history of angioneurotic edema as follows: The swelling may present itself without constitutional or other symptoms, though there may be some degree of preliminary malaise, gastrointestinal disturbance, and a feeling of being generally out of sorts, which may usher in and persist through the attack. These gastrointestinal disturbances may be found due to edematous swellings in the gastric walls, or in other cases to toxins which provoke the malady. The swelling itself is acute reaching enormous development in a few seconds or minutes although sometimes one or two hours elapse before the acme is attained. The swelling itself is hard and does not pit like ordinary edema. The duration of the swelling varies, and it may disappear as rapidly as it came on, but more commonly lasts a few hours, in some instances a few days, then rapidly or gradually melts away. There is sometimes itching or burning, but almost always *tension* and *a feeling of stiffness*, and in some instances partial anesthesia has been noted for a short time after the disappearance of the swelling. Jamieson has recorded a case where the lungs were involved, as follows: "A young female was attacked without any preliminary symptoms with great dyspnea which became aggravated to a frightful degree, the extremities were cold, there was a cessation of perspiration, incessant cough, quantities of frothy sputum, pale pink in color. Physical examination showed no dullness, but there were fine crepitations audible without bringing the ear in direct contact with the chest; in a few hours the patient was perfectly well.

Prognosis: Unless the disease attacks mucous membrane it is ordinarily simply a nuisance, although there are cases in which intussusception or appendicitis have been thought present and a laparotomy has been performed, but when the throat is attacked the patient is in imminent danger of suffocation, and as the attack is likely to come on at any time without warning, it behooves us to be prompt in giving attention to the immediate needs of the sufferer. The treatment of angioneurotic edema is unsatisfactory in the extreme and seems to be highly empirical, many drugs have been used, nitroglycerine and the nitrites (Osler claims to have warded off the attacks for months with these), calcium lactate, saline laxatives, antacids, sodium salicylate, sodium benzoate, magnesia salol, arsenic, quinine, Pilocarpine hyperdermatically administered, atropine, ergot, etc. In a case of angioneurotic edema occuring in a syphilitic, Burr used salvarsan with apparently good effect. Of all the drugs that have been used with good result in angioneurotic edema of the throat, injections of adrenalin chloride seem to give the best and quickest relief, and should always be used if possible in a case of suffocative edema. This followed by active catharsis and a general alkaline course of medication seems to be the course from which we may hope the most. One must always be prepared for immediate intubation or tracheotomy in desperate cases. In general it might be said that the treatment of angioneurotic edema is that of urticaria, although the two diseases are not identical, as the following definitions given by Stellwagon will sufficiently show. "Urticaria is an inflammatory affection characterized by evanescent whiteish, pinkish or reddish elevations or wheals, somewhat variable as to size and shape, and attended by itching, stinging and pricking sensations. Angioneurotic edema is an affection characterized by one, several, or more acute circumscribed edematous swellings usually in regions where the tissues are readily distensible as eyelid, ear lobe, lips, tongue, genitals, soft palate, etc."

One is impressed with the decided indefiniteness as to the cause of this condition. Indeed everything is indefinite except the clinical aspect, which is so startlingly apparent; but if one will recall cases of anaphylaxis which are sometimes fatal, after the use of immunizing or secondary injections of antitoxin, in which the edema of the larynx may be extreme, and which come on suddenly after the use of serum, one must be struck with the similarity between the clinical picture of anaphylaxis and that of angioneurotic edema. One may with much reason state the belief that in angioneurotic edema there is inherited passive anaphylaxis, a hereditary anaphylaxis which is the underlying cause of this condition. As we learn more of induced anaphylaxis, we will gain exact knowledge of the condition which we have had under consideration. Weil[12] has stated that "All certainty in the solution of this problem must wait on some exact means of approaching the subject clinically or experimentally, and it may be that by working along the lines of anaphylaxis we may approach something definite."

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## TWO NEUROLOGICAL CASES IN PEDIATRIC PRACTISE.*

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### I. SYPHILITIC PSEUDOPARALYSIS OF THE NEWBORN.

Case I.—H. W., male, age seven weeks, was referred to me for diagnosis by Dr. Rivkin on October 6, 1913. Family history: Father alive and well; no personal examination obtained. Mother well except for true epileptic convulsions occurring once every two to four months and dating from the seventh month of her first pregnancy, six years ago; no stillbirths or miscarriages. She has three other children, aged six, five, and three and a half years, respectively. All the children are normal and well developed, though the five-year-old child has markedly decayed teeth, a chronic running ear, and chronic conjunctivitis. Personal history: This child was delivered after a very easy labor of several hours' duration. The child was well developed and to all appearances normal, and took the breast readily. When four weeks old it was noticed that the child did not move his right hand and cried constantly, especially when handled. There was no fever. Within a few weeks, the child did not move any of its limbs, and the restlessness, crying, and sleeplessness continued till brought to the clinic.

Examination: The child was fairly well nourished and lay quietly on table, all four extremities limp and motionless. The skin showed a diffuse, coppery, maculopapular eruption of moist character about the mouth, genitals, and anus. There was a marked scaly eruption of palms and soles; snuffles. Both wrists and both knees showed moderate swellings, which were very tender, corresponding to the ends of the shafts of the lower radii and upper tibiæ at their junction with the epiphyses. There were no atrophy of the muscles, no abnormal reflexes, no active or passive motion of the limbs, and the muscles reacted normally to the galvanic and faradic currents; temperature normal. Diagnosis: On the basis of the early onset, negative obstetrical history, multiple symmetrical swellings at the diaphysoepiphyseal junctions, snuffles, eruptions, absence of atrophy, normal reflexes, and normal electrical reaction a diagnosis was made of syphilitic pseudoparalysis. This was later confirmed by a positive Wassermann reaction with the mother's blood, and the prompt clearing up of the paralysis under treatment by inunctions of dilute mercury ointment once daily of a portion the size of a lima bean. November 26, 1913: The child is well nourished and sleeps well; the skin is absolutely clean all over; there is no scaling of palms or soles; there are no snuffles, and all extremities are moving actively. There is nothing now present to show the original condition except nontender swellings about both wrists and knees.

*Reported to the Brooklyn Pediatric Society Nov. 26, 1913, and the Williamsburg Medical Society, Jan., 1914.

This disease is variously termed: Parrot's disease, syphilitic epiphysitis, syphilitic perichondritis, syphilitic epiphyseal osteochondritis. The pathology present is an osteochondritis of the junction of the shaft with the epiphysis. It usually attacks long bones, is unilateral or bilateral and attacks the upper limbs first. It is usually multiple and symmetrical earlier in life. The bones are involved in the following decreasing order of frequency humerus, radius, ulna, femur both ends, tibia, and fibula lower ends. Symptoms: The child is fretful, cries when handled, a limb is tender and is held as if paralyzed. There is a swelling about the joints due to (1) insertion of muscles dragging on the perichondrium, and (2) moderate thickening of the shaft at the junction with the epiphysis. This swelling is globular, cylindrical. The epiphyseodiaphyseal junction is tender. The soft tissues are not involved. There is rarely suppuration.

Differential Diagnosis: (1) Traumatic separation of epiphysis is single, history of a fall and being picked up, bruises and possibly fracture present. (2) Scurvy occurs after six months, gives a history of improper feeding, and the lower extremities are chiefly involved; gum signs and subcutaneous hemorrhages. (3) Acute articular rheumatism is rare under two years; fever, pain shifts from joint to joints; joints themselves swollen. (4) Rickets is always general and symmetrical; other evidences; more common between sixth month and second year. (5) Birth palsy gives a history of difficult labor; very early onset, no swelling, no pain, no tenderness. (6) Tuberculosis of the bones is rare in infancy; attacks epiphysis and overlying soft parts and ends in suppuration. (7) Acute osteomylitis; the location of the swelling is on the shaft, and the temperature curve is characteristic of sepsis.

### II. RECURRENT MULTIPLE NEURITIS IN A CHILD.

Case II.—J. B., aged 12, female. Family history: Father and mother living and well. She is the oldest of six children; no similar disease in family or grandparents. Past history: Measles at 4; pertussis at 5; no diphtheria, croup, scarlet, or sore throats; no malaria. Previous attack: At age of 9, *i.e.* in spring of 1911, gradual weakness of fingers and both hands developed, which was rapidly followed by weakness of both feet. She had pains in both hands and feet, especially in the latter. This developed without severe constitutional symptoms and without fever or other acute illness. She was unable to use hands or feet; could not walk. There was no trouble with speech or swallowing. This condition was treated by numerous physicians with electricity and massage, gradually grew better, and at the end of one year was all well, as well as before the onset of the trouble. The mother, who is a very intelligent observer, insists that the onset, appearance of the limbs, symmetry of paralysis, and signs of improvement are exactly identical with the present attack.

Present attack: The child was perfectly well during the summer of 1912 and attended school the following winter and spring. In May, 1913, it was noticed she could not hold things in her hands; inside of a few weeks the hands and legs were very bad and painful. There was no fever. In July the condition was marked so that she could not help dress herself, raise her wrists, or walk, or even rise from chair; very infrequent nocturnal enuresis. No cramps or other gastrointestinal disturbances. She was seen September 27, 1913. Habits: Does not and never before drank any liquors, has not been taking any drugs such as arsenic; rooms in which the child's family dwelt had not recently been papered. Her diet is a normal one for her age and her bowels are very regular.

Examination showed a well-nourished pretty girl of 12, practically dragged in by the mother who supported her under armpits. She could not stand on her feet, but sank to the floor if unsupported. Her gait was a peculiar waddle. Her hands and feet were cold, cyanotic, slightly atrophied, and flaccid. There was a

bilateral wrist and foot drop, and an inability to extend wrists or dorsiflex the ankles. The feet were in an equinovarus position due to the peroneal nerve palsy. The tendon reflexes of arms and legs absent. The muscles reacted slightly to galvanic current and failed to react at all to the faradic current. There were no upper motor neuron changes, as spasticity, exaggerated reflexes, ankle clonus, or Babinski. There were no cranial nerve changes, and no mental disturbances; muscles of calves tender. Only one diagnosis of the conditions now present was possible with this history and examination. That the previous attack was one of multiple neuritis is shown by the similarity of history as given by an intelligent, observant mother, by its onset without severe constitutional symptoms, by its perfect symmetrical involvement of the periphery of all extremities, by the inability to use hands or feet, by its perfect recovery without any residual paralysis.

The case is therefore one of recurrent multiple neuritis, *i.e.* there is a marked tendency to repeated attacks of multiple neuritis without definite cause. Multiple neuritis of non-diphtheritic origin is a rarity in children. Starr failed to observe any under the age of 16. Osler mentions only 8 cases of recurrent multiple neuritis at all ages having been collected up to 1898 and reports very few since.

November 26, 1913. The child is very much improved, she can get up without much assistance and walks fairly well. The electrical reaction shows the tendency to recovery. The reaction to the faradic current is still absent, and has increased to the galvanic current. The treatment employed was rest, massage, interrupted combined current, and strychnine. February, 1914, developed a true peripheral palsy of left facial nerve. May, 1914, arms and legs almost complete recovery, while facial palsy much improved.

183 Vernon Avenue.

## Medicolegal Notes.

**Degree of Care and Skill Required—Burden of Proof of Negligence.**—In an action for malpractice for failing to properly diagnose and set an arm which had been fractured near the shoulder, the Colorado Court of Appeals applied certain well established rules determining the liability of a physician and surgeon. In the absence of a special contract otherwise providing, a physician and surgeon employed to treat an injury impliedly contracts that he possesses that reasonable degree of learning and skill ordinarily possessed by others of his profession, that he will use reasonable and ordinary care and diligence in the exercise of his skill and the application of his knowledge to accomplish the purpose for which he is employed, and that he will use his best judgment in the exercise of his skill in deciding upon the nature of the injury and the best mode of treatment. He does not undertake to warrant a cure, and is not responsible for want of success, unless that want results from failure to exercise ordinary care, or from his want of ordinary skill. If he possesses ordinary skill and exercises ordinary care in applying it, he is not responsible for mistake of judgment. The fact that an injured limb is defective after treatment is not, of itself, evidence of negligence on the part of the physician treating it. A patient is bound to submit to such treatment as his surgeon prescribes, provided the treatment be such as a surgeon of ordinary skill would adopt or sanction. If he will not, his neglect is his own wrong or mistake, for which he has no right to hold his surgeon liable. It was also held that the skillfulness of a physician in diagnosis and treatment should be tested by the recognized rules of his own school, and must be determined by resort to the testimony and opinion of experts, not only as to the correct diagnosis, but also as to whether the defendant exercised ordinary care and skill in examining the case and applying the remedies; such opinion to be based upon the facts in evidence.

The defendant requested an instruction that in considering whether in diagnosing and treating the arm he exercised ordinary care and skill, the jury must be guided by the evidence of physicians, and, if they could not determine from such evidence what constituted ordinary care, there was a failure of proof, and the jury could not find for the plaintiff. It was held error to refuse the request, and to instruct so as to permit the jury to find a standard of care from evidence both competent and incompetent.

The evidence showed that the defendant was discharged immediately after the discovery of the fracture, and before he attempted to set the arm. It was held that an instruction that if, when he was discharged from the case, the fractured bones had not united, and that the condition of which the plaintiff complained arose thereafter, without the defendants' negligence, the defendant was not responsible, was erroneous as changing the burden of proof so as to require the defendant to show that the condition hypothesized in the instruction did not exist, and that the bones had not united so as to make it impracticable to comply with the defendant's advice that the fracture be reduced. Judgment for the plaintiff was reversed.—McGraw v. Kerr, 128 Pac. 870.

**Malpractice—Right of Choice of Method in Difficult Cases.**—Action was brought for alleged malpractice in the treatment of two compound fractures of the plaintiff's lower jaw. The injury was a serious one. The segment of the jaw between the two fractures had been drawn out of position by the contraction of the muscles and had been drawn upward. One of the problems facing the surgeon was to restore such segment to its place and to secure it in its proper position. In order to do this, sufficient force had to be applied in some way to overcome the tendency of the contracting muscles. An interdental splint was constructed, with the assistance of an experienced dentist. This was kept in the patient's mouth for five weeks. There was more or less infection present, and the plaintiff became sick with pleurisy. In time a union occurred, and, on the trial, the place of fracture was not readily discoverable by the expert witnesses, although the alignment was more or less imperfect. There was another method known to the profession which might have been adopted by the defendant. This consisted in drilling several holes in the jaw and in each end of the broken segment, and drawing and holding the parts together with the use of a silver wire. This method also had its perils. In case of infection there was danger of necrosis of the bone. The plaintiff contended that it was negligent on the part of the defendant not to use this method, and that his use of the interdental splint was unwarranted. It was held that the adoption of this method by the defendant did not show negligence or want of skill on his part, though the physicians might have adopted a different course of treatment. All experts agree that every difficult case presents a zone wherein the best method becomes largely a question of judgment of the attending surgeon under all the apparent circumstances of each particular case. That the appliance was painful or inconvenient, and that infection resulted, and that the plaintiff's life was in great peril, were all matters incident to the natural results of the original injury. The best of surgical treatment might not be able to avoid them. Judgment for the plaintiff was reversed.—Cozine v. Moore, Iowa Supreme Court, 141 N. W., 424.

**Failing to Report Diphtheria Case—Evidence.**—In a prosecution against a physician for failing to report a suspected case of diphtheria, it appeared that an autopsy had been performed on the sick girl's sister who had died from diphtheria a month and a half previous, and that the accused was present. It was held that the surgeon who performed the autopsy might testify that, in his opinion, the indications of a diphtheritic condition were so plain as to be apparent to an ordinary practitioner, under the rule that inferences from observed facts are admissible when the inferred facts are relevant, and the constituent fact cannot adequately be placed before the jury. In no other way could the surgeon bring before the jury the fact that an ordinary practitioner would have recognized the diphtheritic condition.—State v. Pierce, Vermont Supreme Court, 88 Atl. 740.

**Sale of Cocaine—Burden of Proof of Legality.**—In proceedings for the unlawful sale of cocaine to a negro boy, it was held that proof that the sale was made upon a physician's prescription devolves upon the accused, this being peculiarly within his knowledge.—Miller v. State, Mississippi Supreme Court, 63 So. 269.

MEDICAL RECORD.

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## THE ANTAGONISMS OF POISONS.

THE subject of the mutual antagonism of poisons is an extremely interesting one. In its simplest phase this antagonism has been explained as the result either of the chemical interaction of the poisons themselves, or of the specific physiological effect which these poisons may produce. In other words the antagonism may be chemical or it may be physiological. Upon this classification is based the entire system of modern toxicology. According to the recent discoveries of physical chemistry the specific action of poisons has been explained on the basis of the permeability of the cell membranes, of differences in solvent power of these membranes, and of differences in surface area causing differences in absorption. According to J. N. Langley (*The Journal of Physiology*, March 31, 1914) none of these explanations accounts for this specific action adequately. But while advocating the chemical theory as being at present the one most in accordance with the facts, he does not consider it to be more than a tentative explanation. A theory which has had considerable vogue for a long time is that which holds that poisons having a specific action owe this property to their forming chemical compounds with certain tissues. The antagonism between physostigmine and atropine, and that between pilocarpine and atropine are explained by Langley on the hypothesis that such antagonistic poisons form chemical compounds with some constituent in the tissues, that the compounds are reversible, and that the amount of each depends on the relative mass of the two poisons.

Langley subjected this theory to experimental analysis in studying the antagonism of curari and nicotine in skeletal muscles. He found that the antagonism by curari to the fibrillary twitchings and to the tonic contraction caused by nicotine in the neural region of muscles follows different laws. Though curari reduces both effects in proportion to its percentage (*i.e.* in proportion to the concentration of its curarine), the abolition of the twitchings takes place with a definite percentage of curari for a considerable range of variation in the concentration of the nicotine. On the other hand, the abolition of an immediate tonic contraction by curari is strictly dependent on the ratio of the percentage of curari to that of nicotine. These conclusions were based chiefly on observations made on twitchings in the sartorius muscle, and on the tonic contraction in the rectus abdominis. There is a certain ratio between the percentage of curari and that of nicotine with which nicotine just fails to produce an immediate tonic contraction. The action of curari is at its fastest at first, and the rate of action then decreases. Curari does not appreciably antagonize the effect of nicotine on the non-neural portion of the muscle substance: the antagonism is confined to the special substance or mechanism of the neural region. When a muscle is immersed in curari after having been immersed in nicotine, the extent of the relaxation produced depends on several factors; it is less the higher the percentage of the nicotine and, within certain limits, the longer the duration of its action; it is greater the higher the percentage of the curari. Other things being equal, the extent of the relaxation depends on the relative concentration of curarine and nicotine. If the ratio of the percentage of curari to nicotine is below the equivalent percentage ratio the relaxation produced is trivial, and after a certain duration of action of the stronger solutions of nicotine, curari in higher percentage than the equivalent ratio also causes a trivial relaxation only. Thus curari antagonizes the stimulating action of nicotine to a degree which depends upon the relative concentration of curari and nicotine, but it has no certain effect upon the contracture produced by nicotine.

Upon the basis of these experiments the general conclusions are reached that curari and nicotine produce their effects by an action on the neural region of the muscle fiber and not by an action on the nerve endings, so that the explanation of the specific action must depend upon a difference in the neural and non-neural region of the muscle fibers.

## INTRASPINAL INJECTIONS OF MAGNESIUM SULPHATE IN THE TREATMENT OF CHOREA.

THIS method of treatment which is now generally referred to as Marinesco's method was first suggested by the experimental and clinical work of Meltzer and Auer of New York. These investigators had shown that magnesium sulphate in intravenous, subcutaneous, and intraspinal injections, and in local applications to nerve trunks, inhibits the two chief properties of nerve tissue, namely, its excitability and conductivity. On the basis of their experimental work, Meltzer and Auer had suggested that the subcarachnoid injections of magnesium sulphate might be employed with advantage as a substitute for cocaine in producing regional anesthesia. The first important therapeutic application of this method was in the treatment of tetanus. At the present time favorable results from this mode of treatment are being reported from various clinics abroad. Marinesco demonstrated the good effects of magnesium sulphate when injected into the subarachnoid space in sciatica and in the gastric crises and the lightning pains of tabes, and later applied this method in the treatment of Sydenham's chorea. In 1908 he reported four cases of the lat-

ter disease successfully treated by means of the intraspinal injections of magnesium sulphate. Since that time similarly favorable results have been reported by Baduel, Rocaz and others.

The most recent contribution to this subject is that presented by Augusto Natali in the *Rivista Ospedaliera*, March 31, 1914. He employed the so-called Marinesco method in the treatment of eight severe cases of chorea, one of which was a chronic case in an adult. The technique consisted in the performance of lumbar puncture in the usual manner, the evacuation of a certain amount of the cerebrospinal fluid, and the injection of a solution of magnesium sulphate. The strength of the latter varied from 7 to 25 per cent., and the amount injected consisted of 1 cubic centimeter for every 25 pounds of body weight. Of the author's eight cases, following the first injection, there was a rapid improvement in two cases, an appreciable improvement in two cases, and a slow improvement in two others. No benefit was derived in the two remaining cases which included one instance of the chronic type of the disease. The importance of these results is revealed by the fact that all of the cases were severe ones, and had failed to respond to the usual methods of treatment. Natali points out that it is of advantage to follow the intraspinal treatment by means of a brief course of arsenical medication. As regards the rationale of the action of the magnesium sulphate Natali is probably correct in stating that this drug acts not as a specific but merely as a symptomatic remedy, diminishing the excitability of the nerve centers.

## THE PANCREAS AND SILICA METABOLISM.

So many functions have been imputed to the external and internal secretions of the pancreas, and so many relationships have been traced between the active principles of the gland and diseases of different types that the etymology of the word itself, "all flesh," seems to be in a measure realized by the manifold activities of the gland already demonstrable, with the additional possibilities about to be mentioned.

In 1902 Rohden, writing of the metabolism of silica in the human body, made the announcement that "the pancreas is a sort of reservoir for silicic acid in the organism." Four years earlier, however, Kall made two studies of silica metabolism in cancerous subjects, and found an amount of silica in the pancreas which was double the normal content, as determined later by others. The amount excreted by the urine is correspondingly lessened. Exactly the opposite relationship is seen in tuberculosis, in which affection the pancreas may contain no silica at all.

The silica metabolism of the organism is discussed in full in two separate articles published in the *Muenchener medizinische Wochenschrift*, April 7, by Kahle and Rössle respectively. These deal chiefly with the silica metabolism in tuberculosis, and appear to show that this substance is logically indicated in the treatment of this disease, not only because of the waste of silica which is noted in the disease, but also because this substance is reputed to possess the power of stimulating connective tissue growth. Of even more interest, perhaps, is the fact that in cancer the silica metabolism is retarded and the mineral undergoes retention in the pancreas. This relationship at once suggests the theory of Beard that cancer is related to the failure of the pancreas to suppress the trophoblast. In either case there is a relationship between pancreatic insufficiency and cancer.

The authors quoted make no mention of silica as an old empirical remedy for superficial cancer. Even today Czerny employs it for this purpose. In theory it should be contraindicated, at least if cancer is regarded as a general disease. In superficial epitheliomata, however, it may facilitate recovery by promoting cicatrization. Kahle asserts that after extirpation of carcinomata, the amount of silica which has accumulated in the pancreas is rapidly dissipated. As pancreas substance is able to lower the antitryptic index in cancer, it is possible that it is also able to mobilize the stored up silica in the gland, and it is to be hoped that the Jena savants will test this possibility.

## The Immunization of Lake and River Seamen Against Typhoid Fever.

Typhoid fever is prevalent among the seamen of the U. S. merchant marine of the lakes and rivers. Their calling in itself renders them subject to insanitary dangers over which they have practically no control. Further, either during the period of a seamen's illness from typhoid or subsequent to recovery as a "carrier" he acts as a focus for the spread of the disease to his fellow shipmates and to the public at large. Surgeon-General Robert Blue of the U. S. Public Health Service draws attention to these obvious facts in Public Health Reports for March 20, 1914, and urges that the practice of immunization against typhoid be encouraged aboard ship. He points out that this method of prevention has long since passed beyond the theoretical and experimental stages as evidenced by the results obtained in the armies and navies of the United States and Europe. Surgeon-General Blue states that the U. S. Public Health Service is ready and willing to render every assistance and advice, and at all relief stations throughout the country service officers are instructed to administer the typhoid prophylactic to all sailors applying for the same.

## Relation of Public Health to Industrial Welfare.

It goes without saying that the relationship between public health and industrial welfare is a very intimate one. In fact, industrial welfare must flag and eventually wither unless those engaged in industrial pursuits are in good health. Thus the protection of the working classes from disease is an economic measure which concerns the nation, the state, and the employer. Samuel G. Dixon, Commissioner of Health for the State of Pennsylvania, gave an address on the subject before the Welfare Efficiency Conference held at Harrisburg in October, 1913, in which he drew attention to the importance to the community of conserving the health of the working population. He showed how the State of Pennsylvania had grappled with the

arduous task of looking after the physical well being of 8,000,000 persons, and pointed out that when individuals and communities were brought to a full realization of the fact that disease is not a mysterious visitation without tangible cause, but the result of sanitary indiscretions or the failure to observe certain readily definable precautions, a tremendous step forward will have been accomplished. *Salus populi suprema lex* is an axiom the significance of which is beginning to be appreciated throughout the civilized world.

### Determination of Sex.

A paper on this subject by Poll was read recently before the Berlin Gynecological Society (*Berliner klinische Wochenschrift,* March 23) and aroused much interest. Long before an individual has been evolved from the germinal plasm, or keimanlage, Poll said, certain cells may be distinguished by their size which are to develop into the future genital glands. These cells possess an independence, and their behavior in respect to staining differs from that of the surrounding elements. These primitive genital cells already represent a sex. If two male cells of different types unite, one will be a heterochromosome; if two female cells, both will be heterochromosomes. In other words, two types of male cell are common; while two types of female cell certainly exist to some extent. But two kinds of male cell suffice alone for sex differentiation. Of great interest in this connection is the parallelism between a creature like the common fly and mankind in respect to the eyes. Some of these insects have red, others white eyes. By crossing, either sort of eye may be produced at will. It is a question of sex. In mankind, color blindness shows the same laws of inheritance, while it can be produced at will by special mating. If the sexual products of a male are injected into a castrated female of the same species, secondary male characteristics reappear in the latter, notably the male color of the feathers. Another subject highly pertinent here is that of familial hermaphroditism.

## News of the Week.

**Civil Service Examinations.**—The New York State Civil Service Commission will hold examinations on June 20, 1914, for the purpose of filling the following vacancies:

Assistant medical officer, health officer's department, port of New York, at a salary of $1,500. This position is in the detention and hospital service at the quarantine station, Staten Island, and a knowledge of cholera, plague, yellow fever, smallpox, and epidemic cerebrospinal meningitis is required. The examination is open only to licensed medical practitioners of the State of New York.

Laboratory assistant, State department of health, $720 to $1,200. Open to both men and women. The duties of this position are to assist in the work of the laboratory.

Physician, Bronx county jail, $1,000 per annum. Candidates must be legally licensed medical practitioners and residents of Bronx County.

Further details and application blanks will be furnished upon request by the State Civil Service Commission, Albany, N. Y.

The United States Civil Service Commission announces an open competitive examination for men only, to be held on July 6, 1914, for the purpose of filling vacancies in the position of assistant epidemiologist in the Public Health Service, at salaries ranging from $2,000 to $2,500 a year. An educational training equivalent to that required for graduation from a recognized medical school, and at least three years experience in epidemiological work under federal, State, or local authorities, and experience in laboratory technique, especially in regard to typhoid fever, are prerequisites for consideration for this position. Applicants will be rated on the following subjects: General education and medical training, 25 points; laboratory experience, 30 points; experience in epidemiological work, 35 points; publications or thesis, 10 points. Application for the examination should be made to the United States Civil Service Commission, Washington, D. C.

**Dr. Harry S. Bernstein,** director of the Bender Hygienic Laboratory, Albany, N. Y., has been appointed pathologist and bacteriologist to the Rhode Island Board of Health, and will take up his new duties on September 1. The position which he will fill is a new one, having been authorized by an act passed at the last General Assembly of the State, and carries a salary of $4,000.

**A Loving Cup to Dr. Tucker.**—At the annual dinner of the alumni of Albany Medical College, held May 26, a silver loving cup was presented to Acting Dean Willis G. Tucker, who retired on January 1 last after a service of nearly thirty-two years as registrar of the college. The presentation was made by Danforth E. Ainsworth and addresses were made by Governor Glynn, Dr. Albert Vander Veer, and others.

**Grant to Yale Medical School.**—The General Education Board at a meeting on May 29 made a grant of $500,000 to Yale University as an endowment for the medical school, it being a condition of the gift that the school procure complete teaching and medical control of the New Haven Hospital, and that the teachers in the main clinical branches be placed on a full-time or university basis. On similar conditions the board last year made a grant of $500,000 to the Johns Hopkins Medical School, Baltimore, and a grant of $750,000 to the Washington University Medical School, St. Louis.

**School for Public Health Officers.**—The proposal to the General Education Board that it establish schools for the training of public health officers, has been under consideration by a committee, which reported on May 29 that as no such schools existed at present it seemed clear that they should be established in one or two centers, such as New York and Boston, at least, in connection with the medical and engineering departments of universities, and co-operating through field work with city and State health departments. Before formulating a definite scheme for the creation of such schools of public health the board resolved to authorize a study of training for public health service and of the organization of such services in the different countries of Europe. When the facts have been ascertained a concrete scheme will be formulated for schools of public health.

**New Hospitals.**—Work was begun on May 18 on the new building for the Union Benevolent Association Hospital of Grand Rapids, Mich., a gift to the city from Mr. John W. Blodgett of Grand Rapids. The plans call for a steel and concrete building to be erected at a cost of about half a million dollars.

The Abington Hospital, Abington, Pa., was opened for public inspection on May 15 and 16. The hospital was erected by Mr. George W. Elkins in memory of his wife, Stella McIntire Elkins, and has been endowed by him to the amount of $200,000. Efforts are now being made to increase the endowment fund to $500,000.

At a meeting of the supporters of the Har Moriah Hospital, New York, held recently, it was voted to begin at once on the collection of a fund of $100,000 with which to erect a new hospital building. The present Har Moriah hospital is situated on East Second street and is supported by the Galician Jews of this city. During the last year the hospital cared for 1,006 patients, 1,658 being refused for lack of room. In the dispensary 22,856 patients received treatment.

The German Hospital of Jersey City, N. J., was dedicated on May 30. The hospital contains twenty-four beds and has been erected at a cost of $35,000 by the German Hospital and Dispensary Association.

**Public Health Education.**—The New York City Department of Health has recently created a new Bureau of Public Education and this has been put under the direction of Dr. Charles Bolduan, assistant sanitary inspector. The first attempt to educate the public in methods of preserving health will consist of exhibitions of moving pictures.

**City Death Rate.**—During the week ending May 23 there were reported in New York City a total of 1,592 deaths, giving a death rate of 14.88 per 1,000 of population, as against 1,572 deaths and a rate of 15.27 for the same week of 1913. This is an absolute increase of 20 deaths and a decrease of 0.39 in the weekly rate, which is equivalent to a relative decrease of 42 deaths. For the first twenty-one weeks of 1914 the death rate was 15.33 per 1,000, as against 15.55 for the corresponding period of last year.

**Homeopathic Medical College.**—Forty-one students were graduated from the New York Homeopathic Medical College and Flower Hospital at the commencement exercises on May 27.

**Nursery Building Opened.**—The Hebrew Kindergarten and Day Nursery Association opened its new building on May 28. It is four stories high, and contains an auditorium, large dining room, and accommodations for 500 children.

**Plans for "Baby Week."**—With the approval of Mayor Mitchel the New York City Department of Health is laying plans to keep one week in June as "Baby Week," and during that time to interest everyone in the public and private agencies which care for babies during the summer months and are cooperating in the effort to reduce infant mortality. It is pointed out that the death rate of infants has fallen in the last seven years from 135.8 per 1,000 to 101.9 and that a still lower rate is possible.

**Fever at Auburn.**—A large number of cases of scarlet fever have occurred recently at the State Prison at Auburn, N. Y., and it has been found necessary to place a strict quarantine on the entire institution. The State Commissioner of Health has taken charge of the situation and has put one of his deputies in the prison to direct the efforts being made to control the epidemic.

**Gifts to Charities.**—By the will of the late Miss Elizabeth Shippen of Philadelphia, the Pennsylvania Hospital of that city, and the Pottsville Hospital of Pottsville receive bequests of $50,000 each. The S. R. Smith Infirmary, Tompkinsville, Staten Island, N. Y., receives a bequest of $30,000 by the will of the late Miss Sarah J. Farrar of New York.

**Marriage License Requirements.**—The Medico-Psychological Association at its meeting in Baltimore on May 21, refused to pass a resolution recommending the enactment of laws requiring a "clean bill of health and evidence of normal mind before the issuance of a marriage license." It was believed that the passage of such a resolution would be the cause of much ill-considered legislation, and that the number of marriages would be considerably reduced by such an attempt to raise the standard. Eugenics, it was agreed, was a phase of an ideal state of society not yet attained, and improvement would come rather through popular education than through statute.

**College of Physicians and Surgeons.**—At the meeting of the Trustees of Columbia University on June 1, Dr. Warfield T. Longcope was appointed, on the recommendation of the Medical Faculty, Bard Professor of the Practice of Medicine at the College of Physicians and Surgeons, succeeding Dr. Theodore C. Janeway. Professor Longcope was also nominated as medical director of the Presbyterian Hospital. At the same time the department of therapeutics at the college was merged with the department of medicine, and Dean Samuel W. Lambert, professor of therapeutics, was made professor of clinical medicine. There was also established a new department of pharmacology under the direction of Dr. Charles C. Lieb, assistant professor of pharmacology. Dr. William Darrach, associate in surgery, was made assistant professor of surgery. Announcement was made also of the gift of $2,400 from various donors for the purpose of establishing a scholarship at the College of Physicians and surgeons in memory of the late Dr. Frank A. Hartley, professor of clinical surgery.

**American College of Surgeons.**—The second convocation of the American College of Surgeons will be held on Monday evening, June 22, in the ballroom of the Bellevue-Stratford, Philadelphia, when it is expected that between five and seven hundred additional fellowships will be conferred upon applicants who have been accepted since the last convocation in Chicago.

**Medical Elections.**—Missouri State Medical Association: Annual meeting on May 12 to 14. Officers elected: *President*, Dr. Henry C. Shuttee, Westplains; *Vice-Presidents*, Dr. J. A. McComb, Lebanon; Dr. G. O. Cuppidge, Moberly; Dr. W. G. Estill, Lawson; Dr. T. A. Coffee, Springfield; Dr. W. A. Clark, Jefferson City; *Treasurer*, Dr. J. S. Welch, Salisbury; *Secretary*, Dr. E. J. Goodwin, St. Louis. The 1915 meeting of the society will be held at St. Joseph.

Connecticut State Medical Society: Twenty-second annual meeting in New Haven on May 21. Officers elected: *President*, Dr. Oliver Cotton Smith, Hartford; *Vice-Presidents*, Dr. Stephen J. Maher, New Haven, and Dr. John B. Kent, Putnam; *Secretary*, Dr. Marvin McR. Scarbrough, New Haven; *Treasurer*, Dr. Joseph H. Townsend, New Haven.

Kentucky State Homeopathic Medical Society: Twenty-sixth annual meeting at Lexington on May 20 and 21. Officers elected: *President*, Dr. Charles H. Struble, Dayton; *Vice-President*, Dr. E. B. Smith, Shelbyville; *Secretary*, Dr. H. P. Fischbach, Newport; *Treasurer*, Dr. Paul E. Kerkow, Covington.

**Obituary Notes.**—Dr. Arthur Warton Swann of New York, a graduate of the College of Physi-

cians and Surgeons, New York, in 1907, assistant visiting physician to the Presbyterian Hospital, and instructor in clinical medicine and in clinical pathology at the College of Physicians and Surgeons, died at the Manhattan Eye and Ear Hospital, New York, after a short illness, on May 28, aged 34 years.

Dr. William James Dugan of Philadelphia, a graduate of the Jefferson Medical College, Philadelphia, in 1896, a member of the Medical Society of the State of Pennsylvania, the Philadelphia County Medical Society, the Philadelphia Neurological Society, and the Philadelphia Pathological Society, and instructor in electrotherapeutics at the Jefferson Medical College, died at his home on May 21, aged 45 years.

Dr. Philip B. Housekeeper of North East, Md., a graduate of the Jefferson Medical College, Philadelphia, in 1868, and a member of the Medical and Chirurgical Faculty of Medicine and the Cecil County Medical Society, died at his home on May 17, aged 68 years.

Dr. James Henry M. Karsner of Oroville, Cal., a graduate of the Jefferson Medical College, Philadelphia, in 1868, a veteran of the Civil War and a member of the Medical Society of the State of California and the Butte County Medical Society, died at his home from ptomaine poisoning on May 15, aged 69 years.

Dr. William M. S. Curtiss of Bristol, Conn., a graduate of the Baltimore University School of Medicine in 1893, and a member of the Connecticut State and Hartford County Medical Societies, died at his home, from Bright's disease, after a long illness, on May 17, aged 44 years.

Dr. Horatio S. Brewer of Chicago, Ill., a graduate of the Bennett Medical College, Chicago, in 1879, and for many years a surgeon of the Chicago, Milwaukee, and St. Paul Railroad, died at his home on May 19, aged 68 years.

Dr. John M. Dunn of Richmond, Ark., a graduate of the Medical School of Washington University, St. Louis, in 1861, died at his home on May 20, aged 81 years.

Dr. John Byron Thomas of Colorado Springs, Col., a graduate of the Indiana University School of Medicine, Indianapolis, in 1909, and recently house physician at Bethel-El Hospital, Colorado Springs, died at Wabash, Ind., on May 20, aged 27 years.

Dr. John Frank Alcorn of Pittsburgh, Pa., a graduate of the University of Pittsburgh, Medical Department, in 1900, and a member of the Medical Society of the State of Pennsylvania and the Allegheny County Medical Society, died at his home after a short illness on May 25, aged 44 years.

## Obituary.

### EMIL GRUENING, M.D.,

NEW YORK.

Dr. Emil Gruening, emeritus professor of ophthalmology at the New York Polyclinic Medical School, died at his home from cerebral endarteritis, after a short illness, on May 30, aged 71 years. Dr. Gruening was born October 2, 1842, in Hohensalza, Prussia, and came to this country when twenty years of age. He entered the College of Physicians and Surgeons, New York, but interrupted his course to enlist in the Seventh New Jersey Volunteer Infantry, serving through the Civil War. He then returned to college and was graduated in 1867. He studied abroad three years and began practice in New York in 1870. In 1871 he was appointed an assistant surgeon to the New York Ophthalmic and Aural Institute, in 1879 ophthalmic surgeon to Mount Sinai Hospital, his connection with the latter institution continuing until his death. He also served for twenty-three years as ophthalmic surgeon to the German Hospital. At the time of his death he was consulting ophthalmic surgeon to these two hospitals and to the New York Eye and Ear Infirmary and the New York Infirmary for Women and Children. He was a member of the New York Ophthalmological Society, the New York Otological Society, the New York Academy of Medicine, the New York State and County Medical Societies, the American Laryngological, Rhinological, and Otological Society, the American Ophthalmological Society, the American Otological Society, and the Association of the Alumni of the College of Physicians and Surgeons.

Dr. Gruening began practising when ophthalmology was in its infancy and otology in embryo. In the last two decades both these branches of medicine have become highly specialized and separate and most physicians who undertook both have since dropped one or the other. Dr. Gruening, however, practised both ophthalmology and otology and achieved the highest distinction in each branch, namely, the presidency of the American Ophthalmological Society and the presidency of the American Otological Society. He had also been president of the New York Ophthalmological Society, the New York Otological Society, twice president of the section of Ophthalmology of the New York Academy of Medicine, president of the section of Otology of the New York Academy of Medicine, a director of the New York Eye and Ear Infirmary, and president of the Society for the Relief of the Widows and Orphans of Medical Men. Perhaps his greatest achievement was the development of the mastoid operation as it is performed in this country today. He was the first to point out the dangers of blindness from wood alcohol poisoning. He contributed voluminously to medical journals on subjects connected with the eye and ear. In the system of "Diseases of the Eye," edited by Norris and Oliver, he wrote the chapter on "Injuries to the Eyes."

## Correspondence.

### OUR LONDON LETTER.

(From Our Regular Correspondent.)

OPHTHALMOLOGICAL CONGRESS—INTRODUCTORY ADDRESS—PIGMENT OF IRIS—DISSEMINATED SCLEROSIS—POSTOPERATIVE COMPLICATIONS OF CATARACT EXTENSIONS.

London, May 15, 1914.

The annual meeting of our Ophthalmological Society assumes the dignity of a congress, naming itself so, extending over three days, with a special clinical meeting at the Central Ophthalmological Hospital and a welcome to visitors interested in the important discussions provided. This year the congress occupied April 23, 24, and 25, and among distinguished visitors were Professors' Landolt of Paris, Straub of Amsterdam, and Uhthoff of Breslau.

The proceedings opened with a brief introductory address by the president, Mr. Richardson

Cross, who welcomed visitors, congratulated the Royal Society of Medicine (in the rooms of which they were assembled) on the success achieved by their section of ophthalmology, and reminded the congress of the valuable work of his predecessors in that honorable office. He referred to the investigations he had himself undertaken at the request of the Royal College of Surgeons on the question of factory lighting, thanking those members residing in industrial localities who had helped him by replying to his inquiries, which showed that few ailments were really due to insufficient or bad lighting of factories. The inquiry, however, did not include some special work as glassmaking, exposure to red or white hot metal, etc. Injury done by excessive artificial lighting seemed from the ultra-violet rays, but wearing glasses was a great protection from them. That all sorts of variations in the blood or general health might bring on intraocular changes was remarked by the president, who mentioned a suggestion of Mr. Hughes to rename rheumatic iritis as "metastatic" iritis. He also spoke of bacteria and their evolutionary developments, antitoxins, hormons and sera. Referring to the history of the society the president observed if the advice tendered to governments by its committee thirty years ago had been followed many disasters would have been prevented. So if another of its investigations had been recognized and the advice offered adopted a large number of persons would have been spared the calamity of blindness.

On the conclusion of the address Mr. W. H. Jessop read a paper on the "Prognosis of Incipient Opacities of the Lens" in which he deprecated naming them cataract to the patient who too often was injured by the terror to which he was thus subjected, and he mentioned a case of one who for years lived in such fear, although his sight continued good, except for a slowly progressing presbyopia, to the age of 86. Professor Landolt supported Mr. Jessop and thought the term cataract should be restricted to serious impairment of sight, which would ultimately require removal of the lens. Similar views were expressed by members representing the English, Scottish, and Irish schools.

Mr. Harman then read a paper on the "Appearance of Pigment in the Iris of the Child." After this "Flat Sarcoma of the Choroid, with Multiple Metastases" was the subject of one by Dr. G. Holmes and Mr. R. A. Greeves. It was a safe beginning with analysis of external rectus going on to severe pain in the forehead (right side) and sensory loss in the right trigeminal nerve (101 division). Later tactile insensibility and partial paralysis in region of right oculmotor nerve. He died five and a half years from the onset.

Mr. Paton read a paper on "Papilledema in Disseminated Sclerosis"; out of 100 cases 5 gave evidence of former iritis. In one he had found normal vision 18 months after neuritis.

Lt.-Col. R. H. Elliot had a paper on dressings and antiseptic methods in eye operations, enforcing minutest details and commenting on some carelessness he had observed. Referring to Herbert's advice to irrigate the conjunctiva with 1 in 3,000 perchloride he said he had not had a case of post-operative panophthalmitis since 1907. Professor Landolt observed that boiling cutting instruments spoilt their edge, so he used dry heat for 20 minutes—up to 150° F.—and he believed he had never had a case of infection from them. For atropine he used a fresh ampulla each time, objecting to an irrigator. Professor Straub said most operative infections arose from organisms resident in the eye beforehand. He carried out sterilizing methods for three days preceding operation.

Mr. Wray's paper on "Dislocated Lens," objecting to needling, but in great displacements justifying iridectomy, was discussed by Messrs. Landolt, Story, Priestley, Smith, Elliot, Rowan, Straub and Clegg.

The second day was perhaps the most generally interesting to the largest number, for while the afternoon was devoted to the clinical exhibition already mentioned, the whole of the morning was given up to the discussion of the postoperative complications of cataract extractions. This was opened by Mr. Treacher Collins, who directed attention to differences of incision by different operations. He favored that which aimed at the cutting of a conjunctival flap. If the wound did not readily heal a downgrowth of epithelium might take place and even spread all over the anterior chamber and cause glaucoma. Prolapse of the iris might lead to a late suppurative state of the uveal tract, appearing months or years afterwards. Astigmatism varied enormously in amount after extraction. Suppurative inflammation of the cornea was mostly caused by the pneumococcus and has been greatly diminished by aseptic precautions and sterilization of instruments. Sometimes posterior synechiæ developed in quiet eyes, but he did not regard them as septic; so keratitis punctata, which was certainly non-septic, would be found in cases going on normally, if these dots were carefully looked for. It was a fallacy to regard the mere presence of soft lens matter in the anterior chamber as capable of setting up iritis, but if mixed with aqueous it was a good medium for organisms, if any, were present. He had seen sympathetic ophthalmitis benefit under salvarsan. Information was often obtained from a blood count. He considered how glaucoma was produced after an extraction or a needling and the proper treatment. Further expulsive hemorrhage, detached choroid, opaque membranes, vitreous opacities, and detachment of the retina.

Lt.-Col. Herbert said infection was the chief danger; in India it had been almost abolished by thorough irrigation with mercurial perchloride, 1 in 3,000. It had one drawback, it irritated the conjunctiva and later led to further development of microorganisms; but by that time the wound had healed, though it must be considered, if any further operation were contemplated within two weeks, *e.g.* very early needling.

Sir A. Critchett said Mr. Collins had set on firm pathological ground a number of questions. Collins' procedure was best when the pupil had been drawn up into the wound or there was a dense capsular membrane.

Mr. S. Browning communicated an interesting fact for bacteriologists—that out of hundreds of cases examined at Moorfield Hospital before operation only one was declared clean and that became infected after operation. He suggested that causes for sepsis be searched for beyond the eye itself—say in the gums, nose, throat, etc. The practice of bandaging in advance to see if pus appeared on the bandage he condemned, for he had seen an increase of organisms so caused.

Mr. C. Killick had had a series of 101, of which only one suppurated. He had had only three suppurate out of 1,000 cases in three years. He had

needled twenty-eight times in all for capsular proliferation. Mr. C. A. Worth thought hemorrhage into anterior chamber five days after operation as peculiar to the conjunctival flap method, not having met with it after the corneal incision. Mr. Ormond related two cases of endogenous infection. Mr. Story had assisted some infections by electrocautery to edges of wound and subconjunctival injection of cyanide of mercury. Infection was mostly exogenous, and he carefully searched not only eye but nose and mouth, and if many organisms were present postponed operation and carried out cleansing treatment. Dr. Alexander spoke of the great instruction he had found in Lt.-Col. Elliot's clinique at Madras, and Lt.-Col. Elliott spoke in the highest terms of Mr. Collins' paper and supported his views. Prof. Landolt had always doubted the value of preliminary bandaging for he assumed no conjunctival sac was free from germs and danger of infection was present as long as the wound was open.

Dr. Mackay favored a weaker solution than the perchloride—argyrol or boric lotion were useful. Dr. Henderson said adhesion of iris or capsule did not lead to pathological results so long as they did not make a bridge for organisms. Professors Uhthoff and Straub described their methods. The latter had not seen inflammation begin in the second week when the toilet after operation had been carefully carried out. He warned against the danger of squeezing the eye, which sometimes caused its loss. The president said every one of them felt the essential condition of success was absolute asepsis or antisepsis. Most cases of sepsis, he held, were exogenous, but a few were endogenous, as those from the mouth and from metastatic inflammation.

South Wales University has accepted a gift of £70,000 from an anonymous donor, to build a complete school of preventive medicine in connection with physiological block given by Sir W. J. Thomas.

## OUR LETTER FROM THE PHILIPPINES.

(From Our Regular Correspondent.)

BETTER MORTALITY FIGURES—HOSPITALS AND DISPENSARIES AS PEACE AGENCIES—IMPROVED TRANSPORTATION FACILITATING THE SPREAD OF DISEASE —BACTERIOLOGY OF LEPROSY—FILARIASIS.

MANILA, P. I., April 24, 1914.

THE mortality figures for the city of Manila again show marked reduction. The lowest record for any March since American occupation has been reached this year. The rate for the city of Manila was 20.39 per thousand. In March, 1913, it was 22.66 per thousand. A review of the death rates that have prevailed during the past ten years in Manila shows that a steady decline has taken place, and it is believed to be fair to attribute the results largely to the improved hygiene and sanitation that have been brought about. In 1904, for instance, the death rate for March was 40.23 per thousand, so that the results a decade later show practically an improvement of 50 per cent. If the mortality of Manila were compared with that of the principal American cities upon all deaths above one year of age, the rate would be found to be about the same as that of New York. The prospects for April, however, are threatened by the fact that there is again a marked shortage in the Manila water supply and, beginning March 30 some water was pumped from the badly polluted Mariquina River. It is hoped, however, to offset this danger by placing calcium hypochlorite in the water in the strength of 1 to 2,000,000.

The policy of establishing hospitals and dispensaries among the Moros apparently is bringing about peace conditions much more rapidly than could have been hoped for by the promoters of this scheme. Reports recently received from Mindanao show that not only the outpatient dispensaries but the hospitals are being patronized by the Moro women. Extensive experience in dealing with the uncivilized peoples of the Philippines has shown that whenever the wild man is willing to bring his women folks into the presence of the white man he is really peaceably disposed and that his confidence has been gained. The attendance at the hospital, which was recently opened at Dansalan in the Lanao District, is increasing week by week and the Constabulary officers report that it is very noticeable that as the medical men come more and more in touch with the Moros in remote districts peace conditions steadily improve.

With the improvement of transportation and the carrying out of large projects in the Philippine Islands, there is now much greater danger of communicable disease being conveyed to portions of the Islands that have not yet been affected thereby. The opening of the San José Sugar Estates in the Island of Mindoro was responsible for the introduction of the malarial fever of Mindoro into new towns and provinces in which it was not present theretofore, on account of the workmen who were employed there returning to their homes. A similar experience is now being had with regard to the construction of the new line of railway through Tayabas Province. Up to the present time the island of Cebu has practically not been infected with malaria. At present large numbers of laborers are recruited from that island and are being transferred to Tayabas, where many hundreds of them are contracting the disease. It has been the experience that as soon as they feel themselves ill, if at all able to travel, they immediately return to their homes in Cebu. This has been responsible for infecting the mosquitos of Cebu. The Bureau of Health is making every effort to locate these cases as soon as they arrive from Tayabas, with the hope of minimizing the danger as much as possible. Several million doses of quinine are also being distributed in Cebu, which will also probably have some influence in keeping down the incidence of the disease.

The regular monthly meeting of the Manila Medical Society was held on April 6 at 8:30 P.M. in the amphitheater of the College of Medicine and Surgery of the University of the Philippines. Among other papers read was one entitled "A Contribution to the Bacteriology of Leprosy," by Dr. John A. Johnston of the Bureau of Science. The paper of Dr. Johnston was particularly interesting on account of the fact that he is apparently on the way of cultivating the true leprosy bacillus. He has succeeded in isolating a streptothrix from the spleen of a person who died of leprosy and in culture producing acid-fast rods from the original streptothrix. He inoculated a rabbit with a culture of an acid-fast rod which he recovered from the spleen of a person dead of leprosy and which he cultivated. One year after the inoculation took place the rabbit died and the pathological lesions were those of typical leprosy. Another paper read was entitled "Clinical Notes on Filariasis in Bilibid Prison," by Dr. J. W. Smith, the Chief of the Prison Sanitation Division of the Bureau of Health. Dr. Smith gave a record of over 700 cases of filariasis which he found among the 3,000 odd prisoners of Bilibid. He tried the

usual treatments recommended in standard textbooks, but apparently the therapeutic measures employed had no effect on the disease. Close observation over a period of seven years indicates that none of these cases were contracted in the prison; in other words, it is not probable that the disease is transmitted from infected prisoners to healthy ones while they are in Bilibid.

Dr. Bernstein of the German Navy showed an interesting series of colored lantern slides that were taken with the three-color process on Lumière plates of the various stages of leprosy which he found among the inmates of the San Lazaro Leper Hospital at Manila. The lantern slides as projected on the screen gave an excellent color reproduction of the lesions and even the erythemas of leprosy could be plainly seen.

## Progress of Medical Science.

### Boston Medical and Surgical Journal.

*May* 21, 1914.

1. Feeble-Mindedness as a Leading Social Problem. E. E. Southard.
2. Under What Conditions is the Diagnosis of Tuberculosis in Children Justified? J. B. Hawes.
3. The Causes and Their Relation to the Treatment of Lateral Curvature of the Spine. Z. B. Adams.
4. Nitrogenous Metabolism in a Case of Chronic Myelogenous Leucemia. H. W. Goodall.
5. Aural Vertigo. D. H. Walker.
6. Report on Leucocytic Inclusion Bodies. L. Webb Hill.
7. Poor Health in the Child: Some Developmental Influences and Their Importance to the Adult. J. Bryant.

**2. The Diagnosis of Tuberculosis in Children.**—J. B. Hawes states that in the absence of advanced tuberculosis or a recent infection with some acute disease which might cause a negative reaction a diagnosis of tuberculosis is rarely justified unless there is a positive skin tuberculin reaction. Constitutional signs and symptoms are usually present and require careful study and investigation. If such symptoms are absent, a definite diagnosis is unwise, although this should not interfere with placing the child under proper treatment. Signs referred to the chest and lungs are of interest and value, if present; if absent their absence should not preclude a definite diagnosis. If present without constitutional disturbance, one should look out for chronic influenza and pneumococcus infections. Positive *x*-ray evidence is of value in conjunction with other evidence. Diagnoses based on the *x*-ray alone are apt to be wrong and are unjust to the patient.

**3. Lateral Curvature of the Spine.**—Z. B. Adams notes that a careful *x*-ray study of each case is indispensable before treatment. Fourteen of the author's twenty-two cases in the clinic showed congenital lesions at the lumbosacral junction. The fact that the age (ten to fourteen) when the anterior lumbar curve becomes constant, is the age when scoliosis develops in a large number of cases is interesting. At this age the weight of the upper trunk is increasing most rapidly and the epiphyses of the iliac crest have not appeared. The vertebral sacral angle varies widely, but is great in females. The increased tipping throws greater strain (both downward and forward) on the articular processes, and as the angle of inclination increases the horizontal thrust becomes more vertical and the strains tend to unite. Hence, when these processes are defective scoliosis develops. Many of the cases should be operated upon either before correction is attempted or after correction is obtained. A knowledge of the character of the lesion allows a prognosis. This knowledge explains some of the many failures of the past.

**7. Some Developmental Influences and Their Importance to the Adult.**—J. Bryant concludes that adhesions, ptoses, and other demonstrable physical defects are of very common occurrence at all ages in both sexes, but the frequency of these defects in the adult is not markedly greater than in the child. It is not improbable that such defects may stand in a causal relation to some at least of the disabilities of the child and the adult. An anomalous ligament of Treitz may be a factor in obstruction of the duodenum. The treatment of developmental defects is primarily non-surgical, and if properly carried out in the child is preventive, in that it will result in creating an adult not only personally more efficient, but one who may entertain the hope of having physically more perfect children. "The problem is comprehensive enough to accept all the assistance it can through gymnastics, bandages, regulation of diet, and habits, and still furnish an abundant percentage of human wreckage (Lane) for the surgeon to attempt to reclaim."

### New York Medical Journal.

*May* 23, 1914.

1. The Treatment of the Insane in the Tropics. F. Woodbury.
2. The Inlay Bone Graft in Fresh Fractures. F. H. Albee.
3. The Relief of States of High Vascular, Muscular, and Mental Tension. W. J. M. A. Maloney and V. E. Sorapure.
4. Surgery of the Hourglass Bladder. J. B. Squier.
5. Vagitus Uterinus. G. L. Brodhead.
6. The Preventive and Curative Treatment of Ophthalmia Neonatorum. A. Brav.
7. The Albumin Reaction in the Sputum. W. M. Lewis.
8. Hyperthyroidism. E. Birdsall.
9. The Surgical Relationships of Mouth Infections. T. B. Hartzell.
10. Intestinal Parasites (Strongyloides Intestinalis) with Unusual Symptoms. M. I. Moss.
11. Autoserotherapy in Fibrinoserous Pleurisy. H. M. Fisher.
12. A New Psychosis. S. Block.

**2. The Inlay Bone Graft in Fresh Fractures.**—F. H. Albee states that one can secure union of the fragments, even when there is actual separation or loss of bone substance, by the inlay graft method; that angulation of the fragments can be corrected; and that the presence of the graft inlaid in the fragments stimulates the osteogenetic function, not only of the recipient fragments, but on the part of the graft itself, thus doubly assuring the formation of bone callus. The fact that the author's last one hundred cases, including old and ununited fractures, when the inlay bone graft was used, produced one hundred per cent. of successful results, strengthens his conviction that this method of dealing with fresh fractures should be equally successful. The technique of application differs but slightly in treating fresh fractures by the inlay graft method from that already used so successfully in the ununited fractures, and is much easier, as in old ununited cases the angulation and overriding of fragments and eburnation of the fractured ends present often greater obstacles to correction of alignment and implantation of the graft than would be looked for in recent cases.

**3. High Vascular, Muscular, and Mental Tension.**—W. J. M. A. Maloney and V. E. Sorapure state that the former has elaborated for the relief of states of mental and muscular tension certain depressor exercises which he used as an introduction to the cure of ataxia by his blindfold method. In tabetics who were practising these exercises he observed a fall of blood pressure, and patients reported to him that at home the exercises often led to sleep. He next observed in a case of chronic nephritis that by such exercises the systolic blood pressure was reduced from 220 to 192 mm. in fifteen minutes. The exercises may be divided into two groups, breathing exercises and relaxation exercises. They first instruct the patient to breathe deeply and to pause at the end both of inspiration and of expiration. The breathing should be abdominal

and should be done without jerking. One of the purposes of deep breathing is to distract the patient from obsessing thoughts and disturbing ideas, to focus his attention upon the exercises. To relax the muscles passive movements, in which the muscles are alternately lengthened and shortened, are employed. The scalp, forehead, cheek and jaw muscles of the recumbent patient are passively moved by the physician, till wrinkling diminishes or disappears and muscular spasm is eliminated. Next, a shoulder is relaxed, then an arm. Each limb is dealt with separately. Each joint is passively moved until all trace of muscular tension vanishes. When the joints of a part are free from all muscular constraint, the part lies motionless or flaccid or falls limply from any unsupported position. After a part is relaxed, those previously and those newly relaxed should be briefly dealt with again and in the order in which they were first relaxed. Thus, after relaxing the first limb, the physician turns again to the scalp, forehead, cheeks and jaw, relaxes these, and then again relaxes the limb. This linking of parts previously to parts newly relaxed is helpful in bringing the whole to a satisfactory state of relaxation. Besides the tranquillizing of excited and anxious states and the general relaxation of the musculature, certain other physiological effects result from these exercises. Among these effects is a reduced frequency of the movements of the eyelids. At the beginning of a treatment the eyelids quiver. As tranquillity is gained, the quivering grows less, until often the lids lie motionless. When distractions arise the lids begin to flicker, or if flickering was present before, it now increases. During the exercises a high blood pressure almost invariably falls.

**7. The Albumin Reaction in the Sputum.**—W. M. Lewis concludes that the demonstration of albumin in the sputum depends upon the presence either of albumins *per se*, derived from the blood serum, or of corresponding substances which have been liberated as a result of cellular destruction. Should this assumption be correct, one would expect to find albumin present in the sputum from practically every pathological condition involving either primarily or secondarily any portion of the respiratory tract, also in those essential normal individuals who are the victims of the so-called American catarrh. The writer concludes, therefore, that an examination of the sputum for albumin is of no practical importance, so far, at least, as the diagnosis of tuberculosis is concerned.

**8. X-Ray Treatment of Hyperthyroidism.**—E. Birdsall notes that hyperthyroidism is proving to be a most fruitful field for *x*-ray therapy. Surgery, however, has pointed the way to this form of therapy by demonstrating that a reduction in the size of the gland, thus decreasing the amount of secretion, will produce a cure. The therapeutic action of the rays on the thyroid gland is a reduction of secretory activity, induced by the atrophic changes and the obliterating endarteritis, resulting in a lessened blood supply to the gland. Thus the same results are obtained as by removal, but with this difference, that with Roentgen treatment the amount of the secretions can be reduced to normal with accuracy, while the surgeon never knows exactly how much of the gland it is necessary to remove to accomplish the same results. The tachycardia receives the first benefit, even before there is any noticeable reduction in the size of the gland.

**11. Autoserotherapy in Fibrinoserous Pleurisy.**—H. M. Fisher states that to Gilbert of Geneva is generally credited the first suggestion of treating serous effusion into the pleural cavity by the injection under the skin of the patient of portions of his pleural serum, and at the International Congress at Rome, in 1894, this author reported a number of cases he had treated in this way and recommended its more general use on account of the good results he had obtained. A little later Enriquez and Gaultier explained and recommended the same treatment. Gilbert recommended the autoinoculation of one or two c.c. of the serum at intervals of one or two days and advised, in all, six inoculation. The results obtained from this treatment are, it is said, almost immediate sensations of relief, notably from dyspnea and oppression often observed within the first twenty-four hours, a great increase in the secretion of urine and, along with this, a marked and rapid diminution in the serous exudation, and lastly a complete resorption of the fluid, sometimes within six to ten days, sometimes more gradually. From a review of the literature of this subject the author concludes that there can be little doubt that autoserotherapy in serous pleural effusion does have in most cases a very distinct effect in decreasing effusions. Whether this is due to the absorption of the "specific antibodies from the effusion into the general circulation, or of autolytic products of cell metabolism"—the increased diuresis seems to be a fact proved by the experience of many careful observers. But, as eighty per cent. of all cases of simple fibrinoserous pleurisy show a tendency to spontaneous cure, it seems that the treatment might well be reserved for those cases where there have been repeated reaccumulations of the fluid after tapping. Paracentesis still seems to be the treatment necessary in cases of large effusions accompanied by great difficulty of breathing. The relief afforded to great and alarming dyspnea by autoserotherapy does not appear to be sufficiently rapid. If Schnutgen's observations as to the lessened danger of thickening of the pleura from fibrinous exudations where autoserotherapy is used, are generally confirmed, this treatment will probably be tried in many cases which would hitherto have been treated by paracentesis.

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**Journal of the American Medical Association.**

*May* 23, 1914.

1. The Causes and Treatment of Chronic Backache. With a Consideration of the Diagnosis of Sacroiliac "Relaxation." R. W. Lovett.
2. The Use of Cholesterin Antigen in the Wassermann Reaction. C. W. Field.
3. Fatal Attack of Filarial Lymphangitis Simulating Bubonic Plague. I. G. Martinez.
4. Diseases Connected with Meckel's Diverticulum, with Especial Reference to Diverticulitis. J. P. C. Griffith.
5. Supraclavicular Anesthetization of the Brachial Plexus. A Case of Collapse Following its Administration. H Neuhof.
6. Best Methods of Discouraging the Activity of Inoperable Cancer. A Study of Heat in Cancer. J. F. Percy.
7. Deep Wound of the Brain. F. H. Gunn and H. C. Fairbrother.

**1. Causes and Treatment of Chronic Backache.**—R. W. Lovett makes a plea for a careful etiological study of each case of chronic backache or lameness of the back, and presents a classification which has worked out satisfactorily in practice. Cases are cited to show the variety of symptoms and the way in which treatment has or has not been successful. The populaar diagnosis of "sacroiliac relaxation" is commented on, and attention is called to the fact that adhesive plaster straps on the skin cannot possibly "immobilize" relaxed sacroiliac joints which at every step must bear the weight of the trunk as a downward thrust, and the fact that treatment of this sort often relieves symptoms is fair evidence that the diagnosis in such cases is incorrect.

**4. Meckel's Diverticulum.**—J. P. C. Griffith notes that localization of the pain and tenderness is not so often at McBurney's point as somewhat higher and to the right of the umbilicus, or even about it, or in some

entirely different regions. There is an area of puffiness or of firm resistance in this region. There is an absence or a slight degree of meteorism, at least early in the attack. There is blood in the stools and in the vomited matter. There is often an earlier appearance of an umbilical fistula, or of some malformation elsewhere in the body.

6. **The Effect of Heat on Inoperable Cancer.**—J. F. Percy points out the widening of the field of investigation regarding the vulnerability of the cancer cells to the effects of heat. It will be of particular interest to make further observations as to the relation of the reaction producing heat in the body, following the injections of toxins, serums and vaccines in the destruction of carcinoma. If the primary gross mass of cancer which is usually accessible can be rendered innocuous by raising the temperature through the medium of an electric heating-iron, and the remaining small amount of lymphatic involvement be reached by thermic-raising, artificially produced toxins, serums or vaccines, as is emphasized by Vidal, then the cure of cancer may be realized. Finally, it becomes necessary to develop the application of heat by a method which is at once efficient and harmless, and the author believes that he has done this by the technic which he has developed. He also believes that he has accomplished this in such a way as to make it highly probable that many forms of carcinomatous growths may be eradicated.

## The Lancet.

*May* 16, 1914.

1. The Development of the Heart in Man in Relation to its Functional Activity. D. Waterston.
2. The Diagnosis of Appendicitis. W. H. Battle.
3. Common Errors in the Treatment and Diagnosis of Dietetic Disorders in Infants. E. Pritchard.
4. A Case of Subtotal Gastrectomy Performed for Cancer of the Stomach Five Years Ago. C. M. Moullin.
5. A Pedunculated Intrabronchial Tumor (Sarcoma) Causing Bronchiectasis. J. A. B. Hicks.
6. A Consideration of Some Cases of Exophthalmic Goitre Treated by Operation. A. J. Walton.
7. Malignant Tumors of Bones: A New Method in Conservative Operative Treatment. Prof. R. Wenglowski.
8. The Influence of the X-rays on Some Cases of Persistent Suppuration. E. P. Cumberbatch.

1. **Development of the Heart in Man.**—D. Waterston summarizes his conclusions as follows: In the first stage of its development the heart is a self-regulating organ. Its rhythmic activity is shown by peristaltic waves of contraction which sweep over it from end to end, and at this stage it possesses a continuous muscular coat. It is quite independent of the central nervous system. In the next stage, i.e., when the primitive chambers are being divided, a new mechanism arises in the form of a node of specialized tissue situated at the junction of the sinus venosus and the atrium, which node passes thence to the dorsal wall of the atrium and the region of the pulmonary veins. This is the first of the nodal tissues to appear, and is the precursor of the sinuatrial node of the adult heart. The *a.v.* bundle and node make their appearance about the time of the further division of the chambers of the heart, as a bundle of fibers lying under the posterior endocardial cushion of the atrial canal, and extending from the atrial wall to the ventricular muscular septum. The evidence goes to show that this bundle is derived from the tissue in which it appears, and that from the first it is surrounded by a sheath of loose connective tissue. Fibers and cells from the central nervous system invade this bundle and also go to other portions of the heart wall, but the intrinsic regulating mechanism appears to arise independently of the nervous system, and is connected only secondarily through that system with other parts of the body.

3. **Dietetic Disorders in Infants.**—E. Pritchard states that within recent years attention has been directed to a condition in infants which has been called rumination, in which a very tractable form of regurgitation or vomiting persists. It is supposed to be due to some abnormal or perverted coordination of the neuromuscular mechanisms of the esophagus. Cases of cardiospasm in infants are much more common than is generally supposed and the few published cases in no way represent the true frequency of the condition. Intractable vomiting is by no means common in infants, and may be due to obstruction to the onward flow of the food current at any point in the alimentary canal. The obstruction may be due to the persistent muscular spasms, or to other causes. Pyloric spasm is one of the commonest causes, if not the most common of vomiting of this kind. Diarrhea is often wrongly attributed to some indigestible quality of the food, when the true explanation is hypersensitiveness of the neuromuscular mechanism concerned in the locomotion of food through the intestinal canal, a condition commonly known as lienteric diarrhea. The author has observed many cases of diarrhea with so-called undigested curds in the motions which are regarded as due to indigestion, but which are in fact due to starvation. Diarrhea is often attributed to some fault in the character of the food, when the true etiological explanation is that the hypersensitive neuromuscular mechanisms of the bowel are stimulated into activity by some preceding event—as, for instance, by forcible sucking at a relatively dry breast or at some artificial nipple which is pierced with too small a hole. There are three common causes of constipation in infants, although the number of occasional causes is almost infinite. The common causes are :(1) dulling or disorganisation of the rectal reflex by previous overstimulation and exhaustion of the nerve centers (purgative medicines, enemata, suppositories, and previously existing diarrheas); (2) overfeeding, especially with fat, and (3) underfeeding (chiefly in the case of breastfed infants). So-called colic in infants is nearly always due to some spasm of a sphincter or of a group of intestinal muscles which interferes with the normal locomotion of food through the alimentary system.

6. **Operative Treatment of Exophthalmic Goiter.**—A. J. Walton states that of late years evidence has been accumulating as to the value of surgical treatment in cases of Graves' disease. This line of treatment is theoretically indicated owing to the evidence that has been brought forward in support of the following conclusions: (1) The disease is due to an excess of thyroid secretion. (2) The results of medical treatment are unsatisfactory. (3) The operative mortality is not necessarily high. (4) The results of surgical treatment are very satisfactory. (5) The danger of postoperative myxedema is slight. Success in operating to a large extent depends upon a careful consideration of the time at which the operation should be performed. In the more common varieties of the disease it is very important to realize that the symptoms show very considerable variation in their severity. If possible such cases must be watched and operative treatment carried out in one of the intervals between the exacerbations. In addition to this fluctuation in the symptoms the length of time that the disease has existed is also of importance. Plummer has pointed out that the greatest height of intoxication is reached during the latter half of the first year and then rapidly drops, so that operation is more likely to be successful if performed early in the disease or at a later period. The danger of performing operations on other parts of the body in patients suffering from Graves' disease must also be kept in mind. He regards right hemithyroidectomy as the operation of choice.

8. **The Influence of X-Rays on Persistent Suppuration.**—E. P. Cumberbatch two years ago tried the effect of *x*-rays upon a case of chronic suppuration of very long duration, which had resisted other forms of treatment, including surgical operation. The suppuration was arrested, the part was healed, and the cure has lasted to the present time. Three other cases of a similar kind were then treated, and equally good results were obtained. During the past year other cases have been treated with the view of investigating the action of the *x*-rays upon chronic suppuration, and the results show that this form of treatment has an influence upon its progress, lessening it in some cases, and in other permanently arresting it.

### British Medical Journal.

*May* 16, 1914.

1. The First George Alexander Gibson Memorial Lecture: An Appreciation of the Man and His Work. J. Mackenzie.
2. Phenomena Attributable to Spasm of Cerebral Vessels (Angiospasm). W. Russell.
3. Oxygen Want and the Means of Its Relief. A. G. Auld.
4. The Relation Between Epilepsy and Tuberculosis. B. H. Shaw.
5. Strychnine-Tuberculin Treatment of Hospital Tuberculous Cases. J. H. Whelan.
6. The Cutaneous Tuberculin Reaction of von Pirquet. A. J. B. Leckie.

2. **Spasm of Cerebral Vessels.**—W. Russell discusses certain points bearing upon the blood circulation in the brain and upon phenomena due to disturbances of that circulation. Owing to the position of the brain within the cranial cavity, local disturbances of the circulation are difficult of proof; they can only be assumed from the clinical phenomena which may be present and from one's knowledge of the dependence of local function upon an efficient local blood supply. The special condition to which the author alludes is spasm-constriction of the arterial channels in localized areas of the brain; the term "cerebral angiospasm" is given to the condition. Although the cerebral vessels cannot be seen the vessels of the retina can be examined by means of the opthalmoscope, and it has been clearly established that angiospasm occurs in these vessels. Various observers have noted that a temporary loss of vision of one-half of the retinæ may be associated with marked diminution in the size of the retinal vessels corresponding to the blind field, and that vision returns with the relaxation of the constricted vessels and the reestablishment of the normal blood supply to the part. From these observations alone it is fair to postulate that corresponding constriction can take place in the arteries in localized areas of the brain. It is a well-established clinical fact that in migraine such disturbance of vision as has just been referred to is by no means uncommon, and that it can be shown to be associated with the change in the retinal vessels referred to. In migraine, however, there are other temporary phenomena which must have their origin in the brain. Of these perhaps one of the commonest is partial or complete loss of power of one side of the face, of one limb, or of both limbs on one side. Another set of phenomena may be explained on the same hypothesis, namely, the loss of memory of recent actions which ordinarily imply not only active volition but conscious volition. This set of phenomena is illustrated by what frequently occurs in old people. The next type of cerebral phenomena is characterized by a complaint of sleepiness, of entire want of energy, and of marked forgetfulness. Such symptoms are the result of grave disturbances of the circulation in certain brain areas.

4. **Epilepsy and Tuberculosis.**—B. H. Shaw states that a high epileptic ratio is constantly associated with a high tuberculosis incidence and vice versa. The death rate from tuberculosis amongst the non-epileptic is directly proportional to length of sanatorium residence, which does not obtain amongst the epileptics. The number of positive and suspiciously positive reactions to tuberculin amongst epileptics is 95 per cent. Only 50 per cent. of non-epileptic patients associated intimately with the epileptics show a similar reaction. Associated with a high ratio of epileptics in urban relatively to rural districts is a similarly high infantile and early childhood mortality from tuberculosis, convulsions, atrophy, debility, and marasmus and also a correspondingly high proportion of occupied married women, which it would be well for employers of female labor to bear in mind. Except in terminal cases of active tuberculosis, loss of weight is not a valuable criterion of the presence of tuberculosis in epileptics. It is contended that epilepsy may be an evidence of tuberculous infection in childhood, probably affecting the bronchial glands initially, and that the convulsions are due either to reflex irritation so set up or to the resulting toxemia acting on an unstable nervous system, either inherited or acquired. Further, the constantly recurring seizures not only establish a vicious habit as far as the nervous system is concerned, but also effect tuberculin autoinoculation, thus tending to keep the tuberculous process in check, so that instead of a fatal termination epilepsy results. Consequently, the advisability of carefully searching for tuberculous foci in children the moment epileptic fits develop, and also the immediate use of tuberculin in their treatment, should receive consideration.

5. **Strychnine-Tuberculin Treatment of Hospital Tuberculous Cases.**—J. H. Whelan has recently called attention to the good results obtainable in the different forms of tuberculosis by the combination of tuberculin and strychnine, the former given weekly, the latter practically daily, by intramuscular injection in large single doses. Since then he has given larger doses of strychnine with improved results. He gives the strychnine injections to all of his tuberculous patients, including cases in which tuberculous injections are contraindicated, with the best results. The author gives strychnine in acute and chronic cases, in the pyrexial and the apyrexial, in the early stages and in the most advanced, and with invariably good results. It always improves the appetitite and general condition. Patients who have a loathing for food soon regain their appetite under its influence. Strychnine will frequently do away with the painful necessity of adopting Debove's gastric lavage and over-alimentation. But the drug must be given by intramuscular or subcutaneous injection, preferably the former. Administered by the mouth it has not the same effects and in large doses will cause tormina and diarrhea, with possible disastrous results in advanced cases. These effects are never produced by the injection.

6. **The von Pirquet Reaction.**—A. J. B. Leckie arrives at the following conclusions: The cutaneous reaction is of no prognostic or diagnostic value. Results are more frequently obtained in women and children than in men. The older the individual the less likely is the reaction to be obtained, and old-standing lesions, as distinguished from advanced cases, usually fail to produce the reaction. Cases of rheumatism give more positive results than do tuberculous individuals. Late and early reactions have no clinical significance.

### Berliner klinische Wochenschrift.

*May* 11, 1914.

**Maize Poisoning.**—Gosio, chiefly in connection with pellagra, reviews the past and recent status of this subject. Recently two Americans, Alsberg and Black,

of the U. S. Department of Agriculture, have written on maize deterioration, with especial reference to certain forms of fungi found therein. In 1896 the author published his discovery of fungi in maize which can transform the fatty matter into aromatic substances, including a striking production of phenylic acid. Later he followed up the activities of the *Penicillium glaucum*, the fungus most extensively present. The product of the latter could be expressed by the element formula $C_9 H_{10} O_2$, representing the ferment-metabolic substance. With this were compared the products of cultures *in vitro* of the penicillium and similar fungi. These were found to be tetanisants for some small animals. The ferment product in maize, however, behaved negatively in this respect. The two Americans having taken up the work discovered in maize two special forms of penicillium, the *P. glaucum* evidently being absent. They cultivated these in Raulin's fluid, and in addition to the ferment substance isolated two acids. One, named penicillic acid, killed small animals under spastic phenomena. The other, or mycophenolic acid, was apparently inert. It therefore became apparent that certain fungi only might be responsible for maize poisoning—for example, the *Penicillium puberulum* of Alsberg and Black. There is, however, plenty of evidence to suggest that all the penicillia are essentially toxic, and that this property even pertains to the entire fungus family to which the penicillia belong. This toxicity is bound up in the metabolism of the fungi, but the metabolic products may show variations under special conditions. The toxic substances are termed collectively maize phenols, and the toxic phenomena in pellagra must be due to a specific intoxication. The character of the mouldy maize which permits the formation of these toxins, and the possibility of the anaphylactic factor are mentioned by the author.

**Experimental Rickets.**—Koch completes his serial study of this subject. Spontaneous rickets in animals shows that domestication and defective care are predisposing factors. In this respect rickets is comparable with tuberculosis. Caged animals appear to acquire rickets along with the effects of muscular disease, and doubtless autointoxication also results from confinement. But while all these facts exist, the author believes that some specific germ, or germs, is the essential cause. The latter have caused a mild type of infection readily overlooked. In other cases severe acute infection was apparent. The histological changes in the bones of rickets always suggest an inflammatory process. From another angle the analogy between rickets and articular rheumatism is marked, and the author has seen the two in combination. This suggests that some form of streptococcus infection may be responsible, by attacking the growing bones and disturbing ossification. In studying the evolution of rickets in animals, there appears to be a series of relapses of some mild infectious process with successive involvement of bones. This behavior is likewise common in chronic rheumatism. Future study along the lines of the author's theory ought to solve the infection problem.

### Münchener medizinische Wochenschrift.

*April* 28, 1914.

**Diagnosis and Treatment of Pleurisy.**—Königer gives a collective review of this subject with especial reference to progress. The affection he regards as almost invariably secondary. Under symptomatic diagnosis there is not much actually new to record. Two triangles, the Garland and Grocco-Rauchfuss, have been isolated with especial respect to the routine physical examination and these seem to elevate percussion above auscultation, the latter giving many equivocal results. The *x*-ray is of especial value in incipient and localized pleurisy, notably the diaphragmatic and interlobular forms. Trial puncture needs no discussion. Under etiological diagnosis the author lays great weight on the history and general examination, with especial reference to the possibility of tuberculosis. A complex case suggests the latter. The pleuritic exudate, already mentioned as a symptom, must be carefully studied for its physical, chemical, bacteriological, serological, and histological qualities. Nevertheless, it is seldom that one finds an efficient cause, like a bacterium in pure culture. Animal inoculations, once so commonly practiced with scanty results, now give something like 80 per cent of positives if we wait for weeks, which, of course, is prohibitive in practice. Even the antiformin method of studying sediments may require hours to find a few isolated tubercle bacilli. Hence for one or another reason study of exudates is not practical; with rapid methods results are usually negative. Of greater significance is the cell count of the centrifuged effusion. The technique, despite the comparatively rapid results, is complex. A great abundance of lymphocytes suggests tuberculosis in an acute febrile pleurisy, but should the condition be chronic this lymphocytosis does not possess much diagnostic value. An excess of polynuclear leucocytes in recent cases is far from excluding the presence of tuberculosis. In empyema there are several well marked differences between the ordinary purulent and tuberculous forms, one of which relates largely to the fate of the leucocytes. The cytology of pleural exudates is too extensive a subject to be summed up in a few words. This study is more or less a side issue at best because advances in our technical resources for diagnosis seem to render the nontuberculous or rheumatic case the exception. We may, of course, temporarily assume that a given case which presents no immediate evidence pointing to tuberculosis is nonspecific and treat it symptomatically. If pus is evacuated for relief, it should, of course, be examined for tubercle bacilli. The author approves of the theory that the pleura is the natural protector of the lungs from the action of disease germs; for example recovery from tuberculous pleurisy causes a general recession of all the phenomena of tuberculous origin. In regard to treatment not much is to be said. In large effusions we have numerous surgical resources; but in certain cases of localized tuberculous pleurisy local treatment can be dispensed with, general measures being sufficient.

### Münchener medizinische Wochenschrift.

*May* 5, 1914.

**Variola and Vaccination.**—Professor Bäumler cites epidemics of smallpox which have recently attacked communities where child vaccination and revaccination are not customary or compulsory. The immediate result was a scramble to be vaccinated, and sufficient vaccine could not be obtained until the epidemic had acquired momentum. Such an epidemic occurred in Sydney, N. S. W., in 1913, and still more recently Belgrade was visited. All the rigor of German vaccination cannot prevent the occasional slight outbreak of the disease in mild forms which are more or less difficult of diagnosis by the general practitioner. These episodes can be traced to visitors from foreign and nearby countries. Vaccination in early childhood, at puberty, and upon entrance into the army does not guarantee immunity throughout life. The protection during these growing periods may be lost in later life,

so that persons thus vaccinated still have to be isolated and again revaccinated after exposure. The latter may have been so extensive that even in small communities it is often difficult to control enough vaccine for simultaneous vaccination. To prevent such contingencies authorities and private practitioners must be on the lookout for imported cases, mild and masked cases, etc., so that the number exposed will be as small as possible. Measles and chicken pox are most frequently simulated. In the Sydney epidemic the disease was brought from Vancouver and was at first mistaken for chickenpox. Over 1000 cases developed during the delay in vaccination. The fact that there was no mortality was most striking, in fact unprecedented. Similarly benign variola has recently been seen in African epidemics in which vaccination had never been practiced. Naturally there is nothing new here, for the term varioloid has been used for decades to characterize these mild epidemics, whether the mildness was due to the *genius epidemicus* or to partial immunity from vaccination. In 1838-9 Sydney was visited by malignant smallpox.

**Tracheal Insufflation of Oxygen in Respiratory Paralysis.**—Leschke states that Volhard, a pioneer in this field gives priority to Moritz, who performed tracheotomy upon a case of poliomyelitis and forced ordinary air into the lungs with bellows. Volhard forced oxygen into the trachea rhythmically during an operation for otogenic abscess of the brain and as regularly drew it out. He thereby kept the blood oxygenated for nine hours, when the patient died of encephalitis. Brauer used the method successfully in morphine poisoning. The well known method of Meltzer and Auer was next introduced and used in pulmonary surgery, myasthenia gravis, etc., by Elsberg. This technique had not been tested in Germany until the author's operation. He describes at length how he deferred the death of a patient with Landry's paralysis after the use of the pulmotor had been discontinued. Under oxygen insufflation patient survived 30 hours and died a comparatively painless death, escaping the usual paroxysms of strangulation. The methods of Volhard and Meltzer may each be employed, according to the severity of the case. The indications are especially Landry's paralysis, bulbar paralysis, poliomyelitis, poisonings, etc., and in suspended animation from any cause.

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### Deutsche medizinische Wochenschrift.

*April 30, 1914.*

**Genesis of Interstitial Keratitis.**—Schieck mentions some of the interesting aspects of this condition—the alleged spirochete finds, the positive Wassermann and tuberculin reactions, the possibility of a traumatic factor, the extreme resemblance to experimental anaphylactic keratitis. Despite the title of the article the author has little to say of the clinical condition which is regarded as luetic in character, but deals chiefly with the so called parenchymatous keratitis commonly regarded as of scrofulous origin and hence presumably dependent upon tubercle toxins. If these affections are anaphylactic in nature, they could be due to various causes. The subject is also closely related to sympathetic ophthalmia the anaphylactic origin of which has long been discussed. To take a concrete example—suppose a man in apparently excellent health develops a parenchymatous keratitis. The Wassermann reaction being positive, we must conclude that latent syphilis is the original pathological factor. The same lesion, however, may appear when the Wassermann reaction is negative. Spirochetes have been found in the intact cornea. In a certain number of cases of keratitis tuberculosis is in evidence, and it can also impose itself as a metasyphilitic affection. The real evidence of anaphylaxis is seen only in experimental keratitis in the rabbit. Heterologous albumin when injected within the cornea causes first a transitory reaction and some days later an actual keratitis. The opposite cornea is sensitized because when treated in the same way keratitis develops at once, and the same is seen if a general injection is given. In the double keratitis in man syphilis antigen may be imagined as having sensibilized the cornea, so that the syphilitic antibodies in the circulation cause anaphylaxis. In the tuberculous subject a von Pirquet test may also cause anaphylaxis.

**Alcoholism in German Women.**—Röper states that alcoholism in woman is rare in Germany, the proportion to men being 1 to 20 or so. But more women become insane as a result of drink than men, which perhaps argues for a psychopathic substratum. The total number of all women studied was 38, of which the upper class was represented by 12, the middle class 19, and the lower class but 7. But 10 of the women had never married. There were 8 widows and 2 divorcees. But 6 owed their condition to the seduction of their occupation (waitresses, etc.). Of the 38 women 18 showed a marked psychopathic constitution, and 26 in all showed a hereditary taint. The subjects, in other words, are born with an inferior, invalid nervous system and tendency to psychoses. The opposite state is seen in many men who abuse alcohol to an unbelievable degree, whose viscera may not be intact but whose nervous system and psyche are not involved.

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**Disappearance of Hypophysis with Fatal Exit.**—Simmonds relates an unusual case in a pregnant woman, who developed puerperal sepsis at the age of thirty-six. After her recovery she never menstruated again, never regained her strength, became decrepit, and suffered from vertigo and loss of consciousness. She lost much flesh and was seen to age rapidly. When forty-four, diagnosis was made of senium præcox. For years she went from bad to worse, dying finally in coma. At autopsy no vestiges of the hypophysis were found. There is enough evidence to show that the organ is sometimes attacked during septic processes. Its complete disappearance may be set down to necrosis. Hence, as a result of this loss of an organ actually indispensable to life, there set in the menopause, myasthenia, vertigo, and attacks of unconsciousness, senium præcox, death in coma.—*Deutsche medizinische Wochenschrift.*

**Myatonia Congenita.**—A. F. Hertz and W. Johnson report a case of this condition in a boy aged 3½ years, who has always appeared weak since birth. He is an intelligent boy, and he is able to talk quite well. He exhibits a general want of development and an extreme degree of atony of all the muscles of his body, no particular portion being worse than any other. Marked scoliosis is present. He has never been able to walk properly. His mother thinks that he is a little stronger than he was two years ago. At present he cannot stand without help. If made to sit up, his head cannot be held erect, but falls backwards. There is marked looseness in all the joints resulting from the atonic condition of the muscles. The arms and legs can be twisted into abnormal positions without causing discomfort. This is especially noticeable as regards the fingers, which can be bent backwards until the tips rest against the back of the wrist. The heels can also be put behind the neck. No tendon-jerks could be obtained in any of the limbs. No other members of the family are similarly afflicted.—*Proceedings of the Royal Society of Medicine.*

## Insurance Medicine.

### SUGGESTIONS TO MEDICAL EXAMINERS.

BY THE INSURANCE EDITOR.

#### THE EXAMINATION OF WOMEN.

THE importance of a strict examination and of careful selection of female risks has been made clear in the previous contributions in these columns (MEDICAL RECORD, May 9 and 23) in relation to the mortality and causes of death of women.

The conjugal state exerts a strong influence in determining the mortality list. Married women, especially when the husband is beneficiary, constitute a class in which every resource known in the science of life insurance examination should be drawn upon to prevent the powerful self-selection appearing in this group as compared with spinsters or men. It becomes the duty of an examiner, especially when the applicant is a married woman and is known to him, to give attention to the desirability of the risk, as indicated by the presence or absence of speculation upon her life by the husband or self-supporting children. One of the main points is whether she has the means to pay the premiums, or whether these must be provided by others, especially the beneficiaries. The probability of speculation or adverse selection in the case of spinsters is almost negligible as these applicants are usually self-supporting women who are anxious to provide for an aged parent or some other dependent.

In studying the causes of death, a noticeably higher mortality as a result of pulmonary tuberculosis is found among insured women as compared with that among men and, further, this mortality is higher among married women than spinsters. Speculation and adverse selection accounts for a large part of the difference among women. The variance in the rate between men and women, however, is due in a considerable degree to failure on the part of examiners to make as thorough examinations and to insist on as correct, unreserved answers as they would in the case of men.

The large proportion of deaths due to pregnancy and the puerperal state indicate that great care should be adopted in examining pregnant women and that rigid selection should be exercised by the medical directors in considering these cases. Some of the companies insure pregnant women, but they should not assume such a risk unless the woman has gone through at least one normal pregnancy, lives in a favorable environment, and it has been positively ascertained that there is no element of speculation or adverse selection.

The medical examiner will not accomplish his work satisfactorily when he fears that he will incur a woman's displeasure if he persists in securing full, complete, and unreserved answers to all questions on the blank, no matter how pointed they may be. He can carry out his task, however, with equal thoroughness whether the woman is an applicant for insurance or a private patient. If he fails to retain his composure and shows signs of nervousness, feeling that he has a delicate and unpleasant commission to perform, the woman will usually notice it and become ill at ease. If, on the other hand, he goes about his work in an easy, polite, and unconcerned way, courteously but firmly insisting on the fulfillment of every requirement just as he would do were the applicant a man, the woman will seldom be embarrassed or feel annoyed. As the writer has previously pointed out in another place, good judgment in forming and putting the questions is quite necessary. For instance, it would show a lack of common sense to bluntly ask a young, refined, delicate-minded unmarried woman if she is pregnant; yet this question appears on the blank and must be answered in every case whether the woman is married or single. This information may be secured easily in a negative way by obtaining a full history of her menstruations from her and the date of the last one. The history of child-bearing may be brought out in a similar way. The examiner should be careful after information, elicited in this way, has been recorded, to have the applicant read this part of the report and state if it is correct.

A woman often fails to recognize the fact that she will become party to a legal contract as soon as she signs her statements to the examiner. The examiner is expected by the company to protect its interest and, at the same time, to direct the efforts of the woman by preventing willful or unintentional misrepresentation due to her failure to realize the strict principles involved in the forming of a contract, and also to her very natural tendency to avoid the subject of diseases peculiar to her sex.

A strict rule, adopted by most companies, forbids the presence of a third person (even the husband) while the questions are being asked by the examiner, in order that the answers may be free without any restraint or influence. During the physical examination there is no objection to the presence of a third person. An interpreter may be necessary if the applicant is a foreigner and not familiar with the English language. In this event, the examiner must be careful and select an interpreter who is not related to the applicant and who has no pecuniary interest in the transaction.

The conditions for a thorough examination and the taking of correct measurements will be materially helped by having the applicant, previous to the examination, arrange her clothing in a way that will allow a ready and unobstructed inspection of the chest and abdomen. A loose gown of some light material, instead of the thick clothing usually found, will answer the purpose. The physical examination must be as rigid and painstaking as if the applicant were a man.

The chest measurements should be taken horizontally immediately below the axilla, avoiding the mammæ. The abdominal measurement should be taken at the waist line as well as at the level of the umbilicus, care being taken not to include the crests of the ilia. If the abdomen is large below this line, the examiner should ascertain whether it is merely adipose and pendulous, or whether there is a suspicion of tumor or pregnancy.

The urine must be passed at the time of the examination, or later if more convenient, under circumstances which leave no doubt in the mind of the examiner as to whom it was voided by. The applicant may go into an adjoining room which has been inspected by the examiner or the examiner may adjourn to a neighboring room temporarily. The specimen should be warm when received by the examiner. In no case should the urine be accepted when brought to the examiner by some other person.

If these various precautions are faithfully observed, the mortality in the early policy years should remain at the normal point.

# Book Reviews.

HANDBUCH DER TUBERCULOSE, in fünf Bänden. Edited by Prof. Dr. L. BRAUER, Dr. G. SCHROEDER, and Dr. F. BLUMENFELD. Vol. I., in 2 parts, 792 pp. Price 35 marks. Leipzig: Johann Ambrosius Barth, 1914.

THE first edition of this monumental work appeared in 1904 and was mainly devoted to the therapy of chronic pulmonary tuberculosis. In this first volume of the third edition the first chapter by Prödohl, of Hamburg, is an excellent historical review of the work that has been done in tuberculosis from the time of Hippocrates to the present day, including, of course, the latest bacteriological researches. In the historical enumeration of important tuberculosis gatherings it is, however, regrettable to note the omission of the last three great international tuberculosis congresses of 1905 in Paris, of 1908 in Washington, and 1912 in Rome. Tendeloo, Professor of Pathology of the University of Leiden, gives a masterly description of the pathological changes caused by the tubercle bacillus in all the organs of the body which may be invaded. Particularly instructive are some excellent illustrations of cutaneous tuberculous ulcers. It is interesting to note Tendeloo's conclusion that when carcinoma appears concomitant with a tuberculous lesion it is not in any way favorably or unfavorably influenced by the tubercle bacillus. In another chapter, Much of Hamburg describes the three types of microorganisms capable of producing tuberculosis—typus humanus, typus bovinus, and typus gallinaceus. The author rather cautiously admits the great probability of a morphological transformation of the bovine bacillus into the human type when he says: "Jedenfalls können wir, wenn wir ganz vorsichtig sein wollen, sagen, dass eine Umwandlung des einen typus in den anderen im hohen Grade wahrscheinlich ist." The very excellent chapter on immunization by the same author must be read to be appreciated; no review could do it justice. The last paragraph treats of Friedmann's method consisting in the utilization of living tubercle bacilli. Contrary to the results obtained in the United States, Much speaks rather kindly and encouragingly of Friedmann's work. He concludes by saying the results seem rather favorable.

Professor Martius, of Rostock, writes of predisposition and individual prophylaxis and makes a very readable chapter of it, without, however, offering anything that is not known and practised by students of modern phthisiotherapy. The article by Sanitätsrath Gottstein on the epidemiology of tuberculosis is very interesting. What has been known in a general way about the influence of occupation has been again substantiated by Gottstein's carefully compiled statistics. Damman of Hanover considers in detail tuberculosis in animals and the best method to combat it. He strongly advocates State supervision. The social combat of tuberculosis as carried on in Germany is interestingly described by Kirschner of Berlin, who is one of the privy councillors of the Ministry for Public Health.

The second portion of the first volume opens with a chapter on diagnosis by Brecke, who is director of the Sanatorium Ueberruh. It is an excellent review of what is known to-day of the physical means of discovering pulmonary tuberculosis. The newer methods of sputum examination are also described. The clinical interpretation of tuberculin reactions is treated by Ritter and supplemented by some very beautifully colored photographs showing the effect of local inoculation. Lorey, the Roentgen specialist of the Eppendorf Krankenhaus describes not only the best and safest method of taking a Roentgen picture of a suspected lung, but with the aid of 45 illustrations gives a most admirable interpretation of lesions which may be seen with the aid of Roentgen rays. If the subsequent volumes of this monumental work equal the first one in value, this handbook will rank as one of the best and most complete literary products on tuberculosis thus far produced.

SCROFULOSIS. By Prof. Dr. G. CORNET, Berlin and Reichenhall. Translated from the second German edition by J. E. BULLOCK, M.D., Assistant Medical Officer, the Eversfield Chest Hospital, St. Leonard-on-Sea. Price $5.00 net. New York: William Wood & Company, 1914.

THE author of this volume has rendered a distinct service to medical science in rescuing from oblivion the old conception of scrofulosis and in reestablishing it upon a firm clinical basis. He defines this condition as a complex of symptoms almost entirely confined to childhood and early youth, including such lesions as lupus, scrofuloderma, lichen, tuberculides, eczema, impetigo, chronic blepharitis and phlyctenules, middle-ear disease, chronic catarrh of the air passages, rhinitis, pharyngitis, bronchitis, hyperplasia of the tonsils, catarrh of the alimentary canal, and certain affections of the bones and joints. The qualities which distinguish the above manifestations from non-scrofulous phenomena of the same kind are their persistency, their frequent recurrence, and their multiplicity. The author delineates the following types of scrofulosis: (1) A tuberculous form; (2) a non-tuberculous form caused mostly by the staphylococcus or the streptococcus, and (3) a combination of the first two forms. In describing the tuberculosis type of scrofulosis the author takes up the subjects of the virulence of tubercle bacilli under the following headings: Attenuated virus, bacilli of human and bovine tuberculosis, and the significance of bovine infection, including the various types of the latter. A large section is devoted to the subject of the predisposition to scrofulosis. Chapter III. deals with the genesis of scrofulosis, the modes of infection and the microbic agents being described in full. The question of heredity is dealt with in a separate chapter. The symptomatology, diagnosis, prognosis, prophylaxis, and therapeutics are all given detailed consideration. An extensive bibliography of 74 pages, and separate indices of subjects and authors conclude the volume. There can be no doubt that the author has made a contribution of permanent value to medical science. As an authority on tuberculosis he is well fitted to discuss the subject of far wider scope and more fundamental importance—namely, the subject of scrofulosis. The translator has admirably acquitted his task.

DIAGNOSIS IN THE OFFICE AND AT THE BEDSIDE. The Use of Symptoms and Physical Signs in the Diagnosis of Disease. By HOBART A. HARE, M.D., B.Sc., Professor of Therapeutics, Materia Medica, and Diagnosis in the Jefferson Medical College of Philadelphia; Physician to the Jefferson Medical College Hospital; one-time Clinical Professor of Diseases of Children in the University of Pennsylvania; Author of a Textbook of Practical Therapeutics and a Textbook of the Practice of Medicine. Seventh Edition, Thoroughly Revised, Illustrated with 164 Engravings and 10 Plates. Price $4.00 net. Lea & Febiger, Philadelphia, New York, 1914.

IT would appear almost superfluous to add any commendation to what has already been written in regard to this work. The plan of approaching diagnosis from the viewpoint of the presenting symptoms instead of from the viewpoint of the different diseases is one which has served an admirable didactic purpose. Thus, the symptoms are taken up separately and the different diseases in which these symptoms are present are studied. The titles of the chapters give a fair idea of the scope of this work. These titles are as follows: The face and head, the hands and arms, the feet and legs, hemiplegia, speech, the skin, the tongue, mouth, pharynx, and esophagus; the thorax and its viscera, the pulse, bloodvessels, and blood-pressure; the abdomen and the abdominal viscera, the bowels and feces, the urinary bladder and the urine, the eye, chills, fevers, and subnormal temperatures; headache and vertigo, coma or unconsciousness, convulsions or general spasms, hiccough, vomiting, regurgitation, and the character of the vomit; cough and expectoration, pain, and tendon reflexes and muscle tone. The book is fully illustrated, mostly with photographic illustrations, and contains a number of full-page plates. The index is particularly complete. There can be no doubt that this book serves a distinct purpose both to the student and to the general practitioner.

ÉTUDE CHIMIQUE DU SÉRUM ANTITUBERCULEUX DE VALLÉE. Par le Docteur BOUREILLE, ex-Interne de la Maison de Nanterre, Directeur du Preventorium Antituberculeux du Boulevard Garibaldi. Nemours: Henri Boulog, 1913.

THE writer gives schemas of temperatures and weights noted for two, three, or four years, before, during, and after treatment with Vallée's antitubercular serum. He found the remedy a powerful aid to the beneficial action of the customary therapeutics, although it may occasionally provoke anaphylactic accidents.

Outlines of Greek and Roman Medicine. By James Sands Elliott, M.D., Ch. B (Edin.) Illustrated; price $2.50 net. New York: William Wood & Company, 1914.

This little history begins with a chapter on "Early Roman Medicine," and in the second chapter turns to Greek medicine, which he divides roughly into three periods. He seems to prefer the classification of Renouard, which he designates as "accurate and convenient." This divides Greek medicine into four periods: (1) The primitive, or that of instinct, beginning with mythology and ending with the destruction of Troy, 1184 B. C. (2) The sacred, or mystic period, ending with the dispersion of the Pythagorean Society, 500 B. C. (3) The philosophical period, ending with the foundation of the Alexandrian library, 320 B. C. This period is made illustrious by Hippocrates. (4) The anatomic period, ending with the death of Galen, about 200 A. D. From the first period whatever medical history has reached us seems to be purely mythological. In the second the name of Pythagoras predominates, as does that of Hippocrates in the third. We now are treading on solid ground and are dealing with the greatest name in medicine. By great good fortune "the writings of Hippocrates have been largely preserved to us, while those of his predecessors and immediate successors have been lost." Dr. Elliott believes that Hippocrates actually dissected the human body, and that after diagnosing the presence of fluid in the chest or abdomen by ausculatation and percussion he removed it by paracentesis (p. 29).

Probably the best chapter in the book is the one relating to Galen and his influence upon the development of the medical art. After him the deluge, and the gradual merging of medicine into the universal oblivion of the dark ages.

The book is well printed and illustrated. It is well adapted for reference, but is by no means "dry." It contains practically all the knowledge we have of Greek and Roman medicine, pleasingly presented, and will afford a few hours' agreeable reading to any thoughtful physician or to an educated layman.

The Home Nurse. By Dr. E. B. Lowry, author of "Herself," "Himself," "Confidences," "Truths," etc. Price $1.00. Chicago: Forbes & Company, 1914.

This book describes in simple language and with the avoidance of technical terms the ordinary duties of the home nurse. Only those fundamentals are considered without which no one should attempt to care for the sick. There are instructive chapters on nursing in special diseases and on what to do in emergencies. As the author is an authority on nursing and a lecturer on this subject in one of our leading medical colleges the instructions given may be depended upon as conforming to the best medical knowledge and practice. It is a book which can with safety be put into the hands of the laity.

The Unexpurgated Case Against Woman's Suffrage. By Sir Almroth E. Wright, M.D., F.R.S. Price $1.00. New York: Paul B. Hoeber, 1913.

When the cause of woman's suffrage is being so energetically advocated on every side opposition from so eminent a source as the author of this book is worthy of serious consideration. He believes that the influence of woman has caused man to leave unsaid many things on this subject which should have been said; that he has been held back by the taboo on all generalizations about woman and by the fear of offending her *amour propre*. John Stuart Mills is accused of being "not scrupulously conscientious" in dealing with the woman question. No such restrictions of frailties have hampered our author, and the charge of lack of candor can never be imputed to him. He arraigns woman's motives in claiming the ballot as not from public interest or philanthropy, but because of resentment that woman should be accounted by man as intellectually inferior, and reprehension of a state of society in which more money, personal liberty, more public recognition, and happier physiological conditions fall to the share of man.

The author, after reviewing the arguments adduced in favor of woman's suffrage and showing to his own satisfaction that they are based on false premises, lines up his arguments in opposition, basing them on woman's disability in the matter of physical force, her disability in the matter of intellect, and in the matter of public morality. He considers what he terms woman's secondary sexual characteristics, namely, intellectual immorality and limitations, the inability to generalize and to see things from other than a personal viewpoint, an insurmountable obstacle to her wise use of the franchise. Woman's suffrage in his opinion would imperil both the international position and the internal equilibrium of the State. His arguments are open to at least one of the defects with which he charges woman's intellect—lack of originality. They were brought up when the advisability of higher education for women was discussed and when the question of married women holding property and controlling their own wages was agitated; in fact, whenever woman has sought a new right or privilege.

The author diagnoses the case of the militant suffragist as "militant hysteria," due to lack of a husband, a home, and children, and prescribes as a remedy (apparently in all seriousness) the sending of the patients, 3,000,000 of them, to the colonies where desirable husbands and happy homes await them. The difficulties which the universal application of this remedy to other countries as well as to England involve the writer has refrained from attacking; neither has he suggested a panacea for the married women who are identified with the suffrage cause. He has set up a fine target for the invective of the suffragists, and will undoubtedly receive at their hands no more flattering criticism than he has bestowed. At the same time there is much truth in the book that should have a sobering effect on those enthusiasts who see in "votes for women" the cure for all social ills.

Die spastischen Erkrankungen des Verdauungskanales. By Prof. Dr. Karl Walko. Price 1.50 marks. Halle a. S.: Carl Marhold, 1914.

The author has the following to say in reference to permanent spasms of the esophagus and the cardia: "These require the use of dilating sounds or apparatuses. It is advisable to treat these spastic contractures with bougies of increasing size, especially by means of the dilating balloon sound of Geisler-Gottstein or one of its modifications, possibly with simultaneous gastrotomy. For the same purpose, we may use Schreiber's dilating sound and Einhorn's metal dilator for the forced stretching of the cardia.

"By circular contraction of its muscles the stomach may simulate a stenosis in the *x*-ray picture or may intensify actual stenosis already present. Intermittent or spastic hourglass contraction, according to the view of nearly all observers (Rieder, Faulhaber, Haudek, de Quervain, Stierlin, etc.) is of great diagnostic value in cases where ulcer is clinically suspected and where from the constant circular spasms we may assume the presence of fresh or recent ulcers."

The book can be recommended in every way.

Archiv für experimentelle und klinische Phonetik (Supplement zu Passows und Schaefers Beiträge.) Herausgegeben von Prof. Dr. J. Katzenstein. Price, per volume, 24 marks. Berlin: S. Karger, 1913.

The articles to be published in this work will be reports of exact researches in the province of experimental phonetics, together with pedagogical articles and linguistic discussions. In the first volume there is an entertaining article by Dr. Catharina von Maltzen on the recognition of successively given musical intervals in the extremely high tone region, one on the measurement of breath volume in speaking and singing by Prof. R. du Bois-Reymond and Prof. Dr. J. Katzenstein, and a psychological contribution to phonetics by Dr. Wolfgang Köhler.

Die Roentgendiagnostik der Magenkrankheiten. By Dr. M. Faulhaber. Price 3 marks. Halle: Carl Marhold, 1914.

In reference to gastric ulcer the author says: "X-ray examination cannot show every ulcer of the stomach and a negative finding cannot exclude the presence of a gastric ulcer." As to the differential diagnosis between penetrating and non-penetrating callous ulcer, he says the following: "Larger deposits of barium, lying considerably outside of the stomach, having no visible connection with it, mean penetration, especially if gasbubble and division into three layers are visible and if the barium shadow remains after emptying of the stomach. Small deposits connected directly with the stomach without gasbubble that disappear promptly with the emptying of the stomach speak for a non-penetrating ulcer."

The book, now in its second edition, can be highly recommended as a help to the general practitioner in the interpretation of *x*-ray plates of diseases of the stomach.

# Society Reports.

## ASSOCIATION OF AMERICAN PHYSICIANS.

*Twenty-ninth Annual Meeting, Held at Atlantic City, May 12 and 13, 1914.*

THE PRESIDENT, DR. SIMON FLEXNER, IN THE CHAIR.

**President's Address.**—President FLEXNER said the extension of the boundaries of knowledge had been such that it had compelled medical colleges to become departments of universities. This rapid extension of knowledge coincided with the active pursuit of physiology, pathology, bacteriology, and pharmacology, either alone or in association with clinical studies for which special laboratories and institutes came to be established. Independent institutions for medical research had exercised a distinct influence on medical practice, but the foundation of these institutions was impossible until medical schools furnished an adequate supply of students whose training approximated that of the older European countries. All these conditions had acted more powerfully on clinical teaching. The professor of medicine in the university medical school had ceased long ago to be a general practitioner. The function of the clinical teacher had been newly defined within one or two decades. The Association of American Physicians had sympathized with every movement affecting the progress of medical education, and it favored this later step with the single hope, if it was in the real interest of medical progress, it might be given a chance to succeed.

**Chronic Interstitial Gastritis.**—Dr. JOSEPH SAILER of Philadelphia reported a case of chronic interstitial gastritis in a male, 45 years of age, who had been subjected to various forms of medical treatment, but none of them was of any avail. Dr. Deaver performed an exploratory operation and found the condition of the stomach entirely in accord with the clinical picture. The stomach walls were very thick. The stomach was adherent posteriorly and around the pylorus. The adhesions were released, and the stomach wall found greatly thickened. Dr. Deaver believed that gastroenterostomy would have been difficult, in addition to giving no definite relief. There were no enlarged glands along the lesser curvature, but the adhesions were dense along the greater curvature, and a definite gland mass could not be felt. There was no evidence of metastasis. The abdomen was closed and the patient made a satisfactory recovery from the exploratory operation.

Dr. DAVID RIESMAN of Philadelphia stated that with the *x*-ray we were not able to distinguish between the malignant and nonmalignant types of what was called leather-bottle stomach. This distinction could only be made by clinical observation. Recently he saw a typical case of leather-bottle stomach which was very malignant, because the patient had cachexia and ascites. Both of these conditions in this case were sufficient to determine that the condition was cancerous. The man died in a few weeks. There were no evidences of metastases in the lever, and the liver was not enlarged at any time. Another case that came to autopsy showed no metastasis from any of the viscera, but marked enlargement of the glands along the greater curvature of the stomach.

**The Nature of Peristalsis and the Action of Magnesium Sulphate.**—Dr. S. J. MELTZER of New York City advanced two assumptions. One assumption made upon the basis of experimental facts was that peristalsis was a complicated condition in which the phenomenon of inhibition played an important part, and the second was, that magnesium sulphate acted by affecting this inhibitory force.

**A Clinical Study of One Thousand Cases of Cancer of the Stomach.**—Dr. JULIUS FRIEDENWALD of Baltimore presented a clinical study of 1000 cases of gastric cancer. The cases occurred in 10,416 patients, affected with various gastrointestinal disturbances. The maximum liability to the disease occurred between the fortieth and sixtieth years. The greatest proportion occurred in males, 588 to 412 females. An hereditary history of cancer appeared in 9.4 per cent. of cases; a history of trauma in 1.9 per cent.; anemia was present in 82 per cent. Chronic endocarditis was present in 11.4 per cent.; arteriosclerosis in 69.6 per cent. A history of former indiscretions in diet was obtained in 32.1 per cent.; of alcoholism in 15.2 per cent.; syphilis in 7.9 per cent.; hyperchlorhydria in 4.9 per cent.; hypochlorhydria in 2.8 per cent.; anacidity in 89.2 per cent. Lactic acid was present in 81.9 per cent. Dysphagia existed in 6.9 per cent. of all cases. Loss of weight existed in 88.5 per cent. Anorexia was present in 89.3 per cent. Vomiting existed in 89.3 per cent. Occult blood was present in the stools in 92.5 per cent. Masses in the form of tumors were detected in 71.9 per cent. Dilatation of the stomach existed in 46.7 per cent. Perforation occurred in 2.3 per cent. Metastasis existed in 67.2 per cent. Operations were performed in 26.6 per cent.

**When and How To Use Tuberculin Preparations in Private Practice.**—Dr. S. SOLIS-COHEN of Philadelphia in his paper with this title dealt with pulmonary tuberculosis only. The disastrous results of the early use of tuberculin were owing to (1) crude dosage; (2) unsuitability of cases.

(1) Dosage. Correct principles were established by Trudeau. The opsonic index of Wright marked a further advance. Latham's method of administration by mouth, with parallel temperature curve and opsonic index guidance, demonstrated the full trustworthiness of the temperature curve alone, and simplified the procedure. The following was the author's modification of Latham's method: tuberculin residue (T. R.) triturated with milk sugar was given with skim milk, whey or beef juice. The initial dose, he said, was one one-millionth of a milligram. Both subjective and objective symptoms of reaction were watched for. The dose was repeated once or twice weekly, according to result. It was gradually increased by increments of one one-millionth of a milligram to the reaction point, and then dropped one point lower, and so continued for some weeks. Later, a further increase was attempted, and if reaction was not shown, was proceeded with in a similar gradual way. The arbitrary increment of one one-millionth of a milligram was maintained during this remittent progression until one ten-thousandth of a milligram had been reached. After that, the increment might be raised to one one-hundred-thousandth of a milligram. Thus by successive stages a maximum dose was attained at a point determined for each individual by all the factors in the case, including the rapidity of the increase, character and intensity of reaction, and maintenance of tolerance, as well as the local and general signs of improvement. The treatment was continued with intermissions, for many months, and may be resumed, if necessary, from time to time over a period of years.

(2) Selection of cases. In the majority of advanced cases, according to present knowledge, tuberculin was likely to be harmful. Experienced observers might employ it cautiously under conditions that seemed to call for its use, but others should avoid it, especially in cases showing a tendency to continuous fever, or in which there was, or had been recently, active softening. In the great bulk of early cases it was needless. Under proper treatment, medicinal as well as hygienic, recovery would take place without it. Its field of action was in the treatment of cases which (1) had not passed beyond the stage of infiltration and which (2) had shown a certain degree of improvement under proper food, fresh air, judicious rest and exercise, and other approved measures, including the right drugs, but in which (3) improvement became sluggish or ceased, or retrogression took place. The slight additional stimulus afforded by an appropriate tuberculin preparation administered at well-chosen times, and in correct dosage, would often reawaken the defensive and restorative processes of the organism and be follower by complete recovery.

Dr. ABRAHAM JACOBI of New York City had used tuberculin in doses of from one-hundred-thousandth of a milligram up to one five-thousandth of a milligram, and had never seen any unpleasant symptoms. He had given it in combination with other agents. His routine treatment in chronic cases of pulmonary tuberculosis consisted in the internal administration of guaiacol and arsenic with tuberculin, and he had observed no disagreeable symptoms which he could attribute to the tuberculin.

**Splenectomy for Pernicious Anemia.**—Drs. WARREN COLEMAN and JOHN A. HARTWELL of New York reported a typical case of pernicious anemia that grew steadily worse in spite of four months' treatment with arsenic, iron, hydrochloric acid, and four transfusions. Splenectomy was performed as a last resort. Ten weeks later, January 13, neosalvarsan was administered. The use of neosalvarsan made it impossible to

draw any conclusion as to the effects of the splenectomy except in the interval before its administration. In this interval there was no evidence of more than temporary improvement. At the present time, April 24, six months after the operation, the patient, while looking better and feeling better, is just beginning to sit up.

**Studies in Pernicious Anemia.**—Dr. HERBERT C. MOFFITT of San Francisco had been able to collect 31 cases of splenectomy for pernicious anemia from the literature, and he reported eight which were done in San Francisco, one in his own service. The results from splenectomy had been variable. In eight cases death resulted either immediately or soon after operation. A number of other cases had not been improved. In still others reported in the literature surprising improvement had taken place. In his own case, paresthesia, which was obstinate before operation, disappeared at once afterward. There were other striking changes in the blood regeneration which followed soon after operation in many cases. He had had opportunity to study the spleens after operation in eight cases, and the picture was practically the same in all. Contrary to clinical observations, the weight of the spleen was considerably greater than normal, varying from 450 to 500, and from that point down to 350 to approach the normal of 280. Most observers recorded the size of the spleen in pernicious anemia as not increased, while operative results showed the spleen was considerably larger than normal. The recent work on splenectomy should not detract attention from the ultimate causes of the disease. The author mentioned some time ago the similarity between pernicious anemia in man and pernicious anemia in animals, such as horses. Since that time he had had opportunity to observe some cases in animals and to make sections from the liver and spleen in certain cases. The microscopic appearance of the spleen and liver in these cases was that noticed in the organs removed at the operation for pernicious anemia. From a spleen removed in January an emulsion was made and injected hypodermically into a horse, with no change in the anemia. The operation of splenectomy in horses was difficult. Many arteries went into the spleen and possibly the operation could not be successfully done. He had in mind tying the arteries of horses whose spleens were affected with pernicious anemia, and it would be interesting to observe whether, as in human cases, cutting off the circulation in horses would have any effect in stopping hyperhemolysis, which is characteristic of the disease in animals as it often is in human beings.

**Studies in Experimental Arteriosclerosis.**—Dr. I. ADLER of New York City presented a preliminary report summarizing briefly the results of some experiments on dogs that he had carried on for some time. Dogs were injected, partly intravenously, partly subcutaneously, with various substances, such as adrenalin, nicotin, lead, diphtheria toxin, pure cultures of different species of bacteria, all with absolutely negative results. In a further set of experiments dogs were fed with a number of substances, under varying conditions, and it was believed that some positive results were obtained, so that the aorta in some cases showed lesions which both microscopically as well as histologically were closely analogous, if not absolutely identical with human arteriosclerosis.

**Mitral Stenosis.**—Dr. R. C. CABOT of Boston related his observations on 200 cases of mitral stenosis before and after death. His studies had impressed him with the fact that mitral stenosis fell into four clinical groups: 1. The cardiac group, in which the symptoms were apparently mechanical, such as stasis, etc. 2. The septic group, in which the symptoms were those of an acute infectious disease. 3. The embolic group, in which out of a clear sky embolism of the brain or periphery appeared. 4. That group in which there were no symptoms whatever, and the patient died of some other disease or after an operation and the pathologist found mitral stenosis after death.

**Case of Recurrent Fever in Aortic Aneurysm.**—Dr. ALEXANDER MCPHEDRAN of Toronto reported the case of a woman, aged 36, of irregular life and habits, who entered the hospital October 18, 1913, complaining of pain in the right chest for about six weeks. She had recurrent fever about every seven or eight days. The aortic arch was dilated and showed a pulsating aneurysm in the first left intercostal space. The temperature became normal and remained so in January, and her general condition improved very much. She was treated with iodides, mercury, and salvarsan.

**Patent Ductus Arteriosus with Infective Pulmonary Endarteritis.**—Drs. W. F. HAMILTON and MAUDE E. ABBOTT of Montreal reported this case and drew the following conclusions: (1) This case illustrated in a remarkable manner what hitherto had not been fully emphasized, namely, that a vegetative process was commonly associated with congenital cardiac defects. (2) These vegetations in the present case, and probably in the majority of such processes occurring in conjunction with cardiac defects, were not a simple thrombosis of mechanical origin, with secondary infection supervening, but from their onset were inflammatory in character, the result of an invasion of the vessel wall by infective organisms at the seat of maximum strain. (3) The inflammatory process present in this case manifestly did not arise as a result of an embolic infection through the vaso vasorum, but began by the invasions of the intima at a single point, the pulmonary end of the ductus, which was probably the seat of maximum strain from the two combined causes, the eddying blood stream within its lumen, and the rigid calcareous gland which lay in close juxtaposition without. (4) The present, so far as they knew, was the only recorded case in which the ductus and pulmonary artery in the neighborhod were the sole seat of the disease and in which the pulmonary orifice of the ductus had been demonstrated to be the initial seat of the lesion.

Dr. W. S. THAYER of Baltimore had had a case very closely similar to the one related in which there was an increased area of dullness in the second and third interspaces, a thrill, and a prolonged murmur beginning in sympathy and lasting over diastole with an accentuated second pulmonic sound. The diagnosis was open ductus arteriosus. As time went on the patient developed paralysis of the left recurrent laryngeal nerve. The patient was sent to a well known radiologist who took an *x*-ray and in sending the plates back wrote a letter in which he made an exact diagnosis of the condition from his standpoint, stating, "this is an instance of mitral stenosis with dilatation of the left auricle, and pressure upon the recurrent laryngeal nerve," but it did not occur to the radiologist that there were other methods of making the diagnosis.

Dr. ABRAHAM JACOBI of New York City said that he had observed a baby only a few months old who was now a boy twelve years of age. His ductus had been closed nearly three years. The speaker saw him once or twice every year and always found the same symptoms, the murmur getting less and less marked until finally it disappeared not only from the carotids but also from the pulmonary artery from below up.

**Certain Tests of Renal Function.**—Dr. W. S. THAYER of Baltimore related eighteen instances of severe advanced chronic nephritis, and concluded that where he had been able to correlate the anatomical and clinical observations they tended to fortify and to verify his previous opinion that the phthalein test was a reliable one of considerable diagnostic and prognostic value, especially in the study of chronic nephritis.

Dr. CHARLES F. WITHINGTON of Boston reported several cases of nephritis. One of the patients, a man brought into the hospital unconscious, showed unmistakable symptoms or evidence of acute nephritis. There was a history of convulsions and of his being comatose. Twenty-four hours after he was brought in the phthalein output was 70 per cent. His condition proceeded to clear up and he went out about two weeks after he was brought in, showing a surprising phthalein output, although manifesting signs of nephritis.

Dr. JOSEPH L. MILLER of Chicago stated that a man came to the hospital, not very ill, in whose case a definite diagnosis of chronic interstitial nephritis was made. He was passing 2,000 c.c. of urine a day. He could not get a trace of phthalein through in two hours. In forty-eight hours and up to the time he went into coma, he passed a large amount of urine, and at the end of that time went into coma and died. Autopsy showed a high degree of interstitial nephritis.

Dr. THAYER said there were many instances of hydropic nephritis with very few grave subjective symptoms excepting the hydrops. One found sometimes large quantities of albumin and casts in the urine, yet there was perfectly normal renal function if we estimated it by these tests, excepting the question of salt retention.

**Syphilitic Nephritis.**—Drs. ALFRED STENGEL and J. HAROLD AUSTIN of Philadelphia in a joint paper stated they had examined the urine with the polarizing microscope fifty-eight times from forty-six cases. Of these

forty-six twenty-three showed nephritis with an abundance of albumin and casts in the urine. Of these twenty-three cases six had positive Wassermanns, three had strong presumptive evidence of syphilis, but no positive Wassermanns; fourteen had not the slightest evidence of syphilis. The six cases with positive Wassermanns all showed lipoids in the urine. The rest of the forty-six cases studied were made up in part of nephritis cases of the interstitial or arteriosclerotic types, with only traces of albumin in the urine and a few hyaline and granular casts, some with syphilis and some without, any number of cases of syphilis but with no nephritis, and any number of control cases with neither syphilis nor nephritis. None of these cases showed lipoids in the urine. One of the six syphilitic cases with nephritis showing lipoids in the urine had not received any mercury. They found of further interest the fact that of their last eighty-four cases of nephritis for forty-six cases there could be recognized from the histories such accepted etiological influences as infections, lead, alcohol, excessive work, exposure, senility, etc., but that for eighteen cases no such factors could be determined. Of these eighteen cases there existed in eight either an unquestionable history of syphilis or a positive Wasermann or both, and in six more of these cases no Wassermann had been secured. In order to determine whether the common experimental degenerative nephritides of animals would be associated with lipoids in the urine three rabbits were given uranium nephritis and one dog a chromate nephritis. The four experiments were negative; no lipoids were found in the urine. Further experiments with mercurial nephritis, phosphorus and chloroform lesions and syphilitic inoculations were in progress.

**X-Ray Evidence in Early and Latent Cancer of the Stomach.**—Drs. Franklin W. White and Ralph D. Leonard of Boston said their material consisted of 114 hospital and private cases suspected of having cancer of the stomach thoroughly examined within a year by clinical and *x*-ray methods. In forty cases cancer was proved; in sixty-six it was ruled out; in eight the diagnosis remained doubtful. The group of cases was studied to determine how far the *x*-ray evidence had helped to detect early or latent cancer. Recent cases were chosen because of recent improvements in *x*-ray technique. The *x*-ray evidence in early cancer was very scanty; in latent cancer it was abundant and important. In the group of operated cases of cancer a comparison of correct diagnosis before and after *x*-ray examination showed the latter distinctly higher.

**The Pathological Evidence of the Relationship between Gastric Ulcer and Gastric Carcinoma.**—Dr. Louis B. Wilson of Rochester, Minn., stated that any existing disagreement as to the relationship between gastric ulcer and gastric carcinoma depended on (1) failure to understand the pathological data; (2) inappreciation of the bearing on the clinical data; (3) failure to appreciate the correlation existing between the two. Small gastric ulcers were usually simple and large cauliflower cancers usually showed little evidence of previous ulceration, but between these two lay a large group of ulcerated lesions of the stomach, some of which were ulcers only and others of which resembled ulcers in all respects, except that in addition they also showed cancer. So far as the pathologist was concerned he could not positively distinguish, in many such specimens, between simple ulcer and ulcer plus cancer, except with a microscope. When in such a specimen showing cancerous areas no cancer cells were found in the base of the ulcer one was warranted in assuming that the ulcerative lesion preceded the cancer. A review now in progress of all the tissue removed from the stomach and duodenum in the Mayo clinic since 1905 showed that approximately 60 per cent. of the specimens which showed cancer gave more or less pathological evidence of the precedence of ulcer in the same area. Of the specimens of gastric tumors examined pathologically and diagnosed either cancer or cancer on ulcer there was agreement between the clinical diagnosis and the pathological diagnosis in more than 80 per cent. of the cases.

**The Inspiratory Exaggeration of the Dicrotic Wave in Pericarditis.**—Dr. Albert E. Taussig of St. Louis, Mo., stated that ordinarily, the dicrotic wave in the radial sphygmogram did not vary in size with the phase of respiration. In pericarditis, however, it became more or less exaggerated, sometimes greatly so, during inspiration. In all the cases studied from this point of view, the phenomenon was seen. Anatomical considerations rendered its occurrence readily explicable. It might have diagnostic significance.

**Intrauterine Amputation.**—Dr. George Dock of St. Louis, Mo., reported a case bearing on the pathology of so-called congenital amputation with *x*-rays and photographs.

**The Etiology of Some of the Infective Tropical Granulomata.**—Dr. Richard P. Strong of Boston stated that among the infective granulomata which occurred more commonly in certain tropical countries, which were perhaps of unusual interest from an etiological point of view, were verruga peruvinia, ulcerating granuloma of the pudenda, and frambesia. The relation of these forms to one another was considered. Verruga peruvinia and oroya fever had been considered to be merely different stages of the same disease, oroya fever having been regarded as the initial stage of the granulomatous verruga stage. The two diseases, however, were quite distinct and had a very different etiology. Verruga peruvinia was due to a virus which might be transmitted to some of the lower animals, while oroya fever owed its origin to a parasite of the red blood corpuscles. The two diseases also had a very different pathology. The etiology of ulcerating granuloma did not seem to be definitely determined. In view of the recent work in the transmission of the virus of verruga to some of the lower animals, it was recommended that more extensive experiments be carried out with the idea of transmitting ulcerating granuloma to monkeys.

**A Differential Study of Coccidioidal Disease and Blastomycosis.**—Drs. P. K. Brown and W. T. Cummins of San Francisco stated that cats and white rats were found to be markedly insusceptible to infection. Rabbits and guinea pigs appeared to be somewhat more susceptible to coccidioidal than blastomyecetic infection. Coccidioidal involvement was noted in two rabbits, while the cerebrospinal tissues remained unaffected in all animals in advanced disease. Passage through animals exalted the virulence of the organisms. Highly acid and alkaline agar offered but little inhibition to the growth of the organisms. There was profuse aerobic growth in, but no fermentation of, eighteen sugars. Fifty dyes were studied for their inhibiting effect upon the growth of the organisms. Crystal violet was found to be the most inhibitive and in concentration forty times greater than the minimum inhibitory dose, was not toxic for guinea pigs and white rats. They discussed the differentiation of the two diseases clinically, pathologically, and bacteriologically and by animal experimentation.

**The Influence of Benzol Inhalations on Experimental Pulmonary Tuberculosis in Rabbits.**—Dr. William Charles White of Pittsburgh stated that benzol C.H. was the best solvent for the fat portion of the tubercle bacillus. It extracted a greater percentage of fat than any other single solvent would take from the bacillary substance. Because benzol could be easily vaporized and utilized as an anesthetic, it was thought possible in this way to dissolve living tubercle bacilli after their entrance into the pulmonary capillary system by way of the ear vein and before the formation of the tubercle. It was hoped in this way to obtain a solution of all the living portions of the tubercle bacillus within the body and the possible development of a retardation of the process produced by a fatal dose of tubercle bacilli and the establishment of an immunity to a further dose of the organism. Contrary to the desire expressed in the theory, he found that in every instance whether the infecting tubercle bacilli were of low virulence or of high virulence, the resulting infection in rabbits was very much more severe in those treated by inhalation of benzol than in those infected with the same weight of infecting organism. The symptoms produced in rabbits by the inhalation of benzol were similar to those described by Torald Sollmann for the inhalation of gasoline vapors. Animals might be given benzol inhalations, 5 c.c. every second day for periods up to three and even four weeks without resulting in death. The resulting leucopenia varied very much, the lowest white cell count was 3,800 per cm. The red cell anemia was very variable, the lowest in our series being 3,600,000 per cm. The majority retained a normal red cell count. The blood smears and counts exhibited changes similar to those described for the injections of benzol by Selling and others. In all thirty-three animals were used; twelve controls and twenty-one treated. The pathological findings in many of these animals were very striking. In 30 per cent. of the treated animals, after receiving 5 c.c. inhalations of benzol every second day for three weeks, and

then being allowed to live two to three weeks longer, extreme enlargement of the spleen was found. In one instance the spleen measured 13 x 3.5 x 3 cms., and the circumference of its largest part was 9.5 cms. There was a large hemorrhage in the substance of this pleen. There was in all twenty-one treated animals but a single case of purpura with hemorrhages into the mucous membrane of the stomach and bowel. There were marked fatty changes both in the liver and the kidneys of the treated animals.

**Some Relations of the Brain and of the Olfactory Apparatus to the Processes of Immunity.**—Dr. HENRY SEWELL of Denver, Colo., drew the following conclusions from his experimental work on this subject: (1) Guinea pigs sensitized to horse serum may be desensitized by residence in a horse stable. (2) It was probable that this reaction might be rapidly achieved through the olfactory sense or more slowly by absorption through the respiratory membrane. (3) The period of anti-anaphylaxis was of less than two days' duration. (4) The converse of this, sensitization of normal guinea pigs in stable air he had not been able to achieve. (5) Removal of part of the brain of a sensitized guinea pig produced much more severe shock than the same amount of injury in a normal animal. (6) This shock was apt to be followed by a period of anti-anaphylaxis of short duration. (7) Section of the olfactory nerves within the cranial cavity preceding the brain operation by a day or more abolished the tendency to shock. (8) Such nerve section in the normal animal also seemed to reduce the shock arising from definite brain injury. Depression of the olfactory sense through cocaine and the resemblance of symptoms from poisoning with this drug to those of anaphylaxis were discussed. The body as a whole might be sensitized through the peripheral application of horse serum after a definite latent period which did not seem to be affected by previous general sensitization.

**The Normal Amount of Diastatic Ferment in the Urine and Feces and Its Variation in Diseases of the Pancreas.**—Dr. THOMAS R. BROWN of Baltimore stated that from his study of the diastase-content of urine and feces in normal and in certain pathological conditions, the following conclusions could be drawn: (1) In healthy individuals the diastase-content of the urine falls within quite definite limits. Markedly small amounts of this ferment in the urine, in the absence of renal changes, were suggestive, although not diagnostic, of pancreatic disease, but the real value of these normal limits would probably be in furnishing criteria in testing the renal function by the diastase output of the urine. (2) The stool, if rigorously exact methods are carried out as to food (milk), purgative employed, preservation of specimen, estimation of ferment, etc., also furnished a content within definite limits. He could not insist too strongly upon the procedure being exactly the same in all cases. The effect of waiting too long after the stool had been obtained before making the examination, the influence of variations in temperature in the place where it was kept, and of different laxatives and different foods, was so great as to render the results obtained by methods in which insistence upon such a rigorous technique had not been made of much less value. (3) Extensive carcinoma of the pancreas showed no diastase in the tube of least dilution in his method, and this absence of ferment should prove of help in the diagnosis of this condition. (4) In chronic pancreatitis diastase was present in the stool, but in markedly diminished amounts. (5) In achylia gastrica the diastase-content of the stool was practically normal in all the cases examined. This, in the first place, suggested that in the absence of hydrochloric acid some other method of pancreas invasion was called into play; and, in the second place, that the diarrhea met with in certain of these cases of achylia gastrica—the so-called gastrogenous diarrheas—was not of pancreatic origin. (6) If all the controllable factors were standardized, the results obtained by the study of the diastase-content of the stool should be of real value in the diagnosis of pancreatic disease and in the study of functional disturbances of this gland.

**Aconite as a Vasodilator.**—Dr. WILLIAM HANNA THOMSON of New York City stated that after many years of experience in the use of aconite in chronic interstitial nephritis, he regarded it as the most efficacious vasodilator which we possessed, when given systematically in full doses. Aconite thus administered reduced, at once, the blood pressure, produced a full and compressible pulse, and greatly increased the percentage of the elimination of urea in interstitial nephritis. The most important action of aconite, when administered in interstitial nephritis, was to increase the elimination of urea. The beneficial effects of aconite were particularly pronounced in mental derangements of the nature of melancholia with high blood pressure.

**The Subcutaneous Administration of Oxygen as a Therapeutic Measure.**—Dr. JOHN MCCRAE of Philadelphia stated that he had used oxygen in this way for the last two or three months and believed it was the rational method of administering it, and properly placed, it was useful. He had had occasion to employ it in a surgical case which had a severe operation. The patient loked as though he might die in a short time. His respiration was 60; he had extreme edema of the lungs, extreme pallor, profuse perspiration, and signs of impending death. With repeated injections of oxygen the man recovered. He had used oxygen in thirty cases and believed it should be a part of the armamentarium of the surgical operating room.

**Infectious and Toxic Forms of Transverse Myelitis.**—Dr. B. SACHS of New York City reported five cases of complete transverse myelitis. Of this number, four recovered completely, and one proved fatal. The first of these cases he reported two years ago with the idea that the transverse myelitis was due to the poliomyelitic virus, that statement being based on the fact that the case appeared during the epidemic of poliomyelitis in New York City, and in many respects it was similar to poliomyelitis. There was some peculiar form of infectious transverse myelitis which in four out of five cases led to recovery. The condition was more common than heretofore supposed and should receive further consideration.

**Epidemic of Streptococcus Sore Throat.**—Dr. JOSEPH A. CAPPS and Dr. J. D. DAVIS of Chicago described in a joint communication an epidemic of streptococcus sore throat in Jacksonville, Ill., which was traced to the milk of cows affected with streptococcic mastitis.

Dr. GEO. M. KOBER of Washington, D. C., pointed out that he made his first collection of milk-borne epidemics in 1894, and at that time was impressed with the studies made in England by Kline, Crookshank, and others in regard to so-called epidemics of scarlet fever which they attributed at that time to an inflammatory condition of the teat or udder of the animal. In analyzing the situation he concluded and ventured to express the opinion in 1895 that these were not true cases of scarlet fever, but typical instances of either staphylococcic or streptococcic infections, because he had seen a great many instances where an eruption similar to that observed in cases of scarlet fever was due to streptococcus infection.

With our present knowledge of milk-borne diseases, nothing short of pasteurization of milk would confer immunity from these infections.

Dr. R. C. CABOT of Boston asked what sort of an eruption it was.

Dr. CAPPS replied that it was erythematous. Four of the cases were described and diagnosed by very good clinicians as erysipelas.

**Pathogenesis of Poliomyelitis in the Light of Recent Research.**—Dr. SIMON FLEXNER of New York City stated that recent experimental studies on poliomyelitis confirmed the view that in man infection occurred through the upper respiratory tract, and that the virus passed to the central nervous organs by way of the cerebrospinal fluid, and not by way of the blood.

**Officers.**—The following officers were elected for the ensuing year: *President*, Dr. S. J. Meltzer, New York; *Vice-President*, Dr. Henry Sewell, Denver, Col.; *Secretary*, Dr. Geo. M. Kober, Washington, D. C., reelected; *Recorder*, Dr. Thomas McCrae, Philadelphia, reelected; *Treasurer*, Dr. J. P. Crozer Griffith, Philadelphia, reelected.

## NEW YORK ACADEMY OF MEDICINE.

*Stated Meeting, Held April 2, 1914.*

THE PRESIDENT, DR. WILLIAM M. POLK, IN THE CHAIR.

THE program was arranged by the Section on Dermatology.

**Modern Diagnostic Methods in Syphilis.**—Dr. JOHN A. FORDYCE read this paper and said that the present diagnostic methods of syphilis were those applied to the demonstration of the *Treponema pallidum* in a suspected lesion, the reaction of the blood to the Wassermann

test, the findings in the spinal fluid, and the luetin reaction. In estimating these diagnostic methods in the various stages of syphilis the importance of careful clinical training in recognizing the different stages of the disease must not be forgotten. Clinical observation and laboratory methods supplemented each other. He emphasized the necessity of careful clinical training as the great majority of practitioners either were not prepared to carry out the necessary laboratory examination or were situated away from centers affording such facilities. He called attention to the multiform character of the primary lesion and urged that every means be employed to make an early accurate diagnosis in order to abort the infection by intensive treatment while it is still local. Owing to its simplicity and rapidity the dark field illumination was the method of choice for demonstrating the spirochetæ pallida. They are usually fairly numerous where antiseptics have not been previously applied and in cutaneous chancre offered little difficulty in the recognition of the organism, but in the mouth greater difficulty was encountered in differentiating them from the spirocheta dentium. Where spirochetæ are not demonstrable and the clinical diagnosis is doubtful repeated Wassermann examinations should be made as in the great majority of cases the reaction was positive after the fourth week. Dr. Fordyce said that the original Wassermann was conceded to be superior to all modifications which had been devised, the only departure from the original method permissible being in the matter of antigens as it had been demonstrated that the use of alcoholic extracts of guinea-pig, human, and beef hearts fortified with cholesterin gave more delicate and more uniform results. This was particularly well illustrated in tertiary cases where the percentage of negative reactions with manifest symptoms had been markedly reduced. The diagnostic value of the Wassermann reaction in the primary stage was overshadowed by the demonstration of the spirochetæ in the lesion. In his experience the earliest reaction had appeared at the end of two weeks; the majority not until the fourth. He had under observation a large number of patients treated within two weeks after the appearance of the chancre with positive microscopic findings and a negative Wassermann in whom the affection had been aborted. Here the Wassermann was more important as a guide to the effect of treatment. In some patients at the end of two weeks a developing reaction might be observed. This might continue for two or more weeks, at the end of which time inhibition would be complete. During this stage of development sometimes a strong reaction might be provoked by an injection of salvarsan. He cited several cases to illustrate the foregoing points. In the secondary stage of syphilis with the outbreak of cutaneous and mucous membrane manifestations the reaction was positive in 100 per cent. of cases. This was a very important symptom as it was a deciding one between the secondary eruption of syphilis and other skin affections which simulated it and were sometimes puzzling even to the trained dermatologist. In the latent period of syphilis the only symptom was the positive Wassermann. Many of these cases showed strongly positive reactions during active treatment and it might be that we had fast or permanent fixation which we were unable to influence by repeated courses of treatment. Where a large amount of treatment had been administered it was well to let the patient rest for several months as it frequently happened that after intensive treatment the reaction gradually grew weaker for a period of months. In cases where with adequate treatment the reaction remained ±, or indeterminte, for a period of six months or longer it was advisable to give a provocative salvarsan injection. Should the reaction become stronger there was an indication for continuance of treatment. If it remained unchanged one might be justified in disregarding it. In tertiary cases with manifest lesions Dr. Fordyce found that about 95 per cent. gave positive reactions. The Wassermann reaction in tertiary syphilis was of great importance in differentiating it from other conditions, as tumors. This corroborative evidence was conclusive when the lesions were situated in the skin, but when the mucous membrane or viscera were involved the problem was more complex for the patient may have a carcinoma independent of his syphilitic lesions or it might be engrafted on a leucoplakia of the tongue or cheeks, several cases of which were cited. Dr. Fordyce also touched upon other forms of cutaneous disease which sometimes simulated gumma very closely as tuberculosis, sporotrichosis, blastomycosis, and persistent bromide and iodide eruptions. The reactivation of a negative Wassermann by an injection of salvarsan, as suggested by Gennerich and Milian, was now such a well known biological phenomenon that it had found a place in the routine of diagnosis and treatment of syphilis. A number of cases illustrative of the value, not only from a diagnostic standpoint, but in determining the cure of a patient were narrated. Referring to Noguchi's cutaneous reaction, Dr. Fordyce said it had perhaps found a place in latent and tertiary syphilis, but from his own experience the results with leutin were not sufficiently uniform to warrant its use at present except as supplementary to the Wassermann test. Dr. Fordyce said that great strides had been made in the diagnosis and treatment of syphilis since lumbar puncture was being more universally applied. It was not possible at the present time to give a characteristic serological picture for cerebrospinal lues, tabes, and paresis. Bearing in mind that there were transitional or borderland forms it was necessary to supplement the Wassermann findings with careful and minute clinical examinations. In tabes he had found the reaction of the blood positive in 66 2-3 per cent. of the cases. In the spinal fluid Nonne's Phase I and pleocytosis were usually marked in about 100 per cent. of well developed cases with active manifestations. The Wassermann reaction was positive with larger amounts of fluid to 1 c.c. and with 0.2 c.c. or less in about 20 per cent. In the early forms of the root type the serological picture might be practically negative. Whether these cases would give positive findings later on only further observation and time could tell. In the degenerative forms where all activity had subsided the results were negative. In taboparesis and paresis the serum reaction was positive in about 100 per cent. of the cases. In the fluid a positive Phase I and a variable lymphocytosis with a positive Wassermann reaction in larger amounts to 1 c.c. in 100 per cent. and with 0.2 c.c. or less in about 95 per cent. In cerebrospinal lues the reaction in the blood was positive in from 70 to 80 per cent. of the cases. Phase I was usually positive, pleocytosis was variable, complement fixation was positive in larger amounts, a smaller percentage fixing with 0.2. In cerebrospinal arteritis the blood might or might not give a positive reaction and the findings in the fluid might all be negative excepting the globulin reaction unless there was an accompanying meningitis.

**Modern Treatment of Syphilis.**—Dr. JEROME KINGSBURY presented this paper in which he stated that the present day treatment of syphilis might for convenience of presentation be considered under two heads: first, the methods employed for the removal of lesions; and, secondly, those now in vogue to obtain a permanent negative Wassermann reaction. The first was obviously the most important since we included as lesions not only syphilomata in the widest sense of the term, but also the secondary degenerative processes due indirectly to the spirochete. In discussing the various luetic manifestations, their relative importance, both clinical and sociological, should be fully appreciated. With this end in view, ignoring chronological sequence, the lesions of syphilis might be roughly divided into three groups. In the first were included the actively contagious lesions of the disease; in the second lesions that were of grave import to the patient, and in the third the relatively benign lesions. The lesions of the second and third group might be looked upon from a *clinical* standpoint as noncontagious, notwithstanding the fact that in nearly all of them living spirochetæ might be demonstrated. In considering the actively contagious lesions of syphilis the question of immediate prophylaxis was of prime importance. The practicing physician dealt with subjects with actual contagious lesions and it was his duty not only to sterilize these lesions in the shortest possible time, but also to control the patient during the period of possible contagious relapses. Speaking broadly, exposed lesions abounding in spirochetæ are peculiar to the early period of the disease. At this time the infected individual was of the greatest danger to the community, and intensive treatment was imperatively indicated. The most powerful symptomatic remedy at this time was unquestionably salvarsan. It was far superior to any other remedy in the degree of rapidity of healing of exposed lesions, with special reference to the chancer mucous patches and other moist lesions. Used in the early stages of the disease it shortened the contagious period by days and some-

times even by weeks. Naturally to secure rapid results only the intravenous method should be used. The method now used in preparing the solution of salvarsan was practically the same as that originally recommended by Ehrlich. At the present time, however, instead of 300 c.c. we use but from 150 to 180 c.c. of water. The technique of injection was largely a matter of choice. Some operators preferred to have the solution run into the vein by gravity, others inject it from a syringe. The simplest apparatus was generally the best. In very obese patients the salvarsan might be given intramuscularly or in some instances by enteroclysis. It was generally better, however, under local anesthesia, to dissect to a vein in the arm. The preparation and administration of neosalvarsan was so much simpler than that of salvarsan that many physicians preferred to use it rather than the older remedy. It was dose for dose, somewhat less potent than salvarsan. Five doses of neosalvarsan would seem to be required against four of salvarsan. The simplest method of administering neosalvarsan was devised by Aavant and first used in this country by Brayton. Concentrated solutions of neosalvarsan were injected into the vein from a 10 c.c. hand syringe. The needle might be attached to the syringe when inserted and its proper adjustment in the vein was shown by the flow of blood into the cylinder of the syringe, mixing with the solution. It was not necessary for the patient to assume a reclining position and often the tourniquet might be dispensed with. With infants and small children the neosalvarsan should be administered in appropriate doses by means of intramuscular injections, preferably in the buttocks. In syphilitic lesions that were of considerable gravity to the patient, lesions which if unchecked led to mutilation, invalidism and death, among which might be cited, gummatous infiltration and caries of the bones of the nose, frontal sinus, or hard palate, with at times great loss of substance, or impairment of function, intensive treatment was indicated. Salvarsan should be administered, but always in conjunction with mercury and often with iodine of potassium. In leucoplakia, which frequently underwent carcinomatous degeneration, salvarsan was occasionally useful. In gummatous infiltration of the tongue, however, better results were obtained with mercury and iodine of potassium than with salvarsan. In visceral syphilis mercury and salvarsan should be administered, but always in conjunction with iodine of potassium. In syphilitic astitis and arterosclerosis salvarsan had proved rather disappointing. It was in these specific diseases of the cardiovascular system that our best results were obtained with iodine of potassium. In paresis and tabies the injection into the subarachnoid space of neosalvarsan dissolved in the patient's own serum, while more or less experimental at present, offered at least in the early cases some prospect of cure. In cerebral syphilis, while the best symptomatic results were obtained with iodide of potassium, it was advisable to also administer mercury and salvarsan. In selected cases the iodide of potassium might be administered intravenously. The relatively benign lesions of syphilis were the late cutaneous manifestations of the disease. These lesions, except in the rarest instances, are non-contagious, and as they were practically never associated with lesions of the viscera or nervous system the importance of their removal was chiefly to relieve the patient of the annoyance of the disfigurement they caused, the principal ones being the cutaneous gummata, the nodular, circinate and serpiginous lesions and the familiar and rebellious syphilides of the palmar and plantar surfaces. Intensive treatment was always desirable in any stage of syphilis, but insofar as the removal of late cutaneous lesions was concerned, we might often accomplish this with oral medication and the efficacy of the old mixed treatment of a symptomatic remedy was well recognized. There were forms, however, of the palmar and plantar syphilides that would not respond to either mercury or iodide of potassium when administered by mouth and it was necessary to employ injections of either salvarsan or mercury. In some respects salvarsan is the most satisfactory and should be administered intravenously. Mercury, however, if given properly and in sufficient dosage would always remove these lesions. Calomel might be given intramuscularly or one of the soluble salts intravenously. From the foregoing it might appear that the treatment of syphilis was still regarded as a symptomatic one. As a matter of fact, however, the removal of lesions was merely the preliminary step and should always be supplemented by efforts to obtain a permanent negative Wassermann reaction. Our modern anti-luetic therapy was a very definite one—the complete destruction of the spirochete in all of their stages of development—notwithstanding the fact that a laboratory symptom was now substituted for a clinical one. The continuance of treatment in a patient presenting no lesions had for its object the prevention of later clinical manifestations of the disease. To attain this it was necessary for one to obtain a Wassermann reaction that would remain permanently negative, for the treatment of syphilis could not be considered eminently successful unless the patient was secured against relapse. In a case of early syphilis a series of six salvarsan injections should be given at intervals of a week or ten days. If neosalvarsan was employed the interval between injections might be shorter, but it was advisable to increase the number of injections to eight or nine. A series of salvarsan injections should always be followed by a course of mercury. Inunctions furnished a rapid method of introducing this remedy into the system, but most authorities preferred to administer mercury by intramuscular injections. Of the non-soluble salts calomel is the most active and intensive, but the salicylate of mercury was more generally used for routine injections. Injections of from two or three grains should be given weekly. A series of twenty injections of mercury should be followed by another series of salvarsan injections. Then more mercury, followed by another series of salvarsan injections. In theory and for the purpose of laboratory studies of the serum it was desirable to have an interval of a month or two between the serial injections. It was often unwise, however, to suspend treatment, especially during the first year. Vigorous treatment should be continued regardless of a negative Wassermann, and a break in the treatment frequently interfered with the active co-operation of the patient. It was time enough for intermittent treatment and serum tests during the second year of the disease. With intensive treatment in cases of early syphilis negative Wassermann reactions were readily obtained, and at present it seemed probable that in the majority of cases this very satisfactory serological condition would persist. In dealing with late cases presenting a strong positive Wassermann reaction the results of treatment were variable and often unsatisfactory. Salvarsan was frequently unable to influence this laboratory symptom. In cases where a strong positive reaction persists after a series of six or eight injections of salvarsan it was doubtful if the reaction could be influenced by a continuance of this remedy and these patients might be regarded as Wassermann-fast to salvarsan. It was in cases of this type that intensive mercurial treatment was indicated.

Dr. Abner Post of Boston said that the modern methods of diagnosis had put the study of syphilis upon a much higher plane than before. They had established the diagnosis in numberless cases that were without them obscure and doubtful. The discovery of spirochetæ in a suspected sore established the diagnosis—but the discovery of spirochetae had been followed by a condition which was to be regretted. It had led to the belief on the part of many, especially of those who had come into practice since the great discovery, that it was impossible to make a diagnosis of primary syphilis without their demonstration. Now it was perfectly possible to recognize a very large proportion of primary sores by their clinical attributes. Given a known exposure, an incubation longer than was needed for the appearance of any of the pus producing organisms, an innocent little erosion, which gradually became elevated upon a painless circumscribed and non-inflammatory growth beneath it, and which was accompanied by lymphatic glands in its immediate vicinity, which gradually and painlessly enlarged and you might be sure of a syphilitic primary lesion, and it was necessary to know such clinical aspects to recognize primary sores in unusual and unexpected localities in order that one might search for the spirochetae which should clinch the diagnosis for even the most sceptical. Again, the use of mercurial and other antiseptics rendered it not infrequently impossible to find spirochetes until the antiseptic had been suspended for a time, and clinical knowledge was extremely useful in such cases. Too much could not be said in favor of the dark stage, but one could hardly expect doctors who settled in the smaller towns to be forever on the lookout for spirochetae, and still with the modern facility of travel syphilis was being spread everywhere. The more the gross aspects of

syphilis were taught the less likely was he to be caught by some accidental outbreak, the less likely to inoculate himself from some unsuspected source. The dark stage and the stained specimen ought to be so used in teaching as to clinch the recognition of the clinical characteristics. The Wassermann reaction was one of the great discoveries of recent years. It was a very great blessing to all who were interested in the study of syphilis. It has certainly helped in the study of syphilis of the internal organs, but there was a certain small percentage of known syphilis which was not recognized or given a positive reaction by the Wassermann. Even the claim of the most advanced was that the particular antigen gave a positive reaction in a larger number of cases than any other. It must be confessed that his personal interest was largely fixed upon that small percentage of cases unrecognized by the serological test. With these cases in mind even the Wassermann test showed the absolute necessity for careful clinical study.

Under the circumstances it was a little difficult to believe that we had reached as yet an absolutely reliable serological test. The speaker emphasized the diagnostic possibilities that lay in the Roentgen rays. He believed we should yet come to search the skeleton of congenital syphilitics for evidence of syphilis exactly as we now looked over the skin and the lymphatics. They were accustomed to look at the bones which were tender or the seat of pain, but lesions were sometimes found in syphilitic children which were not suspected. They knew the deformities of the cranium and nasal bones. Graves of St. Louis had drawn attention to what he believed to be a characteristic deformity of the scapulae. It seemed only logical to look further for other evidence of imperfect growth or periosteal change. The same might be said of bone changes in cases of acquired syphilis of long standing. Changes in the bony system began just as early as those in the nervous system. The internists were also making good use of *x*-rays. The lungs, the stomach, the heart, were all now carefully studied by its aid. There is one other method of diagnosis which was so far only a hope, and that was the inoculation of rabbits. There was little in the present situation to encourage even a hope, but it was not an impossibility. It was but a short time that the use of animals in the study of syphilis had been possible at all; what manner of diagnostic use could be made of them remained to be seen.

The constant calls for aid in diagnosis that were made upon those who interested themselves especially with syphilis by men devoted to other branches were most encouraging.

They all know the value of "606." The doctor who refused to use it in early disease just as soon as he could make his diagnosis omitted the best means of absolutely cutting short the disease.

It had been his practice to use the drug before a diagnosis was possible, as, for instance, in the case of a young woman who had been exposed in such a manner that escape from the disease seemed impossible. But it should be recognized that the drug was a powerful and dangerous one, and when a man whose intimate friend had suffered from severe nervo-recidives preferred to take the chances of other treatment he could not feel like urging "606" very strongly. He also believed in the value of mercurials. They had been warned at first against the use of "606" in cardiac cases. That was before the number of cases of cardiac disease of syphilitic origin was recognized, and repeated small doses had helped to restore many such cases to active life, though by no means all subjected to such treatment. But there were some cases in which mercury deserved the preference, and "606" must be considered the adjunct. That was true in many cases of congenital syphilis, not the babies alone but later cases, the children with interstitial keratitis. The younger the child the better the mercurial acted. Some of them needed "606" in addition, but not all. The condemnation which was so freely bestowed upon the internal administration of mercurials was regrettable. It was not always the most effective way, but it had its value. If he were a military surgeon with his patients under control he doubted if he should use it, but with patients who traveled back and forth over the face of the earth it was a good way to continue treatment. It has an effective and good way of treating children. Personally, with a dispensary class of patients he preferred it to injection or inunction. There was an important fact to be remembered. It was only through differences of opinion that any progress was made. A world in which all doctors agreed would be a very slow and uninteresting one.

Dr. B. LAPOWSKI said that the solution of the question of the treatment of syphilis lay in experimental and laboratory studies, scrutinized by clinical observation. The new discoveries in the domain of syphilis gave a new impetus to the knowledge of syphilis. The whole world was bent at present on trying to find, by the light of the new discoveries, a firmer and sounder basis for future treatment than any which they had at present, and they owed a great gratitude and acknowledgement to Dr. Fordyce for his splendid work in this field, for his endeavors to bring before them the modern basis of treatment and diagnosis of syphilis. The search, the discovery and the establishment of such a basis should be of great benefit and of vital importance for the *future* generation of syphilitics. But the development of this basis was laden with danger for the *present* sufferers of primary and secondary syphilis, who supplied them with the material for their investigations. But by controlling and weighing the laboratory findings, by treasuring up clinical facts, they would make the actual, present application of the new methods more solid and seaworthy. It was in this spirit that he offered his few remarks.

The fundamental benefit of an early diagnosis, by the demonstration of the presence of the spirochetæ, before the seroreaction was positive, lay in the possibility of interfering with their remedies in a very early period, according to the maxim: "Frapper vite, frapper bien." But in his recommendations in this point the speaker was not modern enough, as a diagnosis was not necessary in order to start treatment. In order to act upon the maxim, start as soon as possible. The tendency was to treat all cases in which the slightest suspicion of specific infection was entertained at once, without waiting either for the demonstration of spirochete or positive seroreaction, relying upon the outcome of the seroreactions, which was to be regularly undertaken, to establish the lacking diagnosis, a positive seroreaction showing that there was an active virus, that was, that the patient had contracted syphilis, a negative seroreaction proving that the patient was free from the virus. And it is immaterial to the patient how he was freed from the virus, be it by early parasiticide action of the timely administered remedy, or owing to the fact of his never having had the virus. (Neisser.) The advice to examine the spinal liquid was of importance to establish a new symptom in the course of the development of syphilis, in order to treat more actively, to prevent the possibility of future involvement of the nervous system. This was of small importance for those physicians who always treated syphilis in a very active way (Cal. injections and inunctions) by the chronic intermittent method, who acted upon the same principle, only without having that symptom to support their principle. As to the treatment of syphilis, the modern method agreed in one main point, namely, the treatment should be very intensive, especially during the early period of syphilis, whether starting with salvarsan and continuing with active preparations of mercury (calomel. oleum cinereum, inunctions) or starting with mercury and continuing with salvarsan, considering salvarsan as secondary, additional, useful only in certain stages and conditions of the disease. Lately Dr. Mentberger collected 274 cases of death after salvarsan—41 in nonspecifics, 9 after subcutaneous injections, 21 after intramuscular and 196 after intravenous—and among those cases, up to 1914, there were only four cases from the American literature. The deaths occurred mostly in the secondary stages of syphilis, two in primary cases. If they collect all other cases, especially counting the cases of deaths in this country, including all cases of death, whether syphilitics or not, more than 400 can be counted. While during the whole century of administering mercury, only 70 cases of death occurred, and in many of these cases death could have been avoided (as embolism) by judicious care on the part of the physician. That salvarsan was a useful remedy was unquestionable, but the method of its intravenous application was of great danger, no matter how cautiously and carefully the physician applied the remedy. There was always a great risk which cannot be avoided.

Dr. WALTER J. HEIMANN said that to attempt to add anything to the very complete expositions of the diagnosis and treatment of syphilis heard this evening would be futile. One question, however, was raised

in the discussion which, it seemed to him, merited further consideration, namely, the deaths and cases of poisoning due to the use of salvarsan. The gentleman who preceded him sounded an alarming note in his remarks on this matter. He personally had witnessed a fatality, which he could explain on no other basis that that of the toxicity of the drug. He mentioned that Gaucher had compiled a series of two hundred cases from the literature of death from salvarsan. The speaker himself had been able to find as many more, bringing the total up to about four hundred on the continent of Europe. At the same time only four cases had been reported in the United States and Canada. This disparity was ascribed to the fact that such fatalities have been suppressed in the literature of the new world. Assuming, for the sake of argument, that there might have been a hundred more deaths in America, they still had a comparatively small total throughout the civilized world, considering the million or two injections already given. According to the statistics presented by the previous speaker, only seventy deaths could be ascribed to mercury in the entire literature of syphilis, which seemed to prove that the use of salvarsan should be abandoned. On closer study of the facts, however, he believed that the blame for these deaths could be traced to other causes. In the first place in a review of the types of cases treated were found many patients suffering with aortic aneurism, aortic insufficiency, specific renal arteriosclerosis, tabes, paresis, and other serious luetic lesions of the central nervous system. Such cases were prone to sudden death very often without any ascertainable reason. Why, then, should the salvarsan be held responsible, *per se*, for these deaths, if they occurred as a coincidence after an injection. In the second place, without in the least wishing to challenge the ability or standing of the authorities who reported these cases, another point of view might be presented which might throw light upon this unfortunate question. The bulk of all these injections was given in the large medical centers of the world, very few deaths having been reported, excepting from the better known French and Austrian clinics. From what the speaker had seen of the Hôpital St. Louis in Paris and the Allgemeines Krankenhaus in Vienna, so far as the departments of dermatology were concerned, he was struck by their filthiness so forcibly that it was impossible for him to conceive of surgical asepsis in such an environment. He believed that this would account for many of the deaths reported. In the larger German and Swiss clinics, which were scrupulously clean and properly equipped, according to our modern lights, there had been very few, if any deaths. It must be further borne in mind that in treating the later manifestations of syphilis with so potent a drug one might often suddenly overthrow the nicely adjusted metabolic balance to which the patient has gradually accommodated himself. Thus, they might in certain instances cause fatalities. This, however, was less a fault of the drug than of those who did not yet know all that was to be known about its use. This type of therapy was still comparatively new and they had not yet entirely exhausted their list of indications and contra-indications. In the meantime, it seems to him that the use of salvarsan was anything but dangerous, particularly when one considered the risks of inadequately treated syphilis, both to the individual and to the community.

## THE MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

*Stated Meeting, Held April* 28, 1914.

THE PRESIDENT, DR. T. PASSMORE BERENS, IN THE CHAIR.

**Surgical Replacement of the Prolapsed Kidney.**—Dr. DOUGAL BISSELL presented this paper which he illustrated by lantern slides. He said that in discussing the surgical problem of permanent replacement of the prolapsed kidney, the approach to the organ demanded their first attention. The posterior or lumbar route was now generally selected, but the technique of approach varied, and had not yet been standardized. In the technique which he advocated the initial incision began over the twelfth rib, about one and one-half to two inches from the spine, a little above and to the inner side of the angle formed by the last rib and the erector spinæ, or at a point immediately above the last digitation of the serratus posticus inferior. It extended downwards on a line parallel with the general direction of attachment of the latissimus dorsi to the erector spinæ and the lumbar fasca, and terminating about one-half an inch from the crest of the ilium, and 10 cm. (4 inches) from the spine. The next incision was made along the line of attachment of the aponeurosis of the latissimus dorsi to the erector spinæ. The lumbar fascia was completely exposed when the lumbar portion of the latissimus dorsi was thus transferred to the outer margin of the wound. The lumbar fascis was then incised at its upper portion on a line parallel to and immediately below the twelfth rib and the incision extended as necessity demanded. The lower area of the transversalis portion of the intraabdominal fascia was thus exposed. By means of lantern slides Dr. Bissell showed the technique employed and spoke of the advantages of this technique as follows: (1) The approach to the kidney necessitated the least injury to the tissues encountered. It was the most direct route and facilitated deep manipulation. (2) The sustaining sutures encircled both poles, and insured immobility until firm union had taken place. Their high placement in the tissues of the back insured a practically normal position of the organ. (3) The kidney area exposed for attachment was the most extensive surface available, and so situated as to permit the kidney being anchored in normal, anatomical relationship. (4) In closing the wound only a minimum amount of the simplest suture material was required, and the replacement of the tissues was absolutely anatomical. Dr. LEWIS STEPHEN PILCHER said that twenty-four years ago, in 1890, when Dr. O. B. Douglas was President of the Medical Society of the County of New York, and who was present at this meeting seated at Dr. Berens's right hand, he took part in a discussion of the subject of nephropexy which took place in the American Medical Association. At that time it was a new subject. Gradually there occurred to their minds the possibility of relief by fixing a movable kidney and this possibility went through the profession. As a result of that discussion there were fixed in his mind certain principles both of technique and diagnosis which had guided him ever since. He was glad to find that the experience and study of Dr. Bissell had reached the same point that he had himself so long occupied. Wherever one found a loosened kidney, attack it. There had been a furor of fixation of the kidney among surgeons, at least a part of the time, since 1890. As a result there had been many disappointments and gradually the pendulum had swung back as though there had been danger of abandoning this most valuable surgical procedure. It was well that attention should be called to this today and with force. At present the surgical mind was occupied with the subject of ptosis and in a larger field than the kidney itself. They now realized that ptosis of the kidney in many instances was only a part of a generalized ptosis. Was it not true that when they were face to face with a movable kidney that they were uncertain whether other parts should not be attacked rather than the kidney itself. He has persuaded that in many instances fixation of the kidney might be assumed the important part in the relief of the patient. Colonic ptosis and gastroptosis occupied their minds to the exclusion of everything else. The relation between the colon and the kidney was very intimate. He was inclined to think that as time went on the pendulum would swing again. He believed there was a place for nephropexy in rational surgery.

Dr. ARNOLD STURMDORF said that to judge and appreciate Dr. Bissel's contribution to the surgical correction of nephroptosis, two fundamental conceptions that had crystallized from a maze of controversy must be accepted. First, we must recognize the existence of a pathological nephroptosis as a clinical entity. Whether such a nephroptosis was part of a general enteroptosis or not, the fact remained that the prolapse of the kidney might be the activating factor in the whole symptom-complex and thus determine our therapeutic aim. Secondly, that a correct surgical procedure was capable of reestablishing and maintaining the distorted kidney topography and relieving the patient. It was known that the functional disturbances resulting from general enteroptosis were manifested largely in the right abdominal cavity. The anatomical relations of the right kidney to the duodenum and hepatic flexure make it very evident that any topographic distortion of such relation must of necessity present a symptom-complex involving all or any of these correlated organs. Furthermore, recent pyelographic studies have shown the

destructive influence on the kidney parenchyma of even slight and intermittent kinks in the ureter, so that the necessity for a correct reposition and retention of a prolapsed kidney could not longer be questioned. Most, if not all, of our previous operative measures for the correction of this condition were based upon a faulty conception of normal kidney support. They had searched for ligaments where there were none and ignored the displacing factors. He could not enter here into the dynamics of intra-abdominal pressure and would briefly state that the kidneys lay in shallow troughs on either side of the spinal column known as the renal or paravertebral fossæ, their convex posterior surfaces fitting into these shallow concavities as one saucer may rest in another—in which position they are maintained principally by the centrifugal force of intra-abdominal pressure.

If the kidneys were transfixed through the back of a vertically suspended cadaver, then the abdomen opened and the transfixing needles removed, the kidneys descended several inches. These facts were unrecognized or ignored in all previous operations and in addition, it was taught that it was the mobility and not the position of the kidney that caused the trouble. In kidney ptosis, the skeletal habitus showed the paravertebral fossæ as too shallow and consequently we must overcome this abnormality by substituting adhesion for cohesion of the kidney, but such adhesion must fix the kidney at the normal level, in its normal relations without angulating the ureter. Dr. Bissel's operation marks an epoch in the evolution of nephropexy, inasmuch as it is based upon correct principles and aims at an accurate restoration of normal topography; its advantages which were emphasized were that it did not depend upon an independable flap of capsular tissue for suspension; does not denude the anterior surface of the kidney and that it elevates the kidney to its normal level where it is safe from all expulsive influences. In proper cases it was permanently curative in its results.

**A New Operative Treatment for Selected Cases of Spastic Paralysis.**—Dr. WILLIAM SHARPE, together with Dr. FARRELL wished to offer a new operative treatment for selected cases of spastic paralysis in children, and the paper was merely a report of the operative treatment of 43 cases of spastic paralysis showing intracranial pressure by an ophthalmological examination. These 43 operated cases were the ones selected as being suitable for the operation from the examination of 127 cases of spastic paralysis, i.e., one in every three cases examined. Their results had been so gratifying that they felt justified in presenting the progress of the cases treated by them up to the present time. He emphasized the following facts: First, that they were not operating upon the mentally deficient, the constitutionally inferior and idiots in the hope of restoring them to a normal mentality. Second, that they were not operating upon microcephalic children in the belief that the brain would develop and become normal by enlarging their cranial capacity, a belief long ago exploded. Third, that they were not operating upon cases of spastic paralysis due to a lack of development and malformation of the cortex of the brain and the pyramidal tracts, cases forming at least one-half of the total number of spastic paralysis, the so-called Little's Disease, in which a cranial operation would do no good and from the very pathology of the condition a cranial operation could be of no benefit to the patient. On the other hand, they were operating upon those cases of spastic paralysis giving a history of difficult labor with or without instruments, and upon opthalmoscopic examination; the definite signs of increased intracranial pressure were to be seen upon the fundus of the eye. The most satisfactory and desirable cases for operation were the ones with no impairment of the mentality, but these cases were rare when there was intracranial pressure present; much more commonly did they find a more normal mentality in these cases of lack of development and malformation of the pyramidal tracts, unless very extensive. The condition of spastic paralysis resulted most frequently from a lesion of the brain occurring before birth, during birth, or shortly after birth. It was characterized by more or less complete paralysis of the part affected, and was associated with a stiffness or spasticity depending upon the extent of the involvement of the pyramidal tract; this hypertonicity produced muscular contractures and deformities, usually flexor in type, with a corresponding overstretching of the opposing muscular groups, usually the extensors. One of the most common lesions of the brain producing spastic paralysis was that of intracranial hemorrhage of the newborn. It was of venous origin most frequently. According to the extent and pressure of a hemorrhagic clot upon the cortical surface did they find clinically the signs of such interference of the pyramidal tract; if over the upper portion of both motor areas, then both legs were affected, and a spastic diplegia resulted. Intracranial lesions due to the various forms of hemorrhage comprise about 70 per cent. of the cases of spastic paralysis in children; whereas, lack of development and malformation of the cortex and pyramidal tracts, and that group of spastic cases due to a meningo-encephalitis complicating measles and scarlet fever constituted most of the remaining 30 per cent. of the cases. The treatment of spastic paralysis had been most discouraging and unsatisfactory. During the past few years, the treatment had been directed towards an improvement of the results of the central intracranial lesions upon the extremities, and it had been a most discouraging field of work. The operations which had been used in the past and were being used to improve the condition of spastic paralysis were only of temporary benefit. It occurred to him why not do a decompression operation in those selected cases of spastic paralysis having a possible hemorrhage on the brain and showing any signs of intracranial pressure; and so he began having the eyes of spastic children examined carefully with the ophthalmoscope for signs of intracranial pressure. He had operated upon 43 cases, most of them being of the extreme type, and the results had been gratifying. Of these 43 cases, 17 were diplegics, both arms and legs being affected, 11 were paraplegic, only the legs being involved, while the remaining 15 cases were hemiplegic. Epilepsy in its various forms was present in 16 of the 43 cases. Five of their operated cases had died; each of these was under two years of age, of the extreme diplegic type, emaciated and therefore very poor operative risks. The improvement in their selected cases for operation was very marked and they believed that cranial decompression was indicated in those cases of spastic paralysis showing intracranial pressure by the ophthalmoscopic examination. This operation was not a formidable one for one trained in cranial surgery. The anesthetic should be administered by an expert. Dr. Sharpe showed some moving pictures taken of the patients before operation and at regular intervals after operation, in order that the impairment of posture and gait might be accurately recorded.

Dr. CHARLES S. HUNT said that to err in anesthesia was a most serious matter, for it might be said that the patient under the influence of anesthetic was on the borderline of life and death, and one had no more right to jeopardize that life than to take life. Yet, day in and day out, that chance was taken as was well known by our lax laws and methods controlling anesthesia. Anesthetic deaths were too numerous today for the advancement we had made in this branch of medicine and most of these fatalities were due to errors of judgment in selecting a suitable method and agent for that special case. One hesitated to present anything not used in the everyday routine of anesthesia for fear of further confusion. It seemed that each man had a method all his own and the only one that should be used. The use of oxygen with ether and chloroform was not new, and attention was called to it again that its true worth might be recognized. After a year's work with the heated ether vapor with oxygen in brain and spinal surgery, the writer felt justified in stating that they had had much more satisfactory results to the patient, the surgeon and the anesthetist than from any other method that he had tried. They had used the heated oxygenated ether vapor in the series of cases shown and had obtained much more satisfactory results than by vaporizing the ether by the foot pump. Any method that takes the chill from the ether vapor in transit to the patient's lungs causes less irritation to the respiratory mucous membrane than vapor not so treated, as was shown by less secretion, cough, and respiratory troubles. The combined use of oxygen and heated vapor lessened the possibility of any severe respiratory shock and permitted one to obtain ether tension in the blood and tissues with a far less toxic and irritating agent which did less permanent damage to lungs and kidneys than a cold straight ether vapor. The speaker had used the heated oxygenated ether vapor in patients with kidney lesions, with bronchitis and fever, and in two cases with a history of pulmonary tuberculosis in which it was not possible to use nitrous oxide and oxygen on account of

the nature of the operation. Oxygen had made nitrous oxide a much safer anesthetic than in its pure state of mixed with air. It was far more important with chloroform and ether, the former taking up 40 per cent. of oxygen from the blood, ether less. From clinical observations he assumed that the oxygen content of the blood was very little disturbed where oxygen was used to vaporize ether. In most of our vapor appliances the ether bottle was not large enough to meet all the requirements. This had led him to use a sixteen ounce bottle, using a half a pound of ether instead of a quarter of a pound in a six or eight ounce bottle. With the large bottle there was more ether surface, hence more vapor. Heated oxygen ether vapor had advantages in obstetrics both for the infant and the mother. The apparatus used was so simple that the writer said he hesitated to present it, but its efficacy was its redeeming feature. He had a case which contained the sixteen ounce ether bottle, a large chloroform bottle and the heater. The case was hung on a 200-gallon oxygan tank and connected. A long rubber tubing permitted the anesthetist to be away from the operative field. The face and head being covered with sterile sheets, the guides for the anesthetist were the respiration, pulse and capillary circulation under the finger nails. If the patient was not doing well the face and eyes could be observed with very little disturbance. The author thought he might be criticized for not working with a definite percentage of vapor and for giving up automatic devices, but said that the one thing he had learned was to allow the patient to be the guide as to the percentage and the amount used. There was one other point he wished to make and that was with regard to the position of the head in brain surgery. If the Richardson mastoid block was one used the old sand bags would be discarded.

Dr. RUSSELL HIBBS said that he had followed Dr. Sharpe's work and he was sure with his experience in spastic paralysis many would be relieved of their distressing condition. The cases that he had followed had improved very much and just how much was due to the operation and how much to the after care he could not say.

## Books Received.

*The* MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

BIOCHEMIC DRUG ASSAY METHODS, with Special Reference to the Pharmacodynamic Standardization of Drugs. By PAUL S. PITTENGER, Ph.G., Ph.C., Phar.D. Edited by F. E. Stewart, M.D., Ph.G. Cloth; price, $1.50 net; illustrated; 158 pages. P. Blakiston's Son & Company, Philadelphia.

CONSIDÉRATIONS BIOLOGIQUES SUR LE CANCER. Par FELIX LE DANTEC. Paper; price, 1 franc; 53 pages. A. Poinat, Paris.

DIE GONORRHOE DES WEIBES. Für Die Praxis Dargestellt. By Prof. Dr. F. FROMME. Paper; 56 pages; price, 2 Mks. S. Karger, Berlin.

DIE STÖRUNGEN DES VERDAUUNGSAPPARATES. By Dr. HANS HERZ. Paper; price Mk. 9. S. Karger, Berlin.

ZUR PROGNOSE UND AETIOLOGIE DER KINDER-HYSTERIE. By Dr. A. TOBIAS, mit einem Vorwort. By Prof. Dr. E. FEER. Paper; price Mk. 3.50; 112 pages. S. Karger, Berlin.

NERVÖS. Zwanzig Gespräche Zwischen Arzt und Patient. Von Dr. LUDWIG SCHOLZ. Paper; price Mk. 5; 188 pages. S. Karger, Berlin.

URSACHEN UND WESEN ANGEBORENER DIATHESEN. Von. Dr. HANS ECKERT. Paper; price Mk. 3.50; 68 pages. S. Karger, Berlin.

PSYCHIATRISCHE VORTRÄGE FÜR ÄRZTE, ERZIEHER UND ELTERN. by Prof. Dr. G. ANTON. Paper; price Mk. 2.40; 91 pages. S. Karger, Berlin.

PROCEEDINGS OF THIRD ANNUAL MEETING OF NATIONAL ASSOCIATION OF MANUFACTURERS OF MEDICINAL PRODUCTS. Held at the Waldorf-Astoria Hotel, February 10 and 11, 1914. Cloth; illustrated; 219 pages; 1914.

THE FUNDAMENTAL BASIS OF NUTRITION. By GRAHAM LUSK. Cloth; price 50c. net; 62 pages. Yale University Press, New Haven, Conn

## Therapeutic Hints.

**Iodine in the Treatment of Plague.**—A correspondent in an Indian paper calls attention to a simple method of treatment of bubonic plague, which treatment is said to be quite efficacious. The patient is given a dose of castor oil and then from five to seven drops of tincture of iodine in a little water. The buboes are painted with tincture of iodine. A milk diet is given. The following morning there are administered two drops of tincture of iodine in a little water. Quinine is given if fever is present. This method of treatment was employed in nine cases of plague, all of which recovered. At the time during which these cases were under treatment there was an outbreak of a virulent type of plague in the town in which these cases occurred and 500 deaths were recorded. Practically the same method of treatment had previously been employed in 51 cases of plague with 50 recoveries.

**The Prevention of Bichloride of Mercury Poisoning.**—W. E. Fitch suggests that the bichloride of mercury tablets that are sold to the laity should contain, in addition to 7 3/10 grains of corrosive sublimate and 7 7/10 grains of ammonium chloride, 1¼ grains of tartar emetic. It is claimed that the last drug will produce vomiting before the bichloride of mercury is absorbed and before it exerts its irritant action.—*Pediatrics*, June, 1914.

**Calcium Chloride in Erysipelas.**—S. Kawakami reports that he has obtained good results in the treatment of erysipelas by means of the injection of a 1 per cent. solution of calcium chloride. The author's experience comprised forty cases. There were injected from 20 to 50 cubic centimeters of the solution, the usual dose being from 20 to 30 cubic centimeters. The size of the dose was regulated according to the patient's strength and the severity of the disease. After the injection the patient generally felt warm and in rare instances experienced a transient palpitation of the heart. At times there were sweating, fever, thirst, general weakness, etc., but in a few hours the patient generally felt comfortable. A rare complication was diarrhea. The local signs markedly improved, the course of the disease was shortened and a speedy recovery ensued.—*Sei-i-Kwai Medical Journal.*

**The Treatment of Chorea.**—René Bénard notes that the medicinal treatment of this condition is most varied. Marfan has advocated the use of salicylate of sodium in such large doses as from 3 to 7 grams. The two most important drugs in chorea are antipyrine and arsenic. Comby gives the former in doses of 0.50 gram or more. His formulas are as follows:

℞ Antipyrine, 10 grams.
Simple syrup, 190 c.c.
Spirit of peppermint, 1 gram

or

℞ Antipyrine, 10 grams.
Extract of licorice,
Glycerin, aa, 15 grams.
Distilled water q.s. ad 150 c.c.

The dose of either of the above is one tablespoonful, which contains in the former 0.80 gram and in the latter 1 gram of antipyrine.

If the attack of chorea does not respond to the use of antipyrine, one may then resort to arsenic.—*Bulletin Général de Thérapeutique.*

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## Original Articles.

### A WORD OF CAUTION CONCERNING PALPATION UNDER THE FLUORESCENT SCREEN.

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BATTLE CREEK, MICHIGAN.

ROENTGENOLOGIST BATTLE CREEK (MICHIGAN) SANITARIUM AND ST. LUKE'S HOSPITAL, CHICAGO.

THE importance of an *x*-ray examination in the diagnostics of internal medicine, so well recognized and practised in Europe for a decade or more, is now also receiving merited appreciation in this country. Those fully acquainted with the details of technique of European roentgenologists realize that *x*-ray work, as practised on the continent, especially in relation to internal medicine, is essentially fluoroscopic. The making of plates and prints is a matter of very minor consequence in the average continental roentgen examining department. In America, on the contrary, *x*-ray examinations have, since the first, been roentgenographic rather than roentgenoscopic. It is true that pioneer work in fluoroscopy was done in this country. Pioneer fluoroscopy of the chest was practised by Dr. Francis H. Williams of Boston. But the sad experiences of many early pioneers in fluoroscopic work gave justly a decided setback to the development of the screen method of *x*-ray examinations until such time as proper protection could be afforded the roentgen examiner.

It seems that day has arrived. Properly protected instruments for fluoroscopic examinations are now available. It is probably impossible to produce a practical instrument which will *absolutely* protect the operator from the influence of

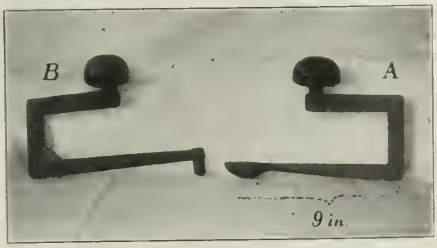


FIG. 1.—A, Holzknecht's "palpatorium" or "distinctor"; B, author's modification of the Holzknecht palpatorium.

the *x*-ray, but it seems that *practical* and sufficient protection is now available.

The purpose of this paper is not to discuss the relative value of roentgenography and roentgenoscopy. In the study of fractures and in the recognition and localization of calculi and foreign bodies, roentgenography is not only the more reliable, but it also affords the necessary permanent records of the case. In the study of disease of the thorax, the plate records are desirable and often necessary for interpretation and comparison with the other clinical findings. In the study of the

FIG. 2.—Shows the method of applying the distinctor to the fluorescent screen. The screen is held vertical in order to illustrate the position better.

alimentary tract, however, fluoroscopy is the method of choice. The roentgenogram furnishes a representation of the static conditions present, the shape (at the moment) and the position, but, of far greater importance in the majority of cases, roentgenoscopy furnishes needed data concerning mobility, motility, and other questions relating to function which by roentgenograms alone either can not be shown at all or only with difficulty and at considerable expense. After a large experience in roentgenographic and roentgenoscopic examination of the alimentary tract, the writer can truly say that, with the exception of gallstone and duodenal ulcer cases, in comparatively few instances have the roentgenograms added any material fact of importance to the roentgenoscopic findings.

One of the most important advantages of the fluoroscopic method is the possibility of guided palpation under fluorescent screen. This may be accomplished by the hand or by some mechanical "palpatorium" not opaque to the *x*-ray. Palpation with the bare hand cannot be too strongly condemned. A few of the more foolhardy are content with only the protection afforded by a leather glove. More nearly approaching satisfactory protection to the palpating hand is the use of a heavily leaded

rubber glove. Even this, however, does not afford complete protection as can be easily demonstrated by making a röntgenogram of the gloved hand with an ordinary tube such as is used for fluoroscopic work. Of course, the ray which reaches the examiner's

Fig. 3.—Shows the palpator in use. The arrow points to the examiner's right hand, which is upon the handle of the palpator.

hand is filtered through the aluminum or leather filter which should always be interposed between the tube and the patient, the leather, aluminum or other material of which the table top is composed, the body of the patient and the material of the glove. It may be contended with some reason that this is sufficient protection, but for complete safety, one should palpate with a spoon or some similar device.

Among the chief purposes of palpation are the determination of mobility, relation of various shadows, and the identification of points of pain on pressure in relation to the bismuth shadows. For

Fig. 4.—Bismuth-filled colon twenty-four hours following the bismuth meal. Notice that the two legs of the splenic loop lie very closely together, and, in view of the history, it is desirable to know whether or not there are adhesions about the bowel which may have an influence in causing constipation. See Figure 5.

this means a mechanical palpator may be employed. Fig. 1 shows the wooden "palpatorium" or distinctor first suggested by Holzknecht. This wooden spoon with various modifications the writer has employed ever since its description by Holzknecht and he considers it an indispensable part of his instrumentarium. This instrument has such shape that the bowl of the spoon can be placed beneath the screen while the handle is on the upper side, where the holding hand may be further protected

Fig. 5.—Same case as Figure 4, except that the Holzknecht spoon is applied separating the left half of the transverse colon from the descending in order to demonstrate the mobility of the parts. The arrows point to the area of decreased density due to pressure of the spoon. This illustrates the value of compression, as in search for urinary stone, etc.

by the lead glass which backs the fluorescent screen. A glance at the accompanying cuts will demonstrate

Fig. 6.—Roentgenogram of the right lower quadrant of the abdomen showing the cecum, ascending colon, and part of the transverse. The crest of the ilium is also easily outlined. The arrows point to the clear area made by pressure of the palpator, with the appendix showing in the middle of the clear area

in a moment the advantages of a palpator of this sort. Whether or not neighboring loops of bowel can be easily separated, the mobility of the cecum, the appendix, the transverse colon, the pylorus, the descending colon, are all points which may be studied by the aid of the palpatorium just as well as by manual palpation.

The writer has constructed a modification of the Holzknecht distinctor which is frequently preferable to the Holzknecht spoon. This consists of a wooden finger-like projection which replaces the bowl of the spoon. A brass tack or other bit of metal is driven into the tip of the "finger" so that its exact location may be easily seen. This modification of the palpatorium is of service especially for the identification of points of pain on pressure.

Only those who have experienced the satisfaction of palpating the bismuth-filled stomach or bowel under the fluorescent screen can fully appreciate visualized abdominal palpation under fluoroscopic guidance, but adequate protection must be insured before such palpation can be practised. Unless the greatest caution is observed to insure proper protection in roentgenoscopic work, great suffering and even loss of life may result from the wave of enthusiasm for fluoroscopic *x*-ray work which is now sweeping over this country.

No one should infer from the above remarks that ordinary roentgenographic work is free from danger to the roentgenologist. It is a comparatively simple matter, when the problem is intelligently attacked, to secure protection against two to five milliamperes of current, which is as much as anyone ever uses for fluoroscopic work. But in roentgenographic work, where forty or fifty or even more milliamperes of current are employed, protection must be proportionately more secure.

## TRIGGER FINGER, ITS CAUSE AND MECHANISM.

By ADONIRAM B. JUDSON, M.D.,

NEW YORK.

A PROFESSIONAL man, 76 years old, had an attack of arthritis in the fingers of both hands in June, 1913, with resulting trigger finger in the proximal phalangeal joint of the middle finger of the right hand, with swelling and deformity and stiffness of the joints of the middle and ring fingers. These results are still present. Motion past the right angle in either flexion or extension develops a painful snap, or jerk. This may be described as a momentary hesitation followed by a sudden acceleration. The jerk is more severe after the joint has been undisturbed for some time, and especially on waking in the morning. After it has been repeated a number of times for experiment or observation it is painless and comparatively slight. It is never entirely absent. When the hand is quiet there is no pain except what is felt in chronic arthritis on pressure or when motion is forced beyond the point of comfort. Many of the uses of the hand are interfered with. A pencil cannot be sharpened in the usual way by flexion and extension of the fingers. It also impedes writing and sewing. A woman thus affected said that a needle in her fingers seemed as large as a pencil. Other manual movements are at times brought to a sudden stop in a surprising, inconvenient, and more or less painful way. The momentary pain is sometimes very severe.

Cases of this kind have been occasionally reported and they have given rise to an extensive literature devoted largely to cause and mechanism. This leads to rather delicate ground. A recent writer withholds assent from certain theories declared by him to be "weird," and then proceeds to advocate one still more elusive and mysterious. Foreign writers also have developed decided differences of opinion. One declares that the presence of a node on a tendon cannot account for the peculiar action because no nodes are to be found, which leads another to remark that his predecessor did not know how to examine. It is necessary therefore to move carefully along this path. It may be stated incidentally that the sensation of a node moving with a tendon may be felt by pressing not only on the head of the third metacarpal bone but also on the lower end of the radius in the wrist.

The peculiar action of a trigger finger resembles that seen when a pocket knife is opened or shut. Movement is smooth till a square shoulder at the near end of the blade presents an obstacle which retards motion till a certain point is reached when motion is accelerated with a jerk. A counterpart of this obstacle may perhaps be found in a node on an articular surface where it would cause the halting, corduroy-road action of a trigger finger. In

the construction of a knife, however, an important feature is present which is absent from the anatomy of the hand, and that is the strong steel spring concealed in the handle of the knife. It produces positive pressure between the surfaces composing the metallic joint. If the spring were absent, or if its place were taken by a strip of some inert substance like cork there would be no jerk, and shutting and opening the knife would be perfectly smooth. While there is nothing very closely resembling a steel spring in the hand or forearm, still we may find a muscular action a force which draws the surfaces together and creates a pressure comparable with that produced by the steel spring.

The fact that the digital joints are the only ones subject to this affection gives rise to the well-founded presumption that they have mechanical features found nowhere else. This is true. The digital joints are supreme. The rest of the upper extremity may be considered as preparing the way for the superlative functions of the hand. The mobile shoulder blade, the circumduction of the shoulder joint, the provision for pronation and supination found in the forearm, the circumduction of the carpus, and the revolution of the first into opposition to the other digits, all these prepara-

tory devices and processes culminate in the thumb and fingers which guide the pen and the scalpel. The matriculation ticket of an old-time medical teacher bore the picture of a human eye at the end of an index finger, tactus eruditus. These potent terminal members control the painter's brush, the sculptor's chisel, the notes and keys of the musician, and the tools of the skillful workman and ingenious inventor. They are slowly leading their fortunate owner into civilization.

The fingers require not only delicacy and swiftness but also strength. Small in bulk and weight, and far removed from the point of resistance in the inertia of the trunk, they still are endowed with great strength. Their power comes from important groups of muscular fibers assembled in the mass of the forearm. The long tendons of one set, the flexor sublimis, are inserted in the bases of the second phalanges. They make pressure on the articulating surfaces, especially those of the nearest joint, the affected one in the case here reported, pressure augmented by the pull coming from the other group, the flexor profundus, whose tendons pierce those of the sublimis to be inserted in the distal phalanges. These long tendons are bound to the phalanges by fibrous sheaths and as they lie close to the bones and parallel with them a large part of their force is expended in pressing the articular surfaces together, the residue being given to moving the joint.

Motion is doubtless impeded by intraarticular irregularities in other parts of the body where joint surfaces are held in contact by the static resistance of circumarticular ligaments and to some degree by the dynamic influence of muscular contraction. No joints, however, but those of the digits are subject to the exceptionally great pressure of powerful muscles acting through tendons lying parallel to, and in close contact with, long bones. The strength of these muscles is shown by the unyielding grip exhibited by the hand in an emergency. It is clear that when digital muscles are in action they concentrate on small articular surfaces pressure as positive and distinct as that made by the steel spring of the pocket knife.

After witnessing the dissection of a normal hand, by the kindness of Dr. Gallaudet, it appeared to me that the node seen in the accompanying photograph of the affected hand, on the radial side of the base of the second phalanx of the middle finger, might extend into the joint where it would project as an obstacle on the palmar edge of the articular surface at the base of the phalanx. At this point it would be in apposition, when the joint is at a right angle, with the rounded lateral articulating condyle on the radial side of the head of the proximal phalanx. It is evident that when these two eminences, one abnormal and the other normal, pass each other, as they do when the joint traverses the right angle, they must, when pressed together by muscular contraction, experience a momentary hesitation followed by an acceleration of speed such as is seen in trigger finger. That there may be cases which do not have their origin in arthritis is suggested by the personal experiences and research of my friends, Drs. Weir and Abbe.

It is surmised that as the flexors are stronger than the extensors the jerk of trigger finger would be more severe in flexion than in extension. This is found to be the case as a rule. And further, it is found that the jerk is lessened or absent when passive is substituted for active motion. These and other experiments are interesting and sustain my proposition to a certain extent, but they are wanting in scientific accuracy, and their results are not constant. Aside from these experimental observations, the presence of unusual pressure between the joint surfaces when voluntary motion is made by the fingers, and the probable presence of a node on one of the surfaces give sufficient warrant to the following proposition: In trigger finger an obstacle of arthritic origin on one of the articulating surfaces is surmounted with momentary hesitation followed by a jerk or sudden acceleration of speed, as the joint moves under the exceptional pressure which voluntary action interposes between the articular surfaces of the digital joints.

*X*-ray views have been taken in this case, but they fail to show any notable change in the bone. Ordinary inspection, however, shows swelling and deformity, with a projection, seen in the figure, on the radial side of the base of the second phalanx of the middle finger. The joint is $\frac{1}{8}$ inch wider at this point than its fellow of the other hand. Dissection would probably reveal surface irregularity. It is to be hoped, however, that an autopsy will not be proposed in the immediate future as the joint herein described is part of the still good right hand of the author.

There has been no local treatment except by a gutter splint of sheet aluminum applied with a single strip of adhesive plaster to keep the joint extended at night. At the end of the year the jerk is less marked, but pain and stiffness continue and involve the metacarpophalangeal joint. Persistent catharsis has been maintained with oleum ricini, and as a result perhaps no other joint of the body has been attacked by the infection which is held to be the cause of chronic multiple arthritis, an affection intractable and not as yet well understood.

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## PRURITUS ANI.

BY JEROME M. LYNCH, M.D.,

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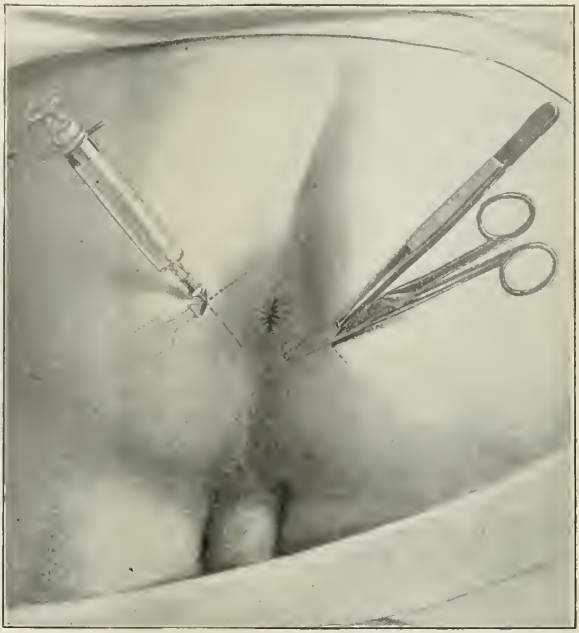
PRURITIS ANI is a distressing and abominable malady. Its etiology is obscure. We will not now go into the many theories that have been advanced as to the cause, but confine ourselves to the surgical aspects of the condition. While almost every physician who has had occasion to treat these cases has many cures to his credit, there are some cases so intractable that all efforts fail.

Among the alleviations suggested are removing all the skin around the anus with a curette; the use of a red-hot cautery; the injection of alcohol; injections of a warm or cold saline solution, and various other methods, with varying results. That the patient is willing to undergo such extreme measures indicates his misery. One can hardly propose anything too strenuous to a patient suffering from pruritus ani, any hope of relief being eagerly embraced.

As to surgery, in these cases it is certainly not in order for every case of itching, but when all approved medical tactics have failed surgery must be adopted, and the satisfactory procedure will be one that can be easily performed, is free from danger, and accomplishes complete relief. Several such

operations have been devised, notably Ball's and Krouse's.

*Ball's Procedure.* "The skin having been cleansed as completely as possible, a curved incision is made on each side of the affected area, enclosing the entire ellipse with the exception of a narrow neck in front and behind. These incisions are carried down to the sphincter muscle, and the flaps raised by careful dissection with scissors from the surface of the muscle, round its anal margin, and up the anal canal to above the mucocutaneous junction, the dissection extending round the entire circumference; all connections with the subjacent tissues are divided. The pedicles in front and behind are now undercut to a point well beyond the area of irritation, and the outer concave edges of the incision also undercut to a distance of at least a quarter of an inch free of the involved skin all round. Care must be taken to stop all bleeding, and the flaps should not be replaced until it is completely arrested, as the formation of a hematoma in the wound might compromise the vitality of the flaps. The flaps are finally replaced and retained by sutures, a few intervals being left between them for drainage. The immediate result of this operation is to render the entire ellipse included between the incision, the pedicles, and the outer edges, as far as they have been undercut, superficially anesthetic and the itching is at once relieved. The first case operated on, in this manner, occurred five years ago. Except for slight superficial vesication upon one side of the flap, healing was rapid. Cutaneous sensation returned some months after the operation, but by that time the skin had become so altered that the pruritus did not return, and the patient has not had a moment's trouble with itching since. His case had been an extremely severe one, of sixteen years' duration, and his life was so miserable that he threatened suicide if he could not be relieved.



Lynch's Operation for Pruritus Ani. (From "Diseases of the Rectum and Colon," By. J. M. Lynch; Lea & Febiger, Philadelphia.)

"I have now operated fourteen times by this method; in all of them the relief was immediate; in no case did the vitality of the flaps suffer, and in none of them has there been any return of pruritus in the area dealt with, even after the return of normal sensation. Two cases came back asking for treatment of small spots of irritation over the tip of the coccyx which had escaped the previous operation; both were dealt with by raising and replacing a small flap of skin which included the affected spot. On one occasion I have dealt similarly with a localized patch of pruritus with marked trophic changes in the front of the vulva with equally satisfactory results. Since the first note of this operation for pruritus ani was published (*British Medical Journal*, Jan. 21, 1905), I have received information from several surgeons who have adopted it with uniformly satisfactory results."

Krouse's operation differs from Ball's in that instead of making two elliptical incisions he makes six linear incisions radiating from the anus and following the course of a circle, whose center is the anal canal. One incision is anterior, one is posterior, and two are lateral. The skin between these folds is dissected up so that the sensory nerves are temporarily severed. The advantage he claims for his operation over Ball's is that the blood supply of the flap is not impaired in his operation, whereas in Ball's there might be difficulty of this kind. Krouse states that in some twenty operations he has never had the slightest sloughing or anything that would suggest nutritional disturbance of the flap. Primary union has occurred in all cases.

The writer believes the methods detailed below as devised by himself have all the advantages and none of the disadvantages of other procedures. The entire operation is performed under local anesthesia, and in no way inconveniences the patient or enforces confinement. It is not beset with possible complications, as are the other procedures; there is a minimum amount of scar formation, and the direction of the scar makes stricture impossible, while the blood supply of the operated area is so little disturbed that the danger of sloughing is nil. The patient is placed upon his left side, with knees and thighs flexed. A point is chosen about one and a quarter inches from the anus. At this point a 1 per cent. solution of novocain or a 1/5 of 1 per cent. solution of cocaine is injected. An area extending to the posterior midline is anesthetized. At the point above mentioned a small curved incision is made, about one-half inch long, and extending just through the skin. Through this incision a blunt-pointed dissecting scissors, curved on the flat, is introduced, as shown in the illustration. With this instrument a blunt subcutaneous dissection is now carried out, working to the anus mesially, and to the raphé anteriorly and posteriorly. When completed there is an area of skin, extending from the anterior raphé to the posterior commissure and involving all the skin within a radius of one and a half inches from the anus, which has been deprived of its sensory nerves. Any bleeding may be controlled by pressure. When the bleeding has stopped a small piece of rubber tissue is introduced into the incision and permitted to remain twelve to twenty-four hours. Sometimes, in addition, a horsehair stitch is taken through the incision; but this is not usually necessary. As a rule, at the end of forty-eight hours the wound is entirely healed. Either at the same sitting or at some subsequent time the same

procedure is followed on the other side. The results of this operation have always been satisfactory. Though there may be a recurrence, this is not likely to take place for two or three years, and two or three years of relief to a patient is a great boon. The itching, of course, ceases immediately, and perianal sensation being lost, the irritation soon lessens. With proper treatment all local conditions should promptly clear up.

We have now employed this operation in over thirty cases during the last four or five years, and in no instance have any complications arisen, excepting one case, where there was slight hematoma, and in that case we failed to put in a drainage for the first twenty-four hours. However, after the hematoma was evacuated the patient made an uneventful recovery.

The advantages of this operation are:

That it can be done under cocaine.

That there is no risk.

That it can be performed in the office.

That it does not incapacitate the patient from business.

That it gives immediate relief.

57 East Fifty-second Street.

## NEEDLE PROTRUDING THROUGH WALL OF STOMACH.*

By OLIVER C. SMITH, M.D.,
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THE following case of needle protruding through the stomach wall is interesting from the fact that the foreign body was probably carried in the stomach, producing symptoms for over two months; it is one of extreme rarity, as only one such recorded case has been found after a careful search of the literature.

The patient, a married woman, aged 37 years, of neurasthenic tendency, was operated upon three years previously for calculous nephritis and the right kidney was removed. Following her operation she regained her weight, and from a condition of invalidism became quite well. Early in August she experienced sharp, transitory pains at the epigastrium, both at meal time and in the intervals. She gradually became afraid to eat, lost weight, and early in September vomited small quantities of bloody mucopurulent fluid. The patient

Skiagram showing a needle protruding through the wall of the stomach.

had no recollection of having swallowed any foreign body or poisonous material, nor was she in the habit of holding pins or needles in her mouth.

*Presented before the Surgical Section of the Hartford Medical Society, Nov. 24, 1913.

A bismuth skiagram taken by Dr. Arthur C. Heublein revealed a normal stomach in size and contour, but showed clearly a foreign body, pin or needle, protruding 1½ cm. through the anterior stomach wall at a point 3½ cm. proximal to the pylorus on the lesser curvature. A second skiagram was taken two days later just prior to operation confirming the findings of the first.

Operation at the Hartford Hospital, October 2d, under gas-oxygen-ether anesthesia. The stomach was exposed and the pointed end of the needle, dark but not corroded, was found protruding through the wall of the stomach in the peritoneal cavity at a point corresponding to the appearance in the skiagram. The needle was drawn out of the wall of the stomach by forceps, breaking immediately after its removal, the portion of the needle lying within the cavity of the stomach being extensively corroded. The small opening in the stomach wall was closed with two purse-string sutures and the wall of the abdomen was closed without drainage. The stomach regained its normal function within a few days, and the patient rapidly regained her lost weight.

The only similar case which the author has been able to find is recorded by Dr. Alexander Nicoll in the *Lancet*, Vol. 1, page 772, 1908. In the course of the article entitled "Remarkable Case of Persistent Ingestion of Needles" he describes an operation in which a needle was found protruding through the wall of the stomach as in the case here reported. The accompanying illustration is a skiagram showing the needle protruding through the gastric wall.

## SUBSEQUENT REPORT OF PATIENTS WHO RECEIVED INJECTIONS OF FRIEDMANN VACCINE OVER A YEAR AGO.*

By GEORGE MANNHEIMER, M.D.,
NEW YORK.

OWING to the scarcity of reliable reports I thought that those still interested in the subject might gain some information as to the value of the Friedmann vaccine from an account of even a limited number of well observed cases. Eighteen patients were injected under my supervision early in March, 1913, *i.e.* fourteen months ago. A preliminary report on these patients was made in the MEDICAL RECORD of June 7, 1913. I summarized the result at that time as follows:

"In not a single one of these eighteen cases was there definite improvement to date, attributable to the vaccine. In some the disease progressed, evidently unchecked. In no instance did the temperature return to normal. Five of the eighteen developed abscesses, four of them small, and one large. Excepting this case, I could not say that any distinct injury has been done by the vaccine. I cannot determine whether the vaccine hastened the progress of the disease where it has occurred."

There was one error in that summary. Instead of "five" of the eighteen developed abscesses, I should have said "6." To-day I have to add a seventh one, who developed an abscess from his fourth injection, whereas all the others had it at the site of the first. Otherwise there is not much to modify in that summing up. But I will briefly sketch each case, relate the subsequent course, and add my comment.

CASE I.—Married woman 41 years of age; in good general condition. Chronic pulmonary tuberculosis of 15 years standing, advanced but stationary. Had but one injection; examined ten times since. No change either way. Tendency to tachycardia and a rise in blood pressure above 170 are disquieting features.

*Read before the National Association for the Prevention and Study of Tuberculosis, Washington, May 8, 1914.

Case II.—Man of 35 years; in excellent general condition; chronic pulmonary tuberculosis since 13 years; moderately advanced. Had at one time vasomotor rhinitis and asthmatic bronchitis. Emphysematous habitus. Had but one injection; developed a small abscess which broke two months after the injection, and ceased discharging three months later. Had a "cold" in October, 1913, and with it a hemoptysis of about one ounce. Two more feverish colds during the winter, but attended almost steadily to his small cigar store, and is today as well as last year. The injection did not influence him in any way.

Case III.—Married woman of 38; in good general condition; chronic pulmonary tuberculosis of 9 years standing, advanced. Had one injection which gave rise to an unusually large abscess. This I thought at the time might be caused by the previous frequent administrations of tuberculin or by the puncture of a vein, or by an overdose. In the light of recent reports from Germany I suggest to-day as another more likely cause of this unusually large abscess that the vaccine was contaminated by pus germs. This patient's local and general condition have materially deteriorated during the year—according to the report of her family physician, Dr. G. M. Wells, of Indianapolis. The patient believes that she was made worse by that one injection, and her physician is inclined to concur in this opinion. I can only accept the discomfort caused by the large abscess, and the disappointment caused by the failure of the treatment as damaging factors.

Case IV.—Girl, 22 years of age; chronic bilateral pulmonary tuberculosis of 9 years' duration, advanced. Had small abscess from the first and only injection, and was worse two months later. Has not been heard from, but is known to be alive and at work as before injection.

Case V.—Man of 41, chronic pulmonary tuberculosis of 5 years' standing, unilateral; good general condition. Five weeks after injection had first hemoptysis of his life; weight slightly decreased. Could not be traced since April 15, 1913. The patient no doubt ascribed his hemoptysis to the injection. We cannot blame him for his belief, but we who know the natural history of the disease cannot accept this post hoc, ergo propter hoc-reasoning.

Case VI.—Man of 38; youngest of ten children; poorly developed thorax; chronic pulmonary tuberculosis of 3 years' duration; active at the time of injection. Beginning infiltration of epiglottis; trace of albumin and casts in the urine. Came from Mississippi to New York for this treatment, received it, traveled to Tennessee, got married, and returned with his bride. Then was kept in bed and well cared for. The time between May 16 and July 30 he spent at a Southern sanatorium. A small periprocitic abscess, caseous pneumonia, and rapid softening of one lung, ulceration of epiglottis and interarytenoid space with severe dysphagia, obstinate diarrhea marked the swift progress of the disease and brought on the fatal termination July 30, 1913. No autopsy. The vaccine, if it did not hasten, was absolutely powerless to check the spread of the disease.

Case VII.—Man of 28; bad family history and build. Many hemoptyses, one lasting 10 days, 3½ weeks after first injection. May 11 took a second injection from another physician. May 14 expressed himself as subjectively relieved, but had lost 7 pounds, and showed no improvement in lung condition. Could not be traced since.

Case VIII.—Man, 31 years of age; formerly excessive smoker; sick about 3½ years; chronic pulmonary tuberculosis of moderate extent but with much dyspnea and tachycardia. Received four injections in all—a good measure according to the inventor. He developed laryngeal tuberculosis, and died January 21, 1914, under signs of profound toxemia—according to Dr. C. L. Wheaton, of Chicago, who will report this case in detail. No autopsy. The vaccine, if it did not hasten, was absolutely powerless to check the onward march of the disease.

Case IX.—Traveling man of 27; chronic pulmonary tuberculosis since 1909. Periprocitic abscess on right side since 1912, opening and closing repeatedly. Received four injections. Felt and looked well, when examined last on March 16, 1914, but had not gained in weight. Left lung shows signs of an arrested process; retracting dullnes, bronchial breathing and bronchophony over upper parts of upper lobe; behind, broncho vesicular breathing well into the apex of the lower lobe; no rales. To the right of the anus is an infiltrate with an old and a tiny new fistulous opening discharging thin pus. A fresh small infiltrate exists on the left side opposite. This patient spent two months last summer in his country home in Minnesota, then went back to business, but lived a sensible life. He was told by the injecting physician that he was cured, and would receive the fourth injection only to "make sure." We cannot pronounce him cured even at this early date. At best the lung process is temporarily arrested. But has the vaccine done it? If it did, say by arousing the defensive forces of the body, why did it permit the implantation of the tubercle bacillus in a new area? The value of the vaccine in this case is open to grave doubt.

Case X.—Man, teacher, 28 years of age; very moderately advanced chronic pulmonary tuberculosis with marked intestinal disturbance. Received one injection from Friedmann in March, 1913, and when the latter wantonly disappointed him, a second injection from another source in May. Returned to his home in Wisconsin, grew progressively worse, and died the end of November, apparently from intestinal tuberculosis—an unexpectedly rapid course. No autopsy.

Case XI.—Physician, 47 years of age, had tuberculosis of left apex in 1907, which completely healed under climatic and tuberculin treatment, so that he could take up his practice again in 1908. Early in 1912 feverish cold and since then more cough and some loss of weight. February, 1913, small hemoptysis, occasional pleuritic pain. Wanted the injection to prevent relapses. He apparently felt uneasy about his chest. After injection chest pain and cough less; gain of 2 pounds. About six weeks later caught cold again; coughed and expectorated more, and did not look as well as before. Even a vacation did not benefit him. In August he suddenly developed a left-sided pneumothorax with effusion and very severe constitutional involvement. After many weeks in bed he went to a health resort where he is now improving nicely. This colleague of ours was so disgusted with Friedmann after the latter had shown himself in his true colors, that he would not think of taking another injection. The first one did not fortify him at all against the fresh outbreak which was preparing at the time. The same criticism applies to

Case XII.—Lawyer, 28 years of age, incipient tuberculosis of both apices for over a year. He improved remarkably under hygienic-dietetic treatment at home in New York City. Was allowed to go to business middle of January, 1913. End of February caught cold; had cough expectoration, pain in right chest, fever and sweats—all of which disappeared within three days. March 2: slight oppression in chest and occasional night sweats, sputum scanty, no bacilli. Injected, March 8. On March 11 again the short, sharp pain in right lower chest. March 18 reports himself feeling stronger. March 25 pain in right lower chest and distinct pleuritic friction over right lower lobe posteriorly; 147¾ pounds, the highest weight since beginning of illness. April 21 reports by letter: laid up in bed since end of March with what his physician called bronchopneumonia, with severe hemorrhages, fever, and appearance of bacilli. Not examined by me since March 25. Apparently did not want the second injection. Here also the disease was about to spread at the time of the injection, and the vaccine was absoluety powerless to prevent that spread. I heard indirectly that this patient spent some time in a health resort, and is now again attending to business.

Case XIII.—Man of 31, known to have tuberculosis of kidney and bladder since 1905; difficult to diagnose at first. Many operations. July, 1908, left kidney removed. But old symptoms of burning, frequent micturition, pus, shreds and tubercle bacilli in the urine returned and kept up in varying intensity. At work. Cystoscope shows region of left ureter ulcerated. January 8, 1913, left ureter removed. Injected March 8. No improvement; infiltrate broke down and discharged a little pus. On May 14, 1913, suddenly stricken with severe headache, chill, fever, thirst, vomiting, and retention of urine; later on developed convulsions, loss of consciousness, blindness, paralysis of arms; later on severe epigastralgia, polydipsia, polyuria, strabismus, and stiff neck. This illness lasted three months, and was diagnosed by physicians in a small New Jersey town as uremia and meningitis. I had occasion to examine him again on March 23, 1914, and found emaciation, weakness, beginning infiltration of left apex, enlargement of right kidney and liver, urine turbid, flocculent, containing pus but no

tubercle bacilli; double optic atrophy; paraplegia disappeared. He describes his decline to the vaccine, but there is no evidence of this. We know that patients with one kidney are very prone to develop uremia, if that single kidney is subjected to strain or becomes diseased. This patient had manifestations of renal insufficiency before the injection. When eating much meat he would get shortness of breath, chilliness, trembling, palpitations, dizziness and rapid bounding pulse—or attacks of urticaria. It is hard to say how much the remaining kidney is affected by tuberculosis.

Case XIV.—Hospital orderly, 24 years of age; tuberculosis of kidney and bladder since 1909; left kidney removed then. Still burning, pollakiuria, and mycturia in varying intensity. He also developed a small abscess in the third month after injection. No improvement; tubercle bacilli still in urine; condition today unchanged.

Case XV.—Boy of 5 years. Tuberculosis of cervical lymph nodes since 4 years; one chain extirpated. Had moderately large abscess at site of injection. Lymph nodes unchanged to this day.

Case XVI.—Boy of 10 years; since 1911 tuberculous coxitis with dislocation. Walks very well with a small Lorenz plaster-spica, without which the femur will not stay in place. Received but one injection. The orthopedic surgeon who had him under his care would not consider a second injection when he heard Friedmann advise the removal of the spica, so as not to interfere with the local circulation of the antibodies. The boy's condition to-day is not satisfactory, there is more bone destruction and the general condition is unimproved.

Case XVII.—Man of 25. Chronic pulmonary tuberculosis since 8 years; since November, 1912, beginning tuberculosis of right knee joint. The one injection had no effect. This was disappointing because in fresh bone lesions prompt improvement was looked for. To-day the young man is worse, the lung and knee affection having progressed.

Case XVIII.—Boy of 17. Tuberculosis of right ankle ten years ago, operated and healed. Since 8 years tuberculosis of right knee. First injection, March 8; second, May 26; 3d, November 12; 4th, December 24th, 1913, the last three without my knowledge and consent. The fourth gave rise to a moderately large abscess. Result: the knee is more swollen, more painful and tender and more disabled. There is slight loss of weight; but worst of all—since middle of April there exists a painless cartilaginous swelling of the left epididymis and left seminal vesicle, undoubtedly tuberculous. This boy had frequently been advised to have a resection performed. Now even a thoroughly successful operation on the knee would not cure him of his tuberculosis. This new complication makes the prognosis decidedly serious. In this case the vaccine was administered in full dose, but proved, to say the least, utterly worthless.

*Conclusions.*—Of eighteen patients treated in March, 1913, under my supervision fifteen could be followed up, and of that number three are dead. The number of injections in these three cases were one, two, and four, respectively. Of the remaining twelve patients, ten received one and two four injections. Five of the ten patients who received one injection developed abscesses at the site of the injection and were therefore unsuitable for further injections for an indefinite period, according to the inventor. The other five patients were not reinjected, either because they did not see the improvement they had been led to expect or because they had become worse and had lost confidence in Friedmann. As to their present condition, five of them are now unchanged and five are worse than a year ago.

One patient, who had four injections, feels well and presents signs of an arrested lung process, but he has not gained in weight and has developed a new tuberculous process in another part of the body. The second patient with four injections has tuberculosis of the kneejoint and is now decidedly worse than before; he has in addition developed genital tuberculosis. The infiltrate of the fourth injection broke down and discharged pus.

Where abscesses resulted at the site of the first injection, the vaccine apparently produced no additional harmful effect. The disease remained uninfluenced. Friedmann neglected to prevent abscessformation, although he claimed to know how. To be very charitable, one might judge from one single case that decided natural healing tendencies, aided by common-sense treatment, will not be hindered by the remedy. When in a quiescent case the first subjective and objective symptoms of a new outbreak appear and one naturally wishes to check it, the remedy is absolutely worthless for that purpose. It cannot prevent the tendency to spread, if a case is so disposed. We have on purely clinical grounds a right to be suspicious of its alleged harmlessness. The method of its administration has been anything but careful and intelligent. For these reasons, and on account of the absence of curative and preventive powers in this series, it cannot be recommended.

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## SHOULD THE SANITARY CONTROL OF PROSTITUTION BE ABANDONED?

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In the second volume of the Rockefeller Series, issued by the Bureau of Social Hygiene,[1] Abraham Flexner gives an excellent exposition of the various methods for the handling and regulation of prostitution by the principal governments of Europe. Although to the student of this sociological problem these details are not new, his is the first comprehensive compilation of the modern status of laws and measures regulating the social malady among the higher civilized European countries.

In thus describing the prevailing conditions it was but natural that a critical discussion should accompany their relation, and Mr. Flexner has freely indulged in this privilege. He has condemned all existing efforts for the control of prostitution, regulatory and sanitary as well, and proclaims himself an abolitionist pure and simple, explaining that his interpretation of that term signifies an advocate for the abolition of all regulatory ordinances and all sanitary control of prostitution.

From a review of the existing systems in countries exercising regulation he professes not to discover any marked effect upon either the extent of prostitution or the spread of disease, and feels that official police supervision leads to abuses and oppressions far outweighing the resulting problematical benefit. He equally condemns segregation in separated streets or city districts, houses of prostitution, police regulations, and, last but not least, sanitary control, and advocates a system where no special discrimination should be exercised against prostitutes as such, but that they should be held liable only for those acts which offend against the ordinary criminal code, including offensive street solicitation.

The removal of the prostitute as a separate item from the criminal code has, for the first time in this country, been one of the main features inaugurated by the Municipal Clinic of this city (San Francisco) since its opening in March, 1911, and one which I strongly advocated in a paper which I read before the International Congress of Hygiene and Demography in Washington, D. C., September,

1912.[2] There is consequently no argument on this point between Mr. Flexner and me.

Some of the restrictions yet enforced in countries professing abolition might even be removed in pursuance of the spirit of equality before the law. Prostitutes there are still compelled to live alone and not allowed to club together though there is no exploitation by a third party. These countries do not make any distinction between the reprehensive brothel and a mere living together of two or more prostitutes in a common domicile, which should be permitted. They suppress both and thereby fall short of the professed equal treatment. However, as earnestly as I advocate for the red light votary a position of equality with everybody before the criminal and civil laws, just as earnestly do I demand a special regulation for her in the code of sanitary laws.

In order to arrive at this final conclusion we must review, from Mr. Flexner's book, a number of statements and facts to understand their ultimate significance and value. That venereal diseases, together with tuberculosis, form the devastating scourges of mankind, has been proven by many incontrovertible statistics of hospital morbidity and mortality throughout the world. A recent moderate estimate[3] credits New York City with about 1,000,000 venereally diseased individuals, more than 1 to every 5 persons, men, women, and children.

This condition prevails with the exception of some rural districts throughout this entire country. Our American army reports point to the highly discreditable prevalence of venereal diseases in its ranks, showing by far the highest percentage of morbidity among all the armies of civilized nations.

Mr. Flexner does not attach very much value to army statistics, but others will differ with him. They will justly dwell on the excellence of this material for reliable comparison. In every country these men are of the same age, remain under similar conditions of life as to work, nourishment, and physical status, and the question will be asked, to what is due the low percentage of venereal disease in the armies of countries like Germany, France, Austria, where sanitary control is exercised, if not to this same sanitary control? England, without it, has in its insular army a ratio of venereal diseases far exceeding that of any of the other civilized nations of Europe, while her Indian contingent, after ten years of sanitary control in garrison districts, shows a comparatively low percentage with an absolute decrease of 66 per cent. of morbidity since the introduction of these measures.[4]

A sanitary control of prostitutes is objected to by Mr. Flexner for these main reasons: (1) All regulative measures have proved ineffective; (2) As a regulation it constitutes an infraction of liberty and singles out women; (3) It creates an illusion of safety and leads to greater indulgence; (4) It reaches only a part of the prostitutes; (5) It has, where established, not succeeded in diminishing the spread of venereal diseases.

Let us consider these various objections:

It is a universally recognized fact that all truly repressive measures against prostitution have utterly failed, the efforts of vice commissions notwithstanding; nor shall we waste any time or space in disputing that the methods hitherto practised in European countries are, with one or two exceptions, antiquated and utterly worthless for producing any desired result. What is wrong? Are the methods at fault, or the basic principle of sanitary control?

Prostitutes throughout continental Europe have been under the special supervision of the police authorities. They are classified as criminals and special police rules and ordinances have been enforced for the regulation of their life and conduct, not exacted from any class of criminals out of jail. They are permitted to reside only in certain definite parts of a city, they may leave their houses only during certain hours of the day or night; they are barred from showing themselves on many of the public streets and from some of the public theaters, and from certain parts of those they are allowed to attend. Even their style of dress is subject to regulation. Only Austria, during the last two years, and the Scandinavian countries have followed modern views and are liberated from the worship of these relics of medieval barbarism.

Is it not a natural consequence of such treatment, inflicted upon the inscribed prostitutes, that those who can possibly avoid submitting to its Draconian regulations, should try to do so, and prefer to take the chances of escaping detection and swell the ranks of clandestine prostitution? No wonder that such a system only reaches a comparatively small percentage of the women!

The methods of sanitary control in these countries are equally insufficient and reprehensible. The intervals between individual examinations are far too great, extending over periods of from one to several weeks. Microscopical examinations of secretions are made only once in two weeks or a month; in some places no microscopical examinations are made at all. How are successful results to be achieved with such work? House examinations by the official physician, and acceptance of the certificates of private physicians open the door to fraud and deception, and when an unfortunate victim of disease is discovered she is subjected to the indignity and hardship of lock hospitals, or to the terrors of the dungeon-like St. Lazare Hospital.

I do not doubt in the least that there are members of American Vice-Commissions, and fanatical reformers who, in their blind efforts for the sudden extermination of prostitution, would welcome the transplantation of such barbarous proceedings to American soil, regardless of their injustice and the cruel suffering they entail.

Fortunately this acute hysteria of a wild reform movement has passed its zenith, and saner views are gradually spreading, based upon a conviction of the primary responsibility of society itself for such deplorable conditions and a realization of the futility of violent and relentless severity in the fight for their repression, with reliance placed rather on educational uplifting and the amelioration of deficiencies in the social structure. But if we rebel against these unjust and cruel measures, should we go so far as to reject an up-to-date sanitary control for the people's protection from the insidious spread of a pernicious group of diseases calculated to undermine the health of the nation?

It is admitted beyond the shadow of a doubt by even the adversaries of sanitary control, that these venereal diseases have already spread to an alarming extent throughout the entire country, and that nothing effectual has been done to stem the rising tide. The main source of this general infection is to be found, to the exclusion of nearly all others, in prostitution, open and clandestine.

It is generally and freely conceded that all measures to suppress prostitution have failed to make

any appreciable impression upon its extent. Granting even that educational and sociological progress may finally succeed in practically exterminating the social malady, this most desirable goal will be attained only after a lapse of one or more centuries.

During that time prostitution is to remain with us, and for many and many long decades in a probable unabated prevalence. What are we going to do about it? Are we not going to try and cleanse the main source of infection and refrain from persecuting prostitutes, when, freed from a special police regulation, they are controlled by health authorities only?

This proceeding was adopted in this city (San Francisco) with the opening of the Municipal Clinic in March, 1911, and was carried through with such slight modifications as its novelty made advisable.

Two reports of its sanitary and general success have been given,[2] and whoever examines these reports with an unbiased judgment cannot doubt that the solution of the sanitary problem was there taken in hand successfully. The women were treated with all the consideration accorded to private patients; the individual examinations were made at intervals of four days, and conducted with the aid of the most approved scientific methods. The result was a decrease in morbidity of 66 per cent., a gradual appreciation of the benefits derived from this system by the women themselves, and a desire to obtain the certificate of examination even by women not of the regular rank and file.

There is no claim that all, or even the greater part, of the clandestine prostitutes were reached. But among the regular clientèle of the Clinic, the conviction spread that this new health provision accomplished really as much good for the women as for the general public, and all passive resistance to the required examinations was overcome.

It is but an empty pretext advanced by opponents to sanitary control, that such an enforced sanitary regulation infringes upon the rights of personal liberty. Flexner does not join them, he says, as long as good results are obtained, the liberty of the individual should not stand in the way of such a beneficial regulation. In the light of defense against the inoculation with dangerous disease from a certain class of individuals, has not the public the right to self-protection by submitting such individuals to enforced regulations which will lessen or remove threatening danger of such gravity?

The Supreme Courts of the State of New York have taken this view, and decided that no infraction of personal liberty was committed by the enforcement of a law demanding regular sanitary examinations of prostitutes.[3] Is there any reason to doubt the great benefit gained in reducing the specific morbidity of these women 66 per cent. and preventing diseased ones from spreading the infection among each individual clientèle of from one to several times ten visitors per night?

All doubts expressed by various writers, and reiterated by Flexner, as to the reliability of determining freedom from venereal disease should be discarded. The modern clinical and laboratory methods of examination show whether an individual is cured or has entered a latent stage of the disease.[4] The rapid development of physical, chemical, and biological diagnostic and therapeutic methods justifies us in expecting even much greater progress in the near future. There should be no encouragement of retrogression. If there are real and essential faults to be found with certain features of our sanitary control let us correct them and thereby improve and advance the system, not abandon it in favor of a chaotic state of uncontrolled universal venereal contamination.

The Scandinavian countries have been held up by Flexner as examples of what can and should be done by the adoption of so-called abolition. Does the system applied there really and truly deserve the name "abolition" as defined by Flexner, namely, the abandonment of all sanitary control of prostitution?

The laws in these countries ordain that all physicians are required to report daily, with or without names, their patients suffering from venereal diseases. These patients are to be furnished with copies of the laws referring to the contagion and spread of venereal diseases, and must affix their signatures to a document stating that they have been thus warned. The physician also obtains information as to the source of his patient's infection and communicates this information to the Health Office. The person so accused is requested to call at that office, and informed there of the nature of the charge, not disclosing the accuser's name.

All so-called voluntary compliances with these requests of the authorities, and the much boasted guardianship of individual liberty, are rendered illusionary by the express-stipulation of the law that in case a person refuses to obey the order to call at the Health Department, the aid of the police is to be invoked to enforce such order, and if upon examination a person is found to be ill, treatment may be compelled to the extent of forcibly detaining the infected person in a public hospital. The law furthermore punishes persons by imprisonment for a term not exceeding three years, who, knowing themselves to be victims of venereal disease, communicate it to others through sexual intercourse. If we ask which is the class of individuals most likely not to avail themselves of the offered free treatment, ambulant or hospital, the answer would naturally be the prostitutes, as the treatment and simultaneous close observation deprive them of their livelihood. To them, in the first place, the choice of ambulatory treatment would hardly be granted, as only such privilege is accorded to reliable persons; others are immediately interned in hospitals after the examination has confirmed venereal infection. Is there really any material difference between this circumlocutory manner of sanitary control of prostitutes and a direct one through the Bureau of Health? It may be advanced that this method of denouncing the real or supposed sources of infection helps to bring a greater contingent of prostitutes, namely, a greater part of the clandestines, within the power of the authorities. Let us even concede for argument's sake, that the number of clandestine prostitutes brought under restraint may be increased, but what new obnoxious features have we then to accept with this exchange of systems?

The source of infection is denounced primarily by the infected patient to his physician, and by the latter communicated to the health authorities. Irrespective of the unavoidable errors to which such guesswork of laymen is evidently subjected, what frightful prospects are opened by this procedure to the most vicious and slanderous calumny, more apt than anything else to wreck a career and ruin a life!

That this is no imaginary danger can be easily proved by simply comparing in the Copenhagen police reports the number of denounced women with that found diseased upon examination.

| Year | Women Examined Upon Accusation | Women Found Ill Upon Examination |
|---|---|---|
| 1907 | 388 | 172 |
| 1908 | 548 | 195 |
| 1909 | 703 | 226 |
| 1910 | 797 | 155 |
| 1911 | 740 | 160 |
| | 3176 | 908 |

In these five years 3176 women were examined by order of the Copenhagen police, and merely 908, or 28 per cent., were found to be infected. Thus in five years, in a city not much larger than Cincinnati, 2268 women were wrongly accused of having been the source of a venereal infection; they were forced by the police to submit to an examination by the police surgeons, and were found to be free from disease. It is needless to point out the disastrous mistakes, most terrible in their consequences, such a system is liable to cause, and still less necessary to assert that no American community would tolerate even its tentative proposal.

The avoidance of official graft is said to be one of the advantageous characteristics of such a system. This seems to me an equally futile assertion. While it is true that our police officials do not enjoy such unrestricted public confidence as to credit them with an altruism sufficiently pronounced to control prostitutes without an eye to personal profit, I might easily contend that our police corps are painted far blacker than they deserve and that as a body they compare not unfavorably with those of other countries. However, the modern sanitary system of control practised here, and in a measure introduced also in Vienna and Budapest, transfers the supervision and active handling from the police to the health authorities. There is no greater difficulty here than anywhere else in getting honest men, if they are wanted, for an honest purpose.

It is the meanness of purpose which, more than anything else, besmirches and corrupts its workers. What are we coming to with spies for prohibitionists, spies for the Sabbatarians, spies for the discovery of indecent literature, spies for the madly rampant vice crusaders? These gumshoe experts must bring evidence, true or manufactured, or lose their jobs. The outcry of the New York *Sun* on May 8, 1913, and the letter of Rev. W. S. Rainsford, published by that paper a few days later, branding these hirelings of a frenzied Puritanism as notoriously corrupt, undependable, and dishonest, and giving proofs from an extensive experience of their ignorance, their lawlessness, their questionable devices for collecting evidence, and their general trustlessnsss, did not surprise anyone who, with a passing knowledge of these affairs, knows how to read between the lines. It only serves to demonstrate that men, hired to spy on individuals suspected of having committed acts disapproved of by their employers, will usually report commitments of such acts regardless of the truth.

In legitimate and lawful pursuits, private or public, men of the higher civilized countries are not fundamentally different in their regard for truth or honesty the world over. The police and health officials in Copenhagen and Christiania, detailed to attend to the control of venereal diseases, did not work any better or more honestly than those of San Francisco, Vienna, or Budapest, and the sanitary improvements of these latter cities were accomplished without dragging thousands of innocent women before the police under the false charge of being carriers of venereal infection.

If that system in the Scandinavian lands represents abolition, I venture to say the American people will have none of it, and the question arises again, what will we do to stem the fearful tide of venereal diseases constantly pouring in upon a defenseless people?

Will it be advisable to take recourse to repression and join those who, in their vain and shallow self-sufficiency, formulate laws that sanctify their own more or less distorted notions, and make of the moral laws department of our legal structure an attractive target for well-merited shafts of contemptuous ridicule?

All these efforts to change the morals of mankind by legislative acts are doomed to failure so long as public opinion does not overwhelmingly support them. They do worse than fail to correct the evil conditions aimed at, they invariably increase their prevalence, and, failing to enforce the law, subject it to ridicule and contempt. The people of the "dry" States are consuming more liquor to-day than they ever did, and are forced to resort to all kinds of debasing subterfuges to gratify a taste stimulated by the obstacles of an unreasonable repression. The general verdict of army officers condemns the closing of the canteen as a most objectionable measure in its effect upon the sobriety of the men. Will the repressive laws written by the sexual prohibitionists accomplish more?

Flexner seems to think so when, in the last chapter of his book,[1] he writes of repression, "I do not mean that repression will have accomplished little. On the contrary important good is achieved at the moment and still more in the long run." It is impossible for me to agree to this.

In discussing Flexner's assertion we can eliminate Europe, for, with the exception of England perhaps, no such anti-vice laws or commissions exist in any European country; prostitution is under regulating ordinances. Even the English laws are a dead letter. The laws against brothels and the despicable white slavers are directed against the exploitation of the women victims, not against prostitution itself. America alone offers a fertile soil for an exuberant crop of anti-vice laws and vice commissions.

In our large cities vice commissions have sprung up like mushrooms, which, with virtuous self-sufficiency and the unswerving severity of the Inquisition and the Vehmgericht of old, exercise the moral custodianship of their respective communities, haul the refractory *filles de joie* into the courts, thence into the workhouse, whence they emanate again into the street to resume the vicious circle. From State capitols and from pulpits a new crusade is proclaimed and armies of active virulent stone-throwers seem to have forgotten the beautiful parable of the far-seeing Master.

With its very birth, that singular New York Adultery Act must have freed the great Empire State from all such breaches of the law, for since its enactment in 1907, hardly half a dozen people have been brought to trial and convicted.

That remarkably sweeping Mann anti-white slave law tends more to prosecute the prostitute and the indiscreet philanderer, than the miserable white slavers who so prominently figure in the naming of the act, and who are so rarely caught and convicted. There ought to be only one place

in the present state of society for the numerically much overrated white slaver to occupy—*the gallows*—but this law allows no distinction between the welcome male roommate and escort of a traveling demimondaine, and her seducer and exploiter for commercial purposes. By means of crossing a State's boundary line, adding a distance of perhaps a few yards only, the traveling companion of a lady of easy virtue is transformed from a delinquent joy-rider to a white slaver, with the assured prospect of a temporary address at the penitentiary. This law is not a relic of medieval barbarism; it passed both houses of Congress in the year 1911, and was duly signed by the then President of the United States and is being enforced now, to-day, in the year of our Lord, 1914.

Such are the outgrowths of a system of repression that has swept over the greater area of the United Sates and has not yet finished its course. It has created for this country a rather isolated position in inflicting the severest and most disgracing penalties for offenders against certain parts of a moral code the following of which might best be left to the private judgment of the parties most concerned. This attitude of the people of the United States has been regarded by other civilized nations with astonishment, not wholly unmixed wih ridicule.

I cannot but regret that a man of unquestionably high intellectuality and good analytical judgment should give even mild praise to misdirected efforts of such a nature. It is to be feared that upon the authority this well written book carries with it, efforts of another kind to check prostitution may suffer, such as child protection and education, energetic social uplift and betterment, and a more generous and even distribution of the wholesome joys and pleasures of life. These efforts which touch the root of the social malady rather than its leaves and blossoms, might be neglected for a useless and cruel surface destructiveness of an ever renascent growth. In the wake of such tendencies struts the false belief in the effectiveness of this destructive extermination, and a consequent neglect of sanitary protection from the social malady.

Public and clandestine prostitution furnishes the breeding place of nearly all the infections with venereal diseases. Here we must concentrate all our efforts to check their spread. Regular biweekly examinations of the prostitutes must be made with issuance of certificates by the Health officials; free clinics must be established for the treatment of venereal diseases for men and women, and hospital admissions granted to such cases as require hospital supervision for any reason, such as poverty or danger to others or themselves. Let all cases of venereal disease be reported by number to the health authorities, but such reports to be made by physicians only, and based upon their own knowledge, in order to avoid conditions brought about by the Scandinavian spy system.

Some ways should be found to advocate the general use, in these circles, of precautionary prophylactic measures. Attention of both, men and women, should be directed to the protective qualities against gonorrhea, of an injection with silver salt solution immediately after, and against syphilis, the application of calomel salve immediately before cohabitation.

In all these measures the greatest possible discretion and tact should be observed in order to shield unfortunate persons afflicted with venereal diseases from the unjust prejudices and condemnation of the general public. But in our endeavor to be just and impartial in treating the male and female venereal sufferer alike let us not give way to a false and cowardly sentimentality disastrous in its consequences. Prostitution is a factor to be confronted with open vizor. It will be with us in undiminished prevalence for many and many decades to come. How soon the above outlined educational and social measures will materially influence its eradication nobody knows. During all this time, perhaps for many future centuries, the breeding of disease will continue to emanate from this center of pollution.

Prostitution, the indiscriminate, promiscuous subjection to sexual intercourse for money, *palam sine delectu pecunia accepta*, is being practised as a profession, and as a profession full of great dangers to public health. It therefore demands the enforcement of special sanitary regulations for the protection of those who are engaged in its exercise and for the protection of the general public. And let there be no outcry that such special sanitary regulations for prostitutes bring undue and deep humiliation to that class of women. *No humiliation of any sanitary regulation could equal the disgrace of the profession which requires it.*

*Society is profoundly accountable for the existence of prostitution and this terrible responsibility conveys upon it the imperotive duty of adopting means to minimize the evils of the social malady and protect itself from the resulting injuries.*

I do not wish to consider here the great measure of street or district segregation, as it is not a purely sanitary measure and the opinions upon the advisability of adopting it in its strictest sense are, even among the regulationists, by no means uniform. Other factors of moral and criminalistic nature determine the answer to this question; local conditions also take a part. The entire matter seems to be still in the balance at present and must be left to future experience for final decision. In quite a different light, however, must we consider the sanitary measure of a regularly recurring examination of the prostitutes.

The prostitutes are the main disease carriers, for infected men have only a slight share in its distribution; the man's capacity for the ordinary way of spreading venereal disease being limited to a few cases a week, while the ordinary prostitute accommodates her 25 to 30 visitors in 24 hours. As a rule the man is incapacitated through pain and refrains from having intercouse during the acute and infective stages of the disease, while the woman goes on plying her trade. And here we have the main objects of our task. To stop the infected prostitute from plying her trade as soon as her infection is discovered, preventing her from reentering the active ranks until cured or rendered innocuous; and the extension of this supervision over the largest possible number of public and clandestine prostitutes should be the first and most important step in the sanitary control of prostitution and in the people's protection from its sanitary injuries.

We have tried to accomplish that here in San Francisco with the establishment and work of the Municipal Clinic[2] under health department control only. The women of the red light district, who visited the clinic for their bi-weekly examination, and its certification, were treated with the same

consideration and courtesy that are due to private patients. This proceeding, which never even suggests a criminality of the institution's clients, but regards them in the light of ordinary human beings in need of sanitary supervision and advice, gained the fullest cooperation from all grades of the city's prostitutes.

The reduction in their morbidity was remarkable, 66 per cent. in two years, and though no reliable statistics of the general decrease of venereal disease throughout the city are at my disposal, their essential reduction among the great contingent of prostitutes, I consider as its incontrovertible proof, and as the foremost important accomplishment of this special sanitation.

The objection, so frequently voiced by opposing repressionists and apparently also shared by Mr. Flexner, that the issuance of a certificate of examination will be regarded as a guarantee of safety by the laity, and induce many men to throw aside their former fear of infection and visit these women, is not supported by the experience of medical men.

No physician who has had any dealings with men afflicted with venereal disease would pay much heed to this part of the argument. If there really are many men whose fear of venereal infection is greater than the strong voice of sex desire, tempting through all the years of adolescence and manhood, it has not been the good fortune of the physician to meet them in any convincing number. The first question of the patient recovering from a case of venereal infection is "When may I resume sexual intercourse?" Boys and men alike are all pressing their medical counsellor for permission to resume sexual relations where they have been left off. No hesitancy about another trial of the joys of Klingsor's pleasure-grounds. If the experience of illness and suffering does not act as a preventative, surely the mere fear in the inexperienced, of a possible infection, will hinder only a very few men. Facing the uncountable many who would be shielded by sanitary control, stand possibly an insignificant few lured by their belief in the safety of indulgence.

A recession of the sanitary control of prostitution means therefore an equal recession of protection from the spread of venereal disease. The spirit of progress points not to an abandonment, but to ceaseless vigilance and constant improvement in the systems of sanitary control, employment of the most advanced, complete, and reliable means of examination, and a humanely generous and reasonably sympathetic treatment of the women concerned. This must be accompanied by the establishment of a system of general child protection, early educational methods, including sex hygiene, and social betterment in the handling of the great problem of prostitution, instead of the prevailing course of criminal persecution.

In order that such a change may be accomplished, saner views as to the legislation for criminal prosecution of all cases of sex immorality should enter the minds of our lawgivers, and existing irrational laws should be modified or repealed. Men of the learning and high authoritative standing of Mr. Abraham Flexner can contribute in their special publications more than many others, toward stemming this flood of ridiculously hysterical vice campaigns, with their subsequent disinterments of barbarous medieval systems of prosecution of prostitutes. It would be difficult to devise a more efficient plan for the general dissemination of venereal diseases than just such persistent persecution, which renders it impossible for any department of health to exercise a wholesome check on this continuation of the world-wide spread of infection by its only rational remedy, *a thorough and modern sanitary control of prostitution.*

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126 STOCKTON STREET.

## CLINICAL ESTIMATION OF THE CHOLESTERINEMIC INDEX.

BY CECIL KENT AUSTIN, M.D.,

PARIS, FRANCE.

IMPROVEMENT in research methods and apparatus is slowly but surely forcing on the practitioner the obligation of considering his patients from entirely new points of view, so that the day of the self-sufficing physician has now closed never to dawn again, and in his place has arisen the man who is merely one link in a chain, the others being the specialists and laboratory workers of all kinds. It, in fact, now becomes difficult to realize the position of the medical man in remote and scarcely populated regions; just to take one example, think of how serious a handicap it would be not to be able to have free recourse to *x*-ray examination!

In the last few years specially important progress has been made in the chemical, as opposed to the histological and biological, examination of the blood—"the fluid tissue of the body." After mere globular numeration and leucocytic differentiation came the study of the mode and rate of coagulation and the practical use of serum-injections in therapeutics; this was followed by the estimation of the blood urea-percentage and its outcome, Ambard's constant—of such utility in renal disorders, to which was soon added the blood percentage of uric acid. But whereas the practical value of the urea test is now generally admitted this is far from being the case with uric acid; not only does the latter require the withdrawal of quite an amount of blood from the patient's arm, but the accuracy of the figures obtained by the method is seriously thrown into doubt by some chemists. In fact, this unfortunate uric acid seems to have been born under an evil star. I need not say to an audience of physicians with how great a degree of favor uric acid and its supposed pathological importance has now for decades past been received by the public at large; they look on it as a question definitely settled, with which they are entirely familiar. And yet, although it has now been abroad in the land for nearly a century, medical authorities seem less agreed than ever

about its nosological status. As an instance of how tottering its position is in some quarters, both as regards its pathological significance and the results obtained by its classical treatment, I may cite the case of Professor Lemoine, of Lille, who feels that he is authorized by the experience acquired since Bright's time in throwing altogether overboard the uric acid causation of arteriosclerosis, in wiping the slate clean of the whole affair, and in beginning afresh! This he has done in connection with cholesterin, the latest substance to be estimated in the blood, and the subject of the present paper; and he has now for several years past, and in a number of publications, endeavored to show that arteriosclerosis and atheroma are due to excess of cholesterin circulating in the blood.

It had long been evident to different clear-sighted men that important data must necessarily result from a thorough study of the cholesterin question, but they were always deterred from taking the matter up by the lack of any suitable method of ascertaining its percentage in the blood. This problem was, however, finally solved by a chemist here, Dr. Grigaut, the collaborator of Professor Chauffard, who at last succeeded in devising two methods that have given satisfaction, one a laboratory one for chemists only, the other, colorimetric, sufficiently practical for routine, clinical work. Armed with these methods, Chauffard and his assistants have gone into this question pretty thoroughly, and from their researches have emerged a certain number of facts that are of interest both from the point of view of general pathology and of ordinary practical medicine. This question has unfortunately so far hardly reached the general medical public, owing, undoubtedly, in great part to the fact that most of the publications of Chauffard and Grigaut have appeared in literature that does not fall under the eye of the practitioners even over here—the Comptes-rendus of the Biological Society, the volume published in honor of Professor Lépine's scientific jubilee, and Grigaut's thesis, 1913—so that it may prove to be not without utility to the brethren at home, who naturally would have still lesser occasion to see these publications, to give a brief résumé of the chief points of the question.

Cholesterin, which is a non-phosphoric liquid body somewhat similar to fat, is a normal constituent of the blood, in which its serum percentage varies from 1.20 to 1.80 per 1,000 c.c. Anything from one gram downwards can then be looked on as a hypo-condition, and from two grams upwards as hypercholesterinemia. The percentage of this substance has been sought with a patience and perseverance that can only elicit our admiration in a wide range of conditions of both health and disease, and the conclusion arrived at has been that its main rôle is that of a neutralizer of infectious agents and toxins. Its origin is in part from certain articles of food, and in part endogenous; Chauffard leans toward the opinion that the suprarenal capsules and corpus luteum play a preponderating part in its production in the body itself. It forms a normal element of many of the tissues of the body, and in particular of the nervous system, while sometimes large deposits of it, cholesterin tophi, are to be met with in pathological conditions, the chief of these being gallstones, which are often pure cholesterin, atheroma of the larger arteries, the lesions of xanthelasma, and the arcus senilis of the cornea and fatty retinitis. If xanthelasma, then, depends on a chronic excess of cholesterin circulating in the blood, it becomes easy to understand for what reason the removal of such spots by operation gives such unsatisfactory results.

It is during the acute stage of the infectious disorders that the cholesterin index falls to its lowest point. The curve of this index follows in such cases a course very similar to that of the temperature, only upside-down. When the temperature in enteric is at its highest and the patient at his worst, the cholesterin index is at its lowest; it approaches the normal again and even coincides with it when convalescence is reached; but it then rises well above the average and remains there for a certain period, and this fact is of great importance, in consideration of the frequency with which an attack of typhoid fever serves as starting point for the development of biliary calculi. The same thing takes place during the acute febrile episodes that occur during chronic tuberculosis; the cholesterin index descends at each such intercurrent manifestation, and is in inverse proportion to its severity.

The index rises and remains above the normal chiefly in certain chronic conditions, and during and immediately after pregnancy, which is again of great clinical interest, on account of the close relation existing between the formation of gallstones and the bearing of children; we have thus marked hypercholesterinemia connected both with typhoid fever and parturition, the two best-known starting points of hepatic lithiasis. Cholesterin is also present in excess in chronic renal trouble and in established biliary lithiasis.

Such being then the salient points already established in connection with cholesterin, the practical deductions become evident at a glance—that our endeavor should be to increase the supply of cholesterin that is at the system's disposal in certain cases, and to diminish it in others—the latter category of cases being apparently, at least until further notice, far more important than the former.

Whether any practical results are to be expected from the therapeutic administration of cholesterin during the acute stage of infectious disorders, and in particular of enteric fever and pulmonary tuberculosis, has still to be demonstrated; but it would seem that encouraging results have already been obtained in some of the graver forms of anemia, such as the pernicious variety.

But the treatment of hypercholesterinemia is evidently destined to take a most important part in therapeutics in the future, if the views put forward in all seriousness by Chauffard and Lemoine prove to be well grounded. Chauffard in his recent work on biliary lithiasis* lays emphasis, on the one hand, on the unsatisfactory results that are obtained from the treatment of this condition when it is once firmly established, and, on the other, holds out hopes that in this circumstance, as in all others in medicine, prevention will prove the patients' salvation. In other words, he expects that with patients who by family history or personal antecedents seem heading for biliary lithiasis and all its concomitant mishaps, examination of the cholesterin index and careful treatment of the hyper-condition, if demonstrated, may save the subject from the ultimate perils of this very serious disorder.

And what can we say should Lemoine's theory prove true? The arteriosclerotic state is so common and so grave, and ruins such myriads of vas-

*Chauffard, A.: "Leçons sur la Lithiase Biliare," Masson & Co., Paris, 1914.

cular systems, and, through their agencies, of kidneys and brains, that *anything* that would enable us to see a little light in this question would prove nothing short of a universal boon to mankind. Personally I look upon the uric acid theory, as regards both causation and therapeutics, as definitely bankrupt, and with it its attendant Pleiades, iodides, alkalis and lithia, with their manifold successors. Unfortunately, Lemoine appears so far to be alone in his opinion, although, nothing daunted by this solitude, he perseveres in his work and sends forth paper upon paper on the question. Time alone can decide in the matter, but it is certainly to be hoped that someone will appear before long with a satisfactory exposition of the pathogenesis of this condition.

From a therapeutic point of view cholesterin can be increased or diminished in the blood by direct administration in the form of an extract of bile, or through food. The organic extract of the corpus luteum can also be tried. The articles of food that contain cholesterin in the highest proportion are egg yolks, fish roe, butter and cream.

20 Rue Chalgrin.

## THE MANAGEMENT OF CARDIORENAL DISEASE.*

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LESIONS about the valves of the heart cannot be repaired, but certain compensatory processes can be set in motion by which the effects of these lesions can be balanced and so-called compensation be established or maintained. It is unnecessary in this paper to discuss the effects of single or individual lesions because the later manifestations of all are similar, resulting in cardiac enlargement, muscular and arterial degeneration with changes in the blood pressure, and ultimately back pressure effects in different organs. Practically, we treat our cardiac cases with reference to whether compensation is established, or compensation is broken. However interesting the recognition of murmurs in the heart may be, from a diagnostic standpoint, our therapeutic indications are pointed out by the work power of the heart and not by its adventitious sounds. It is one of the preservative provisions of Nature that whenever the heart is called upon to do extra work from any cause (nervous, valvular, or connected with increase of blood pressure in kidney disease), a healthy heart muscle can increase in strength in proportion to the work it is called upon to do, *provided that this at first lies within the original capabilities of the muscle.*[1]

In well compensated valvular lesions of the heart the routine use of heart tonics should be avoided, and muscle nutrition should be preserved by avoiding strain and by judiciously strengthening the muscle by dietetic, climatic and hydrotherapeutic means, preferably without the use of drugs. An exception to this rule sometimes occurs in cases of aortic regurgitation, where disagreeable symptoms may be produced, referred to the brain, the respiratory apparatus, the heart, and the stomach, and these may require special symptomatic treatment.[2] These symptoms depend upon ischemia of the brain, due to the sudden regurgitation of blood during each diastole, and are best met with opium, unless renal insufficiency coexists, when opium is contraindicated and recourse must be had to bromides for the palpitation, and quinine for the cerebral anemia. Cold to the epigastrium and precordium will help to relieve.

Aside from this incident, compensated valvular lesions require attention to diet rather than to drugs. Diet of a full caloric equivalent should be taken, but large meals should never be allowed, because a full stomach embarrasses the right heart. For similar reasons fermenting foods should be avoided, alcohol taken sparingly, if at all, and tobacco absolutely forbidden. Seaver of Yale has calculated that one cigar diminishes muscular power 25 per cent. in an hour.[3] Albumens and fats, fresh or stewed fruits, and green vegetables should be taken and carbohydrates reduced to a minimum. Reducing the liquid intake relieves the heart of much labor, prevents stomach distention, and by concentrating the blood increases the hemoglobin content. The theoretical explanations of the value of restricted fluid intake in cardiac disease are not convincing, but practical experience abundantly proves its value. It is frequently important to compare the fluid intake and output so as to determine when water retention is taking place, as this indicates failure of the heart to pump the water to the emunctories of the body.

Of equal importance with regulation of diet are rest and exercise in all valvular lesions of the heart. Unless patients can adopt the plan of eating small meals at regular intervals, rest for an hour after a full meal should be enjoined, as at this time nearly two-thirds of all the blood collects in the abdominal veins. Graduated exercise, however, may be indulged in later, always cautioning the patient to stop if dyspnea or præcordial distress develops. Exercise may be of the active, passive, or resistive type, and must be as carefully chosen for each individual as any other measure of treatment. Patients should be out of doors as much as possible, and the climate that permits this should be chosen when the patient's financial circumstances will permit. Four elements enter into the consideration of climatic treatment of heart disease, viz.: Altitude, mean temperature, temperature variations and humidity. Cardiac patients do not do well at high altitudes, and when compensation is disturbed should be kept at sea level. Extremes of heat and cold should be avoided and places like Southern California, when the mean annual range is small, should be selected. Humidity must also be considered, as any checking of the radiation of bodily heat throws a tax upon the cardiovascular apparatus. Baths should be neither too hot nor too cold. Hot baths produce a relaxation of capillaries,which always taxes the vasomoter center and the heart, while cold bathing causes a severe initial shock with contraction of the peripheral arterioles. Sea baths are, therefore, likely to be injurious. Lukewarm baths, 10 or 15 minutes immersion in water at 90 to 95 degrees, are useful, and the water may be medicated with four or five pounds of salt, or with carbonic acid gas, either of which is supposed to cause some relaxation of the peripheral capillaries and reduce the work of the heart. This combination of diet, climate and hydrotherapy will, in most cases, suffice for the management of compensated heart lesions without the employment of drugs.

When compensation is failing or broken, the same

*Read before the Society of the Alumni of St. Vincent's Hospital, April 8, 1914.

measures of treatment in the main, will be indicated, but with the conjoint administration of such drugs as may help to restore the disturbed balance of the heart. Thus, absolute rest in bed is the most important element, with the patient in the erect or semi-erect position, and this rest should be continued for a long time. The diet should consist mainly of a mixture of cream, lime water and milk, with the addition of a little fresh fruit, an egg, or a little meat, to avoid flooding the circulatory apparatus with fluid. Cold to the precordial region may be a valuable help. After these measures have been instituted, the indication for the use of heart tonics must be considered. A heart tonic is a medicine which aids the heart in prolonging its diastole and in enforcing its systole to the maximum. Of these, digitalis holds the first rank, but, like all powerful weapons, its use and its abuse must be thoroughly understood. Its tolerance by the patient, and his susceptibility to its action, must be carefully tested, at the outset, by small doses carefully watched. My own preference is for the infusion, freshly prepared from the best English leaves and given ice cold, to the exclusion of the "pure principles" of digitalis which are now so numerous and which are notoriously uncertain in their action. In gastric irritability, however, I often use digitalin hypodermically. Digitalis is contraindicated when the heart muscle is degenerated, as in myocarditis, fatty heart, and in the extensive degeneration of the left ventricle, which accompanies decompensated aortic regurgitation. These cases will not respond to digitalis, and, in fact, degeneration of heart muscle may be assumed in cases where the physiological action of digitalis cannot be produced by the administration of a reliable preparation of that drug given for three days. A condition of the arterial walls, such as extensive atheroma or fragility, may also contraindicate digitalis, lest by raising the arterial pressure it may lead to rupture. In these cases, strophanthus may take its place, or a combination of digitalis, and the nitrites may be found useful. Strophanthus strengthens the action of the heart muscle and slows the pulse, and does not raise arterial pressure to the same degree as does digitalis. In Bellevue Hospital, we often use strophanthin, either hypodermically or intravenously, in bad cases of decompensation. Other substitutes for digitalis, when this drug is inapplicable, are convallaria, adonis vernalis, caffeine, theobromine, and strychnine. But none of these should be used when the arterial tension is high, as each of them increases the arterial pressure.

In extreme cases of cardiac failure, there is no time for the slow action of heart tonics, and emergency measures must be adopted. Camphor, ether, and ammonia are the best, supplemented by brandy, champagne, and coffee. Camphor is best administered hypodermically in 10 per cent. solution in ether, or in 25 per cent. solution in sterile oil. Ether by the mouth may be given in the form of "Hoffman's anodyne." The aromatic spirits of ammonia is a rapidly diffusible stimulant for emergency use. Adrenalin hypodermically if the systolic pressure is low.

When failing compensation has reached an advanced degree, the effects of back pressure become manifest in various organs, as a result of venous stasis or passive congestion. These effects are shown in the brain, the lungs, the liver, the kidneys, and the gastrointestinal tract, and while the measures directed towards improving the general heart action are still indicated, certain modifications or additions may become necessary on account of the urgency of added symptoms. Confining this paper to the back pressure effects in the kidneys, passive hyperemia of these organs calls for careful regulation of the diet. It is important to differentiate merely stasis in the kidney from a real nephritis. The presence of a valvular lesion, and of back pressure effects in other organs, will usually decide. Milk diet is useful here, but the total quantity of milk in twenty-four hours should not exceed one quart and as this furnishes but 900 calories, sugar of milk, a little meat, fats, cereals, fresh fruits, and vegetables should be added to preserve nutrition.

In considering the subject of nephritis we find the anatomical or pathological classifications of that condition to be most confusing. From the clinical and therapeutic standpoints it is best to recognize three conditions, viz., (1) acute nephritis; (2) chronic diffuse nephritis—either following an acute attack or developing insidiously from the beginning, and (3) "vascular" nephritis or cardiorenal disease. In both forms (2) and (3) cardiovascular signs develop sooner or later and it is difficult to determine whether the changes about the heart and arteries are primary or secondary, or whether the same causative factor affects simultaneously the cardiovascular apparatus and the kidneys. The last idea includes the newer conception of what is generally understood as "Bright's disease." The determining feature is high arterial tension, with resulting cardiovascular changes and nutritional disorders, particularly in those parts that are supplied by end-arteries, viz., the kidneys, the retina, and the brain. The cases should therefore be treated as heart cases rather than kidney cases, and along the lines previously stated in this article for compensated valvular disease. What the exact toxemia is that induces this condition is as yet obscure, but a disordered gastrointestinal tract and liver, or some obscure perversion of metabolism, may be the source of the poison. A deranged bowel function floods the liver channels with toxic albuminoids and alkaloids; the liver cells are unable to cope with this tide, and the intestinal toxins filter through into the circulation beyond, where the kidney cells cannot deal with them efficiently, owing to their incomplete elaboration by the hepatic cells. Escaping thence into the general circulation they cause autointoxication and cardiovascular as well as renal changes follow.

This view of the vicious circle established is graphically put forward by Alfred C. Croftan[2] and appeals to me with more force than any of the perverted metabolism theories which I have had opportunity to read and ability to understand. Accepting it as a working basis, causal treatment of cardiorenal disease should concern itself first with the prevention of intestinal putrefacation. While the production of complete intestinal antisepsis may be a chimera, certain drugs may be useful, either chemically by direct contact, or physiologically by stimulating the natural defenses of the organism to greater activity. Cholagogue drugs are marked examples of the latter, because they increase the flow of bile, and bile is the best intestinal antiseptic. Nonpoisonous metallic salts, like sulphocarbolate of zinc, and bismuth preparations, may act chemically.

The diet selected must fulfill three conditions:

(1) It must be sufficient to maintain nutritive equilibrium; (2) It must be non-irritating to the kidneys; (3) It must not throw too much work on the digestive and circulatory organs. The more chronic the nephritis, the greater is the necessity that patients should receive daily the full caloric value in their diet. An exclusive milk diet is dangerous for many reasons. In the first place, there is a deficit of iron in milk, for adult life. Secondly, milk forms large quantities of nitrogenous end-products, chiefly urea, which throw an excessive task upon damaged kidneys. Thirdly, milk enough to maintain caloric nutritive equilibrium would amount to about three quarts a day, an amount of fluid by far too great to be forced through the cardiovascular apparatus. Fourthly, milk is very rich in phosphates, and unless these are changed into insoluble calcium phosphates by the addition of lime water, much unnecessary elimination work is thrown upon the kidneys. Finally, disgust and loss of appetite with gastric dilatation may be caused by exclusive milk feeding. Despite these drawbacks, the sensible administration of milk is a necessity in every case. The deficiency in iron can be met by the addition of an iron preparation. Excess of phosphates can be neutralized by lime water. The daily quantity can be limited to three pints, or less, given in divided doses, at frequent intervals, and with the addition of one fifth cream. And albuminous, fatty, and starchy foods can be given in addition, judiciously. Albumen may be given in the form of meat, eggs or vegetable albumens. Clinical experience and analytical study confirm the common belief that light meats are better than dark and red meats, because cooking causes white meats to lose more of the dangerous extractive than is the case with red meats.[4] Eggs were formerly forbidden in nephritis, but, because of their high nutritive values, 80 calories each, I allow patients from two to four fresh eggs every day. Vegetables growing above ground, although not of the same nutritive value as underground vegetables, are preferable, unless they contain irritating oils or other pungent principles, like radishes, asparagus, or garlic. Salads are useful, especially with abundant oil dressing, but without mustard, spices, or condiments. Starchy foods are useful and permit the addition of much fat in the forms of butter and cream. Among beverages, alcohol should be absolutely forbidden, beer is best omitted, and tea and coffee are theoretically contraindicated. Cocoa may well take the place of tea and coffee.

However discordant may be the views of laboratory workers regarding the effect of withdrawal of salt from the diet, the clinical fact remains that such withdrawal will cause the diminution of edema resulting from renal disturbances causing inadequate elimination of sodium chloride. When dropsy is the result of other causes, as poor circulation from weakened heart action, or from primary insufficient excretion of water by the kidneys, the salt-free diet is of no avail.[5] When dropsy is associated with arteriosclerosis complicating renal disturbance, the Karell cure, of partial starvation and decreased consumption of liquids, has reestablished diuresis, diminished arterial pressure, and caused subjective relief of cardiac oppression in many of our Bellevue patients.

The drug treatment of cardiorenal disease is of minor importance, for we know no drug that will influence a chronic nephritis. Remedies are used to prevent constipation, to secure as much intestinal antisepsis as is possible, to influence the heart action and the arterial pressure, and to relieve dropsy and internal edemas. These remedies have all been alluded to in earlier parts of this paper. Drugs should be used sparingly in any case of chronic nephritis, and reserved for emergencies that require energetic treatment. Hydrotherapeutic means are much safer and more efficient for influencing the heart's action and the blood pressure. High blood pressure depends upon three elements—the amount of the blood, the force of contraction of the heart, and the degree of peripheral resistance. Changes in the peripheral resistance can be brought about both by cold and by hot applications, but heat should be the method of choice in these cases, as the fall of pressure following heat is much more permanent and its production less dangerous than that produced by cold. The simplest way of applying heat is by lying still for ten minutes twice a day in a bath tub of water at 100° F. The addition of salt or carbonic acid assists in relaxing the peripheral capillaries. During the bath, cold may be applied to the head to diminish the danger of collateral hyperemia of the brain. Dry heat, by the electric light or hot air bath, produces a decrease in the total volume of blood through sweating, and this concentration of the toxic bodies in the circulating fluid may be dangerous. Sweating by moist heat is therefore preferred, and has been proven to be without danger of blood concentration. Hydriatic measures also allay the nervous irritability which so often accompanies cardiorenal disease. Hot water also exercises a profound influence on the general metabolism.

In selecting a climate for chronic nephritics, preference should be given to one in which the daily temperature fluctuations are very small, the altitude low, and the atmosphere dry. Southern California, Arizona, and New Mexico furnish the ideal locations in this country; Algeria, the Riviera, and Egypt abroad.

The surgical treatment of Bright's disease, warmly advocated by the lamented Edebohls, has not gained the confidence of American surgeons. Bright's disease is a systemic disorder, and the kidney lesion but one of its manifestations. Splitting of the kidney capsule can no more be expected to cure Bright's disease than could washing out the intestine be expected to cure typhoid fever. The modern methods of study of kidney disorders, by functional testing, have resolved chronic nephritis into three well-marked types, vascular, tubular, and uremic. From 40 to 50 per cent. of cases, however, will show mixed forms of these types. Yet in every instance an attempt should be made at their differentiation, as the treatment of each is different from that of the others, the mixed forms requiring treatment according to the dominant type. An excellent schematic classification, adapted and enlarged from a schema given at von Noorden's Clinic, has recently been put forward by Herbert Edwin Barigut.[6] No abstract can do justice to this excellent paper. It shows clearly that some things beyond the recognition of albumin and casts are necessary for exact diagnosis and rational therapy. In fact, more or less extensive destruction of renal tissue may exist without albuminuria or casts being detected[7] and be recognizable only by functional tests, as has recently been emphasized by McCaskey. McCaskey points out the necessity for

recognizing the precise type of renal impermeability present in a given case, *i.e.* whether for urea, chlorides or water. He gives some interesting tables of elimination of urea after the ingestion of preformed urea. The phenolsulphonephthalein test for kidney efficiency is of value for prognosis, rather than for diagnosis. It is used as a routine measure in our wards in Bellevue Hospital, but does not help to decide the particular type of nephritis present, although of great value as an indication of impending danger. In contemplated surgical operations on either kidney, it may be of great value in determining unilateral or bilateral kidney inefficiency. Ambard's "uremic constant," or the estimation by mathematics of the functional value of the kidneys, requires a little more teamwork on the part of a working physician and a laboratory chemist than is usually available for general practice.[8] But inasmuch as in the secretion of urine several distinct processes take part, as filtration, osmosis, selective cellular activity and absorption, it follows that functional kidney tests are at best unreliable, save for indicating renal insufficiency.[9]

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42 EAST TWENTY-NINTH STREET.

## THE CAUSE AND VACCINE TREATMENT OF CHRONIC RHEUMATISM.

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ACTUAL experimentation proves, what was long surmised, that the introduction into an animal of a parasitic organism whose virulence is nearly balanced with the host's power of resistance frequently results in the establishment of chronic foci of infection in locations not reached by the blood plasma and leucocytes in full concentration. Such is notably the case in rabbits made chronic carriers of typhoid bacilli, who, after intravenous inoculation, frequently harbor organisms in their gall-bladder for prolonged periods; and in the same animal, inoculated with various races of the human parasitic cocci, as a result of which various degrees of arthritis develop—this last experimentally proved, as long as fifteen years ago by Dor, V. Dungern, Schneider, and Poynton and Paine.

In man the spontaneous development of similar conditions has long been well known (such as chronic gall-bladder infection by the typhoid bacillus, or more commonly by its near relative of the colon, chronic ear discharges following the exanthemata, and so frequently due to the continued presence of a diphtheroid bacillus) the organisms evidently locating while the favorable conditions of a period of reduced blood resistance prevail. But once established behind bulwarks of partially necrosed tissue they are enabled, through multiplication of aggressive powers by weight of their actual numbers, aided, often, by a process similar to the acclimatization of plants, to make slow headway against at least those body cells lying on the extreme outskirts of the circulatory system and next at hand, where individual cell nutrition is at the lowest and the protection afforded by the blood enzymes is least.

Pathologically the lesions of the chronic rheumatic joint disease are found to begin where the circulation is at a minimum, especially around the terminal blood vessels in the ends of the bones and beneath the cartilages—places well calculated to afford snug retreat for such streptococci as fall or grow into the circulation from a focus on or in the mucous membranes. Perhaps such localities are peculiarly favorable as the dense and unyielding surroundings in adults, not visited normally by much blood, do not readily permit the phenomena of inflammation, which are now known to determine the most rapid destruction of infecting bacteria. The great rarity of the disease in its chronic form among the young whose joints during the growing period are much more vascular is in conformity with this, but the predilection of the acute inflammatory form for youth at first thought might seem to contradict some of these inferences. Here, however, we are evidently dealing with a gross infection, suddenly flaring up in one with greatly lowered resistance, such as occurs when rabbits, whose general resistance has been lowered by preliminary dosage with colon bacillus vaccine, are experimentally intravenously inoculated with cultures of streptococci which, from their quantity and the free hand given them by the lowered blood power, are enabled to lodge and establish themselves at once in comparatively large vessels, generally developing a condition similar to human acute articular rheumatism. A like dose in an uninjured animal usually shows itself by blocking the smaller vessels of the synovial membranes and causing a subacute inflammation in and around the joints. Of course, to explain the acute form, we might also presume the presence of a small number of more virulent organisms acting upon a person with abnormally low resistance, or any adjustment of the forces of parasite and host that will give marked advantage to the former, and the result will be the same—an acute disease, but not the chronic form, which, as I have said, is due to slow and feeble development of stray organisms from the mucous membranes in areas of poor vascularity in persons with slightly lowered resistance. Further, that the acute form should strike the young is but in conformity with what is observed with other acute infectious processes, since, given an omnipresent infecting agent, such as the streptococcus, no one can be long in the world before encountering it with, under the circumstances described of special susceptibility, the given result, an acute disease.

Here I should remind the reader that I am considering acute inflammatory rheumatism, chronic articular rheumatism, apd arthritis deformans as but different manifestations of one cause modified by individual susceptibility, both constitutional and local, and duration of disease. Any peculiarity of the particular streptococcus infecting a given case, having been most probably developed under the influences acting upon it as a parasite upon that case, may be included in said idiosyncrasy.

We have several chronic bacterial parasites whose biology is so related to the economy of our body cell life that they, except under unusual circumstances, never pass much beyond the saprophytic stage. They exert little influence upon the body cells, and, as a direct consequence, the body cells exert little upon them. Such a mutual toleration seems to exist in the case of the streptococcus which grows on our mucous membranes, but which occasionally finds circumstances so favorable, as in a prepneumonic lung, in a puerperal uterus, or in a blocked or injured gland, as to so multiply its powers of offense, by slight structural variation or enormous overgrowth, as to cause the acute processes of such maladies as pneumonia, puerperal fever, erysipelis, etc. But usually this organism is content to enwreath the surface epithelial cells of our mucous membranes, occasionally growing into the stomata between them, and into the ramifications of the glands discharging thereon. As age progresses, and more and more damage has been wrought to our armour, our avenues of communication become clogged, and the readiness diminishes with which we bring our defensive and offensive powers to bear, now at this and now at that threatened point. We find then a relatively greater offensive power to be possessed by our parasites, which, unlike our body cells, being individually independent, never suffer from the defaults of others. Consequently, when an individual or two drop or grow into the circulation they are often wafted about, inhibited while in the blood stream, until they lodge in some nook or cranny where, if conditions permit, they develop. Such conditions are presented in and around the joints of the susceptible. Not to be too special or to make rheumatism more than a particular manifestation of a general streptococcus infection, I remind the reader that it has been demonstrated that ulcers of the mucous membranes, including stomach and intestines, can be and have been caused in animals by intravenous introduction of these organisms, so that there must be many other favorable localities besides the joints. Klotz, in the *Journal of Pathology and Bacteriology* for October, 1913, reported the case of a boy of 6 years who, after a six months' illness with rheumatic symptoms, died and came to autopsy. Aortic and mitral valves showed the usual vegetations of endocarditis, and the aorta a saccular aneurysm of recent origin, and for quite some distance in its ascending limb there was a marked infiltration around the vasa vasorum. All lesions gave a pure culture of streptococci; so that disease of the large vessels, even the varicosity of some veins, may be due to this organism. It may be reasonably suspected of causing at least some cases of chronic nephritis.

But returning to our sheep—the slight growth permitted to such an organism amid its surroundings beneath the cartilages or within, perhaps, the ligaments of the joint, often may produce no symptoms. These appear just in proportion as the tissues react—a slight or no reaction is alone consistent with the maintenance *in situ* of the bacterium which would otherwise be soon destroyed. (Acute inflammatory rheumatism never merges into the chronic form, although in rare instances it may be followed by it.) As the result of such slight growth some thickening of the joint tissues to-day with some more added tomorrow, evidenced by pains more or less evanescent, in time develops enough deformity of the parts to make the usual motions frequently productive of actual mechanical injury—which does much to cause the suffering of the chronic form. Of course, one can imagine that even a microscopical area of slight infiltration beneath the cartilage, if connected with the sensory nerves, might cause pain, but, as I believe, such nerves are here few and far between, most of the suffering probably comes from involvement of the synovial membranes and periarticular tissues. When chronic articular rheumatism passes into the condition with arthritic deformity, then the usual initial lesion beneath the articular cartilages has progressed so far that, with the aid of the mechanical injury wrought to the inflamed areas when they are ground between the ends of the bones, there is often no cartilage left and the bared bones grind upon one another with every motion, which, however, is finally greatly limited by the thickening and distortion of the other joint elements.

One may deduce from the foregoing that during life the bacteriological search for the organism in and around an involved joint might easily be a failure and, when I add that there are many cases on record in which, at autopsy, cardiac vegetations gave a pure culture of streptococci and yet the heart blood was absolutely sterile, one will recognize that in our hunt we may be very warm, as the children say, but yet miss our quarry.

I reported in the April number of the *Long Island Medical Journal* a series of 16 cases treated with autogenous vaccines in ten of which I had made careful blood search for the causative micrococcus, taking unusually large quantities of blood during an acute exacerbation of the disease, but in only one half of these was I successful. In the ordinary case I have never thought that the probabilities of a catch justified exploring in and around the joint with an aspirating needle but, if there be a fresh effusion, a culture of the organism may usually be got therefrom. There are, of course, recorded in the literature numerous cases in which such finds have been made, as well as many autopsies at which cultures of streptoccocci were obtained from diseased joints. And, in fact, there exists no case of chronic arthritis in which positive bacteriological findings cannot be made by such examination of the joints post mortem. A series* of 88 bacteriological examinations of the joints, at as many autopsies of persons dying from miscellaneous causes, was recently reported, and in all except some 13 cases (5 with a rheumatic history) the findings were negative, thus corroborating the indications of the positive findings made in actual cases of rheumatism.

Furthermore, in these days of complement-fixation methods, specific focal reaction should convince, and, if one grows from a given patient a culture of either a pharyngeal or a urinary streptococcus, a proper-sized dose of vaccine from the same, especially when given during the existence of joint sensitiveness, will, by a marked increase of joint congestion and pain, demonstrate cause and effect. Of course, since not over 90 per cent of all arthritic inflammations are due to the streptococcus, some cases will arise in which such diagnostic manifestations will not appear, when it will be up to the investigating bacteriologist to make good and find the real criminal. Care should, however, be exercised in the first place to secure all available bacteriological evidence of the causative organism's

*Beatie and Yates: *Journal of Pathology and Bacteriology*. Vol. XVI, 404.

identity, else one may be led to discredit methods of great reliability and specific worth, and the patient be lost to a life of chronic invalidism.

There is as much variation in the manner of growth and in the cultural manifestations of streptococci grown from different individuals, and even from different parts of the same individual, as there is among specimens of a given plant grown in different climes, and on different soils in the same clime. For instance, one scraped from the surface of the tonsil may show in smears as a long-chain-producing organism, and may develop in culture as the same or as a diplococcus or staphylococcus. It also usually fails to cause hemolysis on bloodagar, while another from the depth of the same tonsil, found as a diplococcus, will often hemolyse, and develop long chains upon suitable media. Organisms isolated from the nodes so frequently found in the neck and shoulder muscles of cases having muscular involvement, and those taken from the heart valves in cases of endocardial complications, are usually possessed of decided hemolytic qualities, which are evidently essential to their existence in these more exposed situations.

After a few injections of an autogenous vaccine the long-chain scrapings often got from the pharynx gradually modify through short-chain formations to diplococci enveloped by a capsule rivaling the heaviest ever displayed by that variant of this organism, the pneumococcus, with which the development is probably identical. It has been thought that permanently different varieties of this organism exist, but even the author of the most elaborate system of differentiation proposed (varying carbohydrate-media manifestations) has admitted that it is of value only to indicate the immediate derivation of the organism in hand, *i.e.* whether it probably came from the pharynx, the intestine, or the blood. Most observers, however, have found such methods futile and even deceptive. The morphological, cultural, and inoculation characteristics of the cocci isolated from the joints and occasionally from the blood in cases of rheumatism have uniformly been reported by observers to be mostly those of the common pharyngeal organisms, and as chronic foci of infection are so frequently found in and around the nasopharynx it has been presumed, with good reason, that from here come the seeds of many a joint lesion. Of course, the gastrointestinal tract, so frequently streptococcus-ridden, must contribute its quota; and since gonococci so frequently pass from the genitorurinary tract into the joints, we know that streptococci may do likewise. In fact, any focus of flourishing streptococci, sometimes a gingivitis or otitis media, is a depot from which seed is constantly dispensed, so that given a spot of suitable soil the seed is not long in arriving. It must not, however, be thought that a circumscribed focus of infection, as mentioned, need exist in every case, as the general one of chronic rheumatism (all that I have seen) has a chronically heavy streptococcus growth over the mucous membranes, as seen in smears of the fauces, owing, I believe, to that low special resistance of the individual which is also responsible for joint vulnerability.

Admitted that our common parasite, the streptococcus, under slightly varying forms of low virulence, is the cause of the malady and that the development of such is made possible only by a slight shifting of the balance between his virulence and our resistance in his favor, what are we going to do about it? While, of course, general hygienic measures are always in order and should never be neglected, special measures are available which are most effective—I refer to the gradual increase of our body's parenteral digestive powers over the microbe in question which may be brought about by the use of vaccine prepared from the offending organism. The series of 16 cases referred to were most successfully so treated, and I have under observation still others (to be reported later) in which every indication of distinct benefit appears, so I can urge actual try outs in addition to the theoretical considerations before mentioned as evidence of the method's worth.

As a first principle of such treatment no case should be given a dose of vaccine during an exacerbation, marked by acute joint swelling, attacks of pain, or temperature elevation, lest we but add to the discomfort or increase the size of the meal that the body is then struggling to digest. But we must proceed very much as we do with the alimentary tract in infancy or in conditions of extreme debility, and begin with small doses of that for which we expect to develop greater digestive power; and no meal must be repeated before the last is entirely disposed of, lest we swamp the enzymes on hand and even injure the organs which produce them, besides providing a specially favorable opportunity for the advance of the infectious process. This seems to be a great evil of vaccine therapy nowadays, the too early repetition of the dose, and I can conceive of no animal organism that can be anything but harmed by the injection of such a preparation every two or three days, a procedure we frequently hear of.

Furthermore, the vaccine must be autogenous—made from the patient's own organisms—else, for some reason depending upon slight difference in the constitution of the various strains of streptococci, probably developed by the conditions in the individual host, we may fail to strike the proper key and consequently to develop an efficient enzyme. Here one should pause to think of the poisonous effects often produced by unaccustomed protein foods upon certain individuals who take without trouble other food stuffs whose composition is, so far as chemical knowledge extends, essentially the same; and also of the marked and prompt effect surroundings exert on the constitution of even the higher plants, such as digitalis, even though they may remain outwardly entirely similar.

Provided these rules be adhered to, the size of the first dose may be varied within wide limits. I have given anywhere from 100,000,000 to 1,000,000,000 killed organisms and have rarely had a focal (joint) reaction, except where I have violated the rules in giving the dose before the entire disappearance of an acute exacerbation. The direct and immediate effect of such a dose, as is well known, is depression of the specific resistance, strength, just as in the exercise of one's muscles, and it is the reaction to this extra use, this new call for the specific enzyme that stimulates its production. But time must be allowed for this, and we must wait at least until the supply has been restored to what it was or, better, till it has had time to accumulate in still greater quantities; otherwise a repeated dose may have a cumulative effect and depress the reactive powers beyond their elastic strength, enfeebling or even paralyzing the rebound.

A week is the shortest period that should elapse between doses, and it would be better to count the

seven days after all reaction from the last dose has disappeared—local, focal (if by mischance such should occur), and constitutional. The size of the second and subsequent doses should be guided by the effect of the last preceding. If reaction was slight and only local (at puncture) dose may be as much as doubled, but unless the total number of possible injections are unduly limited (under five) as much good with greater conservatism and less risk of painful reaction may be accomplished by a 25 per cent. increase. A constitutional reaction, as indicated by a rise of more than 2° F. lasting over two days, usually calls for a doubled interval, as do likewise focal symptoms, when the preceding dose should be repeated without increase.

No one will doubt that even a prize winner in a beafsteak-eating contest has his digestive limitations, so we should not try to push our doses too far. So soon then as we have effected the desired improvement, treatment should be stopped, and not resumed till definite indications, renewed symptoms, arise.

It is remarkable how the patients improve in general health, some putting on 2 to 4 pounds in weight per week, but then, often when the dosage has been increased too much or repeated too soon, they will lose even faster. I prepared a vaccine for a woman of 35 years of age who had but slight knee involvement, but who looked old and worn, whose weight ran up from 119 to 140 pounds in six weeks, but when given a double dose, as a final of eight injections, she lost 7 pounds in one week, and took a month to regain them. As her color and general appearance had improved to such an extent as to make her look, as she said, fully ten years younger, and as all rheumatic symptoms had disappeared, I advised against pushing the treatment further.

Observing the above cautions one will never do a patient harm; and in the series referred to, varying in severity from occasional attacks of pain and stiffness in one or more joints to disabling swelling of both knees often lasting for weeks, universal improvement was effected. This ranged from total cure, in the mild cases, to disappearance of all symptoms except transitory slight stiffness in the most severe, which improvement has now endured from six months to a year. Of course, such patients may experience other attacks, but, if they should, a repeated treatment would soon pick them up again, and as it is neither painful nor expensive it would not be feared. Entirely similar results are now being obtained in the other cases referred to, and now under the same treatment.

In regard to the source of the vaccine. As it is apparent from the remarkably large masses of streptococci that can be scraped from the pharynx of most of these patients that such abnormal quantities must be consequent upon diminished specific general resistance, and as in all cases a vaccine prepared from them gives diagnostic focal reactions, under conditions aforementioned, it is hardly worth while to attempt the difficult and sometimes impossible isolation from the blood or the joint. However, if one prefers, a similar and equally effective streptococcus may be isolated from the urine, I think in all cases. Of the fifty-three vaccines which I have prepared for such treatment during the past year, five only were from the blood and some fifteen from the urine. As there appeared to be no difference in effectiveness between these and those made from the pharynx I took all others from the latter and, unless especially requested to do so, would hardly think it worth while to attempt the first more difficult and more uncertain procedures. If taken from the urine, however, and a plant can always be got therefrom as I have said, some are possibly apt to feel more certain of the organism's specificity. Furthermore, by examining this fluid and the genitourinary mucosa, we may undoubtedly often find an unexpected organism, such as the gonococcus, which may be later determined to have caused the joint lesions. Of course, should this be the case an appropriate vaccine would have to be used.

While acute inflammatory rheumatism is due to the same cause, as previously explained, it is in common with other acute processes showing constitutional symptoms entirely unsuited for vaccine therapy which can only harm. This could have been deduced from what has been said, but the importance of not attempting vaccine treatment of such cases is so great as to justify an otherwise superfluous statement. Cautious prophylactic vaccination after the entire subsidence of such an attack would, of course, be reasonable. As to cases that have advanced to the arthritis deformans stage, while no amount of vaccine treatment can restore cartilages that have been destroyed nor detach bones which have united, careful attempts to arouse special resistance can do no harm, should certainly be able to arrest the progress of the disease and relieve suffering, and may often do more, since much of the apparent ankylosis and bony deformity is due to involvement of the soft parts and to constractures of adjoining muscles.

I append a list of recent literature on the subject which I hope all specially interested readers will make use of, both for corroboration of my statements and for further information on this most interesting and important subject, for there is hardly a disease more frequently brought to the attention of the general practitioner than is chronic rheumatism—brought so often in the past almost fruitlessly, but for which, if he will take advantage of the opportunities offered by present-day specific therapy, he can do so much.

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# MEDICAL RECORD.

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## THE CLINICAL AND PATHOLOGICAL STUDY OF LYMPHOGRANULOMATOSIS.

In 1898 Sternberg described a condition in which he discerned a close parallelism to pseudoleucemia, but which he regarded as tuberculosis of the lymphatic apparatus. In the cases studied by him various parts of the lymphatic system were affected, including the lymph nodes and particularly the spleen, and in addition there were nodules in the liver and kidneys. This condition which had been termed by Benda malignant granuloma and by Chiari lymphogranulomatosis or Hodgkin's disease, has been clearly defined as the result of Sternberg's discovery of characteristic histological changes. These changes which involve chiefly the lymphatic system depend upon the development of a granulation tissue in which there are numerous uni- or multinuclear cells rich in protoplasm and in large round or oval granules that stain like the nucleus and are disposed around it. In addition there are multinuclear giant cells which give the granulation tissue a characteristic appearance.

Otto Steiger contributes an important study of this subject to the *Zeitschrift für klinische Medizin*, Vol. 79, Nos. 5 and 6. He finds that the blood in lymphogranulomatosis reveals an essential relative and absolute leucocytosis. In the beginning there is a relative lymphocytosis, in the florid stage there is a polymorphonuclear neutrophile leucocytosis, and in the last stage there is a pronounced lymphopenia. These changes in the blood correspond to three distinct stages of the disease: First, the lymphatic hyperplasia; second, the formation of a granulation tissue which consists of polymorphic cells rich in epithelioid elements with one or more nuclei and necrotic foci, and which is chiefly characterized by the presence of the Sternberg giant-cells with central nuclei and basophilic cytoplasm; and third, the presence of a fibrous and hyaline induration of the lymph nodes with amyloidosis.

As regards the clinical features of this disease, Steiger points out that there is no typical fever characteristic of lymphogranulomatosis. In his eight cases there was either a continuous or an intermittent fever and only one of them displayed the Pel type of chronic relapsing fever. At autopsy lymphogranulomatosis shows an enlargement of the lymphatic glands and nodular deposits in the spleen, liver, lungs, kidneys, and bone marrow. The generally slow, chronic, and fatal process may infiltrate the neighboring tissues and may give rise to a lymphosarcomatous new formation. This extension occurred in a small group of the author's cases. The granulomatous deposits in organs other than the lymph nodes are not to be regarded as genuine metastases, such as occur in malignant growths, but are to be looked upon as coordinate autocthonous inflammatory processes that arise in the lymphatic structures of the affected organs. Lymphogranulomatosis is a chronic infectious process as may be noted from the hyperleucocytosis, the fever, and the typical granulation tissue, which process may unfold itself in any part of the lymphatic system and by virtue of its gradual and progressive course may assume the character of a malignant condition.

The etiological cause of lymphogranulomatosis, according to Steiger's observations, comprises syphilis and particularly tuberculosis. In most of his cases animal experiments gave a clue to the morbid factor, inasmuch as guinea-pigs that had been inoculated succumbed to an acute miliary tuberculosis. In three instances, in addition to this experimental tuberculosis, the author succeeded in producing the typical Sternberg granulation tissue by means of intraperitoneal inoculations of emulsions of granulomatous tissue. The fact that rabbits that were immune to the human type of tubercle bacilli were inoculated by the author in the same manner as the guinea-pigs, indicates that lymphogranulomatosis is not caused by the human type of tubercle bacillus. One cannot regard the inoculated disease as evidence of an attenuated tuberculous virus, for the guinea-pigs succumbed rapidly within four to five weeks, just as in the case of inoculation with the fully virulent human tubercle bacilli. Moreover, in all of the cases clinically studied the various tuberculin reactions were negative. It is therefore concluded that the purely tuberculous changes in the guinea-pigs were caused by the human type of tubercle bacillus which has a slighter capacity to form necrotic and caseous foci. It is mentioned parenthetically that guinea-pigs are equally susceptible to the human and to the bovine types of tubercle bacilli. It is concluded in general that in the guinea-pig experiments the author was dealing with a mixed infection of the human and bovine types of tubercle bacilli. This is probably the explanation why it has not been possible to produce in guinea-pigs inoculated granulomata by means of pure cultures of the bovine type of bacilli.

The fact that rabbits inoculated with human granuloma tissue intraperitoneally and subcutaneously developed general tuberculosis, while control animals inoculated with highly virulent human tubercle bacilli remained healthy, strengthens the supposition that the bovine type is the exciting cause of human lymphogranulomatosis. The virus of the latter condition is closely related to human tubercle bacilli and has a particular affinity for the lymph nodes in which it evokes inflammatory processes that later cause the disappearance of the

lymph cells and lead to the formation of new connective tissue. The macroscopic and to a certain extent at least the microscopic appearance of the granulomatous deposits strikingly resembles the calcified deposits found in tuberculous cattle.

A series of experiments were undertaken by Steiger with the view of further strengthening his hypothesis. He found that whereas his patients did not react to the various tests with human tuberculin, they nevertheless did react if bovine tuberculin was used. In this manner he revealed a valuable means of making a differential diagnosis in cases of malignant granuloma.

## FLEAS AND PLAGUE.

The question of the modes of transmission of plague are of considerable interest in this country owing to the fact that plague is present among the ground squirrels of California. It has been proved by animal experimentation that the disease could be spread from rat to rat by fleas and further that the puncture in the skin made by the flea in the act of feeding affords a wound through which it is possible for plague bacilli to enter, and animals have been infected by the application of infectious material to areas upon which fleas had been allowed to feed. The Commission for the Investigation of Plague in India, in discussing the possible methods by which fleas may transmit plague mentions that it may be "by regurgitation of the stomach contents through the esophagus and pharynx, the bacilli being then injected with the saliva, or on the pricker, or being rubbed into the wounds made by the pricker." The commission, however, found that the infection could be conveyed by smearing recent flea bites with infectious blood or virulent cultures of plague bacilli and considered that the possibility of the transmission of infection among rodents by rats rubbing flea feces into recent flea bites had been demonstrated. Nevertheless, the commission did not feel justified in expressing an opinion as to whether this was the usual method of infection.

The Public Health Reports, May 8, 1914, is an abstract of a report by A. W. Bacot and C. J. Martin, of the Lister Institute, which appeared in the *Journal of Hygiene*, Plague Supplement III, giving the results of certain experiments carried on regarding the mechanism of transmission of plague by fleas. The authors summarized their work as follows. Under conditions precluding the possibility of infection by dejecta, it was found that two species of rat fleas, *Xenopsylla cheopis* and *Ceratophyllus fasciatus*, fed upon plague blood, can transmit plague during the act of sucking, and that certain individuals suffering from a temporary obstruction at the entrance of the stomach were responsible for most of the infections obtained and possibly for all.

In a proportion of infected fleas the development of the bacilli was found to take place to such an extent as to occlude the alimentary canal at the entrance to the stomach. The culture of pest appears to start in the intercellular recesses of the proventriculus and grows so abundantly as to choke this organ and extend into the esophagus. Fleas in this condition are not prevented from sucking blood as the pump is in the pharynx, but they succeed only in distending an already contaminated esophagus, and on the cessation of the pumping act some of the blood is forced back into the wound. Such fleas are persistent in their endeavors to feed, and this renders them particularly dangerous. Fleas suffering from obstruction do not necessarily perish, and in the course of some days the culture obliterating the lumen of the proventriculus may autolyze and the passage again become pervious. They are, however, incapable for the time being of imbibing fresh fluid, and are, therefore, in danger of drying up if the temperature is high and the degree of saturation of the atmosphere low. Although so far as the authors' observations go, such fleas withstand desiccation quite as well as normal fleas which are not fed, their length of time must be short, directly hot dry weather sets in, and the investigators are led to wonder whether this fact may not, to some extent, explain why in India epidemic plague is confined to the cooler and moister seasons, and particularly why in Northern and Central India the epidemics are abruptly terminated on the onset of the hot dry weather. It appears then that while fleas may be instrumental in spreading plague among certain rodents there has been no direct proof that they have been the means of infecting members of the human species. Yet it seems as if this were probably the case.

## GASTRIC AND DUODENAL ULCERS.

Possibly gastric and duodenal ulcers are more frequent than was formerly the case. At any rate, if these ulcers are not more common, they are more often diagnosed and treated than in times not long passed. Their importance was emphasized by the fact that at the Congress of the International Society of Surgery held recently in New York they were made the subject of discussion and evoked more general interest than the other matters selected for debate. Also those who took part in the discussion were acknowledged authorities, and from the standpoint of surgical treatment the matter was threshed out in a satisfactory manner.

As Dr. F. de Quervain of Basle pointed out in his paper, the advances made in the radiological diagnosis of ulcers of the stomach is too well known to require repetition, but there are still some moot points with regard to their diagnosis which need to be made clear. More than one of the speakers criticised adversely the symptomatology of duodenal ulcers described by Moynihan, and it was to be regretted that Moynihan, who had been expected, was not present to defend his contentions. Mayo appears to be in favor of Moynihan's symptomatology, while the European surgeons seem inclined to attach but little weight to this method of diagnosis.

Perhaps the feature of the discussion on gastric and duodenal ulcers was the announcement made by A. D. Bevan of Chicago of the work that Rosenow of Chicago has been doing with regard to their

etiology. If Rosenow is correct as to the results of his investigations it would appear that a long step has been taken in the direction of determining the etiology not only of gastric and duodenal ulcers, but of other diseases, and therefore successful treatment, or better yet, satisfactory preventive measures, should follow. At present, surgical treatment of gastric and duodenal ulcers is generally attended with good results, and the progress made in perfecting technique during the past few years has been remarkable.

### Medical Society Proceedings Among the Turks.

Clinical meetings in remote localities conducted almost solely by native practitioners should possess interest from several angles. Naturally, a purely European culture must be represented, and it is readily apparent that science must break down all barriers of race and religion. In a recent number of the *Deutsche medizinische Wochenschrift* we find clinical transactions selected from a society publication entitled "Scientific Evenings in Gülhane-Stambul, January-February, 1914." Aside from one of the presidents of the society, Professor Wieting, all the membership appears to be Turkish. Abdul Kadir presented at one session cases of Banti's disease, Addison's disease, and myelogenous leucemia. Murad showed a case of noma of the face. Feridun cured a severe case of pyemia by quinine and subcutaneous injections of collargol. The latter caused large abscesses which were evacuated. Abdul Kadir at another session showed a case of scurvy and reported a decortication of the kidney for acute nephritis, death occurring some time after from causes not traceable to the intervention. Exotic diseases are represented by Aleppo boil, while a case of syringomyelia—said to be a very common disease in Turkey—was regarded as a form of lepra nervosa. Judging from this report and others of equal interest, Constantinople should possess clinical advantages which might well be utilized by foreigners.

### Ophthalmophobia.

The old bourgeois teaching that any normal man should be able to look frankly into the eyes of his fellows, and that inability to do this act reflects somehow upon the gazer, can hold good only within very narrow limits. We know that many sound subjects resent instinctively the stare of another. It disconcerts, because the one stared at believes, for example, that his clothing is disarranged. In a higher degree, those "fixed" by the eyes of another are visibly perturbed, and perspire, tremble, and even collapse on such occasions. Such subjects, evidently abnormal, also strive to protect their eyes from fixation by glasses, newspapers, etc. In a paper by Seeligmann on "Eye Fear," read recently before the Aerztlicher Verein of Hamburg (*Deutsche medizinische Wochenschrift*, 1914, No. 13) the author gives his opinion that this second degree of eye fear must be due to an evil conscience (as in the case of sexual perverts), accompanied by a high degree of self-consciousness. This coincidence occurs chiefly in those of the highest social status. A third degree of eye fear is bound up with the evil eye and similar superstitions. A literature of vast extent has grown up about this subject.

### Tubercle Bacilli in the Circulating Blood.

The much disputed question of the presence of tubercle bacilli in the blood has been subjected by Felix Klemperer to critical and experimental analysis. His article appears in the *Zeitschrift für klinische Medizin*, Vol. 80, Nos. 1 and 2. He finds that in a large proportion of cases of tuberculosis in human beings there are present in the blood a very few acid-fast bacilli. These are not found in the blood in healthy or non-tuberculous individuals. In the case of tuberculous animals only a small proportion have tubercle bacilli in the blood. The presumptive evidence is strong that the acid-fast bacilli in the blood of tuberculous individuals are tubercle bacilli. But for all practical purposes their detection is of but slight diagnostic and prognostic value.

## News of the Week.

**Health of the Army.**—The Secretary of War on June 1 issued the following bulletin: "On the 30th day of May the United States Army completed one month's occupancy of Vera Cruz. There have been ashore more than 7,000 soldiers and marines, and not one death from disease has occurred during that period."

**Private Hospitals Protest.**—At a meeting of the Hospital Alliance of New York on June 3, it was decided that a committee be appointed to see the Commissioner of Charities and protest against the present overburdening of private hospitals and the evasion of payment to these institutions for the handling of emergency cases. The committee will inform the Commissioner that out of a total of 114,000 ambulance calls last year 72,000 were answered by private hospital ambulances, and that now three-fourths of the hospital patients in the city suffering from non-contagious diseases are in the private hospitals.

**Milk Depots Opened.**—Mr. Nathan Straus on June 2 opened ten milk stations in New York City for the summer months, in addition to the eight maintained throughout the year, thus making eighteen which he supports. At all these stations pasteurized milk suitably modified for infant feeding is furnished at less than cost price. This charity has been carried on by Mr. Straus since 1892.

**Street Accidents.**—The National Highways Protective Society reports that during the month of May forty-five persons were killed by vehicle traffic on the streets of New York City. Thirty-two of the victims, or more than 70 per cent., were less than sixteen years of age. During the month of April 5,352 accidents occurred on the railroads and street railways under the jurisdiction of the Public Service Commission of New York. As a result of these there occurred twenty-six deaths, as compared with seventeen in April, 1913, and twenty-two in April, 1912. In addition, nine persons had their skulls fractured, three lost an arm or a leg, and 142 others were seriously injured.

**Gift of a Hospital.**—Mr. Henry Ford, the automobile manufacturer, in a letter to the directors of the Detroit General Hospital, now in course of construction at Detroit, has offered to take over the property on West Grand Boulevard, complete the building, and present the whole to the city of Detroit. The offer, which will involve

the expenditure of about $3,000,000, has been unanimously accepted.

**Charitable Gifts.**—By the will of the late Elizabeth Swift Shippen of Philadelphia the following bequests are made: the Contributors' Fund of the Pennsylvania Hospital, $50,000; the Pennsylvania Institution for the Deaf and Dumb, the Polyclinic Hospital and College for Graduates in Medicine, the Pennsylvania Epileptic Hospital, Christ Church Hospital, the Philadelphia Lying-In Charity and Nurses' Training School, the Seaside Home for Invalid Women, Atlantic City, Seashore House for Invalid Children, Atlantic City, Children's Hospital of Philadelphia, the Women's Medical College of Pennsylvania, the Rush Hospital for Consumptives, the German Hospital, the American Oncologic Hospital, and the Chestnut Hill Hospital, $10,000 each; the University of Pennsylvania for the endowment of scholarships in medicine, the Bryn Mawr Hospital, the Pottsville Hospital, for the endowment fund, St. Agnes' Hospital, the West Philadelphia Hospital for Women, the Women's Hospital and Dispensary, Friends' Asylum for the Insane, the Philadelphia Home for Incurables, Home of the Merciful Saviour for Crippled Children, Philadelphia Visiting Nurse Society, Pennsylvania Institution for Feeble-Minded Children, Jefferson Medical College, in memory of the late Dr. Da Costa, St. Christopher's Home for Children, Howard Hospital and Infirmary for Incurables, and Kensington Hospital for Women, $5,000 each.

The Babies' Hospital, New York, has received from Mrs. Andrew Carnegie a gift of $5,000 for the endowment of a bed in memory of her nephew.

**Dr. Bryant's Will.**—By the will of the late Dr. Joseph D. Bryant of New York, a bequest of $1,000 is made to the University and Bellevue Hospital Medical College, the income to be devoted "to instilling into the minds of the senior class the principles of ethics of the American Medical Association." On the death of Mrs. Bryant, portions of the residuary estate, the value of which has not been stated, are to go to the Norwich, N. Y., Hospital, the New York Academy of Medicine, for the maintenance of the library, and New York University, for the establishment of scholarships. In the event of the death of Dr. Bryant's daughter before Mrs. Bryant, shares in the residuary estate will go also to St. Vincent's Hospital, the American Medical Association, the Bellevue Hospital Alumni Association, St. John's Guild, and the Medical Society of the State of New York.

**Civil Service Examination.**—The United States Civil Service Commission announces an open competitive examination, for men only, on July 8, 1914, to fill vacancies in the position of bacteriologist in the Bureau of Chemistry, Department of Agriculture, at salaries ranging from $1,200 to $2,000 a year. The duties of the position will be the examination bacteriologically of food products which are subject to the food and drugs act, in order to determine their sanitary condition. An educational training equivalent to that required for a bachelor's or an M. D. degree from a college or university of recognized standing, including at least two years' training in bacteriology, is a prerequisite for consideration for this position. The examination will include practical questions in bacteriology, 30 points, and chemistry, 15; a thesis to be delivered to the examiner on the date of the examination, 20; and education and experience, 35. Persons desiring to take the examination should apply at once for Form 1312 to the United States Civil Service Commission, Washington.

**Not Bubonic Plague.**—Dispatches from Bogota state that it has been determined by bacteriological tests that the epidemic now prevailing in Colombia is not the bubonic plague.

**Investigate Hospitals.**—The New York State Hospital Commission, in cooperation with the Attorney-General, began last week an investigation of the Central Islip State Hospital. Following this a similar investigation of the Long Island State Hospital will be carried out.

**Milk Supply.**—The Department of Health reports that at the present time the pasteurization of the milk supply of New York City is very satisfactory, about 99 per cent of the total being effectively pasteurized. The pasteurizing plants are subject to close supervision by the department, and large numbers of samples of milk are being examined bacteriologically to check up efficiency of operation.

**Traffic in Drugs.**—As a result of a careful investigation into conditions in the workhouse on Blackwell's Island, N. Y., the resident physician has been charged with selling habit-forming drugs to the inmates and has been removed from office by Commissioner Davis. The charge against him will be investigated by the Grand Jury. Dr. Elihu Katz has been appointed to fill the vacancy, and as the immediate need of a woman physician in the workhouse was also apparent, Dr. Anna Hubert, a graduate of the Johns Hopkins Medical College, has been appointed. This is the first appointment of a woman physician to the New York workhouse.

**Typhus in Turkey.**—Dr. Clarence D. Ussher, an American physician in charge of the hospital of the American Board of Commissioners for Foreign Missions in Van, Turkey, has received hearty and public thanks from Turkish officials for his zeal and care of the sick during a recent epidemic of typhus fever among Turkish soldiers quartered in the city. Over 2,500 soldiers died of the disease which made rapid headway because of the indifference of the military authorities to the enforcement of proper sanitary precautions. Dr. Ussher is a graduate of the Kansas Medical College and has been in Turkey since 1898.

**Clinical Congress of Surgeons of North America.**—The fifth annual session of this Congress will be held in London, England, from July 27 to August 1, 1914, under the presidency of Dr. John B. Murphy of Chicago. A large number of clinics will be given during the morning and afternoon hours in various London hospitals, while the evening will be devoted to the scientific program, sessions being held in both the Hotel Cecil and the Savoy. The first meeting of the General Surgical Division, which will be held at the Cecil on July 27, will include addresses of welcome from Sir Rickman J. Goodlee, honorary chairman of the London Committee, and the American Ambassador, as well as addresses by the retiring president, Dr. George Emerson Brewer, and the president-elect, Dr. Murphy. Prof. A. von Eiselsberg of Vienna will discuss the choice of the operative method for ulcer of the stomach. Subsequent meetings of this di-

vision will include papers on typhoid perforation, by Dr. G. E. Armstrong of Montreal; on the results of operations for exophthalmic goiter or hyperthyroidism, by Dr. Charles H. Mayo, and on the transplantation of ovaries, by Prof. Tuffier of Paris; a symposium on the operative and non-operative treatment of cancer, participated in by Prof. Krönig of Freiburg, Dr. J. F. Percy of Galesburg, Ill., Dr. T. Wilson of Birmingham, and others; and a symposium on intestinal stasis, the speakers being Sir William Osler, Sir Berkeley Moynihan of Leeds, and Dr. J. C. Bloodgood. The meetings of the division of surgical specialties will be held at the Savoy, and for these an interesting and varied program has been prepared, including a symposium on the surgery of cleft palate.

**Contagion Among Hospital Employees.**—A study of the incidence of contagious diseases among employees of the hospitals of the Department of Health, was recently made at the request of the Commissioner of Health. It was found that during the seven years 203 employees out of a total of 3,879 had been infected, the resulting deaths numbering four. The percentage of infection for the period was 5.2, ranging from 9.4 in 1907, to 3.2 in 1913. The Department aims at a further reduction of morbidity among its hospital workers, and will attempt to lessen the contact between the patients and the domestic employees. The larger part of the cases occurred among the nurses, whose risks are the greatest and the least easily controlled.

**Yale Medical School.**—At the coming Commencement of Yale University, June 15 to 17, the Yale Medical School will celebrate the one-hundredth anniversary of the first conferring of degrees. The occasion will be observed by special exercises to be held June 15 at which addresses will be presented by Professor William H. Howell of Johns Hopkins University and Dr. Walter R. Steiner of Hartford. It is hoped that the University will be able to announce at this time the consummation of the plan for affiliation with the New Haven Hospital and gifts to the endowment of the school.

**Medical Schools Graduate.**—At the annual commencement exercises of Columbia University, New York, seventy-one students of the College of Physicians and Surgeons received the degree of Doctor of Medicine from the President of the University. The students were presented and the Hippocratic Oath was administered by the Dean of the College, Dr. Samuel W. Lambert.

Fifty-four graduates of the Medical Department of the University of Louisville received diplomas at the Commencement exercises on June 1.

The Commencement exercises of the College of Physicians and Surgeons of San Francisco were held on June 4, eight students receiving the medical degree. The degrees were conferred by the president, Dr. William F. Southard.

The graduating exercises of the University of Texas, Medical Department, Galveston, were held on May 30, the chief speaker of the evening being Dr. H. Gideon Wells of Chicago.

**Health Work of the Public Library.**—The Department of Health, through its Bureau of Child Hygiene, has furnished to the New York Public Library 5,000 copies each of the circulars on "Care of Babies" and "Ten Reasons Why a Mother Should Nurse Her Child," the library authorities agreeing to distribute these circulars through the branch libraries.

**A Valuable Accession to the Library of the New York Academy of Medicine.**—Dr. Rowland G. Freeman has presented to the library of the New York Academy of Medicine a fine copy of Bidloo (Godefridus), Anatomia humani corporis, 105 plates, folio. Amstelodami, vid. J. à Someren, 1685.

**Personals.**—Dr. ARISTIDES AGRAMONTE of Havana received the honorary degree of doctor of science from Columbia University, New York, on June 3. In bestowing the degree, President Butler of the University spoke as follows: "Aristides Agramonte—Bachelor of Arts of the University of Havana and Doctor of Medicine of Columbia University of the class of 1892, sole survivor of a famous group of scientists and public servants who, in order to test the theory of the transmission of yellow fever by mosquitos, began the experiments on themselves, and who have lived to see your native island freed, largely through your own efforts, of its worst scourge, Professor of Bacteriology and Experimental Pathology in the University of Havana, I gladly admit you to the degree of Doctor of Science."

Health Commissioner GOLDWATER of New York sailed last week for Panama, where he will spend a short vacation.

Sir WILLIAM OSLER, Regius Professor of Medicine at Oxford University, London, has been elected a Foreign Associate of the Academy of Medicine of France.

Dr. JAMES M. ANDERS has been appointed a member of the Board of Health of Philadelphia, in succession to Dr. William H. Andrus, resigned.

Dr. S. W. NEWMAYER of Philadelphia has been appointed assistant chief of medical inspection in the Philadelphia Bureau in place of Dr. Charles A. Groff, who has resigned.

Dr. A. R. MOULTON has resigned as senior physician to the Pennsylvania Hospital for the Insane because of ill-health.

Dr. WALTER C. FEELEY has been appointed bacteriologist to the Board of Health of Boston, to fill the vacancy caused by the death of Dr. Allan F. Barnes.

Surgeon-General WILLIAM C. GORGAS, U. S. A., was the guest of honor at the meeting of the Alumni Association of the School of Medicine of the University of Alabama, which was held at Mobile on May 27.

Dr. G. FRANK LYDSTON of Chicago received the honorary degree of Doctor of Civil Law from the Hamilton College of Law at its annual convocation on June 3.

**American Gastroenterological Association.**—The seventeenth annual meeting of this association will be held at Hotel Chalfonte, Atlantic City, on Monday and Tuesday, June 22 and 23.

**Jersey Physicians Dine.**—The eleventh annual dinner of the Physicians and Surgeons Club of Jersey City was held on May 28 at the Hotel Astor, New York. Forty-three guests were present.

**Medical Society Elections.**—MIDDLE TENNESSEE MEDICAL ASSOCIATION: Annual meeting at Bell Buckle on May 22 and 23. Officers elected: *President*, Dr. Otey James Porter, Columbia; *Vice-President*, Dr. Oval U. Bryan, Nashville; *Secretary-Treasurer*, Dr. Roy W. Billington, Nashville.

IOWA HOMEOPATHIC MEDICAL ASSOCIATION: Forty-fifth annual convention at Iowa City on May 19 to 21. Officers elected: *President*, Dr. Frank C.

Titzell, Iowa City; *Vice-Presidents*, Dr. Charles W. Ihle, Cleghorn, and Dr. Theodore A. Willis, Clear Lake; *Secretary*, Dr. George A. Huntoon, Des Moines; *Treasurer*, Dr. M. A. Royal, Des Moines.

Homeopathic Medical Society of Wisconsin: Fiftieth annual meeting at Milwaukee on May 21. Officers elected: *President*, Dr. Fay T. Clark, Waupun; *Vice-President*, Dr. S. W. Murphy, Kenosha; *Secretary*, Dr. Minnie M. C. Hopkins, Oconto; *Treasurer*, Dr. Frank E. Brown, Milwaukee.

Yonkers' Practitioners Club: Annual meeting at Yonkers, N. Y. Officers elected: *Members of Executive Committee*, Dr. A. N. Benedict and Dr. C. A. Sweet, Yonkers, and Dr. Francis R. Lyman, Hastings; *Treasurer*, Dr. Buel Latcher, Yonkers; *Secretary*, Dr. Clarence W. Buckmaster, Yonkers.

**The Late Dr. Gruening.**—At a special meeting of the Board of Surgeons, of the New York Eye and Ear Infirmary, held on June 1, 1914, the following minute was adopted: "The Board of Surgeons of the New York Eye and Ear Infirmary record with profound sorrow the death of their colleague, Dr. Emil Gruening, who had been a member of the Board of Surgeons for nearly thirty-five years, and at the time of his death was one of the consulting surgeons of the infirmary. Dr. Gruening was esteemed and beloved by all who knew him, and his loss will be felt not only by the members of this Board, but by his many other friends and admirers. The Board of Surgeons desires to extend to his family their heartfelt sympathy. [Signed] Gorham Bacon, M.D., Edward B. Dench, M.D., Walter Eyre Lambert, M.D.

The Medical Board of Mt. Sinai Hospital having learned with deep regret of the decease on May 30, 1914, of their colleague, Dr. Emil Gruening, met in special session at the Hospital on June 1 and passed the following resolutions: "Whereas the death of Dr. Emil Gruening has removed from among us a distinguished and admired colleague who for thirty-five years gave his best efforts to the Hospital. Resolved, That the Medical Board of Mt. Sinai Hospital desires to express its sincere appreciation of the high professional attainments of Dr. Gruening, its loss of his wise counsel and honored friendship, and its profound sympathy with his bereaved family. Resolved, That in the death of Dr. Gruening, ophthalmology and otology have lost the services of a brilliant practitioner who was at all times a conscientious student, an ornament to his profession and a colleague through whose scholarly contributions medical science had been advanced and medical literature notably enriched. Resolved, That his unusual attainments in other fields than those of his chosen specialties, and a natural courtesy and grace of manner, lent particular charm to association with him. Resolved, That these resolutions be spread upon the minutes of the Medical Board of Mt. Sinai Hospital and that a copy of the same be transmited to the family of Dr. Gruening. For the Board: Abraham Jacobi, Charles H. May, Alfred Meyer, Frederick Whiting.

**Obituary Notes.**—Dr. George W. Hosmer of Summit, N. J., a graduate of the College of Physicians and Surgeons, New York, in 1864, and a member of the Medical Society of the State of New York, died at his home, from general debility on June 2, aged 83 years.

Dr. Carl D. S. Fruh of Philadelphia, a graduate of the Jefferson Medical College, Philadelphia, in 1885, and of the Philadelphia College of Pharmacy, died at his home from nephritis on May 13, aged 65 years.

Dr. Clarence Weston Tolles of Claremont, N. H., a graduate of the Bellevue Hospital Medical College, New York, in 1868, and a member of the New Hampshire and Sullivan County Medical Societies, died at his home on May 28, aged 69 years.

Dr. Samuel Caldwell Benedict of Athens, Ga., a graduate of the Miami Medical College, Cincinnati, O., in 1878, a member of the Medical Association of Georgia, and the Clarke County Medical Society, secretary of the latter, and a former president of the Georgia State Board of Health, died in a sanatorium at Macon, Ga., on June 1, aged 58 years.

Dr. Bret Nottingham of Lansing, Mich., a graduate of the New York Homeopathic Medical College and Hospital in 1901, and a member of the American Medical Association and the Michigan State and Ingham County Medical Societies, having served as president of the latter, died at the Harper Hospital, Detroit, after a long illness, on May 26, aged 36 years.

## Correspondence.

### VINCENT'S ANGINA.

To the Editor of the Medical Record:

Sir:—In the Medical Record of May 9, 1914, I note an article on "A Case of Vincent's Angina Treated with Neosalvarsan," by Dr. H. H. Amsden, Concord, N. H. He states that the disease was first recognized by Vincent in 1898, and that Bruce (*Lancet*, Jan. 12, 1899) gave a thorough résumé of the disease.

The latter statement came as a very great surprise to me, as I was under the impression that I was the first to call attention to Vincent's work in the English language. I had presented the facts at the meeting of the Section on Laryngology of the New York Academy of Medicine, Nov. 27, 1901, W. K. Simpson, chairman. This is recorded in the *Laryngoscope* (Vol. XI, 1901, p. 479), and the full article appeared in the *American Journal of the Medical Sciences* for February, 1902, p. 187.

On investigation I find that H. W. Bruce presented his article on Vincent's Angina in the London *Lancet* for July 16, 1904, p. 135, and not in January, 1899, as stated by Amsden, nearly *three years* later than my own article.

May I ask you to publish this as a correction and also to voice a protest? Our work is often ignored by foreign writers, who claim an alleged inaccessibility of our journals, but we have a right to expect that credit should be given to our own countrymen when the facts warrant and are so easily obtained from our exact medical indices.

New York. Emil Mayer, M.D.

### DIVULSION OF THE ARM.

To the Editor of the Medical Record:

Sir:—The interesting case of divulsion of the arm and scapula reported by Dr. G. K. Dickinson in a recent number of the Medical Record, calls to mind a somewhat similar case which occurred two years ago at the mine in Honduras where my son, S. H. Wilcox, was manager.

A young native while working in the mill was caught by one arm in the machinery and whirled around the main shaft, effecting a complete divulsion of the arm at the shoulder joint. With assistance he picked himself up and walked to the house, a distance of about 100 yards up a steep hill. There was very little bleeding but fearing secondary hemorrhage, my son and his partner looked over the anatomical charts in their first-aid book and tied everything that looked to them like a blood-vessel with catgut. Then applying a mass of absorbent cotton soaked in a bichloride of mercury solution, they made him as comfortable as possible although they had no idea that he could survive.

They sent to a distant town for a doctor who did not arrive until four days after the accident. The dressing was not changed in the meantime and when the doctor arrived there was nothing to do except to apply a fresh dressing. There was no tissue for flaps. The wound healed by granulation and an uninterrupted recovery ensued.

SIDNEY F. WILCOX, M.D.

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## OUR LONDON LETTER

(From Our Regular Correspondent.)

SLEEPING SICKNESS REPORT—KING AND QUEEN AT R. M. C. A.—THE ROYAL SOCIETY—OPHTHALMOLOGICAL CONGRESS AND SECTION AT ROYAL SOCIETY OF MEDICINE—CHADWICK LECTURE—PROFESSOR ROGET—CONSUMPTION HOSPITAL'S APPEAL FOR RESEARCH FUND—OBITUARY.

LONDON, May 22, 1914.

THE report of the Inter-Departmental Committee on Sleeping Sickness was obtainable yesterday (formally issued the day before). They insist on the difference of the problem of trypanosomiasis as seen in Nyassaland and Rhodesia from that presented in Uganda. In the latter the factors are pretty well known—not so in the other. As to how far wild animals, which are a reservoir of the disease affecting domestic stock are a danger to man, the evidence is not complete. The arguments in favor of destruction of game, at least experimentally in a localized area are stated and the objections to so costly and uncertain a plan. As to the Nyassa and Rhodesia form its incidence on the population is slight and not increasing and there is no reason to expect it to become epidemic. If the tsetse fly could be got rid of from human settlements the sleeping sickness would disappear, infection from other flies being practically nil. The committee therefore urge a thorough equipment of entomological research into the bionomics of the incriminated flies. Medical research as to treatment and prevention is also strongly recommended.

The King and Queen have this week been visiting military stations. On Tuesday they witnessed a demonstration of medical service in the field given by three sections of a field ambulance. Two sections were shown at work receiving the wounded, applying dressings, and disposing them for conveyance by motor-ambulances down the line of communications to the clearing hospital. An action close by was supposed to be going on and the wounded to be collected and forwarded to dressing stations which had been set up by the sections. Complete operating marquees were set up and the wounded were being brought in wagons. The cases were labeled with their injuries, deftly handled by the orderlies, brought each separately to the surgeons, bandaged, and carried away to improvised bivouacs or tents to be in readiness there for removal to hospital. Their majesties were then shown the services for lighting the operating marquee by night, for sterilizing instruments and utensils in use in the field, for administering anesthetics and rendering everything light, portable, and capable of quick packing and rapid transport. A section, ready packed for the road, was also shown.

Dr. A. D. Waller has been for many years engaged in the study of the electrical behavior of the heart. Last week he had a paper at the Royal Society on the various inclinations of its electrical axis. The movement upwards of the diaphragm he found changed the direction of the heart's axis, and in consequence altered both the electrical results that could be observed and the interpretations which must be put upon them. As a result of deep breathing he said it was possible to predict and to obtain a complete reversal of the effect—a negative current being reduced to zero or even changed to a positive one.

At the same meeting the effect of other hostile organisms on soil bacteria was the subject of a paper by Messrs. Thornton and Smith. They found a condition necessary to the growth or, at any rate, too vigorous growth, was the presence of amido-acids which acted as auxiliaries or stimulants rather than as food.

Our ophthalmic brethren have had a busy time of late with their congress, partly reported in my last and their section of the R. S. M. To complete my notice of the former, on the last day Mr. Henderson demonstrated his device for measuring changes in intraocular pressure as a test of the tension. Mr. Goulden recorded cases of optic neuritis and spinal myelitis to show the usual progress. One member held that we knew no more about the disease than our predecessors of the last generation, and another hoped that as careful an account would be made by others as Mr. Goulden's. Mr. Brooksbank James had a paper on "Iridosclerotomy in Glaucoma," and showed some cases illustrating the value of his modification in the operation. Dr. Hawthorne showed perimeter charts from cases in which homonymous hemianopia was the principal or only evidence of intracranial disease. Mr. Mayou read a paper on "Eye Diseases in Animals" and showed photos.

Mr. Clegg related a case of senile cataract with two nuclei. Ordinary method of extraction was done. After rupturing the lens capsule he expressed a dark brown nucleus and on some stroking to clear away the cortex a second nucleus appeared and was removed. Mr. Clegg also read a commentary on a case of death after open evisceration. The patient's eye was struck by a chip of hot metal in 1906 and treated in hospital. Useful sight lost. In 1913 he came again to hospital with panophthalmitis and the evisceration was done. He became so restless he was removed to a general hospital, where he died of acute postoperative mania. The diagnosis confirmed by post mortem. Mr. Maddox showed instruments he had had made of the light metals, aluminum and magualium. Mr. Coats reported a case in which, after a blow the pigment epithelium disappeared from a sector-shaped area in the temporal half of the iris and described the appearances under ordinary and transmitted light.

I pass on now to the Section of the R. S. M., which was presided over by Sir A. Critchett. Here

Mr. B. T. Lang showed a stereoscopic *x*-ray photo of a case of traumatic exophthalmos, also a bottle specimen of an early stage of intraocular suppuration. Dr. Bookless showed a congenital cataract, probably of the Coppuck type. The rest of the proceedings were occupied with "Glaucoma" on which these papers were read:

1. By Mr. Greeves, gave his pathological observations on the filtration angle, in some of which there was no closure as in a group associated with an iridocyclitis; a second group with the spaces blocked by swollen cells, and a third with retinal detachment.

2. Lt.-Col. Herbert, on the "Ideal Glaucoma Incision." He advocated as the safest a limited subconjunctival one in the transverse vertical plane behind the limbus and used a very narrow, long, tapering knife. Thus the tendency to vesicular change from filtration through the conjunctiva was at a minimum.

3. Mr. Bishop Harman, on a "Variable Flap Operation," he had devised to allow some latitude in the grading of effects to be produced, for he found the methods in use too rigid—the same being done for all sorts of cases.

4. Mr. Laws, in a paper on "Herbert's Small Flap," inclined to return to the original type of operation and make lateral cuts with a knife, considering that scissors must crush and injure the tissues, which were already lowered in vitality, for which reason he did not apply antiseptics to the sac or even douche it, but just cleansed the edges of the lids with perchloride, 1 in 3,000.

Mr. Whitehead of Leeds discussed the preceding papers with care and in the course of doing so said that when the operation failed it was due to new fibrous tissue forming and closing the incision whatever the operation might do.

Professor Roget of Geneva came here last week and delivered a Chadwick lecture at the Royal Society of Medicine, Sir Bertrand Dawson presiding. His subject, "Altitude and Health." While he approved of ascents to moderate altitudes, he held that the strain produced by unreasonable heights induced lactic intoxication, cerebral anemia, and irregularities of innervation.

The Board of Royal National Hospital for Consumption is desirous of starting an up-to-date research department, but is advised that the cost of such an extension of their work cannot be legally charged on the funds of the charity under the terms of their Royal charter. They, therefore, are appealing for a separate fund to be devoted to a special building and the payment of the cost of the necessary appliances and the remuneration of skilled investigators who will give their whole time to the research. They think a beginning might be made when £5,000 is collected, but estimate that at least £15,000 will be ultimately required.

Colonel W. A. Corkery, late principal medical officer, Lahore Division, has died at Eastbourne. He qualified at Edinburgh and Glasgow and entering the Indian Medical Service was in the Burmese expedition of 1885-7, for which he held the medal and clasp. He became colonel in 1909, retiring in 1912.

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Santonin Poisoning in Infants.—A. Chassevant reports the case of a child who had received two centigrams of santonin in the evening and the following morning a dose of castor oil. Following this medication the child developed convulsions, fever, and somnolence, which lasted for several days.—*Journal de Médecine de Paris.*

# Progress of Medical Science.

## Boston Medical and Surgical Journal.

*May* 28, 1914.

1. In Memory of Silas Weir Mitchell. J. J. Putnam.
2. Remarks on Diagnosis and Treatment of Diseases of the Stomach. F. W. White.
3. Significance of Minimal Macroscopic Gastric Stasis. A. E. Austin.
4. Banti's Disease with Report of Successful Splenectomy M. G. Sturgis.
5. An Operation for Correcting the Aquiline Nasal Deformity The Use of a New Instrument. O. A. Lothrop.
6. Anaphylactic Reactions Occurring in Horse Asthma After the Administration of Diphtheria Antitoxin. J. L. Goodale.

**3. Minimal Macroscopic Gastric Stasis.**—A. E. Austin concludes that a limited number of rice grains visible in the wash water only by means of the microscope, twelve hours or later after the evening meal, when accompanied by marked hydrochloric acid reaction or bile, means a spasmodic closure of the pylorus or a myasthenia, and is rarely permanent. Currants or raisins may be retained for this period in a myasthenic stomach or sometimes pass through a moderate narrowing of the pylorus. A distinct amylaceous residue made visible to the unaided eye by means of Lugol's solution, which is not accompanied by bile, but is accompanied by hydrochloric or organic acids, if persistent, means a mechanical hindrance to the egress of food from the stomach. A wash water containing hydrochloric acid freely and microspocic starch remnants may indicate an old ulcer scar without a trace of gastric stenosis. A minor gastric retention detected by lavage and unconfirmed by the radiograph is proof of pyloric spasm rather than of stenosis, and will often disappear upon appropriate medical treatment. A radiographic demonstration of gastric stasis, not substantiated by lavage, is most frequently due to myasthenia since the weakened gastric walls cannot free the stomach from the heavy bismuth within the accepted time.

**6. Anaphylactic Reactions Occurring in Horse Asthma.**—J. L. Goodale presents a preliminary communication regarding the local phenomena occasioned by horse serum in individuals suffering from so-called horse asthma. In order to determine whether horse serum was capable of producing local disturbances at the point of contact, patients with a history of vasomotor disturbances were examined in one or both of the following ways: (1) The lobe of one ear was moistened with a drop of diphtheria antitoxin and a superficial cut was made with a needle, just sufficient to cause blood to appear but not to flow. (2) A drop of the same antitoxin was placed in one nostril upon the anterior end of the lower turbinate. Eighteen cases were examined. These were grouped as follows: (1) Cases in which horses had been known to excite nasal vasomotor symptoms or an asthmatic attack. (2) Cases showing no reaction to horses, but in whom the asthma was apparently associated with bronchitis alone, or occurred only during the summer in connection with hay-fever. In three cases of horse asthma the application of horse serum to the nasal mucous membrane (in one case pollantin) or to a cut of the skin gave rise to an immediate reproduction in miniature of the phenomena of anaphylactic shock, namely, spasm of the arterioles, with edema and surrounding congestion. One case of horse fever gave a delayed but otherwise typical skin reaction, but no disturbance in the nose. One case of horse fever gave a delayed reaction to the nasal test, but was negative for the skin test. Four of the horse fever cases without asthma were negative for both tests. Five cases of bronchial asthma and five cases of hay fever without sensitiveness to horses gave negative results. As to the value

of these tests in detecting the existence of a state of sensitization to horse serum, the author notes that they should be of assistance when one is in doubt as to whether in a given case it is safe to administer antitoxin. So far as these tests go they would indicate, that in horse asthma, an anaphylactic reaction may occur after the administration of horse serum, in horse fever with nasal symptoms alone, this danger is less or not at all to be feared, and in other types of asthma and of vasomotor rhinitis it is not present.

### New York Medical Journal.

1. Habitual Constipation and Its Treatment. M. Einhorn.
2. The Present Status of Abderhalden's Reaction. M. G. Wohl.
3. Lobar Pneumonia. E. E. Cornwall.
4. The Recognition of Mental Deficiency. L. E. Bisch.
5. The Treatment of the Insane in the Tropics. F. Woodbury.
6. Jung's Libido Theory and the Bergsonian Philosophy. B. M. Hinkle.
7. The Legal Status of Trained Nurses on the Administration of Anesthetics. A. C. Vandiver.
8. Hydrorrhea Nasalis. J. Guttman.
9. The Medical Colors. S. P. Gerhard.
10. Capital Punishment in the Electric Chair. S. R. Klein.

**1. Habitual Constipation.**—M. Einhorn states that the importance of autointoxication has been exaggerated. Dunin of Warsaw was one of the first to emphasize the fact that nervous phenomena said to be caused by autointoxication, are not due to constipation, as such, but, quite the reverse, bring on the constipation. Constipation may develop as the result of the suppression through hurry or inconvenience of the normal daily desire which is developed by training. Constipation may arise in otherwise healthy people through medication. Habitual constipation may be developed through dieting. Constipation can develop from a lack of fluids. One theory regarding the etiology of constipation is that the muscle of the bowel is thinner than normal, *i.e.* it is congenitally abnormal. Another theory is that constipation may be due to an abnormal position of the large bowel, either to a kink or a ptosis, or a too long colon. Adolf Schmidt brought out a new point, namely, that habitual constipation may be due to a better process of digestion and assimilation, so that there is very little fecal matter remaining. The author does not quite agree with him with regard to the general acceptance of this theory. While it is true that in habitual constipation the bulk of fecal matter is diminished and the absorption is very good, perhaps too good. This is not the cause of the constipation but rather the consequence. In the treatment of habitual constipation the first point is to reassure the patient and tell him that constipation is not such a great misfortune. One should try to interfere as little as possible and to bring back the lost habit of daily regularity. The diet should be arranged to facilitate the bowel movements. This is done in the majority of cases by giving bulky foods, fruit, and salads that contain a great deal of organic acids and cellulose, matter which is not digested, bulky foods serving to bring no more efficient peristalsis. Enough water should be given to the patient. Butter should be used freely. The author has prescribed a combination of phenolphthalein and agar, containing 3 per cent. of phenolophthalein and taken twice a day, or sometimes three times a day in teaspoonful doses. One advantage of these agar preparations is that the remedy in the agar does not come out quickly from the agar substance, but is absorbed slowly through osmosis, and in this way covers a large area of the intestine. A teaspoonful to a tablespoonful of liquid paraffin given twice a day acts well in some cases. There are physical means of treatment, hydrotherapy, exercise, massage of the abdomen, etc. Electricity has been successfully applied.

**7. Trained Nurses in the Administration of Anesthetics.**—A. C. Vandiver favors the following proposed amendment to the Public Health Law of New York State, specifically including the administration of anesthetics within the definition of the practice of medicine. The language of the suggested amendment is the following: "The administration by any process of any substance, liquid or gas, commonly known as a general anesthetic, for the purpose of producing unconsciousness, shall constitute the practice of medicine and surgery, even if such administration is undertaken in the presence of and by direction of a registered physician or surgeon, with the following exceptions: (1) A registered dentist may administer general anesthetics for dental operations, such as the extraction of teeth, but not for any operation that is unconnected with dentistry, even if a registered physician is present and directs the dentist to administer such anesthetic, except as is hereinafter provided. (2) In any case of sudden or severe illness or sickness in which the registered physician or surgeon in attendance upon the patient conscientiously believes that the delay necessary to obtain the services of another registered physician to administer a general anesthetic will endanger the life or health of the patient, that attending physician or surgeon may employ any reliable person to administer such general anesthetic in his presence and under his instructions, but not in his absence. The employment in this manner of any person other than a registered physician to administer any general anesthetic must be limited to emergencies, and must not be habitual." The legal status of nurses administering anesthetics should be fixed, definite and certain, and should be established by the Legislature. If nurses are permitted to administer anesthetics, proper courses of study in nurses' training schools should be prescribed with proper practical experience thereafter.

### Journal of the American Medical Association.

*May* 30, 1914.

1. The Abderhalden-Fauser Reaction in Mental Diseases with Special Reference to Dementia Præcox. C. E. Simon.
2. Results of Radium in Cancer. H. H. Janeway.
3. The Antiserosalvarsan Treatment of Syphilis of the Central Nervous System. G. W. McCaskey.
4. Chronic Dementia, Cerebellar Ataxia, and Epileptiform Convulsions in a Boy Caused by Ptomain Poisoning from Eating Canned Salmon. C. W. Burr.
5. Pregnancy and Labor Complicated by Carcinoma of the Cervix Uteri. R. Y. Sullivan.
6. Paraffin Cancer. Coal and Petroleum Products as Causes of Chronic Irritation and Cancer. B. F. Davis.
7. Elephantiasis and the Kondoleon Operation. H. A. Royster.
8. Traumatic Detachment of the Bladder from Symphysis Pubis with Complete Severance of Urethra. Use of the Labia Minora as a Substitute for Necrosed Anterior Vaginal Wall. A. Werelius.
9. A Case of Acute Nicotine Poisoning of Peculiar Origin. H. S. Reynolds.
10. Deaf-Mutism (Labyrinthine Deafness) as a Result of Purpura Memorrhagica. G. W. Stimson.
11. A Satisfactory Local Anesthesia for the Submucous Resection of Nasal Septum. J. J. King.

**1. Abderhalden Test in Dementia.**—C. E. Simon concludes that a sex-gland reaction may be obtained in nearly, if not all, cases of dementia præcox at some stage of the disease, but that the reaction is not specific of dementia præcox, as Fauser would have one believe. It may, of course, be debatable whether the relatively small percentage of cases in which the clinical history pointed to manic-depressive insanity, but in which a reaction was obtained nevertheless, were in reality manic-depressive cases, but the fact remains that in other types of insanity the reaction may also be obtained, even though one admits that it is observed far less constantly. Of special interest is the fact that

in a large percentage of alcoholic cases a sex-gland reaction seems to be obtainable. No reaction was obtained in any one of the author's eleven cases of paresis. These results thus seem quite in accord with those of Fauser, but just as he notes that at one time one of his associates obtained a positive reaction in an isolated case of paresis, so also did Judd in another series of mental cases note a positive reaction in a few instances. The significance of these divergent findings may of course be manifold.

**2. Radium in Cancer.**—H. H. Janeway notes that the true position of radium in the treatment of cancer, with the present methods of application, is a settled matter. While radium will destroy cancer tissue in a dosage not affecting normal tissues, it does not cure the disease unless the latter is quite superficial or of a variety peculiarly susceptible to its influence. The establishment of the fact that radioactivity is an agent which specifically affects cancer is of very great importance, particularly since no other agent has thus far been discovered which in any degree approaches radium in effectiveness. A knowledge of these facts indicates that a more successful method of applying this remedy may yet be discovered. The whole question hinges upon the even distribution of the proper dosage throughout all involved tissues. At present radium may only supplement, but not replace, the knife.

**6. Paraffin Cancer.**—B. F. Davis states that the similarity of the lesions following types of chronic irritation suggests the probable similarity or possible identity of the irritating agent or agents concerned. Is this factor merely the mechanical effect of the presence of minute foreign bodies, soot, on and in the skin? Probably not, and the best argument against the idea seems to be furnished by the fact that workers in blast-furnace tar escape cutaneous involvement while workers in gas-works tar usually suffer from skin lesions and the exposure to tar or pitch-dust is the same in both cases. Can the lesions be the result of prolonged exposure to heat and repeated burns? Probably not, because this would never account for the bladder tumors of anilin-workers, and most of the labors of paraffin and tar-workers and chimney-sweeps are carried on at room temperature or outdoors and these men are not the victims of frequent burns. This brings one to the assumption that there is a chemical body or there are chemical bodies resident in certain coal and petroleum products which are capable of inducing inflammatory productive reactions in tissues and eventually an atypical, unrestrained proliferation of epithelial cells. In favor of this suggestion the author recites several facts. Physicians of large experience of paraffin prothesis demand paraffin of the very highest purity for their work, because it seems that paraffinomas, that is, inflammatory tumors which occasionally develop at the site of a paraffin injection, are especially apt to appear following the use of paraffin of inferior grade. Epithelioma develops earlier and with greater malignancy in workers in fluid tar and in paraffin than in those who are subjected merely to the dry dust and soot. This observation agrees with the generalization that substances are most active chemically when in solution. None other than a chemical cause seems possible in relation to the bladder tumors of anilin workers, and to the betel-nut and tobacco cancers. Ross, Cropper, and Ross assert that they have demonstrated the existence of a number of chemical bodies, twenty-five or thirty, which are capable of inducing cell division in vitro, these bodies they term "auxetics." Auxetics have been demonstrated in gas-works tar but not in blast-furnace tar. Moreover, Bayon was able to induce atypical epithelial overgrowths in animals by the use of gas-works tar containing auxetics, while experiments with the auxetic-free blast-furnace tar resulted negatively. Ross, Cropper, and Ross place certain products of tissue decomposition among the auxetics and suggest that the latter may be responsible for the proliferation of tissue which occurs in healing wounds and that their continued presence in tissues for a long period, as in areas subjected to "chronic irritation," may be the factors which determine malignant degeneration in such areas. Schamberg suspected radioactivity as the possible exciting force in tar products, but its presence could not be demonstrated in specimens examined for him at the University of Pennsylvania.

## The Lancet.

*May 23, 1914.*

1. A Report of the Work at the Radium Institute from Jan. 1st to Dec. 31st. A. E. H. Pinch.
2. The Diagnosis of Pulmonary Tuberculosis; the Value of Besredka's Antigen in the Complement-Fixation Test for Tuberculosis Disease. A. C. Inman.
3. Remarks on the So-called Re-education of the Deaf. R. Lake.
4. A Contribution to the Knowledge of Experimental Nephritis. H. Oertel.
5. Observations on Syphilis of the Central Nervous System, with a Note on Salvarsan. J. E. R. McDonagh.
6. Note on a New Combined Method of Prostatectomy. J. L. Thomas.
7. A Case of Congenital Defect of the Ulna. P. B. Roth.
8. Secondary or Symptomatic Leukemia. G. R. Ward.
9. Bacillus Coli as a Cause of Septic Onychia. T. Houston and W. W. D. Thomson.
10. A Case of Tetanus Treated with Subcutaneous Injections of Carbolic Acid; Recovery. W. G. Reynolds.
11. Niton as a Therapeutic Agent. Sir William Ramsay.

**2. Besredka's Antigen in Tuberculous Disease.**—A. C. Inman tested the diagnostic value of the complement-fixation test of the blood in the presence of a tubercle antigen prepared by growing tubercle bacilli in a liquid medium consisting of veal broth and the white and yellow of the hen's egg. No peptone, glycerine, or salts are employed. After the growth has proceeded for from three to four weeks the culture is heated to 115 C., filtered free from bacteria, and should contain sufficient tuberculin to kill a tuberculous guinea-pig in a dose of 1.5 c.c. to 2 c.c. The author found that the antihemolytic power of tuberculous serum can be made manifest in a hemolytic experiment by introducing Besredka's antigen into the mixture. Repeated positive reactions especially with a 32-fold serum dilution, in the absence of a positive Wassermann reaction, indicates the presence of an active tuberculous lesion. Repeated negative reactions indicate the absence of an active tuberculous lesion if cases of under 12 months' duration be excepted.

**4. Experimental Nephritis.**—H. Oertel concludes from his experiments that definite lesions result in the liver after the administration of cantharidin, bichloride of mercury, and uranium nitrate. These lesions bear a more or less close resemblance to the changes in the kidney. Cantharidin produces a rapidly progressing and general parenchymatous degeneration and necrosis associated almost from the beginning with tremendous hemorrhagic vascular engorgement and cellular exudation. These lead, even in small and moderate doses, to a marked and rapid disorganization of the liver. The accompanying constitutional symptoms are severe and lead to speedy death. In mercury the picture is controlled by parenchymatous and fatty degenerations with which an edematous swelling is associated. These lead, according to the dose and to the susceptibility of the animal, to rapid or retarded solution of the cells, especially in the central parts of the lobules. Somewhat similar to mercury are the changes brought about by uranium, but a much greater inflammatory edema or serous exudation and a greater swelling, vacuolization, and cytolysis of the parenchyma in kidney and liver distinguish uranium from mercury poisoning. The fatty changes are less marked than

after mercury, due, in all probability, to the greater and more rapid edematous dissolution of the cells. But in both lesions the central parts of the lobules are most severely involved. The conclusion is drawn that cantharidin, mercury, and uranium are not selective posons, that they affect not only the kidney but also the liver, and that they involve in both organs the parenchyma as well as the circulatory system. Functional changes which have been observed in these instances cannot therefore be regarded as solely due to injury of one or the other part of the kidney, for the alterations in the liver make it probable that these changes are at least partly dependent upon metabolic disturbances, caused by these poisons.

9. **Bacillus Coli as a Cause of Septic Onychia.**—T. Houston and W. W. D. Thomson report three cases of septic onychia due to infection by the *Bacillus coli*. One of these cases occurred in a medical man who was attending a case of *Bacillus coli* cystitis, which he was treating by lavage of the bladder. He developed a very painful swelling, red, tender, and edematous, around the roots of two nails. In both the affected fingers there was a history of a minute abrasion. The condition was treated by incision and cauterization without effect. Two doses of stock staphylococcus vaccine produced no improvement. A culture taken from the seropurulent discharge which exuded from beneath the swelling contained in addition to staphylococci and diphtheroids colon bacilli which were morphologically and culturally typical. The patient's opsonic index to the *Bacillus coli* was found on two occasions to be raised above two. His serum did not agglutinate the *Bacillus coli*. A vaccine of this microorganism was administered, and after the first dose of two and a half millions immediate improvement set in, and it was only necessary to administer a second dose to secure a complete cure. Both nails were lost.

## The British Medical Journal.

*May* 23, 1914.

1. The Objections to the Incomplete Operations for Cancer of the Breast. C. B. Lockwood.
2. A Report of the Work Carried Out at the Radium Institute, London, in 1913. A. E. H. Pinch.
3. A Case of Multilocular Cystic Disease (Cystadenoma) of the Pancreas. E. C. Hadley.
4. Acute Obstruction of the Small Intestine. C. A. Pannett.
5. Pituitrin in Post-operative Intestinal Stasis. N. Porritt.
6. Heo-colic Intussusception in a Child of Four Months, Resection, Lateral Anastomosis. W. S. Fenwick.
7. Further Experiences in the Treatment of Imperfectly Descended Testicles. E. M. Corner.
8. Experimental Proof of the Value of a Mask Over the Surgeon's Mouth During Operations. A. L. Candler.

1. **The Incomplete Operation for Cancer of the Breast.**—C. B. Lockwood notes that the inefficacious and uncommendable incomplete operation usually consists of an elliptical incision, including the nipple and areola, and a varying quantity of skin; the mammary gland, but not always in its entirety; the pectoral fascia; and the fat and lymph glands from the axilla up to the pectoralis minor. This operation is rightly called the incomplete operation because it almost invariably leaves part of the growth in the axillary lymph glands and lymph vessels, not infrequently in the pectoralis major, in the skin, or in the fascia of the chest and abdomen. This operation does not fulfill the conditions; it is not calculated to remove the whole of the cancer, and is therefore almost inevitably followed by a recurrence. The incomplete operation removes the pectoral fascia, but it does not take away the pectoralis major or the pectoralis minor. A cancer which is adherent to the pectoral fascia has certainly grown both into the pectoral fascia and into the pectoral muscle. There is a further anatomical reason for the removal of the pectoralis major and of the pectoralis minor. The axillary lymph system is the main road by which the growth spreads from the mammary gland. Its progress is quick and it may soon arrive in the lymph glands beneath the costocoracoid membrane. In the incomplete operation no attempt whatever is made to take away any of the lymph vessels and lymph glands about the upper end of the axillary vein. There is only one condition under which an incomplete operation might cure the cancer, namely, when the carcinoma is confined to the mammary gland, and has not yet infected the lymph vessels or lymph glands.

2. **Work at the Radium Institute, London, in 1913.**—A. E. H. Pinch presents a report which deals with the cases which presented themselves at the Radium Institute, from January to December, 1913, inclusive. Epitheliomata of the buccal, lingual, and pharyngeal mucous membrane still prove both refractory and disappointing in their response to radium, but a new method of treatment has recently been devised, which in instances of cancer of the tongue has given distinctly encouraging results. It consists in the burying within the carcinomatous nodule of a very small but intensely powerful radium emanation tube possessing an initial activity equivalent to that of 80 to 100 mg. of radium bromide enveloped in a screen of 1 mm. of silver, or 0.3 mm. of platinum, and giving an exposure of twenty-four hours' duration. A fairly severe reaction follows, and in some cases the nodule ceases to grow and becomes replaced by dense fibrous tissue. Uterine cancer still continues to yield most gratifying results, and the effects of radium treatment in inoperable cases are far in advance of those obtained by any other known medical or surgical methods. The number of patients with carcinoma of the breast, applying for treatment far exceeds that of any other malignant condition. The policy of declining to treat operable cases is still rigidly adhered to, unless the patients have absolutely refused to submit to operation and radium is used as a last resort. In carcinoma of the thyroid encouraging results have been obtained. In a few instances that have come under notice, the progress of the disease has been arrested, and a decrease in the size of the existing growth has been obtained, the general discomfort and dysphagia when present being greatly relieved. The superficial lesion in Paget's disease is usually speedily cured by one hour's exposure to a half strength plate unscreened, but the underlying induration and affection of the glands, if present, require prolonged treatment with heavily screened applicators if any real benefit is to be obtained. In cases in which the patient is willing to submit to operation this procedure should always be adopted. Carcinoma of the rectum displays much variation in its response to radium therapy, and numerous factors have to be considered in prognosis. Speaking generally, the soft annular and vascular type of growth is much more favorably affected than the flat, hard, non-annular plaque with much subjacent induration. The number of cases of carcinoma of the prostate which have been treated up to the present is not very large, but benefit has been noted in all of them. Nine cases of carcinoma of the bladder have been treated and in six instances the results have been most gratifying. As regards sarcomata, speaking in general terms, these growths, if taken in their early stages, and before dissemination has occurred do very well under radium treatment. The burying with the growth of tubes of radium salts or radium emanation should be resorted to whenever practicable, and the action of these tubes may be much helped by the external application of radium plates heavily screened. In almost every instance of mediastinal tumors that has come under observation the rate of growth has been very markedly checked by the use of radium, and in one or

two cases a definite decrease in the size of the tumor, as seen by *x*-ray screening has undoubtedly occurred. In fibroid disease of the uterus radium exerts a most beneficial action upon the distressing menorrhagia and metorrhagia, which are the almost invariable concomitants of this condition, though it seldom produces any very great diminution in the size of the uterus. Leucoplakia patches on the tongue, cheek, or vulva are speedily removed by radium, but they tend to recur sooner or later. Cavernous nevi do excellently under radium, especially when of such shape that "cross fire" radiation is possible. In tuberculosis of the glands in which surgical measures have been declined for cosmetic reasons, radium often proves of considerable value, either when used alone or as an adjunct to vaccine treatment. In skin disease, keloid continues to give most excellent results when treated with radium, and a great improvement if not a complete cure can be safely predicted. In exophthalmic goiter the results obtained are sufficient to justify a trial of radium when other treatments have failed to produce any results. In arthritis deformans the daily administration of 250 c.c. of radium emanation solution of a strength of not less than 1 millicurie per liter to patients suffering from this obstinate and painful and crippling disease is sometimes attended by very remarkable results.

## Berliner klinische Wochenschrift.

*May* 18, 1914.

**Physiology and Pathology of Caisson Life.**—Bornstein writes in a general way of life in compressed air. The caisson was introduced in 1830 by Triger. In 1857 Hoppe-Seyler and Bert, physiologists, described and explained the socalled caisson disease. Among recent authorities are von Schrötter, Zuntz, Haldane, and Quincke. No further dates are given and the author is silent on the important American labors on the "bends." This term was known to the laity in this country in the 70's of the past century, although not found in the earlier reports of the St. Louis and East River bridges. The author credits it to the English. Despite the elaborate work of the German and English scientists there remain many gaps in our knowledge. Treatment throws little light on the nature of the disease, for it simply consists in putting the patients back into compressed air—in other words the treatment is recompression. The "bends" which make up 90 per cent. of caisson disease is now believed to be peripheral in nature, due to the formation of gas bullæ in the loose superficial tissues, notably the subcutaneous cellular tissue. The lower extremities suffer much more frequently than the upper. In 10 per cent. of cases the liberation of gas occurs in the central nervous system. Patients with a well developed layer of subcutaneous fat seem to be especially predisposed to caisson disease. Many individuals develop a tolerance to compressed air. Prophylaxis consists in gradual decompression. The higher the pressure and more prolonged the sojourn the more gradual must this be—the socalled decompression by stages.

**Hyperglycemic Obesity.**—Röth discusses in full this well known association. While in true diabetes we see even under a rich diet a rapid loss of flesh, in the present condition we see even on a light diet a rapid putting on of flesh. In hyperglycemia there is further an increased tendency to arteriosclerosis and arteriosclerotic contracted kidneys. Upon this basis we see develop apoplexy, cataract, eczema, furunculosis, and gangrene. Here, therefore, as in true diabetes, we rely on an antidiabetic diet to reduce the excess of sugar, with the added reduction of obesity. A marked diabetes or hyperglycemia may occur if the kidneys are already contracted, in which case we must test for alimentary glycosuria. It is in the so-called fat diabetic that carbohydrates are chiefly contraindicated.

**Abortive Treatment of Erysipelas.**—Kumaris relates five cases of erysipelas occurring in Athens. The modern watchword in treating erysipelas is "do nothing." This, of course, has reference to rational plans of treatment, to specific treatment. A highly virulent type of streptococcus is concerned in an intensive invasion of the lymph spaces of the skin and mucosæ. The first four cases were treated in the classical manner, including the indicated serotherapy and the course of the disease was uninfluenced. The condition was apparently spread among patients with wounds. When a fifth patient had become infected, the author made a single thorough punctiform cauterization with the paquelin and no further treatment was required. The idea is not claimed as new. In fact Larrey used the actual cautery freely, as did also Pelletan, in a multiple fashion. The cautery must be used early and the entire inflamed area must be attacked as thoroughly as possible.

## Münchener medizinische Wochenschrift.

*May* 12, 1914.

**Albumin Storage by the Liver after Feeding with Final Cleavage Products of Protein.**—Berg refers to the experiments of Abderhalden and others along the line of N-retention after feeding with these cleavage products. Believing that the seat of retention must be the liver, the author has studied liver cells from a great variety of animals, cold and warm blooded, and came to the conclusion that the substance stored is not protoplasm as we understand the term. It occurs in the form of droplets which are very little in evidence in starvation while numerous after albumin feeding. These fluctuations occur independently of the protoplasmic contents of the liver cells. These the author terms "fixed protoplasm." The fluctuating drops are replaced by vacuoles during starvation. While albumin feeding causes these droplets to appear, this is not the case when a carbohydrate or fat diet is used. Very recently Tichmeneff has not only applied chemistry to this problem with success, but he has been able to secure results of a quantitative character. Broken up albumin used by the author comprises in part meat which has been digested in succession by pepsin HCl, trypsin and erepsin. The preparation was free of biuret and gave only a very slight clouding with phosphotungstic acid. This solution is believed to consist of amino acids, with which Abderhalden was able to create albumin in the organism.

**Paratyphus in Munich Children.**—Breuning believes that in not a few cases of dyspepsia, diarrhea with numerous mucous fetid stools—in other words of gastroenteritis we simply have before us a paratyphus affection, which can be identified only by bacteriological and serological methods. As a rule we have to deal with milk-borne infection. Paratyphus milk may be recognized not only by the usual tests, morphological and cultural, but because a thermostable toxin is produced therein. Statistically the paratyphus bacillus is less frequently at fault than the various forms of dysentery bacillus, but more frequently found than Gartner's bacillus. In the first year or two of life we know little of the *B. paratyphus*, so that it need not be accused of summer mortality. Of the paratyphus disease *per se* we know of two, perhaps three forms. One simulates typhoid, a second gastroenteritis and a third cholera. These forms are due largely to the site of the bacilli, the typhoid form being associated with Peyer's patches, while the gastroenteric form acts on the super-

ficial structures. The typhoid form is more benign than the gastroenteric. To come to an abrupt close—we should suspect any febrile gastroenteritis in a young child and at once make bacterial studies.

### Deutsche medizinische Wochenschrift.

*May* 17, 1914.

**Causes of Late Eunuchoidism.**—Schwaer reports a single case. A man of 45 lost at the age of 22 his entire hairy equipment without apparent cause. Such a condition until recently would have been termed by dermatologists alopecia areata universalis, and no other diagnosis would have been possible for many years. When about 38 he began to flesh up rapidly, which was of course a normal behavior. For the past three or four years attacks of facial spasm, probably psychogenic. Quite recently attacks of precordial pain, sense of oppression, and dyspnea. These recalled somewhat similar attacks in childhood. The patient, a single man, had seminal emissions every four weeks, and his potency was weak. He was well nourished, and his fat was accumulated about the hips, abdomen, breast, and neck. His face was red, slightly cyanotic, but there was nothing wrong in the thorax. Penis small, testicles normal. The loss of hair, and abnormal distribution of the fat suggested dystrophia adiposo genitalis, but the radiogram showed a normal sella turcica, and the superior physical development was opposed to such a view. The author was compelled therefore to regard the case as one of late eunuchoidism. It now remains to be mentioned that patient had a double variococele. The symptoms of late eunuchoidism as described by Falta comprise the eunuchoid distribution of fat, the loss of hair, red and slightly bloated face, and anatomical and functional insufficiency in the genitals. This disease picture seems feebly outlined, for the patient's red face may have been due to his frequent abuse of alcohol. The distribution of fat is natural in the elderly, the total loss of hair is a condition *per se*, and the genital anomalies are sufficiently common in men of any type. According to Falta this condition appears after trauma, especially in the external genitals; hernia; gonorrhea and syphilis; infectious diseases, etc. If we follow Falta, the only apparent cause in this case is local, the double varicocele; and in the future the relationship between the two should be studied.

**Etiology of Psoriasis.**—Jaerisch refers to Menzer's claim that this dermatosis is only a tuberculide which induced him to test this subject in soldiers. Ten of the latter were studied, eight patients being psoriatics, while the two controls had eczema. Menzer's claim that the staphylococcus was a determining factor in the psoriatic eruption was chiefly investigated. This was demonstrated by the alleged curative action of staphylococcus vaccine. Naturally soldiers are vigorous subjects, and psoriasis is rare among them—about 2 cases per 1000. While, therefore, unsuited for Menzer's tests, the author obtained in several cases both a staphylovaccin reaction and temporarily good results. He seems to be about the first writer to believe in the possibility that Menzer's contention can be supported partially by facts.

### Deutsche medizinische Wochenschrift.

*May* 14, 1914.

**Secondary Narcosis Death.**—Keil refers to death attributable to narcosis but occurring after the latter. Primary narcosis death means death from the anesthetic and during the narcosis. The secondary death presents no constant picture but varies greatly in accordance with the organ chiefly involved. We see it in weak constitutions, in the status thymico lymphaticus, in the obese, in cardiacs and nephritics. This does not mean that sound internal organs protect. To avert this form of death we should take the blood pressure, study a drop of blood, and cause the patient to climb stairs at a moderate pace—the increase of pulse rate, with the time required to regain equilibrium giving us an idea as to the functional power of the heart. The secondary narcotic death does not usually appear before the second or third day, when the pulse becomes rapid and shallow, while the temperature shows fluctuations not traceable to any inflammation. Patients become restless and have a sense of precordial oppression along with cyanosis, anxious expression, and at times slight icterus. There are labored breathing, oliguria with sediment of nephritis. The pulse rapidity increases and the original cyanosis gives way to a waxy pallor, the face falls in, the nose is pinched, etc. There is now no hope of recovery and death occurs from circulatory and respiratory failure. In a few cases there is rapid collapse with coffee ground vomiting. All the analeptics may be tried to save these cases. Improvement under these resources does not of course mean recovery. Generally speaking the measures used are those proper in collapse from any cause. Early washing out of the stomach is a special resource, as the coffee grounds vomiting is not only specific for this affection but indicates a grave prognosis. The author selects 4,000 narcoses, almost wholly chloroform or ether or both, in which there was not a single case of primary narcosis death and finds 10 cases of secondary death. In 9 the simple drop method was used and in the other there was mixed narcosis with the Roth-Dräger apparatus, in which oxygen is superadded. Death occurred on an average 4 days after the narcosis. Most of the patients were fat, elderly women. In Münich women become fat while still young. It is only necessary to add that the narcosis material comes from Professor Klein's gynecological clinic.

**Treatment of Disturbances of Motility of the Stomach.**—Winternitz concludes a thorough study of this subject with special reference to gastrectasia. When simple atony has brought about the latter, a permanent cure may result from the use of internal measures. Diet comes first in these cases, then follows gastric lavage. The socalled secondary gastrectasia, due to pyloric obstruction suggests early operative intervention. But in just such cases even measures for simple primary gastrectasia have prevailed to a certain extent. Naturally in cancer, actual or suspected, a pyloric resection or gastroenterostomy is indicated. An indication for these operations is also present in gastric stasis of the third degree, irrespective of cause, when a high degree of subnutrition has resulted. Strychnia is given in combination with calcined magnesia as a stomach tonic. Alkalies may be required in hyperacidity, creosote in fermentative cases. Gastric lavage, systematically practised, is the best medical resource. Rectal feeding is sometimes necessary to rest the stomach.

**The Stages of Tuberculous Infection in the Human Being.**—L. Bernard states that the first stage of infection occurs in the child. The manifestations in the adult are the result of a reinfection. The bacillary infection is in reality an immunizing one. The stage of immunity or rather of allergy is variable, unequal, and unstable. Tuberculous allergy resulting from the initial infection governs the evolution of the reinfections.—*La Presse Médicale.*

## Insurance Medicine.

American Association of Medical Examiners.—The annual meeting of this Association will be held at the Dennis Hotel, Atlantic City, June 22, at 10 a. m. The following papers will be read: "Blood Pressure," by Dr. J. W. Fisher, Medical Director, Northwestern Mutual Life Insurance Company, Milwaukee. Discussion by Dr. Henry Wireman Cook, Medical Director, Northwestern National Life Insurance Company. "The Special Value of a Few of the More Refined Methods of Diagnosis in the Rating of Impaired and Large Risks," by Dr. Fred M. Hodges, Assistant Medical Director, Atlantic Life Insurance Company, Richmond. "Reliable Methods of Uranalysis," by Dr. C. A. McCollom, Minneapolis, Chief Examiner for Prudential Life and Mutual Benefit Life Insurance Company. Discussion by Dr. Henry L. Ulrich, Minneapolis. "Chronic Discharging Ears and Life Insurance," by Dr. Wm. Mithoefer, Instructor in Rhinology, Laryngology, and Otology, College of Medicine, University of Cincinnati. "Periodic Re-examinations," by Dr. Charles H. Castle, Member Hygiene Reference Board, Cincinnati.

**The Effect of Alcohol and Tobacco on Life Expectancy.**—T. D. Crothers points out that alcohol and syphilis are coming into greater prominence as factors in disease and death, and call for new study and examination. Evidently the managers of the life insurance companies are not clear concerning the influence of alcohol on mortality. They have a general consciousness that it is an important factor in disease, but concerning its exact relation there are conflicts of opinions. Some companies cling to the Anstie theory, namely, that a certain amount of spirits is harmless and may be consumed in the body with little or no danger, provided the amount is below a certain limit. A very few companies insure only total abstainers and are emphatic against taking any other risks. Most companies accept applicants who acknowledge the moderate use of spirits such as wine at meals, and occasionally the use of stronger alcoholic beverages on special occasions. When other requirements are satisfactory the companies consider the use of alcohol of little or no importance. Medical examiners differ widely in their estimates of the danger from this source. Some of them regard beer as of no influence on the mortality rates. Many of them consider spirits taken as a medicine, even for a long time, as harmless. Some companies assert that there is less danger in accepting moderate drinkers, under certain circumstances, than persons who are classed as total abstainers. The alcohol habitue suffers from an autointoxication in addition to the intoxication from alcohol. The inebriate is a neuropath and a psychopath, subject to morbid impulses and obsessions, with defective and degenerate brain control. Both are exceedingly dangerous risks and are not to be judged by the average mortality tables. These facts are very significant and are confirmed by mortality statistics. Several studies of the mortality statistics in this country and abroad have pointed to one conclusion, namely, that alcohol is the most distinct and prominent of all the particular causes of death in persons under fifty years of age. There is no question about the effects of alcohol in large doses, used continually or at intervals. Laboratory work has shown its paralyzing effects in doses of from half to one ounce, and also that it has a special action on the vasomotor centers, deranging the circulation and dehydrating cells and tissues. Cells exposed to one-tenth of one per cent. of alcohol become shrunken and changed in appearance. Tobacco does the same thing, only in a lesser degree, and is more corroding. These facts are confirmed by the clinical experience of the histories of persons; by studies of symptoms, and by comparative studies of alcohol and tobacco on cell growth in plants and animals, which studies show degenerative physiological effects that are unmistakable. Policyholders to-day are subjected to strains and drains unknown a half century ago. There are certain occupations and certain environments that strongly predispose to the use of narcotics like alcohol and tobacco. There are certain causes, some of them psychic, that should be the subject of distinct and exhaustive examination. Medical examiners should be laboratory and clinical judges of the deductive and inductive studies of the entire phenomena of living. If the companies are unable to limit their business to total abstainers there are already data sufficient to indicate the possibility of insuring moderate drinkers on a practical commercial basis. Thus a man at forty years who asserts that he is drinking alcohol in moderation, should be rated with the same expectancy as a man of fifty or fifty-five years, and should pay premiums accordingly. A periodic drinker thirty years of age should be charged the same premiums as an individual forty or fifty years of age. This is on the supposition that the drinker is free from the ordinary symptoms of physical disability. The central fact is that the drink and drug taker has discounted the future and is prematurely aged, and that the company can estimate this premature aging and issue policies accordingly. All persons acknowledging the moderate or occasional use of spirits should pay the same premium as persons from ten to twenty years older, depending on circumstances and conditions. The present system of making all classes pay the same rates is an injustice to the abstainer, who must pay, too, the increased risks which the company assumes by insuring the moderate drinker. Life insurance is a commercial business without sentiment and should recognize the changing conditions and discoveries in science as well as in business.—*N. Y. Medical Journal*, April 25, 1914.

**"Hereditary Disease" in Application.**—An application for life insurance, after containing numerous questions as to the applicant's physical and mental condition, inquired whether any intimate associate or any person in the applicant's immediate household was then ill with consumption, whether any one of them had recently been ill or died of that disease, and then asked whether any of the applicant's uncles or aunts had consumption or any "hereditary" disease. In an action on the policy it was held that the last question should be construed as inquiring concerning physical ailments and condition and not to refer to hereditary insanity. (South Atlantic Life Ins. Co. v. Hart's Adm., Va., 79 S. E. 401.)

**Significance of a Family History of Diabetes in Life Assurance.**—In discussing a paper with this title, read by Dr. Otto May on March 4, 1914, before the Life Assurance Medical Officers' Association of Great Britain, Dr. De Haviland-Hall suggested that the family history of diabetes was much more important if the brother or sister, especially the brother of the proponent, had been affected with diabetes.

# Book Reviews.

LEHRBUCH DER ORGANOTHERAPIE. By WAGNER v. JAUREGG and GUSTAV BAYER. Price 13 marks. Innsbruck and Leipzig: Genz Thieme, 1914.

THIS book of organotherapy includes chapters by Dr. L. Borchardt on the pituitary body and by Prof. Friedrich Pineles on the parathyroid glands, but the bulk of the matter is contributed by Gustav Bayer on his special subjects, the suprarenal bodies, the chromaffin, system and on organotherapeutic experiments with other organs than the ductless glands. Professor von Jauregg, the authority on cretinism, writes the chapter on the thyroid gland. The authors beg the reader in their preface to make no comparison between this book and Biedl's "Innere Sekretion," since the latter presents an exhaustive review of the theory of inner secretion, and is therefore primarily intended for the research work, while this v. Jauregg-Bayer work is addressed to practicians, and therefore only contains as much as is necessary for the understanding of the therapy.

PATHOGENIC MICROORGANISMS. A Textbook of Microbiology for Physicians and Students of Medicine. By WARD J. MACNEAL, Ph.D. M.D., Professor of Pathology and Bacteriology in the New York Postgraduate Medical School and Hospital, New York. (Based upon Williams' Bacteriology.) With 213 illustrations; price $2.25 net. Philadelphia: P. Blakiston's Son & Co., 1914.

THE basis of the present work is the well known manual of Williams, and its subsequent revisions by Bolton. The title of the work has been changed, owing to the importance of the parasitic protozoa, a consideration of these being now included. The text has been largely rewritten, much new material has been inserted, and some obsolete matter omitted; but the work is no larger than its immediate predecessors. The reader will find in this volume all that the practising physician is likely to require on this special topic. The subject is handled in a broad and general way, and the author has produced a book which is readable as well as useful.

THE CLINICS OF JOHN B. MURPHY, M.D. Vol. III, No. 1. Octavo of 190 pages; 91 illustrations; published bimonthly; price per year, paper $8.00; cloth, $12.00. Philadelphia and London: W. B. Saunders & Co., 1914.

THIS is an extremely interesting number and a vast improvement over the final number for 1913. A large part of the book is taken up with the consideration of bone and joint surgery, a field in which Murphy has "shown the way" perhaps to a greater degree than any other American surgeon in recent years. He also discusses tuberculosis of the testicle, and tumors of the breast, with a description and illustrations of his technique. There are also chapters containing remarks made at one of Murphy's clinics during the week of the meeting of the Clinical Congress of Surgeons by certain of the visiting surgeons as follows: Lord Lister and Antiseptic Surgery, by Sir Rickman J. Godlee; Nitrous Oxid Anesthesia, by George W. Crile; Metastatic Infections, by George E. Brewer; Gastric Ulcer and Gastric Carcinoma. by Herbert Paterson, F.R.C.S. All things considered, this is one of the most interesting of the more recent volumes of this series.

INFECTIONS OF THE HAND. A Guide to the Surgical Treatment of Acute and Chronic Suppurative Processes in the Fingers, Hand, and Forearm. By ALLEN B. KANAVEL, M.D., Assistant Professor of Surgery, Northwestern University Medical School; Attending Surgeon, Wesley and Cook County Hospitals, Chicago. Second Edition, thoroughly revised. 463 pages: illustrated with 147 engravings; price $3.75. Philadelphia and New York: Lea & Febiger, 1914.

WHEN the first edition of this book appeared it was immediately recognized as the most important contribution to the proper understanding and treatment of the infections of the hand and forearm that had appeared up to that time, and since then it has held its position as the standard work on this subject. The present edition has been thoroughly revised, a few new illustrations added, and résumés have been inserted at the ends of several of the chapters. The original study of the subject at the hands of the author had been so thorough that there was little that really needed revision. Some of the illustrations have more extensive explanatory legends in this than in the former edition. Still further elaboration along this line in some instances would add materially to their value.

This is an extremely valuable book and one that may very profitably be studied by every physician who is or may be called upon to treat infections in these areas, no matter how simple they may appear to be. Those who adopt the lines of incision and apply the principles as laid down by the author will find their results much better than under the old methods of treatment.

THE EARLY DIAGNOSIS OF TUBERCLE. By CLIVE RIVIÈRE, M.D., F.R.C.P. 260 pages; price $2.00. London and New York: Oxford University Press, 1914.

To the medical ear of the American physician this title sounds peculiar. The book deals with tuberculosis of the chest only, its symptoms, physical signs, differential diagnosis, and the special diagnostic means, such as Roentgen rays, tuberculin test, sputum examination, and opsonic index. One would presume that the peculiar name indicated a diagnosis of all diseases in which the tubercle is to be found. Aside from this criticism and the additional one that the adjective "tubercular" is used instead of "tuberculous," the former being correct since tubercular applies only to the form of the pathological unit and not to the disease due to the tubercle bacillus, the book is not without considerable merit. It is a splendid review of our present knowledge of early diagnosis of pulmonary tuberculosis by physical examination and other means.

Of particular interest is Chapter II, which deals with the subject of tuberculosis of the thoracic glands which to the mind of the reviewer has not received sufficient attention in most of the modern textbooks on tuberculosis. This part of the book is made valuable by topographic descriptions, some *x*-ray photographs, and the complete report of four cases of glandular and pulmonary tuberculosis in children (ganglio-pulmonaire of the French). As a whole, the book deserves the careful study of specialists and practitioners interested in tuberculosis of the adult and the child.

MEDICAL RESEARCH AND EDUCATION. By RICHARD M. PEARCE, the University of Pennsylvania; WILLIAM H. WELCH, W. H. HOWELL, FRANKLIN P. MALL, LEWELLYS F. BARKER, the Johns Hopkins University; CHARLES S. MINOT, W. B. CANNON, W. T. COUNCILMAN, THEOBALD SMITH, Harvard University; G. N. STEWART, Western Reserve University; C. M. JACKSON, E. P. LYON, University of Minnesota; JAMES B. HERRICK, Rush Medical College; JOHN M. DODSON, University of Chicago; C. R. BARDEEN, University of Wisconsin; W. OPHÜLS, Stanford University; S. J. MELTZER, Rockefeller Institute for Medical Research; JAMES EWING, Cornell University Medical College; W. W. KEEN, Jefferson Medical College; HENRY R. DONALDSON, Wistar Institute of Anatomy; the late C. A. HERTER, Columbia University; the late HENRY P. BOWDITCH, Harvard University. Edited by J. McKEEN CATTELL. New York and Garrison, N. Y.: The Science Press, 1913.

THIS is the second of a series of volumes on "Science and Education" for the promotion of scientific research and educational progress. The subject of the first volume is "Foundations of Science." The present volume is a collection of lectures and essays by the above named educators, all of whom are well known authorities on the phases of the subject which they handle. The subjects of some of these essays are "The Interdependence of Medicine and Other Sciences of Nature," "Medicine and the University," "The Relation of the Hospital to Medical Education and Research," "Liberty in Medical Education," "Some Tendencies in Medical Education in the United States," "Certain Ideals of Medical Education," "The Career of the Investigator," "The Outlook in Medicine," "Problems, Methods and Organization of Research with Special Reference to Physiology," "On the Improvement of Medical Teaching," "The Educational Function of Hospitals and the Hospital Year," "The Addition of a Fifth Year to the Medical Curriculum," "Medicine and Sociology," "Research Foundations and Their Relation to Medicine," etc. Such a range of subjects has left no phase of medical education past or present untreated, and the chapters of "Imagination and Idealism" and "The Medical School of the Future" show forth admirably those broad fundamentals upon which the future of medicine must be constructed. While these essays have all appeared in various periodicals their grouping together in this way gives the most comprehensive view of the subject yet presented.

# Society Reports.

## NEW YORK ACADEMY OF MEDICINE.

*Stated Meeting, Held April 16, 1914.*

THE PRESIDENT, DR. WILLIAM M. POLK, IN THE CHAIR.

THIS meeting was held under the auspices of the Section on Surgery.

**Some Medical Aspects of Pyloric Stenosis in Infancy.**—Dr. L. EMMETT HOLT presented this paper. He said that it was surprising that pyloric stenosis in infancy had gone so long unrecognized, nearly all that was known of the condition having been contributed since 1897. His personal experience with pyloric stenosis included 57 cases, of which 18 were seen in private practice and 39 in among the inmates of the Babies' Hospital. The steadily increasing number of cases seen would indicate that this condition was now being recognized where formerly it was overlooked. Pyloric stenosis occurred nearly always in breast fed infants. In his series of 57 cases, 52 were breast fed, and 40 of these had nothing but breast milk; hence, bad feeding could not be invoked as the cause of this condition. The predominance of the male sex had been noted by all writers. Of his 55 cases in which sex was noted 49 were males and but six females. In four-fifths of the series under consideration the first symptoms of the disease were manifested during the third, fourth, or fifth week, and in only two during the first week of life. The symptoms were usually abrupt in onset. Pyloric spasm played an important part in the production of symptoms and the disappearance of all symptoms in a few weeks in a certain proportion of the cases pointed in the same direction. On the autopsy there had invariably been found marked hypertrophy of the pylorus, principally involving the muscular layer. According to his view the symptoms had an organic rather than a functional basis. It was difficult to reconcile the clinical symptoms and the pathological findings with either of these views alone. Dr. Holt believed that definite persistent spasm of the pylorus without hypertrophy was yet to be proven. At autopsy in his experience, hypertrophy had been invariably present. No sharp division into spasmodic and hypertrophic types was possible. The real question was whether there existed an obstruction sufficient to endanger the child's life and how it might best be relieved. The better division was into mild and severe cases. Many points in the pathology of pyloric stenosis were still obscure, but when it came to the clinical aspects of the disease there was no such divergence of views. The typical case suddenly began to vomit persistently and forcibly, had marked constipation, steady loss of weight, and all the symptoms belonging to failing nutrition. Careful examination revealed definite peristaltic waves and in nearly all cases a palpable tumor in the pyloric region the size of a peanut. The forcible and projectile character of the vomiting occurring soon after meals together with its persistence was characteristic, but visible gastric peristalsis was one of the most important symptoms without which one should hardly be willing to make a diagnosis. A palpable tumor could not be considered essential but would nearly always be found by a careful and experienced observer. The tumor was usually more evident just before or during the act of vomiting. The decision in regard to the advisability of operating should not rest upon finding or not finding it but upon the amount of obstruction present. One of the most important guides to the degree of obstruction was the amount of gastric retention. For this purpose the apparatus suggested by Hess for aspirating the duodenum was useful. This means of establishing the fact of obstruction was, in his opinion, more valuable than the *x*-ray. Constipation depended only on the absence of food from the intestines. Other symptoms were always present but were not diagnostic. There was a wide divergence of opinion as regarded the methods of treating pyloric stenosis. Physicians had reported quite a large series of cases treated medically with so low a mortality as to lead to the inference that nearly all these patients recovered if treated properly. Surgeons, on the other hand, considered the disease a surgical one and urged that the patient be turned over to them for operation as soon as the diagnosis was made. Pyloric stenosis in infancy was accredited with a mortality of about 50 per cent. In his series of 57 cases there were 26 recoveries and 31 deaths, a mortality of 55 per cent. There were 28 cases operated on, with 14 deaths; there were 29 cases treated medically with 17 deaths. Three-fourths of these were hospital patients and some were in a hopeless condition when admitted. The whole crux of the situation between medical and surgical treatment seemed to be that when the symptoms and the condition were such as to make it probable that the patient would live long enough for the condition to subside then medical treatment might be followed out, but if the condition of the patient was such that it seemed probable that he could not withstand the disease until the pathological process subsided than surgery offered the best solution of the problem. The medical risks were not to be ignored; they had not been sufficiently considered. There was danger from acute inanition or from marasmus. To allow the weight of the child to fall gradually from eight to seven or six pounds, or even lower, was to take great chances. There was also the risk of intercurrent disease developing while the child was in an enfeebled condition. Sudden death had been known to occur in cases that were fairly well nourished, where the vomiting had practically ceased, and where there was no assignable cause. Another question remained. If these patients got well without operative treatment did they recover completely or did the lesion remain which might give subsequent trouble? In no instance in which he had been able to follow the subsequent history of the child had there been a persistence of the symptoms into childhood. The surgical risks were partly essential and partly accidental. The essential risks were those of shock, non-union, and exhaustion. These were much reduced by early operation. Of much greater importance were the accidental risks largely due to faulty technique. There were also the additional risks of hemorrhage, leakage, obstruction, and infection. With an experienced operator and the patient in fair condition, the operative risk was much less than one would anticipate. The younger the child the less the shock appeared to be. In private practice, with the best nursing and medical attention the risks of medical treatment were small, but there would always be a certain number of cases in which surgical intervention would be required. Medical treatment consisted of careful feeding and stomach washing twice daily with water at 112° F. Breast milk was the preferable food. In default of that a modified milk mixture low in fats should be employed. The quantity and intervals of feeding must be regulated to the needs of the individual case. In children extremely prostrated the Murphy drip was valuable. They had been accustomed to use 4 per cent. solution of dextrose in a normal saline solution, giving four to eight ounces twice a day. Hypodermoclysis was of even greater value than the Murphy drip. Rectal feeding was of very little assistance, except for a short time. Drugs were of little or no value nor could more be said for local applications of heat over the epigastrium. Cases medically treated must be closely watched.

**Report of Seventeen Cases of Pyloric Stenosis in Infancy Treated by Gastroenterostomy.**—Dr. WILLIAM A. DOWNES presented this report. He stated that his series embraced twenty-one cases, sixteen males and five females. Seventeen were breast fed and one bottle fed. The symptoms appeared from three days to seven weeks after birth. In every case vomiting was the first symptom noted. It was projectile in character and occurred shortly after feeding. A marked loss of weight usually followed. The lower abdomen was retracted and usually soft, while the epigastric region was full and prominent. All cases presented at some time peristaltic waves passing from left to right, though this symptom should not lead to a diagnosis of true stenosis without other more reliable symptoms. To the right of the median line and just below the costal margin a firm, movable tumor about the size of the terminal phalanx of the thumb was felt in every case except the first. Beginning with the eighth case aspiration was practised in every case as a routine measure, and each stomach was found to have from one-half to four ounces retention three hours after feeding, even though vomiting had occurred. They did not consider it necessary or desirable to submit the babies to *x*-ray examination before operation. Upon opening the abdomen a pyloric tumor was found in every case. These tumors were hard, smooth, freely movable, and free from adhesions. The pyloric portions of the stomachs were thickened and somewhat edematous and about one-half of them were dilated. A typical gastroenterostomy was made in all the cases. Ether was the

anesthetic used. The abdominal incision should be one-half to three-quarters of an inch to the left of the median line. The reason for this was that there was so little subcutaneous tissue in these babies that it was difficult to obtain union in the median line, whereas the incision through the rectus muscle healed more readily. Another reason for placing the incision in this location was that in one fatal case a large hemorrhage was found where the needle used in closing the abdominal cavity had punctured the falciform ligament of the liver. With the exception of the first two cases stomach clamps were not used. The after care of these cases was extremely important, and much depended on the judicious use of brandy, atropine, and caffeine, and also upon the proper use of fluids by hyperdermoclysis and the Murphy drip. The after history of these cases was much like the after history in the ordinary case of gastroenterostomy in the adult. A number of the operations were done in twenty-five minutes; the longest time occupied in operating was forty-five minutes. From his experience and observation in this series of cases Dr. Downes said he felt justified in offering the following conclusions: 1. Hypertrophic pyloric stenosis was congenital to the extent that there was an increase in the thickness of the circular muscle fibers at the pylorus. The presence of this thickened muscle fiber reduced the lumen of the pylorus, therefore the stomach, in order to empty itself, contracted more forcibly than normally. This soon caused the mucous membrane to become thickened and edematous, and to assume a more or less spiral arrangement as it passed through the narrowed pyloric channel of from one-half to three-quarters of an inch. The result was a valvular action which gradually produced complete closure of the pylorus. The question as to whether or not the pylorus would admit a probe or catheter at operation or autopsy was of little consequence when weighed against the clinical evidence of obstruction. 2. There was sufficient time between the onset of symptoms and the appearance of the signs of complete obstruction for careful observation and for carrying out any medical measures likely to prove of benefit., provided, of course, that the early symptoms had been properly interpreted. The fear, however, that the condition might have existed longer than had been suspected and that the vitality of the baby was not as good as appearances would lead one to believe made him feel that operation was indicated in every case of hypertrophic stenosis as soon as the diagnosis was made. Should depression or early evidence of shock be present immediate operation was demanded. 3. Babies coming to operation in good condition suffered little or no shock, and their convalescence was straightforward. His experience in this respect corresponded with that of other operators.

Dr. CHARLES L. SCUDDER of Boston, Mass., considered the papers very interesting and congratulated the society upon having so fair a statement of the medical point of view. Dr. Downes' paper was of considerable importance in connection with the surgical aspect of the subject. Dr. Scudder said he hesitated to express an opinion at all contrary to that of Dr. Holt. If there was one thing that was difficult for the general practitioner or the internist it was to feed babies skilfully, but all men were not as competent in this direction as Dr. Holt. Therefore Dr. Holt's attitude of watchful experimentation in certain groups of cases was not one to be commended to the general practitioner. In twenty-five years of experimental work with cases of pyloric stenosis in babies it had been demonstrated that the medical treatment by feeding and by drugs in true cases of tumor stenosis had not been satisfactory. If there was a true tumor present the sooner surgical measures were instituted the better for the immediate condition and the better for the future of the baby. Cases of stenosis not due to tumor were supposed to be occasioned by a certain degree of pyloric spasm. This term pyloric spasm was introduced into medical nomenclature by the general practitioner to explain the cases of difficult feeding not occasioned by true pyloric tumor. He believed that this conception of pylorospasm should be retained. It must be constantly kept in mind, and this was important that the tumor cases of obstruction were real mechanical obstructions. Moreover the tumor was probably of congenital origin. Recently a case had been reported of a newborn baby, a fetus, in which there was a congenital pyloric tumor. This fact was of considerable importance in the proof of the congenital origin of this tumor. It was equally important to remember that the evidence all pointed to the persistence of this tumor throughout life. The evidence of the persistence of the tumor was of different kinds. The *x*-ray evidence seemed to confirm this statement. The evidence from the case of Morse-Murphy-Wolbach reported in the *Boston Medical and Surgical Journal* for April 9, 1908, demonstrated that six and one-half months following a successful gastroenterostomy for congenital pyloric tumor the pyloric tumor still existed as at operation. The evidences discovered in adult life suggested that when the obstruction was not complete the individual lived to adult life and the tumor persisted. The demonstration that the tumor was a permanent one was of more than academic interest. It demonstrated without a doubt the necessity for surgical interference when the diagnosis was first made in these cases. Dr. Scudder agreed with Dr. Holt that the amount of gastric stasis in these cases would help to determine the diagnosis, but he also believed that the value of the *x*-ray was very great and in doubtful cases was a legitimate and helpful means in determining the presence of obstruction. He took issue with Dr. Holt that if these babies were treated medically for a long enough time they would get over their difficulty without surgical assistance. The evidence which he stated for the permanence of the tumor contradicted this statement absolutely. A baby with a partial obstruction could be kept alive by the amount of food passing through the obstructed pylorus, but the obstruction would always exist. The individual living with such an obstructed pylorus would, if he grew up, become weak physically, not strong and robust. The contrast between the rapid improvement in weight, in general appearance, in growth, and in general development in the cases of pyloric tumor operated upon and those cases experimented upon by feeding and drugs was so great that one could hardly understand the attitude taken by certain medical practitioners who advocated long experimental feeding in true tumor cases. When the diagnosis of congenital pyloric stenosis was made in little babies, the earlier surgical measures were instituted, the more rapid would be the recovery from the emergency starvation and the more sure would be the saving of the life of the child. In the group of cases in which the diagnosis was doubtful it would always be justifiable and proper to experiment for a limited time with skilled feeding, in order, if possible, to arrive at a satisfactory diagnosis. Comparatively few cases of so-called pyloric spasm without the presence of a true tumor would require surgical treatment.

Dr. HENRY KOPLIK said that the difficulty encountered in handling these cases was very great; however, the more one saw of them the less difficulty one had in classifying them in his own mind as to which would probably go through without operation and which must be operated upon as quickly as possible. There was a class of cases which he believed would get well without operation, but it was not always easy to come to this conclusion. There was a certain class of cases which were rare and were described as true hypertrophic stenosis, with a hard palpable tumor; these cases should be operated upon as soon as possible. He had seen only one such case. In other cases the tumor was soft and palpable; it could be felt to soften and harden under the finger. Peristalsis was not an indication for operation; many cases had peristalsis and recoverd without operation. In others there was peristalsis long after recovery. To conclude from the presence of a tumor and peristalsis that it was necessary to operate was dangerous ground. On the other hand the amount of stenosis was very important as well as the knowledge of just how much food passed through the pylorus into the duodenum. When no great amount of food passed through the pylorus the sooner the operation the better, before the child became too exhausted. One of the best signs when confronted with a case related to the character of the symptoms from the onset, some cases being stormy so to speak. The child vomited and lost weight from the start and there were signs of intestinal intoxication. These were the cases which should not be played with too long. Dr. Holt had made the observation that if the child lived long enough many would recover without operation. That was true. The symptoms seemed to subside after the third month. As to cases of pyloric spasm with relative stenosis in later childhood, Dr. Koplik had seen one such case due to an ulcer of both the stomach and the duodenum. This case was probably congenital. It was operated upon and died. Post-mortem examination revealed a moderate hypertrophy of the pylorus probably congenital.

Dr. H. M. RICHTER of Chicago, Ill., said that if they could agree as to the underlying pathology it would be

easier to decide upon what course to pursue. Among his 24 cases, 19 were diagnosed before operation as hypertrophied pylorus with resulting obstruction, and in five cases the diagnosis before operation was spasm. Of the 19 cases, 18 showed palpable tumor before operation. In 19 cases there were certain definite things demonstrable, such as a hard fixed tumor. In five cases a diagnosis of spasm was made on the basis of the peristaltic waves of the stomach and the starvation stools. The underlying pathology was certainly quite different from that found in the cases showing hypertrophy and probably did not constitute an entity, but was variable. There was a definite intestinal obstruction in the true hypertrophic cases. The obstruction was mechanical, from a mass blocking a patent lumen and the distended stomach acted as did a distended bladder in forcing the contents through. Last November, in Chicago, Dr. Case took ten consecutive skiagraphs of cases operated upon by Dr. Richter at periods varying from a few weeks to three and one-half years and showed that the bismuth in every instance passed by way of the new opening and not by way of the pylorus. As a matter of fact it was not necessary to show that a tumor existed for years; that it lasted long enough to endanger the patient's life was the indication for operation. The mortality for gastroenterostomy was high, but it was gradually being lowered. The after history of the cases treated medically and those treated surgically should be compared. The duration of non-surgical cases was prolonged and in a large proportion of these cases the mothers lost their milk. These results should be compared with the immediate results from operative work. The point should be emphasized that the bismuth picture should not be relied upon in making a diagnosis. The presence of a tumor did not exclude the possibility of some bismuth passing through the pylorus. Operative treatment carried out early enabled the breast milk to be saved, which was in itself an exceedingly important factor.

Dr. Howard Lilienthal said Dr. Downes was to be congratulated in having the medical men who were willing to turn over the cases to him so promptly. His excellent record was partly to be ascribed to the early surgical treatment. An interesting observation was the prevalence of this disease among males and it was suggestive also that the disease in adults was more common among men than among women. Perhaps a further study of gastic chemistry would help to solve this problem. He had noted that the location of the tumor in these infantile cases was exactly at the pylorus, the pyloric veins appearing at or near the central part of the mass. He had operated on but five of these cases. Two died, one from hemorrhage following an operation upon the mastoid, which had to be performed three days after the gastroenterostomy; the other from some error in technique which resulted in the beaking down of the wound. A short time ago, through the kindness of Dr. Koplik, he had tested the Ranstedtt operation. The operation consumed but eight minutes and was very simple, and he felt convinced that this would be the operation of the future. When one considered that in all seventeen of Dr. Downes' cases he found the expected pathological condition it meant great accuracy in diagnosis.

Dr. Linnaeus E. La Fetra said that his experience with this condition comprised fourteen cases. They could be divided into two groups: First, those that had spasm alone, or spasm with more or less hypertrophy, but in which the spasm was the prominent feature; and, second, those that had spasm and hypertrophy in which the hypertrophy either was or became the most important factor. It was altogether probable that the cases changed from one group to the other. In all the severe cases more or less hypertrophy was present. It was also probable that the presence of an original hypertrophy which might be small in amount resulted in spasm which increased the hypertrophy. Eight of his patients belonged to the first group and all recovered without operation except one. In two of them operation was advised by other consultants because of marked peristaltic waves and the hard spool representing the pylorus. Three years had elapsed with one and two with the other of these children and both were in perfect health. Of the cases in which hypertrophy was the prominent feature he had had six: five of these had been operated upon and four died. The case that lived was included among those reported by Dr. Downes this evening. The other case not operated upon died while the surgeon was deciding whether or not to operate. It must be added, however, that three of these cases were operated upon when the technique of the operation was new and not so well understood as at present. Dr. La Fetra considered that operation was absolutely indicated as the only hope of recovery in all cases in which hypertrophy was the prominent feature. In regard to the diagnosis it might be said that peristaltic waves were generally pathognomonic. There were, however, exceptions to this rule. The presence of the spool at the pyloric end of the stomach, was, of course, diagnostic of pyloric stenosis. It did not necessarily mean hypertrophy, and particularly it did not mean that operation was necessary. All but two of his spasm cases had the spool very marked and yet they recovered by medical measures. In his opinion the most important indications for operation were progressive loss of weight together with the absence of any food residue in the stools. It should be remembered that after a gradual loss of an ounce or two a day for several days the infant might go into a bad collapse so that slight indication of a change for the worse in the general condition must be seriously regarded.

Dr. Elsworth Eliot thought that all were agreed that, irrespective of pathological conditions, the cases could be divided into three groups: 1. Those that were mild in their course and amenable to medical treatment and who were under the care of the pediatrician. 2. The hopeless cases that came to the surgeon in the late stage of the disease. 3. The doubtful cases in which one was undecided as to the propriety of continuing the medical treatment or resorting to surgical measures. Dr. Eliot felt that he would be willing to be guided by the advice of the pediatricians. In some cases the tumor might be present, but palpation might be difficult because of its being overlapped by the liver. With regard to the operation, it went without saying that this should be done as quickly as possible, though as was well known children bore shock remarkably well. When the diagnosis had been made before operation he did not think it necessary to waste time with palpation to determine whether a tumor was present or not. With regard to the postoperative treatment, hypodermoclysis was practically the most essential thing to do after these operations. As to the final results, one, two, or three years was not sufficient time to determine the character of these, but one had a right to assume that when the child reached adult life the results were satisfactory.

Dr. Alfred Fabian Hess said that his experience with the cases of pyloric stenosis in infancy was mainly medical. He had seen in two or three years about twenty cases of spasm of the pylorus. He judged that they were spasm and not organic stenosis because, in spite of obstructive symptoms, there was no palpable tumor, and he was able to pass the catheter through the pylorus into the duodenum. He believed that they had to deal with two groups of cases: 1. Organic stenosis with tumor. 2. Functional stenosis. Organic stenosis he believed to be of congenital origin. In the fetus the pylorus was large and formed a great part of the stomach, greater than it did in infancy, and the pictures of the pylorus of the fetus reminded one of pyloric tumors. The only way to settle this question was to find these cases in the dead born children who had pyloric tumors. Another way was to pass the duodenal catheter and then with the aid of the $x$-ray to see if we were able to pass through the pylorus. In connection with the cases reported by Dr. Holt and Dr. Scudder it must be borne in mind that there were some cases that died within one or two weeks of operation, although the operation was successful. This was due to overfeeding—to alimentary intoxication. If a gastroenterostomy was performed and then a large amount of milk was fed, alimentary intoxication resulted in fever and death. He had seen a case in which the passing of the catheter showed a marked obstruction at the pylorus and there were also clinical symptoms. Suddenly the obstruction ceased, food appeared in the stools, and passing the catheter into the duodenum showed that it entered with ease. Within a few days, however, alimentary fever developed and the child died. In other words, the pylorus had gradually become a protective factor to the child, and when it relaxed the child died of overfeeding. In addition to other medical treatment Dr. Hess believed that the continued feeding through the catheter could be advantageously employed in cases of spasm.

Dr. Max Einhorn said he had had four cases of congenital stenosis of the pylorus occuring in infants and success in the treatment was attained by stretching the pylorus in two of them. He thought this was a

method that deserved to be used more. The stretching was performed in all four of his cases. In one of Dr. Kerley's patients and in one of his own there was a real stenosis and not a spasm, and successful results followed this stretching of the pylorus. He had tried to measure the lumen of the pylorus by means of a little olive tied to a thread and left in over night. After being left in over night it was pulled out. In two of the cases in which there was a stenosis the results were remarkable and just as good as could have been obtained by surgical methods. After the stretching there occurred quite a change; the stomach began to be emptied and the children began to pick up. One child was now five years old, the other three years old; both were living and perfectly healthy. These were typical cases of pyloric obstruction. In the other two cases he succeeded in stretching the pylorus, but the patients died. There was no stenosis according to his experience, but rather a spasm. Stretching was done in these two cases, but without the desired success.

Dr. WILLIAM A. DOWNES said that no surgeon whether urged by a pediatrist or other medical advisor would attempt to operate in pyloric stenosis in infants on the basis of tumor and peristaltic wave alone. Aspiration as advocated by Hess should always be done in these cases. Data from every point of view should be had before resorting to operative interference. In the severe types with complete obstruction, the condition was comparable to obstruction in any part of the intestinal tract and should be treated as such.

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SECTION ON PEDIATRICS.

*Stated Meeting, Held March* 12, 1914.

DR. WILLIAM P. NORTHRUP IN THE CHAIR.

**Fractured Femur Treated by Transfixation Method.**—Dr. JOHN J. MOORHEAD presented four patients illustrating his method of treating these fractures. One of the patients had sustained a fracture of both femur and pelvis; the others had had fractures of the femur only. One patient had been treated by Buck's extension before the transfixation method was used. In this instance a great deal of callus had formed which was broken up under anesthesia and an open operation had also been performed. This boy showed a little more shortening than the others. The shortening in the other three cases varied from one-eighth to one-quarter of an inch. In all four patients the knee function was good.

**Transfixation Method of Treatment of Fractured Femur in Children.**—Dr. JOHN J. MOORHEAD read this paper. He pointed out the limitations of the operative method and of the various extension methods of treating fractures of the femur. He allowed that the various suspension methods might be used with advantage in children under three years of age, but after that they were not likely to be entirely satisfactory. Dr. Moorhead's paper was based on a series of eight cases in children ranging in age from five to fifteen years. In nearly all of these children there was no shortening of the extremity, and in many there was lengthening. The first operation of this kind was done with a carpenter's bit and augur. He then devised a steel drill with a detachable cutting point. It was made of three-sixteenths-inch nickel steel. The method of procedure was as follows: The child was anesthetized and a location in the distal portion of the fractured bone was chosen for the transfixation. The field of operation was painted with iodine and the drill was introduced into the soft tissues, the bone, the soft tissues again until the skin on the opposite side was reached. The drill must not enter the medullary canal, the epiphyseal line, or the joint. The cutting point was then detached and a simple apparatus was attached to either end of the drill, to which, in turn, the cords and weights were fastened. This procedure was applicable to fractures of the tibia, the humerus, and the femur, but seemed particularly adapted to the latter. In fractures of the legs as much as 32 pounds could be applied. This method was especially adapted to cases in which other methods had failed, to overlapping fractures, comminuted fractures, old fractures, fractures of the condyle, etc. It was preferable to plating because it was a much simpler and a less extensive operation, did not necessitate a secondary operation, as plating frequently did, required that the patient be under anesthesia only fifteen minutes, was not painful during convalescence, did not interfere to any great extent with the comfort of the patient, made nursing a much simpler matter, and gave better results in respect to function and deformity.

**Guaiacol Poisoning by Absorption, with Report of a Case.**—Dr. L. A. SEXTON read this report, which, as a member of the profession, he said, he felt should be brought to their attention. After referring to the value of guaiacol in the treatment of painful and swollen joints and to the methods of its preparation, Dr. Sexton said that the poisoning which he wished to report occurred in the local application of this drug in the treatment of scarlatinal arthritis at the Willard Parker Hospital. The child was admitted to the hospital with a moderate case of scarlet fever. The disease ran its usual course until the eleventh day, when the child developed a cervical adenitis. One month after his admission to the hospital the patient developed a severe otalgia, for which myringotomy was performed, and this was followed by a profuse and purulent discharge from the right ear. Following this the urine showed faint traces of albumin and a few granular and epithelial casts. He then complained of pain in the right knee, right elbow, and right wrist. His other troubles gradually subsided but the arthritis persisted and was very painful, the joints being swollen and tender. After this condition had persisted for over a week, the painful joints were painted with a 50 per cent. solution of guaiacol in glycerin. The mixture had been used previously with no bad results, and had seemed in many cases to allay pain. The evening following the use of this mixture the patient's pulse became rapid and weak, the child became cyanosed, and vomited all nourishment taken during the night. Large quantities of dark brown urine were voided, and it was thought that the child had suddenly developed a severe nephritis engrafted on the former attack, so he was treated accordingly. The joints were again painted on the following morning with guaiacol mixture. A short time after, on this same morning, Dr. Sexton said he made the diagnosis of guaiacol poisoning from absorption. The patient was vomiting and very restless, the cyanosis had given place to deadly pallor, the pulse became imperceptible, the respirations rapid and shallow, the child's face more anxious, and at 8 o'clock in the evening of the same day the child died, just thirty-four hours after the first application. The mixture used on the child and also several specimens of the guaiacol were examined in the chemical laboratory and found to be chemically pure. The urine smelled strongly of guaiacol and responded to the chemical tests for this drug. The color was black; reaction acid; specific gravity, 1.018; albumin, sugar, and indican were negative; blood and hemoglobin negative chemically and with examinations with the spectroscope and microscope.

Dr. JOHN WINTERS BRANNAN said that during the reading of the paper the resemblance of this form of poisoning to the condition known as carboluria had suggested itself to him. In carboluria the urine was green. They used to meet with this condition when it was the practice to flush out abscesses with strong carbolic solution.

**The Peril of Delay in the Diagnosis and Treatment of Intussusception in Infancy.**—Dr. EDWARD WADSWORTH PETERSON presented this paper. He recalled the great educational effort required to place the treatment of appendicitis upon a purely surgical basis. To-day there was general condemnation if a patient with appendicitis was allowed to die without surgical interference. Acute intussusception was far more dangerous to life than appendicitis, and, theoretically at least, belonged exclusively to the surgical field. Experience had taught the hopelessness of expectant treatment and the relative futility of all aerohydrostatic measures. In intussusception the clinical picture was more constant and unvarying and the symptoms more uniform and characteristic than in any other type of intestinal obstruction. In spite of this no other class of cases was more often unrecognized and more habitually mismanaged. Because of failure to make a diagnosis or delay in treatment, the mortality was also disgracefully high. Ladd had collected 216 cases treated by hydrostatic methods with failure in 81 per cent. Leichenstern in a study of 557 cases of intussusception placed the mortality at 73 per cent., and during the first year of life at 88 per cent. Many other authorities gave equally unfavorable statistics with these methods of treatment. The statistics of the greatest interest were those giving the time of treatment, either surgical or otherwise, after the onset of symptoms, and almost invariably one was impressed with the fact that "cured" cases were diagnosed and

treated early. Cases treated during the first twenty-four hours gave a mortality, in experienced hands, of not over 10 per cent. Cases treated after two days had passed had but little chance of recovery, with but few exceptions. Clubbe reported a series of 173 cases. Of these 16 were treated successfully by enema; of the 157 cases operated upon the results were as follows: In the first 50 cases there were 25 deaths and 25 recoveries; in the second 50 cases there were four deaths and 46 recoveries; in the last 25 cases treated by laparotomy there was not a single death, and in these the average time from the onset of symptoms until operation was seventeen hours. No other serious surgical affection of the abdomen could be so early recognized. The first examination of the infant usually revealed the condition. The child was generally seized suddenly with severe abdominal pain, more or less pallor, shock, and relaxation. Vomiting usually occurred at this time. Later there was straining and blood and mucus appeared in the stools. This picture, together with the presence of an abdominal tumor, determined the diagnosis. After the first storm of pain was over the infant usually appeared perfectly well. Later the pain recurred and was of intermittent and paroxysmal nature, but it was not attended by the shock and pallor of the initial seizure. If the patient was seen during the calm period the diagnosis was apt to be mistaken unless a very careful history was obtained. Vomiting was rarely a prominent symptom until late in the disease; where it occurred early and was persistent it was significant of strangulation of the blood supply to the bowel. Rarely was it fecal. In every case of intussusception an abdominal tumor was present, but it was often difficult to palpate. The typical sausage-shaped tumor described by the textbooks was seldom felt early; when present it meant that the intussusception had progressed to a considerable extent. More often a rounded mass was felt and it might occupy any portion of the abdomen. It was generally quite movable and might resemble an enlarged gland. If the tumor could not be felt abdominally then bimanual rectal examination should be made. Under anesthesia one seldom failed to discover its presence. Later, in addition to obstruction and strangulation, toxemia developed, and the late picture was that which occurred in every variety of intestinal obstruction. Ileocolitis and the purpuric diseases had occasionally been mistaken for intussusception; in the former bile, feces, and flatus were passed and no abdominal tumor was present; in the latter hemorrhages occurred elsewhere than from the intestines as a rule, and this gave a clue to the diagnosis. The simplest, most successful, and only certain method of treatment in intussusception was early laparotomy with manual reduction of the invagination. While spontaneous reduction had occurred and recovery had taken place after sloughing of the intussusception, such results must never be expected or awaited. Like strangulated hernia or fulminating appendicitis, it was a condition demanding immediate operative interference. The operation should be performed as quickly as was consistent with safe and thorough work. As three-fourths of the cases occurred in the ileocecal region, the incision should be made through the right rectus muscle. Some operators preferred the median incision where the tumor was felt low down on the left side. In relieving the intussusception it was best to begin at the apex and to carefully "back up" to the point where the invagination started. If traction was made on the proximal end of the gut it was apt to be torn at the neck of the intussusception. If gangrene had occurred, or if reduction was impossible, resection and intestinal anastomosis should be performed. In all early operations it was a good plan where invagination had occurred in the ileocecal region to remove the appendix, as it might in certain instances be a causative factor in the production of the obstruction. In closing the wound the layer sutures should be reinforced with through-and-through tension sutures.

Dr. Leon T. LeWald said that through the kindness of Dr. Gould he had seen a case of intussusception in a child sixteen months of age. He had been called in twenty-four hours after the child was taken sick to confirm a diagnosis of intussusception, and was asked whether he thought it dangerous to administer bismuth for the purpose of obtaining an *x*-ray. There seemed to be a wrong impression as to the danger of giving bismuth in such cases. There was no danger provided the bismuth was administered carefully and in moderate amount. The child was brought to the hospital and 75 grams of bismuth in 250 c.c. of suspension medium was given and inside of thirteen minutes the *x*-ray had been taken and the diagnosis made, the exact seat of the intussusception having been located as was proved at the operation. Dr. LeWald said that this was the second case of the kind that he had seen diagnosed by the *x*-ray and bismuth, the first having been presented at the meeting of the Medical Society of the State of New York. In Dr. Gould's case the tumor could not be felt even under anesthesia.

Dr. Henry H. M. Lyle said that Dr. Peterson had succeeded in impressing upon them the importance of early diagnosis in cases of intussusception in children. Early diagnosis was the keynote of success. Dr. Lyle said that while he had not made a study of the literature he knew of four instances in which resection had been performed in children, one of them being in 1901. None of the patients were over three years of age, and one was an infant only a few days old. In regard to the danger of administering bismuth, one should be guarded as to making statements in regard to the harmlessness of this procedure. The result of administering bismuth in the face of intestinal obstruction was apt to be serious and fatalities had been recorded. One should consider very carefully, when confronted with the toxemia attendant on intestinal obstruction, of adding another element to an already serious condition. Dr. Lyle said he had been called on to operate on a case of acute intestinal obstruction which arose as the result of a bismuth *x*-ray examination.

Dr. Everett W. Gould said that in reference to the case which Dr. LeWald described, the clinical symptoms were sufficient to make a fairly definite diagnosis, but that the *x*-ray examination which was made while Dr. Walton Martin was preparing for the operation clinched the diagnosis and definitely located the lesion. The ileum had invaginated the cecum, not more than 3 or 4 inches, further invagination having been prevented by an old adhesion. The child made a good recovery and no resection was necessary.

Dr. William P. Northrup asked Dr. Gould whether he could feel the tumor.

Dr. Gould replied that when he examined the child the previous evening he thought he felt a very slight resistance in the right iliac fossa, but the following morning he was unable to make out any tumor, and after the anesthetic had been administered, Dr. Martin had been unable to make out any definite mass.

Dr. J. Finley Bell of Englewood, N. J., said the general practitioner found himself in something of a quandary when confronted with the apparent danger of a major operation in a young child as compared with the lesser risk of treatment by the introduction of air or water. Many physicians were laboring under a false impression as to the ability of young children to stand operative measures. This impression was strengthened by the fact that in cases in which operation seemed advisable so much time was consumed by consultations and manipulations that by the time the child actually came to operation, he was in no condition to withstand the ordeal. With early diagnosis and early operation it would probably be found that children bore operations much better than had been supposed.

Dr. John C. A. Gerster said that he could not agree with Dr. Peterson in regard to the use of the right rectus incision. There was no question but that the median incision offered the most advantages. As had been said the intussusception might be in any part of the abdomen and the median incision gave readiest access to all parts of the abdomen with least trauma. Time was an important element and hence removal of the appendix unless it was gangrenous had better be left for a second operation in which speed was not such a vital necessity.

Dr. Northrup said he had the misfortune many years ago to report two favorable cases of intussusception as having been cured by the introduction of water. He had since considered this a great mistake and had been trying to make amends. The first patient was taken sick at about 2 o'clock in the afternoon and by 6 o'clock in the evening a diagnosis of intussusception was made and water was introduced. Dr. Northrup said that he had assisted on this occasion and under the pressure of the water one could feel the invagination give away. The child made a good recovery. The second case came under his observation about a week later and was almost identical. Here, too, under the same treatment, the child re-

covered. These two cases illustrated everything brought out by Dr. Peterson, the acute stage of crying, severe pain, and pallor, followed by a period of quiescence and relaxation, and then the recurrence of severe symptoms. One could pick up the sausage-shaped tumor and feel it disappear under the pressure of the water. Dr. Bell had struck the right note in what he said regarding procrastination, that by the time the decision was made the child could not stand the operation. Speaking of the shock of operation, Dr. Northrup said it had been shown that in a child a few weeks old a gastroenterostomy could be done successfully.

**The Prevention of Gross Deformities in Pott's Disease.**—Dr. PERCY WILLARD ROBERTS gave a lantern slide demonstration of his method of treating Pott's disease and of the results that he had secured. He first showed the results in patients inefficiently treated by plaster jackets and the vertical suspension methods and also the result in an untreated deformity that might have been prevented by proper treatment. The method presented had its greatest field of usefulness in the prevention of deformities below the eighth dorsal vertebra. The treatment of Pott's disease theoretically was to put the bones at rest and to protect them against friction and rotation. The routine method of carrying out this theory had been by means of braces and plaster jackets. The Sayre jacket and the Taylor brace had been devised fifty years ago and while they had been modified at different times they had not been improved upon until recently. These appliances could be relied upon for the correction of deformities in the high dorsal and cervical regions if used in connection with the chin brace. The Sayre jacket immobilized perfectly, and appeared to accomplish the desired end, immobilization of the spine and relief from weight. The vertebræ were separated somewhat and the patient received some relief, but when the patient got on his feet again the body sagged or telescoped and permitted pressure at the point of deformity, necessitating a new jacket and thus it went from jacket to jacket. This was not always the case but when it did happen the result was a deformity such as had been shown. When there was any considerable deformity the upright suspension did not overcome it; this could be demonstrated by an ordinary carpenter's rule and weights. In order to accomplish the hyperextension that was desirable in the correction of Pott's disease, Dr. Roberts said he had devised a simple apparatus consisting of an ordinary automobile jack to which was attached a horizontal bar. From this bar was suspended a sling, which was passed around the patient's body at the point of deformity and the hyperextension applied. While the patient was in this position the jacket was put on. This "jacket and sling" method was particularly effective in correcting slight deformities and preventing gross ones. Its application was so simple that one person could apply it where if done by the vertical suspension method it would require a number of assistants. When the plaster was applied in the hyperextension position there was not the same tendency to telescope that had been observed in other methods. Dr. Roberts illustrated the method of adjusting the sling and applying the jacket and showed slides which demonstrated the gap between the vertebræ when the patient was in the hyperextension position. There was extreme lordosis in some instances after the jacket was removed, but Dr. Roberts said that this would not be maintained. In the cases treated early there was very little deformity. The point might be made here that had been made in other fields, that if the cases came to treatment early they did better. With the institution of this method of treatment, Dr. Roberts said, the symptoms disappeared earlier, fewer abscesses developed, and the patient's comfort was enhanced during the application of the jacket and during the time of treatment.

Dr. HENRY H. M. LYLE said that Dr. Moorhead's cases spoke for themselves. The treatment of fractures of the femur in which there was overriding gave considerable trouble and the ordinary extension methods often failed to overcome the deformity. In the Steinmann extension method they had a valuable means which could be regarded as being conservative when compared with open operation, plating, etc. The method was neglected in old neglected fractures, in certain cases of malunion, and was the method of choice in all severe compound fractures. The method was simple, quickly performed, and the patient was strikingly comfortable. Four cardinal points were to be observed in inserting the pin. The fracture hematoma must be avoided, and the pin must not be allowed to enter the medullary canal, the joint, or the epiphyseal line.

Dr. JOHN C. A. GERSTER stated that his experience comprised a series of 30 cases, of which 11 were in children ranging in age from four to 15 years. He said he could not agree with Dr. Moorhead about certain minor points of technique. The rod carrying a detachable drill on its point was an unnecessary refinement. The sharp pointed nail bored through the bone without any difficulty. A preliminary incision was also unnecessary and had been given up in Germany. Steinmann had given up hammering the nail; he used it as a drill fixed in a brace. The pin was simply a bit of steel rod, pointed at one end. Dr. Moorhead spoke of the anesthesia lasting fifteen minutes. Dr. Gerster used nitrous oxide anesthesia only during the three or five minutes required to actually transfix the limb. Pain and discomfort were less than with an efficient Buck's extension. Nursing was also easier as the child could raise the hips clear of the bed without fear of getting a bad result. In neglected fractures of some weeks' standing, nail extension was extremely valuable. In malunion with much shortening brilliant results had followed exposure and separation of the malunited fragments with simple closure of the wound and application of nail extension. Naturally more weight was required than in recent cases. The chances of union were much better with nail extension than with Lane plating, because in the former none of the osteogenetic tissue was removed, and massage and passive motion might be begun as early as the fifth day.

Dr. HENRY LING TAYLOR expressed himself as much interested in the cases shown and thought the results were admirable. The positive manner in which Dr. Moorhead had condemned plating as a routine measure was particularly interesting. Personally he believed that the introduction of plating had done much harm, because the man practising in a small town was led to use this method and might keep it up long after the man with greater experience had seen the bad results and given it up. Plating was really valuable in only a few cases, while there were many cases that had gone wrong through this procedure. There were one or two methods of treating fracture of the femur not mentioned by the reader of the paper. One was Van Arsdale's triangular splint to hold the thigh in the flexed position; this was applicable to fractures in the upper half of the femur, and the same result could be obtained by flexing the leg, reducing the deformity, and putting it in a plaster spica in that position. This was done quite frequently in babies at the Hospital for the Ruptured and Crippled and gave good results. The other method was by the use of Hawley's table, which was marvelously efficient in fracture cases, and by it the deformity could be reduced in early cases and a plaster splint could be applied without moving the patient. Dr. Taylor said he was interested in Dr. Roberts' work as well as in the operative method of treating Pott's disease. The principles for the treatment of Pott's disease as laid down by Taylor and Sayre were correct. Better results were obtained in private practice than in clinical work though many cases did well in the clinics. He recalled the case of a girl who had been treated by C. F. Taylor from 1871 to 1879 and cured with recession of the deformity, who returned in 1909, thirty years after her cure and having been married and had children, she had no deformity and was perfectly well. This showed what was possible in favorable cases, but all cases were not so favorable even in private practice. The brace treatment required a long time, though it was not necessarily irksome to the child or the parent as the pain and discomfort of the patient were usually promptly relieved and the general condition of the patient improved, but it was necessary to wear a brace for many years; in even these instances the result was often mediocre. Dr. Taylor referred to the furor over Callot's method of treating Pott's disease some years ago and thought that the method presented was a rational Callot. It applied a gentle force and one that could at the same time be effectually controlled and undoubtedly it was a step in advance. One should bear in mind, however, that cases might be over corrected and therefore too much force should not be applied. He heartily endorsed this method if it was used with discretion.

# State Medical Licensing Boards.

## STATE BOARD EXAMINATION QUESTIONS.

PENNSYLVANIA STATE BOARD OF MEDICAL EXAMINERS.

*December* 2, 3, and 4, 1913.

PHYSIOLOGY, PATHOLOGY, AND BACTERIOLOGY.

1. In acute lobar pneumonia, describe the local lesion and the disturbed functions.

2. Name two heart lesions that might result in broken compensation and show how the normal functions of the heart would be disturbed.

3. Describe two lesions—one of the gall bladder and one of the liver—that will cause lessening of the supply of bile to the duodenum. Describe the effect of this loss on digestion assimilation.

4. Describe the lesions, name the usual causes, and give the laboratory technique for demonstrating the varieties of urethritis.

5. In carcinoma of the female breast, describe the gross and the microscopical appearance of a common variety and give the usual points of metastasis.

6. In examining a specimen of urine from a pregnant woman, state the findings that would suggest oncoming uremic convulsions.

7. Given a case of malaria, describe the lesions and detail the laboratory tests for making the diagnosis positive.

8. Describe the lesion in tabes dorsalis (locomotor ataxia), and show how the functions of the cord are disturbed.

9. Given a case of meningitis, give your technique for demonstrating the determining causes by means of lumbar puncture. Discuss the disturbance of function that would result from such a case.

10. Given a suspected case of typhoid fever: by laboratory tests differentiate the case from septic infection.

DIAGNOSIS, SYMPTOMATOLOGY, MEDICAL JURISPRUDENCE, AND TOXICOLOGY.

1. Describe the symptoms and course of chorea.

2. Enumerate the symptoms of varicella. Name a disease with which it may be confused and differentiate them.

3. Enumerate the symptoms and physical signs diagnostic of pleurisy with effusion.

4. Enumerate the diagnostic symptoms of chronic eczema, and differentiate it from scabies.

5. What is pyemia? How is it characterized clinically? Enumerate the general symptoms.

6. Enumerate the symptoms of tubercular joint disease, and differentiate it from acute articular rheumatism.

7. Give the etiology of, and enumerate the symptoms of acute nephritis. Name four toxic drugs that may produce it.

8. Describe in detail the symptoms of strychnine poison, and differentiate it from uremic convulsions.

9. How would you differentiate a case of severe ptomaine poisoning from the conditions produced by arsenical poisoning?

10. As a witness in court, what would be your evidence in substantiating the fact of a death by drowning?

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## ANSWERS.

PHYSIOLOGY, PATHOLOGY, AND BACTERIOLOGY.

1. *Lobar pneumonia.* "(1) *Stage of engorgement.*—This is the stage of inflammatory hypermia and edema, and it is characterized microscopically by overfullness and slight tortuosity of the pulmonary capillaries, and by swelling of the alveolar epithelium. The lung is of a dark red color; it is heavier and less crepitant than natural; it pits on pressure; and its cut surface yields a reddish, frothy, tenacious liquid.

(2) *Red hepatization.* "Here there is an exudation of liquor sanguinis and blood corpuscles. The exuded liquids coagulate within the alveoli and terminal bronchioles, the coagulum enclosing numerous white and a few red blood corpuscles. The alveolar epithelium is swollen and granular. The lung is now much heavier than in the preceding stage, and is increased in size, so as to be often marked by the ribs. It is quite solid; sinks in water, and cannot be artificially inflated. It is remarkably friable, breaking down with a soft granular fracture. The cut surface has a markedly granular appearance, seen especially when the tissue is torn, and due to the plugs of coagulated exudation-matter which fill the alveoli. The color is of a dark reddish-brown, often here and there passing into gray. This admixture with gray sometimes gives a marbled appearance. The pleura covering the solid lung always participates more or less in the inflammatory process. It is opaque, hyperemic, and coated with lymph.

(3) *Gray hepatization.*—"This stage is characterized by a continuance of the process of inflammatory cell-emigration, and by more marked changes in the epithelium. The white blood corpuscles continue to escape from the vessels, and the alveolar epithelium becomes more swollen and granular. The alveoli thus becomes more completely filled with young cell-forms, so that the fibrinous exudation is no longer visible as an independent material. The fibrinous exudation now disintegrates, and the young cells rapidly undergo fatty metamorphosis. The alveolar walls themselves, with few exceptions, remain throughout the process unaltered, although very occasionally, when this is unusually advanced, they may be found here and there partially destroyed. Owing to these changes, the reddish-brown color of the lung becomes altered to a grayish or yellowish white. The granular appearance is much less marked; the solid tissue is much softer and more pulpy in consistence, and a puriform liquid exudes from the cut surface of the organ. This stage, when advanced, has been termed "suppuration or purulent infiltration" of the lung.—(Quain's *Dictionary of Medicine.*)

*Disturbances of function:* Chill, pain, fever, dyspnea, cough, delirium, rapid pulse.

2. Aortic stenosis and mitral regurgitation may result in broken compensation. "Aortic stenosis leads to an obstruction to the outflow of blood. The first effect will be an extra strain upon the valve and chamber behind (left ventricle). Under the extra strain the chamber at first dilates slightly, as the ventricle has no previous preparation for the sudden establishment of a lesion in front of it. But the reserve energy of the myocardium is soon called into play, the ventricle contracts more forcibly to overcome the obstruction, and its walls begin to hypertrophy. As the obstacle is always present, the hypertrophy increases daily until in course of time it may come to be very great. The obstruction to the onflow of blood is thus overcome by more forcible and more prolonged contractions, the arterial system remains well supplied, and for a time no bad symptom may develop. This is known as the "Stage of Compensation" of the valvular lesion. Finally, however, the reserve energy of the ventricle becomes exhausted, owing to prolonged overwork, aided perhaps by external causes, such as faulty regulation of habits, diet, or exercise, or mental worry and anxiety. Then the exhausted muscle yields to the strain, and dilatation becomes more prominent than hypertrophy. The walls of the ventricle are carried apart, and in consequence the curtains of the mitral valve, though healthy, are no longer able to close the orifice ("relative insufficiency"). Regurgitation of blood into the auricle (mitral regurgitation) follows, and upon that engorgement of the pulmonary circulation. The right ventricle is now called upon to force the blood through the engorged lungs to the left side of the heart, and it must obviously pass through changes similar to those that affected the left ventricle. But, as it is a less muscular structure, these changes are completed sooner. Relative tricuspid insufficiency is established, and with it the last stage, known as "failure of compensation."—(Wheeler and Jack's *Handbook of Medicine.*)

3. Cholelithiasis, and hypertrophic cirrhosis of the liver will cause lessening of the supply of bile to the duodenum. In *cholelthiasis,* while the calculus remains free in the gall-bladder, usually there are no symptoms. Impaction of the stone in the common duct gives rise to intermittent jaundice, following sharp pain in the right hypochondriac or epigastric region, frequently radiating toward the right scapula, nausea, vomiting, sweating, depression, and often intermittent fever (Charcot's intermittent fever). When the stone is impacted in the cystic duct, jaundice is less common, but the hepatic colic is severe, and dropsy of the gall-bladder may occur. The diagnostic points are the age, sex, history of previous attack, with jaundice and intermittent fever, location of the pain, dark, amber-colored urine, containing bile, and sometimes the finding of the stone in the feces.

*Hypertrophic cirrhosis of the liver* is a chronic disease characterized by a hyperplasia of the connective tissue and a destruction of the secreting cells of the

liver. It is characterized by jaundice, increased size of the liver and spleen, sudden onset, coated dry tongue, hepatic tenderness, moderate fever with rapid pulse, and anemia. The jaundice may be very great, the whole cutaneous surface and the conjunctivæ being greenish-yellow, and may persist for several weeks.—(*Pocket Cyclopedia.*)

"As a digestive secretion, the most important function attributed to the bile is the part it takes in the digestion and absorption of fats. It accelerates greatly the action of the lipase of pancreatic juice in splitting the fats to fatty acids and glycerin, and it aids materially in the absorption of the products of this hydrolysis. A number of observers have shown that when a permanent biliary fistula is made, and the bile is thus prevented from reaching the intestinal canal, a large proportion of the fat of the food escapes absorption and is found in the feces. This action of the bile may be referred directly to the fact that the bile acids serve as a solvent for the fats and fatty acids. It was formerly believed that bile is also of great importance in restraining the processes of putrefaction in the intestine. It seems to be generally true that in cases of biliary fistula the feces have a very fetid odor when meat and fat are taken in the food. But the increased putrefaction in these cases may possibly be an indirect result of the withdrawal of bile. It has been suggested, for instance, that the deficient absorption of fat that follows upon the removal of the bile results in the protein and carbohydrate material becoming coated with an insoluble layer of fat, so that the penetration of the digestive enzymes is retarded and greater opportunity is given for the action of bacteria. We may conclude, therefore, that, while there does not seem to be sufficient warrant at present for believing that the bile exerts a direct antiseptic action upon the intestinal contents, nevertheless its presence limits in some way the extent of putrefaction."—(Howell's *Textbook of Physiology.*)

4. *Urethritis* is specific when the gonococcus is found in the discharge, and non-specific when the infection is due to pyogenic cocci, or in which no bacteria are found. Additional causes are gout, traumatism, eczema, rough instrumentation, foreign bodies, strong injections, alcohol and certain drugs and sexual excesses. *Lesions:* "Early in the disease the surface of the urethra is reddened, with a catarrhal secretion, which rapidly becomes purulent. Desquamation of the superficial cells follows, and sometimes ulceration, which may bleed, and the infection may spread backward to the prostate, and the bladder; in the female the vagina may be affected throughout, and the uterus and tubes attacked; not infrequently the latter become diseased while the former escapes. In the female Bartholin's glands are certain to be infected; in all these out-of-the-way situations the infection may remain for a long time. The inflammation may become chronic, and in the male, after the lapse of time, the secretion becomes scanty and less purulent, perhaps only cloudy or even clear to the naked eye (gleet). In the process of healing the fibrous granulation tissue, if abundant, is apt to subside to fibrous masses or even bands, which impede the passage of urine (stricture of the urethra). Behind such bands and in irregularities of the surface the gonococci may lurk for a long time, the urethritis disappearing in the meantime."—(Adami and McCrae's *Textbook of Pathology.*)

The laboratory technique consists in finding the gonococci in the discharge. On a cover-glass make a smear with the discharge as thin as possible, and let it dry in the air; cover it with a freshly made solution of anilin-oil-gentian-violet for one or two minutes; wash it in distilled water; leave it in Gram's solution for two minutes; wash it in 95 per cent. alcohol until decolorized; wash it in distilled water; counterstain with a dilute carbolfuchsin without heat, or with a saturated aqueous solution of Bismarck brown; wash in distilled water, dry with filter paper, mount and examine with an oil-immersion lens. The gonococci will appear as *diplococci within the leucocytes,* which have been *decolorized by Gram's stain,* and have taken the counterstain.

5. "*Scirrhous cancer of the female breast* is of somewhat slow growth, and is usually very hard; the skin is firmly attached to the tumor, and the nipple is usually retracted. On section the tumor is found to be of a firm, fibrous, and somewhat translucent character; extensions of the growth are seen radiating in various directions from the body of the tumor. Microscopically the growth consists of fasciculated connective tissue, enclosing round or elongated collections of cancer-cells. Cancer of the breast may extend directly to the subcutaneous tissues and the skin, on the one hand, or to the walls of the chest and pleura on the other hand. Metastasis frequently takes place through the lymphatics, the axillary glands, as a rule, presenting the first evidences of metastasis. Malignancy varies with the softness or hardness of the tumors, the scirrhous form frequently having a comparatively benign character. Sometimes the increasing growth of connective tissue in this variety leads to practical cessation of the growth of the tumor."—(Stengel's *Pathology.*)

6. Prior to uremic convulsions the urine of a pregnant woman might show: Diminution in quantity, the presence of albumin and casts, the presence of blood corpuscles; the total output of nitrogen is low and the urea is diminished.

7. *Malaria.* "During the paroxysms the principal changes are: (1) Enlargement of the spleen, sometimes very great. In recent cases the organ is soft; in older cases firm ('ague cake'). (2) Enlargement and congestion of the liver. (3) Congestion of the bone-marrow, the brain and meninges, and the kidneys. In all these organs the vessels are full of plasmodia and of melanin. There is also present a yellow pigment, not confined to the vessels, which consists of altered hemoglobin. Marked diminution of the number of red cells and pigmentation of the leucocytes are conspicuous features. The lymphocytes are also relatively increased for some time after the paroxysm, but leucopenia, not leucocytosis, is a feature of malaria. In malarial cachexia the spleen is not necessarily pigmented. The enlargement is mainly due to thickening of the capsule and trabeculæ and the organ is hard. The liver is frequently enlarged. Anemia is a conspicuous feature."—(Wheeler and Jack's *Handbook of Medicine.*)

The laboratory test for making the diagnosis positive consists in finding the plasmodia in the blood, either in fresh blood or in stained films. The blood should be obtained some hours before the chill. If no plasmodia are found, the presence of pigmented granules within the leucocytes (large mononuclears and polynuclears) may be taken as presumptive evidence of malaria.

8. *Locomotor ataxia* is a disease of the spinal cord, characterized by loss of coordination, characteristic and unsteady gait, a tendency to stagger when standing up with the feet together and the eyes closed, sharp and paroxysmal pains called *crises,* girdle sensation, Argyll-Robertson pupils, and loss of knee-jerk and other reflexes. In locomotor ataxia the posterior columns of the spinal cord and the posterior nerve roots are involved. The process is destructive and progressive; it is not a simple wasting, although the nerve fibers are atrophied, but it is characterized by irritation, changes in the axis cylinders, overgrowth of the connective tissue, and sometimes congestion. The spinal ganglia may also be affected and the membranes over the affected parts are adherent and opaque.

9. *Meningitis.* "The patient should lie on the side, with the back bent forward as far as possible, in order to separate the vertebræ and make the lumbar region prominent. The sitting posture may also be assumed with the back bent forward. A local anesthetic is usually all that is necessary. Very often the patient is comatose and requires none. A long, strong, aspirating needle is introduced midway between the second and third or third and fourth lumbar vertebræ, either straight in from the mid-line of the back or about an inch to the side and directed a trifle inward. It should be inserted from 2 to 3 c.m. in a child and from 7 to 8 c.m. in the adult. As soon as the subarachnoid space is entered the fluid makes its appearance, usually drop by drop; but when large in amount and under pressure, in a stream. The fluid should be centrifugated, spreads made from the sediment, stained, and examined for the various bacteria with the oil immersion. The tubercle bacillus, *Diplococcus intracellularis meningitidis, Micrococcus lanceolatus,* staphylococcus, streptococcus, pneumococcus, bacillus of influenza, and typhoid bacillus are the chief causes of meningitis. The spread should be stained by appropriate methods. If the microscopical examination is unsatisfactory, cultural methods or animal inoculation should be resorted to."—(Arneill's *Clinical Diagnosis.*)

The *disturbances of function* are: Nausea, vomiting, vertigo, chills, opisthotonus, muscular cramps, delirium, inability to straighten the leg completely when the thigh is flexed at a right angle with the pelvis when the

patient is recumbent; there is furthermore loss or impairment of the special senses of sight, hearing, smell, and taste.

10. In a *true typhoid*, laboratory tests will give a positive Widal reaction, the presence of the typhoid bacilli in the urine, blood, and feces. In *septicemia*, all of the above are absent.

DIAGNOSIS, SYMPTOMATOLOGY, MEDICAL JURISPRUDENCE, AND TOXICOLOGY.

1. "Chorea is a functional disorder of the nervous system; characterized by irregular spasmodic fibrillary movements of groups of muscles, with weakness, more or less approaching paralysis of the affected parts. Excitement increases these movements, while sleep causes their cessation. It is essentially a disease of childhood, and its production may be greatly influenced by female sex, rheumatic diasthesis, habit, neurotic temperament, heredity, mental excitement, spring season, and reflex disturbances such as produced by adherent prepuce, masturbation, worms, dentition, eyestrain, etc. The affection may be observed at times during pregnancy and after hemiplegia. *Symptoms.*—The onset is usually gradual, the child apparently grimacing or jerking the arm or hand, as if in imitation, followed soon by decided irregular jactitations of the muscles of the face (histrionic spasm), of the eyelids (blepharospasm), eyeballs (nystagmus), and the shoulder, arm, and hand finally extending to the lower extremities, interfering greatly with motility; in severe cases there is inability on the part of the patient to feed himself or to hold anything in the hands. The speech is often unintelligible, the tongue constantly moving in an irregular manner. The heart's action is tumultuous and irregular, associated often with a soft, blowing, systolic murmur, most distinct at the base. The muscles are usually quiet during sleep, although this is not always the case. The mind is somewhat blunted, the temper irritable, and the memory impaired."—(Hughes' *Practice of Medicine.*)

2. *Varicella* is characterized by a moderate fever, thirst, loss of appetite, and the appearance of a vesicular eruption in the first twenty-four hours. This eruption dries up and disappears in from three to five days. The vesicles usually appear in crops, and they are not umbilicated. Varicella may be confused with variola.

(1) Very young children are attacked with varicella, whereas variola usually shows itself in adults. (2) Vaccinated children readily take varicella; not so variola, even in the modified form. (3) Children who have had varicella may contract variola, even soon afterward; or the two diseases may coexist. (4) Varicella is noninoculable, whereas variola is notoriously so. (5) The eruption of varicella appears in 24 hours; that of variola not till the third day. (6) The febrile symptoms continue after the eruption appears in varicella; those of variola subside. (7) In varicella the spots come out in successive crops; this is never seen in variola. (8) The spots in varicella are unilocular, and collapse on being punctured; the spots in variola are multilocular, and do not collapse on being punctured. (9) In varicella the eruption is very irregular, and appears over the body generally; in variola it appears in groups of threes and fives, and is always seen on the limbs. (10) The papule in varicella is soft, and disappears on stretching the skin; in variola it is hard and shotty, and does not disappear on stretching the skin.—(From J. W. Moore's work on *Variola and Varicella.*

3. *Pleurisy with effusion* begins with a chill, sharp pain in chest or axilla, made worse by coughing or breathing, shallow and rapid respiration, moderate fever, dyspnea, cyanosis, embarrassed cardiac action, the patient lies on the affected side. *Inspection* shows bulging on the affected side with obliteration of the intercostal spaces. *Palpation* shows absence of vocal fremitus over the effusion with exaggeration of the same above the fluid. *Percussion* gives a dull or flat note over the fluid, while above the fluid it is tympanitic. The fluid changes its level with different positions of the body. *Auscultation* reveals a diminution or absence of vocal resonance over the fluid, with an increase above the effusion, egophony being attained at the upper margin.

4. The distinctive features of *eczema* are: Serous exudation, gradual merging of the patches into the surrounding skin, the symmetry of the lesion, the variety of forms in which the eruption can appear, and the pronounced itching or burning.

| SCABIES. | VESICULO-PUSTULAR ECZEMA. |
|---|---|
| 1. Characteristic distribution; webs of fingers, flexor surface of arms, axillary folds, nipples, umbilicus, penis, buttocks, and inside of thighs and legs. | 1. No characteristic distribution. |
| 2. Presence of burrows. | 2. Absence of burrows. |
| 3. Presence of itch-mite. | 3. Absence of itch-mite. |
| 4. Itching much worse at night. | 4. Itching variable. |
| 5. Communicable. | 5. Not communicable. |
| 6. Except in children, face is exempt. | 6. Face frequently involved. |
| 7. Treatment rapidly effective. | 7. More refractory to treatment. |
| 8. Other members of family often affected. | 8. Not the case. |

—(Schamberg's *Diseases of the Skin.*)

5. *Pyemia* is a form of septic infection in which the pathogenic organisms form thrombi or emboli in the small blood vessels, with the development of multiple abscesses. The symptoms are much the same as in septicemia: chill, high and persistent fever, drenching sweat, rapid pulse, great depression, scanty urine with albumin, toxins and bacteria, and the presence of multiple abscesses. The disease may run its course in a few days, and is generally fatal.

6. *Symptoms of tuberculous joint disease:* "In the early stages the signs are not at all well marked, especially in those where the primary stage is osseous, and consist of slight aching after use. Soon, however, the cardinal signs appear: (1) Increased heat over the joint; (2) the presence of some fluid in the joint; (3) impaired mobility; (4) *wasting of the muscles which move the joint.* The joint is usually maintained in the position of ease, viz., slightly flexed. In the late stages abscesses form, and the pain becomes severe, even to 'starting pains' at night. If the abscesses burst and are allowed to become septic, a hectic temperature follows, and amyloid degeneration may lead to death from exhaustion. The joint itself may be disorganized, the relaxation of the ligaments allowing dislocation to occur."—(*Aids to Surgery.*)

In *acute articular rheumatism* the pain is more definitely localized and the whole course of the disease is more acute, the fever higher, the pain more severe; acid sweats are more pronounced.

7. ACUTE NEPHRITIS. *Etiology:* Cold, exposure, infectious diseases (such as diphtheria, scarlatina), traumatism, burns, and drugs (such as turpentine, cantharides, phosphorus, ginger). *Symptoms:* gradual or sudden onset with nausea, vomiting, weakness, fever, anemia, and characteristic urine (smoky, albuminous, scanty, with casts and epithelium, also blood, diminished urea, phosphates, and chlorides). Dropsy is marked, and uremia is frequent.

8. The *symptoms of poisoning by strychnine* are "a sense of suffocation, thirst, tetanic spasms, usually opisthotonos, sometimes emprosthotonos, occasionally vomiting, contraction of the pupils during the spasms, and death, either by asphyxia during a paroxysm, or by exhaustion during a remission. The symptoms appear in from a few minutes to an hour after taking the poison, usually in less than twenty minutes; and death in from five minutes to six hours, usually within two hours."—(Witthaus' *Essentials of Chemistry and Toxicology.*)

In *uremic convulsions* there will be a general history and condition of uremia; the urine will show the characteristics of that condition (see PHYSIOLOGY, PATHOLOGY, AND BACTERIOLOGY, Question 6). Premonitory symptoms such as headache, vertigo, nausea, drowsiness, may be present; vomiting, diarrhea, and Cheyne-Stokes breathing may be observed.

9. The only ground for a positive diagnosis is in the detection of arsenic in the urine, dejecta or vomitus in the case of arsenical poisoning—and its absence in the case of ptomaine poisoning.

10. As a witness, my evidence would depend on what I knew to be the facts in the case. In all such cases, two questions arise: (1) Was the death caused by drowning? and (2) Was the submersion the result of accident, or suicide, or homicide? When a person is drowned he dies of asphyxia; water may be found in the stomach

and lungs; blueness and paleness of the skin are generally present if the water is cold, also cutis anserina; stones, gravel, weeds, or wood from the water may be found in the hands or under the nails. The latter question, as to accident, suicide, or homicide, has to be determined by circumstances, and as a rule is not capable of substantiation by medical witnesses.

*(To be concluded.)*

## Books Received.

*The* Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

The Hypodermic Syringe. By George L. Servoss, M.D. Cloth; price, $2.00 net; 317 pages. Physicians' Drug News Company, Newark, N. J.

First Aid Dentistry. By E. P. R. Ryan. Cloth; illustrated; 153 pages; price, $1.25 net. P. Blakiston's Son & Company, Philadelphia.

The Clinics of John B. Murphy, M.D., at Mercy Hospital, Chicago, April, 1914. Paper; published bimonthly; price per year, $8.00; Vol. III, No. 2; illustrated. W. B. Saunders Company, Philadelphia and London.

Psychanalysis. Its Theories and Practical Applications. By A. A. Brill, Ph.B., M.D. Second edition, thoroughly revised. Cloth, $3.00 net; 393 pages. W. B. Saunders Company, Philadelphia and London.

Asthma and Its Radical Treatment. By James Adam, M.A., M.D., F.R.F.P.S. Cloth; price, $1.50 net; 184 pages; illustrated. Paul B. Hoeber, New York.

How to Diagnose Smallpox. By W. McC. Wanklyn, B.A., Cantab., M.R.C.S., L.R.C.P., D.P.H. Cloth; price, $1.50 net; 104 pages. Paul B. Hoeber, New York.

Guide to the Microscopic Examination of the Eye. By Prof. R. Greeff, with the co-operation of Professor Stock and Prof. Wintersteiner. Translated from the third German edition, by Hugh Walker, M.A., M.B., C.M. Cloth; price, $2.00 net; 86 pages; illustrated. The Ophthalmoscope Press, London. Paul B. Hoeber, New York.

Der Psychologische Ursprung des Stotterns. By Dr. Oscar Aronsohn. Paper; price Mk. 1; 24 pages. Carl Marhold, Halle a. S., 1914.

Die Untersuchung des Geisteskranken. By Dr. P. Roller. Paper; price Mk. 2.50; 115 pages. Carl Marhold, Halle a. S., 1914.

Die Reinfektionen Bei Syphilis. By Dr. med. J. Benario. Paper; price, Mk. 3.60; 125 pages. Carl Marhold, Halle a. S.

Transactions of the American Pediatric Society. Twenty-fifth session. Held at the New Willard Hotel, Washington, D. C., May 5, 6 and 7, 1913. Edited by Linnaeus Edford La Fetra, M.D. Volume XXV. Cloth; 327 pages; illustrated.

Christ Among the Cattle. A Sermon Preached in The First Congregational Church, Portland, Ore. By Frederic Rowland Marvin. Sixth edition, revised and corrected. Cloth; 58 pages; price 60 cents net. Sherman, French & Company, Boston.

The Clinical History in Outline. By Paul G. Woolley, S.B., M.D. Cloth; price, $1.00; 53 pages. C. V. Mosby Company, St. Louis.

Some American Medical Botanists. Commemorated in our Botanical Nomenclature. By Howard A. Kelly, M.D., LL.D. Cloth; 215 pages; illustrated. The Southworth Company, Troy, N. Y.

Nucleic Acids. Their Chemical Properties and Physiological Conduct. By Walter Jones, Ph.D. Paper; 118 pages. Longmans, Green & Company, London, New York, Bombay, and Calcutta.

Collected Papers. By The Staff of St. Mary's Hospital, Mayo Clinic, Rochester, Minn., 1913. 819 pages; illustrated; cloth; $5.50 net. W. B. Saunders Company, Philadelphia and London.

Report of the Commissioner of Education for the year ended June 30, 1913. Volume I. Cloth; 931 pages. Washington Government Printing Office.

Festschrift. Herausgegeben von Dr. Wilhelm Preminger u. Dr. Max Loewy. Paper; 130 pages. Druckerei der Société Orientale de Publicité, Kairo.

## Miscellany.

**Success in the Practice of Medicine.**—Sir John Collie states that in these days wealth not knowledge, ostentatious display not ability, is worshipped by the majority of mankind. It has been said that physicians are judged by the creases in their trousers, not by the creases in their brain. Wealth determines status. To make money is therefore a necessity. The physician should remember that the cards must always be shuffled, and if patients leave him, from a business point of view it does not really matter if his total income for the year is as large or larger than the year before. His object should be not to have the largest but the best practice. If the physician attends patients gratuitously he should take as his reward the pleasure he is entitled to if he is seeing them without any hope of benefit; but he should remember that this is charity not business. Successful men never neglect the treatment of a patient's personality. It is always difficult to listen to the recital of an irrelevant family history and of details which are obviously unimportant. The details may be trivial but it is a fundamental truth that the physician cannot succeed in treatment unless he has the confidence of his patient, and this he certainly will not have if he does not listen to the recital of the patient's woes. The torrent may often be stopped by a well-directed remark which shows that the physician has divined the whole history.

Success may take the form of financial gain, social aggrandizement, or self-satisfaction. Apart from the proper provision for one's old age and for one's dependents, financial success is not desirable in the medical profession, for it cannot be attained (except by the few) without making sacrifices which are inimical to the growth of those qualities which ennoble one's work. Social success is Dead Sea fruit. The success which brings true self-satisfaction is the Mecca to which the practitioner should be guided, for unlike the above ephemeral successes, but like the heaven and hell of the new theology, she is with him now; if he would woo her successfully she is his abiding portion. To be successful the practitioner should know how to depute work to others—work of which they are capable but which if performed by the practitioner himself would interfere with the proper development of his career. The hard-worked general practitioner who does his own dispensing or his own bookkeeping has much to learn, but he is probably one who never will.

An important detail in medical economics is the precaution that in arranging for partnership or assistant agreements the physician should commit the bargain to paper at the earliest possible date, and this should always be done before the new arrangement is entered upon. In matters of agreement most people mean to act fairly by one another, but no one has a memory which is perfect, and verbal contracts are apt to be remembered only in part.

The road to success is well described in the following pointed paragraph from Claye Shaw: "Whatever way success is achieved, there are four mental necessities, namely, a clear view of the end, a judicious indifference to the sentiments aroused by the sweeping away of obstacles, and indomitable energy, a power to resist the temptation to rest on the soporific plains of mediocrity."—*British Medical Journal.*

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## Original Articles.

### URIC ACID OVERPRODUCTION.*

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THE fundamental principle in connection with the uric acid problem is the fact that this acid is one of the normal products of protein metabolism. It is absolutely essential to a perfect physiological state, as expressed in the animal economy of the human species. Up to this point uric acid is a normal and essential constituent of perfect health. It is, therefore, the overproduction of uric acid that represents the pathological problem and the only one which calls for therapeutic action.

To comprehend fully the true significance of overproduced uric acid, we must first understand the true physiological position of uric acid. The first question which naturally presents itself is: Why is uric acid an essential end product of protein oxidation, and where and how is this acid normally produced? The first part of this question is comparatively easy to answer. It is known to all students of chemico-physiology that the uric acid acts upon the neutral phosphate of soda, with the formation of a urate and an acid phosphate—thus $C_5H_4N_4O_3 + Na_2H(PO_4) = C_5H_3N_4O_3Na + NaH_2(PO_4)$. Coupled with this fact it has been proved that the acid phospate is the normal and essential acid of the urine. It therefore becomes necessary to produce some acid which will transform the neutral phosphate of the blood into the acid form in the urine. Thus we find by the observed laws of nature that uric acid in the human species is the only one produced for this purpose under normal conditions. Hence, uric acid should be classed primarily as a secretory product and an essential constituent of the urine as it is first found in the lumen of the uriniferous tubules, but which under normal conditions becomes a urate, with the formation of the acid phosphate, before the urine escapes from the uriniferous tubules—the urate alone being the true and final excretory end-product in the urine as it is expelled from the bladder. See Fig. 1, which illustrates how, technically speaking, the fluid contained in the lumen of the uriniferous tubules always contains—for an instant, at least—free uric acid, while that found in the ureters and bladder does not. Therefore, the statement that urine does not contain free uric acid normally, is correct.

Accordingly, we are fully justified in asserting that uric acid, pure and simple, is an essential secretory product of the renal cells, but only a true and excretory end-product when united to soda or some other alkali to form a urate. The soda salt being the normal alkali of the body, it is the most common and abundant urate found in the urine. Why it is a fact that when the system is working with its normal perfection and precision only such an amount of uric acid is produced as is required to transform the requisite amount of the phosphate and other alkalies, is hard to fully explain, but such is the observed law of nature.

This brings us to the second and more difficult part of our question, to wit: Where and how, or how and where, is uric acid formed?

Regarding this point, there is no end of theoretic speculation and experimental research work re-

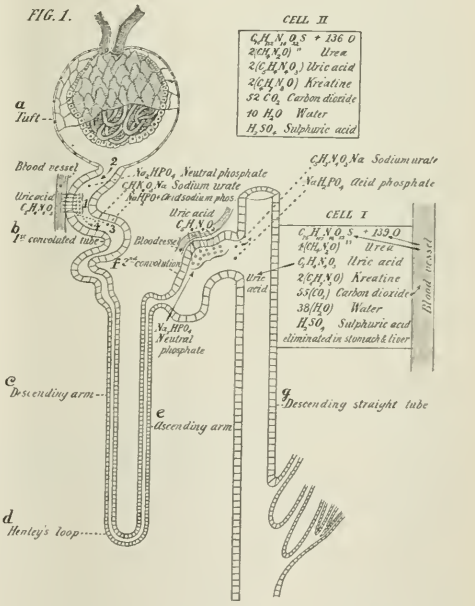


FIG. 1. Schematic drawing showing single uriniferous tubule from Malpighian tuft to papilla or its outlet. (*a*) Malpighian tuft and blood vessels. (*b*) First convolution. (*c*) Descending arm of loop. (*d*) Henley's loop. (*e*) Ascending arm of loop. (*f*) Second convolution. (*g*) Straight or collecting tube. 1. Uric acid molecule dropping into lumen of tube. 2. Neutral phosphate of soda molecule as it unties with the uric acid to form. 3. The acid phosphate of soda; and 4. The urate of soda formed by this chemical mutation. Cell I. Magnified single renal cell, with lumen of the tube on one side and the blood vessel on tbe opposite side, illustrating normal oxidation of proteid molecule within the protoplasm of the cell. The proteid and oxygen coming from the blood into the cell, where it breaks up into its reduction products. The uric acid dropping into the lumen of the tube, while the carbon dioxide flows back into the blood. All the other reduction products dropping into the tube as does the uric acid. The sulphur being eliminated as a sulphate. Cell II. Magnified cell illustrating abnormal or suboxidation in the renal cell. Urea diminished one half while the uric acid is overproduced fifty per cent. In both the normal and abnormal oxidation the sulphur is found in the urine as a sulphate.

*Read at a meeting of the Northwestern Medical and Surgical Society, April 15, 1914.

corded, much of which seems to lose sight of the well-known chemico-physiological laws and disregards absolutely some of the simplest laws of chemistry, one of which is the putting of this strong uric acid molecule and carbonate of soda compound in the same fluid menstruum, the blood. Two such bodies, one strongly acid and the other strongly alkaline, according to all the known laws of chemistry, must, under such conditions, unite to form a salt or urate of soda. But all chemists and all physiologists declare that a urate has never been found in the blood. Therefore we are justified in making the assertion that red meat (or any other kind of meat) does not contain uric acid. Assuming even that it does, the chemical transmutations going on continually in the lumen of the intestinal canal, which contains many alkaline substances, would speedily convert the uric acid into a urate. All this being true, the weight of evidence substantiates the fact that uric acid cannot exist under its own form, normally, in the blood or tissues of the body. This being the case, it seems absurd to argue that uric acid is made in some distant portion of the body—as the spleen, liver, etc.—far away from the renal glands, and that from these remote points the uric acid is in some mysterious and unknown manner—and in defiance of all chemical laws—carried from these distant parts of the body to the renal glands.

That the antecedents of uric acid exist in the blood no one can deny. The form in which they exist in the blood, however, is that of a protein compound, or leucomain product which, when isomerically transformed and released by a process of oxidation in the renal cells, results in the production, under normal conditions, of the requisite amount of uric acid and prevents an overproduction of this acid. Under these conditions the antecedent substance is one which has no perceptible irritating or toxic properties. Thus we find that under normal conditions uric acid is a simple oxidation reduction product of protein metabolism. (See Tables I and II.)

they all carry waste nitrogen out of the animal economy. Hence, it should be borne in mind that if we reason by analogy alone and observe the common laws of nature, we find that all secretory substances are formed by a process of isomeric transmutation or oxidation reduction in the protoplasm of the cells of the gland or glands closely adjacent to the point at which these secretory substances are said to perform their functions. Therefore, uric acid is made by the same laws of nature—by isomeric transmutation and oxidation—in the epithelial cells of the uriniferous tubules, which are closely adjacent to the point at which it is to perform its further function—before it becomes a fully formed excretory product in the form of a urate.

At this point of formation in the renal cells the uric acid molecule is dropped from the cell into the lumen of the tubules, there to unite with the neutral sodium phosphate or other alkalies, chiefly the former, contained in the fluid portion of the urine as it flows down the lumen of the tubules from the Malpighian tufts. (See Fig. 1.) This, then, is the point and the manner at or in which uric acid is produced when the animal economy is working normally.

All this has been accomplished along lines of well-known and definite chemical laws, and without bringing in any mythical and unexplained phenomena.

At this point it may not be unreasonable to make a passing reference to the purin base or body ($C_5N_4$) theory, first brought to the attention of the profession by Prof. Emile Fischer in 1899. The purin bases, as we all know, have figured very extensively in medical literature since that time. While it cannot be denied that uric acid can be reduced in the laboratory to a less complex molecule—one of which is the purin substance—it does not follow that starting with this base, by a process of synthetic action a uric acid molecule can be, or ever is, so constructed in the animal economy. At this point it should always be remembered that

TABLE I.—POSSIBLE PRODUCTS OF OXIDATION OF THE PROTEINS OR "C H N O S" COMPOUNDS.

| Oxidation | Protein | Oxygen Used | Urea | Uric Acid | Creatinin | Oxalic Acid | Lactic Acid | Glucose | Hippuric Acid | Carbon Dioxide | Water | Sulphuric Acid* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Highest | | 154(O)= | 9($CH_4N_2O$) | | | | | | | +63($CO_2$) | +37($H_2O$) | +($H_2SO_4$) |
| Super | | 151(O)= | 7($CH_4N_2O$)+ | ($C_8H_8N_4O_2$) | | | | | | +60($CO_2$) | +39($H_2O$) | +($H_2SO_4$) |
| Normal | $C_{72}H_{112}$ | 139(O)= | 4($CH_4N_2O$)+ | ($C_5H_4N_4O_3$)+2($C_4H_7N_3O$) | | | | | | +55($CO_2$) | +38($H_2O$) | +($H_2SO_4$) |
| Uric Acid | $N_{18}$ | 126(O)= | 2($CH_4N_2O$)+ | 2($C_5H_4N_4O_3$)+2($C_4H_7N_3O$) | | | | | | +52($CO_2$) | +40($H_2O$) | +($H_2SO_4$) |
| Oxalic Acid | $O_{22}S$ | 129(O)= | 2($CH_4N_2O$) + | 2($C_5H_4N_4O_3$)+2($C_4H_7N_3O$)+7($C_2H_2O_4$) | | | | | | +38($CO_2$) | +33($H_2O$) | +($H_2SO_4$) |
| Lactic Acid | | 94(O)= | 2($CH_4N_2O$)+ | 2($C_5H_4N_4O_3$)+2($C_4H_7N_3O$) | | | +7($C_3H_6O_4$) | | | +31($CO_2$) | +19($H_2O$) | +($H_2SO_4$) |
| Diabetes | | 76(O)= | 2($CH_4N_2O$)+ | 2($C_5H_4N_4O_3$)+2($C_4H_7N_3O$) | | | | +5($C_6H_{12}O_6$) | | +22($CO_2$) | +10($H_2O$) | +($H_2SO_4$) |
| Hippuric Acid | | 67(O)= | 2($CH_4N_2O$)+ | 2($C_5H_4N_4O_3$)+2($C_4H_7N_3O$) | | | | | +4($C_9N_9NO_2$) | +21($CO_2$) | +24($H_2O$) | +($H_2SO_4$) |

*Appears in the urine as a sulphate.

TABLE II.—SHOWING POSITION OF URIC ACID IN THE SCHEME OF SUBOXIDATION.

| Oxidation | Protein | Oxygen Used | Urea | Uric Acid | Creatinin | Xanthin | Hypoxanthin | Carbon Dioxide | Water | Sulphuric Acid* |
|---|---|---|---|---|---|---|---|---|---|---|
| Normal | $C_{72}H_{112}$ | 139(O)= | 4($CH_4N_2O$)+ | ($C_5H_4N_4O_3$)+2($C_4H_7N_3O$) | | | | +55($CO_2$) | +38($H_2O$) | +($H_2SO_4$) |
| Uric Acid | $N_{18}$ | 136(O)= | 2($CH_4N_2O$)+ | 2($C_5H_4N_4O_3$)+2($C_4H_7N_3O$) | | | | +52($CO_2$) | +40($H_2O$) | +($H_2SO_4$) |
| Xanthin | $O_{22}S$ | 135(O)= | 2($CH_4N_2O$)+ | ($C_5H_4N_4O_3$)+2($C_4H_7N_3O$) | | +($C_5H_4N_4O_2$) | | +52($CO_2$) | +40($H_2O$) | +($H_2SO_4$) |
| Hypoxanthin | | 134(O)= | 2($CH_4N_2O$)+ | ($C_5H_4N_4O_3$)+2($C_4H_7N_3O$) | | | +($C_5H_4N_4O$) | +52($CO_2$) | +40($H_2O$) | +($H_2SO_4$) |

*Appears in the urine as a sulphate.

It has already been shown that uric acid is primarily a secretory product, so far as its function is concerned—the same as ptyalin, pepsin, and the enzymes of the pancreatic and intestinal glands are secretory, so far as their functions are concerned—yet they are all excretory in this fact, that synthetic construction unquestionably belongs to the vegetable kingdom, while the chief function of animal life is to reduce the complex molecules to their simplest forms. Therefore, the common law of vegetable life is synthetic construction; that of animal life, isomeric transmutation, multiplication

of molecules, and, finally, their oxidation reduction.

This, Halliburton admits, is unquestionably true, but he says further that it must not be pushed too insistently. Why? Because it forces us at times and at some points to say that we do not know, and leaves no chance for escape through mythical and synthetic speculation.

Thus we find very little reason for believing that uric acid is synthetically constructed from a purin base within the animal economy. Even Emile Fischer makes this statement regarding purin: "It may occur in the body, but on account of its ready decomposibility, has not been discovered there." This being the case, why spend so much time and printers' ink, as has been done, in discussing a substance that probably cannot be found in the animal economy?

Certainly many of the deductions which have been built up upon the purin base theory do not fit well with the practical facts as they are observed daily by clinicians in connection with their cases of disturbances in metabolism. All theories that do not fit well with facts are misleading and soon lead to disaster. One theory which is constantly promulgated in this connection is that to have an excess or overproduction of uric acid one must partake of food which is highly charged with purin bases, while the undeniable clinical fact is that a liberal indulgence in potatoes—which are classed as purin-free—will produce the largest amount of over-produced uric acid of any of the known food substances. Hence the purin base theory does not fit with well known clinical facts. The least that can be said regarding it is that it needs much reconstruction before it can be made to fit facts.

Having thus definitely established the normal position of uric acid, we can much more intelligently begin the study of one of the greatest problems in connection with clinical medicine, to wit, the overproduction or pathological aspect of uric acid.

By overproduction is meant the formation of all uric acid in excess of that required as a secretory product to maintain a perfect physiological state of the animal economy, as already outlined. Having thus established uric acid as an oxidation reduction product of the protein molecules, as illustrated in Tables I and II, its overproduction must be worked out along similar lines.

As compared with urea, uric acid is a lower oxidation product of protein metabolism. Apparently, however, both are produced independently, a slight difference in the number of the atoms of oxygen used, or 2 per cent. less oxygen, being all that is necessary to produce this marked suboxidation, lowering the production of urea 50 per cent. and raising the output of the acid 50 per cent. This acid, as already stated, is first a secretory product, while urea is a final and finished reduction product, so far as the animal economy of the human species is concerned. Uric acid, therefore, should be considered as a suboxidation product, and when overproduced, is caused by an unusually large number of protein molecules being imperfectly oxidized, so much so that the output of urea falls as the uric acid rises.

The interesting point in connection with clinical medicine is: What are the methods or etiological factors by which uric acid is produced in unduly large quantities and the output of urea diminished? and how can the condition be most effectively overcome?

There are several somewhat dissimilar conditions under which uric acid is over-produced, yet in a measure they all act alike. The first is a condition in which we find an overproduction of uric acid in those who have abnormally small lungs—as in one very marked instance in which the writer performed the necropsy and found that the two lungs weighed respectively five and seven ounces, instead of twenty and twenty-two. From an anatomical standpoint, this diminishes the aerating capacity by nearly 75 per cent. This might be compensated for in a measure by a high hemoglobin blood content, also by a more active blood current with low vascular tension. With all conditions most favorable, however, including a careful regulation of the diet, it is impossible to compensate fully for this anatomical defect. Subjects with such a build cannot, even under the most favorable conditions, supply sufficient oxygen to oxidize fully the protein substances and maintain the requisite caloric units, and a more or less incomplete oxidation of the proteins is the final result. Such persons are very prone to become overfleshy and to have a large overproduction of uric acid, which, as a rule, is not held in solution in the urine, as is the case in some instances to be cited later. In these cases the uric acid is readily deposited in the urine without the aid of any chemical reagent, and forms the typical brick-dust deposit. This is always the result when the antecedent protein molecules in the blood follow what may be called their normal or physiological course in transit through the system, but in which there is not sufficient oxygen supplied to fully oxidize them when they reach the renal cells.

Such patients often appear to retain, in a large measure, a fair degree of good health, even in the face of this large overproduction of uric acid. This is explained by the fact that it requires a diminution of only 2 per cent. in the oxygen supply to double the output of uric acid. So long as this is the case and the system remains free from toxic invasion of all kinds no serious damage occurs.

The second class of cases are those in which the oxygenating capacity is fairly normal, so far as the pulmonary anatomical condition is concerned, but in which there is more or less constantly an overindulgence of food, as estimated by sound physiological standards, the overindulgence being usually in starches, sugars, and fats—principally the two former. It may also include an excessive use of the protein group, but not necessarily so. In fact, this is not the rule. While the uric acid is always produced from the protein class only, its overproduction is always a question of defective oxidation, and this is more frequently due to the excessive use of the hydrocarbons and carbohydrates than of the proteins. The former being very easily oxidized if taken in too large quantities, will exhaust the oxygen supply, or capacity of the system in burning these more easily combustible compounds; so much so that there is not sufficient oxygen left with which to accomplish the more difficult task of perfectly oxidizing the protein substances. The reduction of the proteins, being a slower and more difficult task, uric acid is produced to a varying extent, sometimes in very large amounts; at others, to a limited extent only.

Here, as in the former instance, the protein antecedent substances undergo a nearly normal transmutation in their passage through the ani-

mal economy, but without sufficient oxygen to fully oxidize them. Hence there are but few, if any, typical abnormal symptoms, even though there is often a very large overproduction of uric acid. Even though there are no well pronounced or ab-

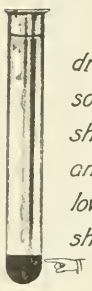
TEST FOR INDICAN
Take 10 C.C. of urine. 10 C.C. hydrochloric acid and 5 drops of ½% solution potas. permangan. and shake. Then add 5 C.C. chloroform and shake. Purple coloration followed by deposit of blue pigment shows presence of indican.

FIG. 2

normal symptoms in these two instances, an overproduction of uric acid always indicates imperfect oxidation reduction of the protein compounds. If this faulty oxidation is continued, it can represent only one thing—faulty assimilation and imperfect nutrition, a condition which, if allowed to continue, will ultimately be followed by more pronounced pathological conditions in due course of time.

This, then, is a very common form of disturbance in metabolism, that in some subtle manner undermines nutrition and causes many an untimely death.

A continuation of these two establishes what may be called a *third type* of uric acid overproduction. In this *third* form, following or resulting from the impaired nutrition, there is developed a defective flow of the digestive secretions and their ferments. This results in a putrefactive fermentation of the foodstuffs in the alimentary canal, causing the indicanuric condition (see test for indican, Fig. 2), often with the formation of various toxins. These toxins, which have not yet been fully studied and named, when they gain access to the blood stream and reach the nervous system appear to disturb the normal isomeric transmutation processes and cause the imperfect oxidation reduction of the protein substances. Under these conditions the antecedent protein bodies, which ultimately give rise to the overproduction of uric acid in the renal cells, assume more and more the type of toxalbumins, which are irritating or decidedly toxic in nature; so much so, that alone, or in conjunction with the toxins absorbed from the alimentary canal, they give rise to a large variety of ill-defined symptoms or sensations which persist so long as the overproduction of the uric acid lasts and the toxic condition of the system is maintained—symptoms which disappear completely when the overproduction of uric acid is arrested and the digestive processes rendered normal, and the uric acid is again produced within physiological limits only.

There is a *fourth type* of cases in which there is an impairment of the hepatic function, such as occurs with a mild type of intralobular occlusion jaundice, while the intestinal digestive functions remain fairly normal. In these cases the faulty hepatic action is a pronounced factor in exciting the imperfect transmutation and oxidation reduction of the protein bodies, with an overproduction of uric acid in the renal cells. In all cases in which there is a faulty digestion, faulty hepatic action, or with the two combined—which latter may be classed as a *fifth type*—instead of the overproduced uric acid being spontaneously deposited, as before mentioned, it is usually held in solution in the urine in considerable quantities and quite persistently. This is a very curious fact. What the element or elements are that hold the uric acid so positively in solution in the urine has not been discovered; but such is the fact, and in many instances, owing to this strange phenomenon, the overproduced acid is often overlooked by those who analyze urine.

In most instances the overproduced uric acid thus held in solution can be detected quite easily by a very simple and certain method. Porter's test for overproduced uric acid (see Fig. 3) is one the author originated and has employed for more than twenty years, in thousands of specimens. Fill a test tube with urine; boil the upper strata only, then add a few drops of a 4 per cent. solution of chemically pure glacial acetic acid, reboil, and set the tube aside in a cool place. If only the physiological amount of uric acid is being produced no change will be observed, no free crystals of uric acid will develop in the fluid so tested, because the acetic acid is not strong enough to decompose the urates and liberate or set the uric acid free.

If, on the other hand, there is an overproduction of uric acid which is free but being held in solution, if the urine is treated as already described, the uric acid will be gradually crystallized out. The crystals will first form directly under the free surface of the urine in the test tube (see Fig. 3). The amount so formed indicates the amount of free uric acid produced above what is required to maintain a perfect physiological state and form the normal urates. If there is a very abundant formation of these crystals it indicates a very large overproduction of uric acid. Judging by the amounts so brought out, one can read off practically the degree or percentage of overproduc-

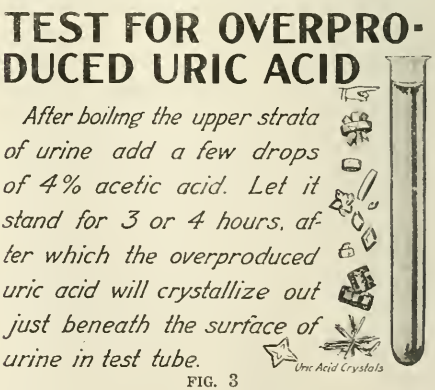
TEST FOR OVERPRODUCED URIC ACID
After boiling the upper strata of urine add a few drops of 4% acetic acid. Let it stand for 3 or 4 hours, after which the overproduced uric acid will crystallize out just beneath the surface of urine in test tube.
Uric Acid Crystals

FIG. 3

tion of this acid. This test can be made an absolute quantitative test by collecting all the overproduced uric acid on a weighed filter; when re weighed the difference will be the actual overproduction. For all practical purposes, however,

the differences as observed in the test tube is all that is required. By it one can tell whether the overproduction is increasing or decreasing. So far as known this is the only practical method for estimating the overproduced uric acid. As it is the determination of the overproduction that is the chief problem in connection with this uric acid question, it is absolutely necessary to have some practical method by which the estimate can be made by every practising physician. In some instances the free uric acid will so crystallize out in a few hours, but it more often takes from twelve to twenty-four or even forty-eight hours before the full amount comes out. In some very rare instances it takes from four to five days before the crystals make their appearance, at which time they will appear in very large amounts. In one case that has been under my observation for a number of years, it is usually the fifth day before the crystals appear, and then a very large number will be seen in the urine so tested. In those cases in which the uric acid comes out slowly there is usually an associated faulty hepatic action, already described, a highly toxic condition of the blood, with marked neurotic or neurasthenic symptoms.

As a rule, the more positively the uric acid is held free and in solution the greater the toxicity of the system, the more persistent the symptoms, and the harder they are to overcome. In fact, it is this complex form that is the most difficult type we are called upon to treat. This, too, is the type which tends to maintain an unduly high vascular tension of the arterial system, a condition that is often wrongly diagnosticated as arteriosclerosis, while in reality it is simply an overtension without any pathological changes in the vascular walls. A high arterial tension of this kind, if it continues, becomes in itself a further factor in decreasing oxidation and in augmenting the overproduction of uric acid, for it further interferes with the free distribution and utilization of oxygen by the renal cells. This, naturally, further reduces the possibility of a perfect and full oxidation.

Imperfect oxidation, together with a continued high tension, is always followed by a decreasing nutritive activity, in consequence of which the continual struggle going on within the system between the higher, noble, or functionating cells and those lower, ignoble, or connecting cells fails to be maintained in a normal physiological manner. Under these conditions, the ascendency of nutritive activity passes from the *microphages* or higher cells, to the *macrophages* or lower order of cells, so graphically described by Metchnikoff in his admirable article entitled, "What is Old Age?" (St. Petersburg *Novista*). This is little else than a modification of the theory advanced by Weigert in reference to histological changes in Bright's disease and accepted by Cohnheim and C. Wagner, which is to the effect that connective tissue proliferation is, in most cases, secondary to and excited by destruction (degeneration) of the renal epithelial elements. The same holds true in sclerosis of the liver, more commonly called cirrhosis.

Thus we find a well-defined law by which all our sclerotic changes are produced; in fact, most, if not all, the chronic pathological changes, which, as they advance progressively, become well-defined macroscopic pathological lesions. With this faulty nutritive activity and high vascular tension, the struggle constantly going on between the higher, or muscle cells, and the lower, or connective tissue cells, in the vascular walls results in an exhaustion of the higher, and the preponderance of nutritive activity passes to the common cells. The noble cells are crowded out more and more, the common ones growing in size at the expense of the higher. This progressively interferes with the functions of the vascular walls; thus, in a progressive manner, bringing about what finally is a true arteriosclerosis, the higher cells having given place to the lower, thus coverting the arterial wall into a fibrous inelastic structure. This is probably the most frequent method by which arteriosclerosis is produced.

It is through the same law of suboxidation, toxemia, vascular modification, and faulty nutrition that we find the true explanation for all our so-called rheumatic conditions, which range from what are best termed rheumatic neuralgic pains to pronounced local congestions in the deep intermuscular planes and to the ligamentous structure in and around the joints, with varying degrees of pain and impairment of function. If this rheumatic condition becomes more intense around the joints, there will be a very pronounced edematous swelling, with great pain, and partial or complete loss of function, yet without any true inflammatory changes. This is the most common form of joint rheumatism. In a few instances, the changes in and around the joints assume the character of a true inflammation. To produce such changes, however, there must be not only suboxidation and vascular changes, with a modified nutritive activity, as already outlined, to make it a rheumatic condition, but there must be an associated toxemia.

The toxemia of rheumatism is now considered by our best bacteriopathologists to be due to the presence of a modified streptococcus.* The term modified is used with emphasis because it has been proved conclusively, by these investigators, that one form can be transformed into another form. This change from one form to another is produced by modifying the soil or medium upon which they are grown or cultivated. So that, for instance, a pneumococcus can be transmuted into a streptococcus and vice versa.

When these microorganisms are in certain states of transmutation they have a selective power, which enables them to attack by preference special kinds of tissues or structures.

As, for instance, the pneumococcus attacks by preference the tissues of the lungs and thus excites a pneumonia. While in other stages of their transmutation the modified streptococci attacks by preference other tissues and structures.

At some point in this circle of change the microorganism develops into a condition or form, in which it attacks, by preference, the tissues and structures commonly involved in rheumatism, when the biotic processes of the animal economy have been previously impaired, as already described.

The positive reason for this microbic theory of rheumatism is the fact that this specially modified form of streptococcus is always found in the lesions in and around the joints, the endocardium and valves of the heart, the membranes of the brain, and in all the structures involved. This is especially true in all the acute cases and in a goodly number of the less acute and chronic cases.

*"Streptococcus Transmutation," E. C. Rosenow, *Journal American Medical Association*, November 29, 1913, LXI, No. 22, p. 2007.

So much so, that the presence of this modified streptococcus is considered just as essential to rheumatism as the pneumococcus is to pneumonia or the tubercle bacillus is to tuberculosis.

In some cases the toxemia is so mild that the pathological process is simply a congestion and stasis of the blood in the capillary system of the part implicated, associated with a varying degree of localized edematous swelling, but without all the changes essential to a true and complete inflammatory process. In some cases, on the other hand, the toxemic condition has an intensity so great that it will cause an injury to the capillary blood vessels in and around the joints sufficiently severe to destroy their normal function and cause in them all the characteristic changes belonging to a true inflammation. To this condition alone is the term inflammatory rheumatism justly applicable. It is not a frequent condition.

The vascular overtension may be so excited and kept in motion in connection with suboxidation conditions from truly extraneous sources, but they are more frequently intrinsic in origin, as already described.

A profound anemia is often a cause of defective oxygen supply, and thus augments or causes overproduction of uric acid, but much that has already been outlined goes before and is, in large measure, the cause of the anemia. These complex conditions are so often intertwined that cause and effect are easily confused, yet they are readily distinguished if one keeps the complete chemicopathological picture clearly in mind. Viewed in this light, uric acid becomes not so much the true pathological problem, but its overproduction is the true index to a very large series of serious and complex chemicopathological problems, changes which it is most important to understand thoroughly in connection with this great field of disturbances in metabolism and clinical medicine in general, if we are to give our patients the best that scientific medicine affords.

With this conception of the problem of uric acid and its overproduction, we can more intelligently consider the management of all the disturbances of which it is the index or representative. Each case presenting an overproduction of uric acid must be carefully analyzed, and its cause and effects accurately determined. Then a suitable line of treatment can be instituted which will yield satisfactory results to both patient and physician. The management of these highly complicated problems is no easy undertaking and often taxes the physician's ability to its utmost extent. It is not a simple question of increasing the production of uric acid, or even of the elimination of an excess of uric acid from the system. This is not the problem at all. The true goal, from start to finish, is how best to decrease the producton of uric acid and maintain its formation within the exact physiological limit, as previously outlined. This, and this only, is the task that confronts the truly scientific practitioner.

As there are so many factors constantly arising to baffle us in our very best efforts, one has to be constantly on the alert when attempting to manage this class of cases. To say that the whole problem is to bring the body oxidation processes within physiological limits is correct, simple, and easy. To accomplish this satisfactorily is one of the most difficult tasks in modern therapeutics.

In the first type of cases—those due to anatomical differences—it cannot be accomplished perfectly. We can very materially improve the condition, but can never absolutely cure it.

In the second type—those cases in which the overproduction of uric acid is due solely to overindulgence in food, or in that of faulty composition—the abnormal conditions can be set right, from a theoretical standpoint, with ease; but when one tries to regulate the diet according to practical and scientific laws and to maintain it within physiological limits, it usually proves to be no easy undertaking, simply and chiefly because a large number of patients will not do their part, no matter how well the physician may accomplish his.

When we come to the more complex types—those in which the digestion is faulty, the hepatic functions incompletely performed, the blood stream highly charged with toxins—the nervous system is in consequence in an undue state of irritability, and as the result of all these disturbances there is established a state of unduly high or low blood pressure. A condition is produced in which the nutritive processes are decidedly abnormal. This is followed by changes which will result in more pronounced pathological lesions in the near future, if, indeed, they are not already under way.

Here we find our ability as scientific therapists taxed to the very utmost limit, even when the patient does his or her very best in carrying out instructions. All the conditions mentioned have to be met with scientific precision, and this calls for consummate skill on the part of the practitioner. Each and every faulty point must be recognized in its full relation to cause and effect. One by one each deviation from the normal must be corrected in mathematical order, and brought back to a perfect physiological state. This once fully accomplished the overproduction of uric acid disappears, and its production within physiological limits only is again reestablished and can then be maintained. We must not attempt to increase uric acid production, even though this is advocated by some.

Time will not permit taking up in full detail all that can or must be done to set these abnormal conditions right, nor would it be wise to attempt to do so if time would permit, for there are so many different methods by which each and every deviation from the normal standard can be met. That which may work well in one case will not do so in another. In like manner, different practitioners will differ in their opinion as to how best to meet these conditions, and as there is no question but that they can be met full well by different agents and methods, there never can be any specific medication in these profound disturbances in metabolism. The varying factors and the inflexible laws entering into this great problem must be fully understood, and all forms of treatment brought into conformity with these laws, otherwise the very best efforts will prove futile. The more perfectly this is accomplished the more certain and rapid will be the success attained in the management of this great class of disturbances in metabolism. Under these most favorable conditions cures can be effected which upon their face appear little short of miracles.

The deductions to be drawn from this study are:

1. Uric acid in the human species is a normal product of protein metabolism.

2. It is derived from protein substances only.

3. It is a normal oxidation reduction product formed and secreted by the renal cells only.

4. It is never present in any food substance.

5. It could not retain its identity in passing through the digestive process.

6. It is never found normally in the blood.

7. Primarily, uric acid should be regarded as an essential secretory product of the renal cell.

8. It is only a normal and final end-product when united to some alkali within physiological limits.

9. It is absolutely necessary to have uric acid produced in the renal cells.

10. When produced beyond physiological limitation it indicates suboxidation.

11. All not required for physiological purposes is an overproduction.

12. The overproduced uric acid is the true index to a large variety of disturbances of metabolism.

13. The determination of the overproduction is very essential to an accurate interpretation of this class of diseases.

14. The overproduced uric acid can be determined easily and accurately by Porter's test.

15. By this study of the normal and overproduction of uric acid we have the explanation for many conditions hitherto little understood.

16. By following the laws here established our therapeutic measures can be more intelligently applied.

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## THE LANGERHANSIAN HORMONE, AND THE HORMONE TREATMENT OF DIABETES.

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Much controversy has surrounded the study of the internal secretion of the pancreas and its physiological action and therapeutic possibilities. Naturally this has made it difficult to establish the therapeutic application of pancreatic opotherapy upon as broad a basis as its well-known and favorable enzyme action upon digestion.

Almost all are now agreed that the "theory" of the dual capacity of the pancreas is a fact, but not all will admit that the term "Langerhansian hormone" is warranted by the findings, for it is still asserted that while the pancreas may produce an internal secretion we have no proof that its activities are due to a hormone, nor have we been able to isolate one, and not all are agreed that the islands of Langerhans are the seat of the elaboration of the internal secretion.

The writer, however, is convinced by personal experience and by a study of a large amount of literature—for the literature dealing with or related to this subject is extraordinarily voluminous—(1) that the term "Langerhansian hormone" is warranted; (2) that hormone-bearing extracts of the pancreas can be prepared and frequently applied with success in practical therapeutics; and (3) that the presumed pancreas hormone has little or no direct connection with the external digestive secretion of this organ and hence practically no influence upon alimentary disorders, or, more strictly, indigestion.

An attempt will be made to marshal a few of the essential facts which are the basis of the above conclusions and as the skein is unraveled it will appear that different extracts of the pancreas are very useful in the treatment of certain well-defined disorders of metabolism.

The internal secretory function of the pancreas does not seem to have been thought of until 1889, when the memorable work of von Mehring and Minkowski[1] showed that the removal of the pancreas was invariably followed by the symptom-complex which is called diabetes mellitus. Hence the study of the internal secretion of the pancreas is inseparably connected with the study of diabetes. This substantiated the theory put forward twelve years previously by Lancereaux,[2] which was based upon his clinical observations on several cases of severe diabetes in which degeneration of the pancreas was found at autopsy. He was the first to use the term "pancreatic diabetes," and, of course, he was severely criticised, for others promptly found indubitable cases of diabetes without evident lesions in the pancreas, and still others found grave pancreatic disease with no previous sign of diabetes. It is now known that Lancereaux's theory is well established and we are better able to explain its *raison d'être*.

While reference has repeatedly appeared in medical literature to von Mehring and Minkowski's experiments, it seems advisable briefly to outline their epoch-making results. They made many tests upon dogs, thereby establishing the fact that after complete removal of the pancreas, if the animal survives the operation, diabetes persisting until death never fails to appear. If one-fourth or one-fifth of the gland remains, diabetes does not follow; or if a portion of the pancreas containing the islands of Langerhans and still attached to its arterial supply is first transplanted under the skin and all the remainder of the pancreas is removed, no glycosuria is produced; but the removal of the transplanted portion is followed by glycosuria.

In this latter experiment, as the digestive secretions of the pancreas are not discharged into the intestinal tract, it seems to be proved that it is neither the digestion of the food in the intestines nor injury to nerve structures that is at fault, but that the cause is evidently lack of an internal secretion, presumably from the transplanted portion which contains the islands of Langerhans.

A number of years later Minkowski[3] was stimulated to repeat his experiments, modifying his technique by performing a two-step operation: He first removed, for later convenience, the splenic portion of the pancreas and did a gastrojejunostomy; from this operation the dog recovered and gained 1450 gm. in the following month. The second part of the operation was then performed, at which the pancreas was divided at a distance of two or three centimeters from its head. The duodenum, to which was attached the head of the pancreas, was then removed, and a cholecystenterostomy was performed. Recovery was complete and the dog remained in good health, showing sugar in the urine for only two days after the operation. At the end

of four weeks after the operation the dog's urine was still sugar free, even though fifty grams of sugar and fifty to one hundred grams of rice soup formed a part of the daily diet. The remainder of the pancreas was then extirpated, and within a few hours 100 c.c of urine containing 9 per cent. of sugar were excreted.

A similar experiment was performed upon another dog, but a small pancreatic graft was inserted under the skin of the abdomen, with the result that the onset of diabetic symptoms was postponed until the graft was removed.

It would be superfluous to relate the numerous confirmatory experiments or, for that matter, the inevitable dissenting voices. Biedl, with good authority, says:[4] "The results have since been confirmed by means of many hundreds of experiments undertaken by numerous authors, including Lépine, Hédon, Gley, Thiroloix, Caparelli, Harley, Schabad, Cavazzina, Landmeyer, Selig, and Rumboldt, among others." In the latest of his numerous communications on this subject Hédon[5] has conclusively shown that the blood passing from the pancreas has a decided antidiabetic influence. He removed the pancreas from a dog which he kept alive for a month. The graft was then removed and glycosuria quickly appeared. Transfusion from the inferior pancreatic vein of a healthy dog was arranged and by careful weighings the amount of blood transfused was known. For three hours transfusion was continued and 300 gm. of blood was passed. Laboratory estimations of the urine showed that at the commencement of the transfusion the sugar percentage was 6.5 per cent. and shortly reached 8.1 per cent. in spite of the transfusion, but that very soon the sugar disappeared and after three hours the urine barely reduced Fehling's solution.

The figures given prove that the pancreatic venous blood has a marked influence on the renal secretion, diminishing the amount of water and its concentration, slightly increasing the urea, and almost completely eliminating the sugar. These experiments confirm Hédon's previous work and are convincing evidence of the presence of an internal secretion of the pancreas and its influence upon glycosuria.

Von Noorden in his latest book[6] says: "I think I shall be voicing the opinion of all pathologists when I say that every individual who has a diminished tolerance for carbohydrates, either permanently or extending at least over a considerable period, and thus exhibits the most important clinical symptom of diabetes, must be considered as a subject of pancreatic insufficiency. We need not always expect to find perceptible anatomical evidence, for there may be functional impairment where no macroscopic or microscopic pathological appearances can be discovered."

The pancreas begins the elaboration of its internal secretion before its external secretion is needed. This has been shown by Carlson and Drennan and later by Lafon,[7] who, in a paper read before the Société de Biologie of Paris, reports having observed that in a pregnant dog, extirpation of the pancreas did not cause glycosuria until the uterine cavity was emptied. It may be reasonably supposed that the production of the internal secretion of the fetal pancreases was diffused into the blood of the mother and supplied the function of the removed pancreas.

Another most convincing experiment by Knowlton and Starling[8] justifies the idea that the pancreas influences carbohydrate metabolism by an internal secretion, rather than by any power which its cells might have of removing or neutralizing toxic substances while the blood is circulating through it. They made observations on the rate at which sugar disappeared from blood that was repeatedly perfused through an isolated mammalian heart preparation (dog), and found that the consumption of dextrose per hour and per gram of heart muscle was usually less than 1 milligram when the heart and blood were those of a depancreatized dog, as against 4 milligrams when the heart and blood were from a normal animal. When the heart was taken from a diabetic animal and the blood from a normal one the consumption of dextrose for the first hour was still low, but it increased steadily during the next two hours; conversely, when the blood of a diabetic animal was perfused through a normal heart, the dextrose consumption, although almost normal during the first hour, fell off markedly during the second and third.

These results may be interpreted as an indication that a hormone necessary for the utilization of sugar by the tissues is evidently absent in the diabetic blood. This idea is further supported by the observation that the addition of a boiled pancreas extract to the diabetic blood used in their experiments restores almost to normal its glycolytic power.

Being now convinced that the pancreas is concerned in sugar combustion it may be well to establish the fact that the islands of Langerhans are evidently the seat of the elaboration of the pancreatic internal secretion and thus explain the term "Langerhansian hormone."

It was in 1895 that Schäfer[9] first offered the suggestion that the seat of trouble in pancreatic diabetes was in the islands of Langerhans and the autopsy findings reported by a number of writers have confirmed this. One of the conclusions arrived at by Bosanquet[10] in his Gouldstonian lecture in 1905 is as follows: "Although it is not yet proved, yet it is becoming increasingly probable that the pancreas is diseased in all cases of diabetes mellitus. An increasing bulk of evidence is also accumulating to show that the function of the pancreas, which is in abeyance in diabetes, is normally performed by certain special groups of cells known as the islands of Langerhans, which are distinct from the ordinary secreting cells of the gland."

Thoinot and Delamarre[11] state that they "have now examined the closed intrapancreatic glands of 167 subjects and have been able in 130 cases to discover Langerhansian lesions. We are, therefore, logically led to regard these forms of diabetes as a clinical demonstration of Langerhansian insufficiency." Lazarus[12] has induced glycosuria and cachexia in guinea-pigs by administering adrenalin and phloridzin during a period of several months. At the autopsies the adrenals and pancreas were enlarged and the islands of Langerhans had increased both in number and size. He supposes that this Langerhansian hypertrophy is a result of the efforts of the organism to neutralize the excesses of adrenalin that were given. Lombroso could not duplicate these experiments and contradicts Lazarus's views.

Opie's[13] experiments at the Rockefeller Institute included a series of the most painstaking post-mortem and pathological examinations. As a result of it he states that: "The study of pancreatic diabetes has shown the relationship of diabetes to lesions of the pancreas and to its various histological structures. If the various lesions to which the pan-

creas is subject are reviewed, it will be found that those which destroy the islands of Langerhans are almost constantly accompanied by diabetes." At Opie's suggestion Cecil[14] made a series of examinations in the case of 90 patients who died of diabetes and concluded that: "Lesions of the pancreas occur in more than seven-eighths of all cases of diabetes mellitus, and in such cases the islands of Langerhans constantly appear changed, the lesions in some cases being limited to these structures. In half of those cases of diabetes, in which the pancreas shows no changes, the size of the pancreas or the number of islands is less than normal."

In this connection Cammidge[15] also writes: "It is highly probable that the islands of Langerhans are in some way intimately associated with sugar metabolism, and personally I have no doubt that, in at any rate the majority of cases of diabetes, lesions of the pancreas, and particularly the islands of Langerhans, are responsible for the disease." Further evidence is available in quantities and "the case in favor of the islet theory is steadily growing stronger." The most conclusive evidence has been adduced by Weichselbaum,[16] who, after many years of study, has made the most positive statement on this subject. He states that in *every one* of a series of 183 patients who died with diabetes, in his examination of the pancreas he found distinct and characteristic lesions in the islets, while in an even larger series of control cases representing many different diseases no corresponding changes were found. The slight discrepancy between the findings of Weichselbaum and those of Cecil referred to previously is probably due to the fact, mentioned by Weichselbaum, that when lesions of the islets occur in young persons hydropic degeneration is most frequent, and that lesions of this character are easily overlooked, especially if the tissue has not been properly preserved and prepared. This would account for the cases in which the islets have been said to be normal in fatal diabetes, and perhaps may explain why Cecil did not find lesions in the remaining one-eighth of his cases. Weichselbaum's work seems to establish conclusively that the majority of cases of diabetes mellitus are not only of pancreatic, but of Langerhansian origin. Heiberg[17] has also shown that there is always danger to the island tissue in the pancreas of diabetics. He has studied the islands quantitatively instead of in the usual purely qualitative way.

Morris[18] of New York believes that many cases of glycosuria are due to pancreatitis caused by the effects of bacteria escaping from the duodenum and consequent squeezing of the islands of Langerhans. As soon as the pancreatitis is relieved, the pressure is reduced and the islands are enabled to resume their functions and the glycosuria shortly disappears.

Tiberti[19] has shown that an artificially induced hyperplasia of connective tissue in the pancreas ultimately destroys the islands of Langerhans and so glycosuria results, and Lissauer[20] found in twenty-four subjects with gin-liver that the pancreas showed more or less similar changes. His findings confirm those of Weichselbaum in twenty-seven similar cases. The importance of this "gin-pancreas" is evident when one remembers the comparative frequency of the development of diabetes mellitus in persons addicted to liquor.

A report by S. A. Scott[20] of Oxford University is of particular interest. He tells of a case of cancer of the pancreas with no previous glycosuria or symptoms of pancreatic internal secretory loss. At autopsy it was seen that the growth had effectively obliterated the ducts and destroyed the glandular part of the organ, with the result that only the islands of Langerhans survived. Opie[21] in his book describes and illustrates a specimen in a less advanced stage than Scott's.

In the Section of Medicine of the XVII International Congress of Medicine, Dock[22] makes the following summary of the foregoing facts: "Now that the relation of the pancreas to diabetes has been carried far towards a conclusion, it is worth while remembering how long it has taken us to reach this stage. Bouchardat very early claimed a place for the pancreas in the pathology of diabetes. Lancereaux and his pupil, Lapierre, tried to show the relation more than thirty years ago, but sought it in the external secretion. Von Mehring and Minkowski looked for it in the internal secretions a decade later; Hansemann soon after insisted on a specific anatomical alteration. In 1895 Schäfer made the pregnant suggestion that the islands of Langerhans are at fault, and in a few years this was confirmed on a large scale by the work of Opie, Weichselbaum, Saltykoff, Hirschfield, Russell, Heiberg, and many others. There is no question now as to the existence of the insular lesions in most cases of diabetes. . . . It hardly seems necessary here to discuss the meaning of cases of pancreatic disease without diabetes, and of diabetes without pancreatic disease—at least disease we can recognize anatomically with our present methods."

A number of experiments have shown that the Langerhansian hormone antagonizes the power of the chromaffin hormone to "mobilize" sugar, or in von Noorden's words, "the pancreas acts as a brake upon the sugar factory."

Zuelzer[23] was among the first to discover the fact that adrenalin glycosuria could be suppressed by injections of an albumose-free pancreatic extract. Frugoni[24] then confirmed this by showing that pancreas extract had the power of destroying adrenalin *in vitro*. Ghedini[25] (and later other investigators) have shown that a fatal dose of adrenalin when mixed with pancreas extract does not cause death and is practicaly innocuous. Pick and Glaesner have also prevented adrenal glycosuria by adding to the adrenalin solution 4 to 20 c.c. of liquid pancreatic extract. The same result, obtained however by a totally different experiment, was secured by Frouin and André Mayer,[26] who have demonstrated a diminution of the manifestations of experimental pancreatic diabetes by partial or complete removal of the adrenals.

Since the use of hormone-bearing extracts of the pancreas in diabetes is frequently unsuccessful, it is desirable to be able to discern which cases are likely to benefit. Lépine believes that in many cases of glycosuria, and occasionally in non-diabetic disorders, there is a functional insufficiency of the pancreas, which is often very difficult to recognize. Sometimes this is possible only by making a therapeutic test. However, there are several subjective signs which are frequently seen in these cases: Marked loss of weight (the French call pancreatic diabetes *"le diabète maigre"*), serious digestive troubles with steatorrhea, and an infrequency of soaps in the feces.* These and other tests not

*The subject of "The Functional Diagnosis of Pancreatic Disease" is exhaustively studied by Pratt[27] in a paper bearing this name and which is amplified by no less than 96 bibliographic references (see also Leech's review).[28]

mentioned here are evidence of a general pancreatic disorder, but not necessarily of a deficiency of the pancreatic internal secretion, although it is likely that the manifestations of severe disease of the pancreas will not be confined to its external secretion alone. There is, however, another important procedure which appears to be of considerable promise.

The relation of the Langerhansian and chromaffin hormones to pancreatic insufficiency, and particularly to the so-called "pancreatic diabetes," led Loewi[29] to suggest a clinical test which gives fairly constant and useful results. He showed that the instillation of 3 or 4 drops of adrenalin (1:1000 solution) into the conjunctival sac causes mydriasis in patients suffering from pancreatic disease. Here it is presumed that, the Langerhansian hormone being diminished or absent, there is an increased excitability of the sympathetic system due to an excess of the antagonist adrenal hormone; and the minute amount of adrenalin is capable of influencing mydriasis. Where this does not take place following the instillation it is presumed that the pancreas hormone is present and that this is evidence that the disorder of the internal secretory function of the pancreas is negligible. This is not an infallible test, but as it is quite innocuous and so simple it is recommended in every suspicious case, and especially in all cases of diabetes. Gandola Quadrio[30] tried this procedure in twenty-five cases in his medical clinic in Rome. Twenty did not respond and no other sign of pancreatic disorder was apparent. Of the remaining five, four had definite pancreatic disease (two diabetes and two pancreatic tumors), while the remaining patient was an epileptic, who, however, showed no sign of alteration in the pancreatic function.

With the formidable amount of evidence to show that the pancreas, and more specifically the islands of Langerhans, are frequently at fault in diabetes it would seem proper to infer that just as the administration of thyroid extract enables one to replace the lost hormone in athyroidism, etc., so the deficiency of the Langerhansian hormone could be replaced by the administration of extracts of the Langerhansian islets. This is true in a degree; but the results are not so specific as those that follow thyroid medication in hypothyroidism for several reasons:

First, not in every case of diabetes is the pancreatic factor present or prominent. Second, very few preparations of pancreas are made with the object of specifically supplying as much as possible of the islet substance. Third, it is no easy matter to supply the lacking hormone for it is normally supplied continuously to the blood, and we have no means of knowing how much is elaborated or, in disease, how much is lacking in each case. Fourth, the antagonism of the chromaffin hormone must be considered, for the diabetes may be due, not simply to a deficiency of the pancreatic internal secretion, but to an exaggeration of that of the adrenals or a combination of both. Fifth, evidently several other factors are concerned and hence the hormone treatment of diabetes alone cannot be instituted with hopes of success.

The exciting cause of the disturbed hormone-balance is not to be neglected, and if it cannot definitely be found (and rarely can this be done, much less can it be controlled) all one can expect to accomplish in this direction is to favor the restoration of the hormone balance as much as possible. This is best accomplished by (1) the regulation of obvious elements of disturbance, such as indigestion, anemia, worry, etc., (2) the regulation of the dietary, so that a minimum of the deficient hormone will be required, (3) the sedation of adrenal overactivity if present, and (4) the exhibition of preparations containing a maximum of the Langerhansian hormone in doses graded to fit the condition present.

As an adjunct remedy in pancreatic diabetes this method is of encouraging utility. Frequently glycosuria is reduced to a minimum or disappears entirely, and after response to this treatment a wider dietetic range is made possible.

Therapeutic trials of feeding pancreas have been carried out by several writers. Combe[31] found it of good service in certain cases, although it did not suffice completely to cause the disappearance of glycosuria, save only in a few cases. He called special attention to the improvement in the nutrition and general condition which was also brought about.

Cowles[32] relates an interesting case in which the ingestion of from one to three calves' pancreases daily reduced the daily amount of urine from 7 to 10 to from 2 to 3 quarts; the specific gravity from 1,040 to 1,045 to 1,028 to 1,030; and the sugar, although the urine was never entirely sugar-free. The weight was materially increased, during one fortnight 161 lbs. being gained. Circumstances caused the patient to stop treatment and some time later he died from sepsis. The pancreas was found to be a mere fibrous cord. Cowles suggests that the numerous failures with this treatment are due to the administration of too little pancreatic substance as "few people would be able to eat, even if they could get, the amount of uncooked pancreas taken by my patient."

Zuelzer[33] has reported good results from his preparation and believes that it is possible to cause sugar, acetone, and diacetic acid to disappear from the urine of diabetic patients by the injection of a specially prepared pancreatic extract. In six cases, between six and sixty-five years of age, treated with subcutaneous injections of extracts of pancreas obtained from living animals at the height of digestion, he reports that the results were uniform and constant, the glucose, acetone, and diacetic acid being always diminished and usually entirely absent from the urine in two or three days after injection. In all these cases no change was made in the diet after administration.

It is evident that the pancreas-ferment preparations may have an excellent influence upon glycosuria. This is probably due to the restorative action on the pancreas caused by the reinforcement of digestion and the removal, in part or altogether, of the pancreatic disability which is reflected not alone upon its external but also on its internal secretion. Walko[34] noted a conspicuous effect upon the sugar content of the urine, which was seen in a case of glycosuria in chronic pancreatitis. Under pankreon medication the excretion of sugar ceased entirely after eleven days and did not return, although a gradual increase was made in the quantity of food containing carbohydrates.

Rennie and Fraser[34] prepared an extract of the islands of Langerhans of the *Teleostei* (a genus of fish in which Langerhansian islets are sufficiently large to be visible to the naked eye). It was used in five cases of diabetes with some improvement, but the experiments could not be continued owing to the limited supply of the extract and the difficulty of securing it.

Crofton[35] of Dublin reports good results in a child of thirteen following the administration of a total extract of the pancreas (holadin), and in a later paper[36] tells his further experiences. He begins treatment by giving a preparation of secretin;* if no marked improvement is noted he gives a pancreas extract from which all the coagulable proteins and ferments have been removed by heating to 80° for three hours. He frequently gives secretin and pancreatic extract together. As to his results Crofton writes: "I have seen a sufficient number which were going to the bad on the several lines of treatment improve and resume their usual mode of life, and this on an ordinary full diet. This encourages me in the idea that I am working on the right lines. The patients soon begin to lose their abnormal thirst and hunger, and the wretched feeling of weakness and illness. In some cases the amount of sugar and urine decreases rapidly, but I have never yet succeeded in entirely getting rid of the sugar, although the patient has frequently declared himself well and strong and able for his full quantum of arduous work."

The writer's experience has been limited to a preparation called trypsogen, said to contain the pancreatic internal secretion besides trypsin and amylopsin. In several cases of unmistakable diabetes mellitus (with several or all of the usual symptoms—glycosuria, polyuria, thirst, emaciation, and asthenia) the weight has been increased, polyuria quite controlled, and sugar reduced. Occasionally the sugar disappears entirely and, with no further treatment, does not return. A case has been seen in which sugar would return immediately the dosage of this preparation was stopped, and another in which glycosuria returned if the dose was reduced below what apparently was the minimum effective for that patient. No cases of gangrene have been met with personally, but several correspondents have reported encouraging experiences with this treatment, and in an excerpt from a paper published by Attix and Rommel[38] is an interesting record of the successful treatment of several severe cases of gangrene with trypsogen.

Certain cases have been found to respond to this treatment in a limited degree, and the sugar is reduced, but persists in small amounts; while again, not infrequently, the results are negative. Quite recently Wynter[39] reported in the discussion on glycosuria at the British Medical Association meeting at Brighton (1913) that he had seen very good results follow this remedy in a severe case of glycosuria.

The evidence is by no means unanimous, nor are the results constant, but it is proved beyond all question that such a condition as the "Langerhansian insufficiency" mentioned by Thoinot exists in many cases of diabetes and that a means of controlling this may be found in extracts of these islands. However, this is but one factor in the control of this complex disease. It seems that pancreas, or preferably Langerhansian preparations, should be added as a part of the routine treatment of all cases of diabetes not definitely known to be due to hepatic disorders as mentioned previously.

*Pochon[37] was probably the first to suggest the combination of secretin-bearing extracts (duodenal) and pancreas extract in diabetes. He believes that by combining these products one can stimulate both the internal and external secretory powers of the pancreas. He reports two cases in which the sugar fell sharply from 50 gm. to 3 gm. and from 70 gm. to 4.50 gm. per liter, and in other ways improvement was apparent.

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## THE TREATMENT OF TRIFACIAL NEURALGIA BY THE INJECTION OF ALCOHOL INTO THE GASSERIAN GANGLION.


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It is well known that the best treatment for trifacial neuralgia is the removal of the cause, and there are many causes for this condition that are removable. In 1909 I published a paper on "The Cause and Treatment of Trifacial Neuralgia" (') in which I reported some cases which I considered interesting for the reason that in these cases a definite cause for the neuralgia was discovered and removed. If we apply to these cases the term symptomatic trifacial neuralgia, it makes but little practical difference, for the fact remains that, without a general and complete examination of the patient the cause would not have been found. The only real difference between those cases called symptomatic and others is the fact that in the latter the cause is not discovered. Pains in the face that are the direct result of local inflammatory conditions and certain psychalgias are, of course, excluded from any category of neuralgia. There are cases of so-called "idiopathic" trifacial neuralgia, in which the cause cannot, in the present state of our knowledge, be determined or removed; such cases usually occur

in persons well advanced in years and are supposed to be due to some change in the nerve itself or in the bony canal. Dana would limit the term tic douloureux to cases of this description. The treatment that we have used for these cases has always been more or less unsatisfactory. Medical treatment practically never cures and rarely benefits. Treatment by electricity is in about the same position. The surgical exsection of the nerve, superficially, frequently gives relief for a time, but the pain returns in spite of the elaborate precautions often taken to prevent the regeneration of the nerve—such as plugging the foramen of exit, twisting out the nerve, etc. The injection of alcohol or osmic acid into the nerve as it emerges on the face is easier than the surgical resection, and, in my experience accomplishes about the same result. The deep injection of the nerve trunks as they leave the foramina in the skull, Schlösser's method, which has been frequently done in this country by Kiliani, H. Patrick, and others, although at first considered curative, is now known to be frequently followed by recurrences. The Hartly-Krause operation, excision of the Gasserian ganglion, is usually curative but is a dangerous and difficult operation and frequently leaves a bad deformity. These objections are not overcome by Spiller and Frazier's modification—the section of the sensory root of the ganglion, nor by the suggestion that is made by Alexander and Unger[2] that the ganglion be exposed as by the Krause operation and then destroyed by the injection of alcohol. Practically the same objections apply to the operation done by Wright[3] and also suggested by Sicard, *i.e.* under general anesthesia, dividing the zygoma and the coronoid process and reflecting them upward and then dissecting back to the foramen ovale and, with a curved syringe, injecting alcohol or osmic acid into the ganglion.

In May, 1909, W. Harris[4] stated that the ganglion could be injected with alcohol by passing a needle through the cheek in much the same way that the third division of the trigeminal nerve was injected as it left the foramen ovale. He demonstrated this possibility on a cadaver. January 27, 1912, he published[5] details of three cases in which he had done this operation with good results in patients with neuralgia and also published his technique. His paper was published thirteen months after he had injected the first case and there had been no return of the pain. Shortly after this Härtel[6] published an elaborate paper in which he advocated the injection of the Gasserian ganglion in a somewhat different way—the needle was inserted in the mouth just outside the alveolar process above the second molar tooth and was directed upward and backward. He claimed that this way was easier because it furnished more bony points to guide the operator and because the long axis of the foramen ovale was anteroposterior. He also claimed that there was less danger of accident by this method. He reports a number of successful injections. Alexander and Unger[2] tried the Härtel method and failed because they could not enter the foramen. A. Simons[7] also tried this method and had a fatal meningitis follow. So far as I know the only man in America who has published anything along this line is Grinker.[8] Grinker reports that his first attempt was unsuccessful. Of his second attempt he simply says, "I made a successful injection into the Gasserian ganglion according to the technique as described in the previous portion of this paper. The two lower branches of the trigeminus had become completely anesthetic and the patient left the hospital free from pain." I should doubt that the ganglion was injected if the first division was not affected.

The Harris method has been used by Tapetas,[9] who reported two cases so treated with good results. While the publication of his paper preceded that of Harris by several months, Harris probably deserves credit for priority for he demonstrated the possibility of the operation, in 1909, on the cadaver and performed it on a patient thirteen months before he published his paper.

My attention was first attracted to the paper by Harris and I practised this operation on a number of cadavers in the anatomical laboratory of the University of Michigan. I found that on the cadavers used there was little difficulty in making the needle pass through the foramen ovale and penetrate the Gasserian ganglion. Necessarily it passes very near to important blood-vessels and they are liable to injury. If the needle points too far back it enters the jugular foramen or the foramen spinosum, if it passes too far through the foramen it will wound the cavernous sinus. As Offerhous[10] says of Schlösser's operation, "it is millimeter surgery," and the same author, in 1910, referred to Harris' suggestion as "improbable."

Case I.—April 19, 1912, I injected a patient with trifacial neuralgia, using the technique suggested by Harris. The patient was fifty-six years old and had had neuralgia for fourteen years. He had been extensively treated and had an operation on the nerve with temporary relief. After the injection it was noted that there was analgesia in the distribution of all three branches of the nerve and he had no attacks. He was discharged from my service in the hospital six days later, and I have heard that his neuralgia is cured but have had no opportunity to reexamine him.

Case II.—The second patient was a woman, age forty-six, with severe trifacial neuralgia, of two years duration. She was admitted to the hospital, December, 1912, and on January 6, 1913, had an injection of alcohol into the peripheral nerves at their exit points on the face, with complete relief. On February 17, the patient came back to the hospital, the pain having returned two days before. The Gasserian ganglion was injected, Harris' method, on February 24, 1913. In less than ten minutes after the injection there was complete analgesia of the right side of the face in the distribution of all three branches of the fifth nerve, and the right side of the tongue. The corneal reflex was lost on that side. Sensation to pressure was preserved. On February 27 it was noted that she had a vesicular eruption about the right corner of the mouth resembling a herpes zoster. March 2 she had no pain and the area of analgesia was the same as before. A steel pin was thrust through the right side of the tongue without causing pain though the patient said that she felt it going through. The corneal reflex was lost but there was no keratitis. An examination made December 11, 1913, showed the area of analgesia slightly less extensive but otherwise the same as at the previous examinations.

Case III.—The third patient was a man, aged sixty-eight years, with typical and very severe neuralgia in the left side of the face, duration four years. His blood pressure was 200 mm. Hg. but, except for the manifestation of the neuralgia, his neurological and physical examination was negative. He was given an injection of 1 c.c. of 1 per cent. cocaine in 80 per cent. alcohol into the Gasserian ganglion, July 24, 1913. Analgesia of the left side of the face was complete inside of a few minutes. After the withdrawal of the needle he said that he felt dizzy and nauseated and there was noticed a weakness in the muscles of expression on the left side of the face and a paralysis of the left external rectus muscle but this paralysis was transient and there was no trace of it the following day. There remained a permanent analgesia of the left half of the face in the distribution of the fifth craniel nerve also analgesia of the left half of the tongue, and of the mouth as far back as the middle of the tonsil. The left cornea was anesthetic and the

reflex abolished. It was also noted that the temporal and masseter muscles on the left side did not contract on mastication. The sense of taste was preserved. Some interesting physiological studies made on this patient relative to the functions of the Gasserian ganglion are not recorded here. Dr. R. B. Canfield reported that the tympanitic membrane was anesthetic, the only response to the probe being a ringing tinnitus. On January 12, 1914, the patient returned to the hospital at my request for reexamination and for demonstration at the January meeting of the Clinical Society of the University of Michigan.[11] He said that he felt well and had had no pain. He felt light touches with the finger on both sides of the face but those on the right side were more "distinct" than those on the left. Light touches with cotton were not felt on the left side of the face. He had analgesia to pinpoint on the left side of the face in the distribution of all three branches of the fifth nerve. He felt pinpoint as such on both sides of the tongue but less distinctly on the left side. The conjunctiva on the left side was anesthetic and the corneal reflex lost; it was very prompt on the right side. The hard palate and gums were analgesic on the left side. He had had no inflammatory trouble with the left eye though there seemed to be more lacrymation than on the right side. The pharyngeal reflex was active on both sides and the masseter and temporal muscles contracted on both sides though somewhat better on the right side than on the left.

It is a fair inference that the Gasserian ganglion has been destroyed in this patient since the extent and character of the sensory changes six months after the injection are practically the same as those noted after the surgical removal of the ganglion or the section of its sensory root and, if this is the case, there will probably be no recurrence of the neuralgia.

*Indications and Contraindications.*—The indications for the injection of the Gasserian ganglion are the same as those for Gasserectomy, namely, severe trifacial neuralgia for which the cause cannot be discovered or, if discovered, removed, *i.e.* those cases called idiopathic or tic douloureux. It would no doubt be desirable to try the effect of peripheral injections into the nerve trunks first and if relief is obtained in that way the more serious procedure may be avoided. There are no serious contraindications except the non-fulfillment of the above indications. Heart disease or high blood pressure while increasing the seriousness of the situation are no contraindications; some measure for relief is a necessity and the injection is less dangerous than Gasserectomy.

*Technique.*—The technique used is essentially that described by Harris.[5] No general anesthetic is used but the patient may be given a dose of morphine hypodermically about fifteen minutes before the injection or bromide, as thought desirable, and the skin of the cheek may be frozen. I have not used these measures in the cases above recorded. The patient sits in a chair, preferably with a head rest. His mouth is held open about ½ inch with a piece of cork or mouth gag. He is requested not to attempt to talk but to answer by gestures or arranged signals, such as: raising the right hand, "yes"; left hand, "no," etc. The skin of the cheek is made aseptic with benzine and iodine and under aseptic precautions a sharp needle or trocar is inserted through the skin opposite the lower border of the sigmoid notch and pushed inward and slightly upward and backward through the fascia and muscle. This is then withdrawn and a hollow needle about 1.2 mm. in diameter and 10 cm. long takes its place. This needle is marked in centimeters; it is sharp pointed but has an accurately fitted trocar, a little longer than the needle, with a rounded end. With the trocar in place the point of the needle is less likely to injure the blood vessels. The needle is gradually pushed through the sphenomaxillary fossa to the foramen ovale. Contact with the inferior maxillary division in the neighborhood of the foramen ovale causes sharp neuralgic pain in the distribution of that nerve and as soon as one is satisfied that the needle point is in this situation a few drops of 1 per cent. solution of cocaine in alcohol are injected through the needle and an interval allowed for it to take effect. There should be then an analgesia of the skin in the distribution of the inferior maxillary nerve and also an analgesia of the parts at the needle point. Several trials may be required to produce this anesthesia. After this has occurred the outline of the foramen ovale is made out with the needle point and the needle pushed through the foramen (not over one centimeter) until the patient complains of a sharp neuralgic pain over the orbit. One cubic centimeter of the alcoholic solution of cocaine is slowly injected at this point. The needle is left in place until tests show an analgesia of the entire distribution of the trifacial nerve which, in my cases, has occurred in less than ten minutes. The needle is then withdrawn. The appearance of analgesia in the supraorbital region is necessary to give assurance that the needle has actually passed through the foramen, for the proximity of the foramen rotundum to the foramen ovale makes it possible that alcohol simply injected into the sphenomaxillary fossa would cause analgesia in the two lower divisions of the fifth nerve. The great variations in the size and shape of the skull in different individuals makes it impossible to give more definite directions for reaching the foramen ovale but I am convinced that he who trusts to measurements of the skull and theoretical angles will be less successful than he who first practises extensively on various cadavers and then trusts to his sense of direction and the correct interpretation of the physiological phenomena caused by the passage of the needle point.

The Härtel method differs from the Harris method and the one described here in that he starts from the mouth and passes the needle upward and backward outside the alveolar process. The only argument in favor of this method is the fact that the long axis of the oval foramen lies anteroposterior but this advantage is largely illusory. I have never tried this method but I have seen it tried unsuccessfully and there have been reports of its trial by Alexander and Unger[2] and others in which they were also unsuccessful in passing the needle through the foramen ovale. The foramen ovale is frequently quite round and passing the needle through the cheek allows a better sense of its direction. There is certainly more danger of infection by the Härtel method and A. Simons[7] records a fatal meningitis in a patient injected by this method.

*Untoward Effects.*—In attaining the object of complete destruction of the ganglion of Gasser certain phenomena may occur which are not intended. Harris does not report any untoward effects except faintness and retching in one case. Taptas reports two cases and in one of them there was complete oculomotor palsy lasting two hours. In my third case there was transient paralysis of the sixth and seventh cranial nerves on the same side, with some dizziness and nausea. Somewhat similar phenomena have been observed after injection of the nerve trunks by Schlösser's method and paral-

ysis in other cranial nerves than the fifth may occur after Gasserectomy. Unilateral weakness in the muscles of mastication may also be regarded as an undesired effect and has occurred in one case reported by Harris and in my third case. Its effects are transient and not serious; there is no interference with eating. A neuro-paralytic keratitis, so common after Gasserectomy, has not occurred after the destruction of the ganglion by injection methods even though the cornea is anesthetic. There has been no keratitis even when the ganglion has been exposed by the Krause method and alcohol injected directly into it (Alexander and Unger). It would seem from this that the keratitis which follows, in some cases, the Hartly-Krause operations may have the effect of ether on the cornea as one of the factors of its production.

*Physiological Effects.*—The physiological effects observed after the injection of the Gasserian ganglion are very similar to those after surgical extirpation of the ganglion. The area of disturbed sensation is the same in both cases. The character of the sensory change seems rather more constant in the injected cases than those in which the ganglion is extirpated surgically. There is complete analgesia in the distribution of the fifth nerve including the mucous membranes and cornea. There is anesthesia to cotton or hair but not to touches which include pressure. There is loss of temperature sense in the same area. The preservation of pressure sense in the face after surgical extirpation has been noted by several observers: Cushing,[12] Spiller, *et al.* and was also noted by Alexander and Unger[2] after they exposed the ganglion and injected alcohol directly into it. Cushing[13] has also noted the independence of the taste-fibers from the trigeminus after removal of the Gasserian ganglion. After the surgical operations the disturbance in sensation may apparently be slight, in some cases "hypalgesia" (Spiller, Dercum, Keen[14]), "warm sensation diminished" (Krause[15]). Dollinger[16] has noted an increased lacrymation on the affected side after surgical removal of the glanglion similar to that observed in my third case.

*Pathological Changes.*—Since the ganglion is not removed the permanence of the result will depend largely on the pathological changes induced by the injection. Perhaps the most light is thrown on this subject by the researches of May[17] who injected alcohol directly into the ganglia of cats. A histological study showed but little degeneration of the cells of the ganglia but degeneration of the peripheral nerves and also a marked degeneration of the sensory root of the ganglion which could be traced through the medulla to the spinal cord. These findings perhaps help to explain the absence of keratitis in these cases in spite of the corneal anesthesia and make it seem that the injection is in effect a section of the sensory root of the ganglion similar to that advised and carried out surgically by Spiller and Frazier.[18] The sensory root of the ganglion will not regenerate (Spiller[19]) so that the results will be quite as permanent as from ganglion removal, indeed, they may be even more so. In 1900, Spiller[20] examined two Gasserian ganglia removed by Cushing and found that in one of them the sensory root was diseased. He says that Krause had also observed a disease of the sensory root in a ganglion removed on account of trifacial neuralgia and in that case the neuralgia returned. Spiller ventures the prediction that the pain may return in Cushing's case unless all of the sensory root was removed or destroyed. Cases in which neuralgia has recurred on the same side of the face after removal of the Gasserian ganglion are very rare but such cases have been reported by Friedreich,[21] Garre,[22] Lexer,[23] Schwartz,[24] and Ssapegko.[25] In these cases the skin remains anesthetic and the pain is referred to the face apparently because of some lesion irritating the sensory root of the ganglion which was not destroyed. If we may rely on May's observations it would seem as though recurrences of pain from this source would not occur after the ganglion injections.

In conclusion it is safe to say that the injection of alcohol into the Gasserian ganglion by putting a needle through the foramen ovale is possible in many cases; the physiological effects are similar to those from removal of the ganglion; the pain of trifacial neuralgia is relieved and there is good ground for believing that the relief is permanent.

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**Typhoid Bacilli in the Mouth of the Typhoid Patient.**—E. Mondolfo has found that in the majority of cases of typhoid fever it is possible to isolate the typhoid bacillus from the mouth of the patient. The typhoid bacillus is more frequently found in the mouth than in the circulating blood. The presence of this organism in the mouth may be detected as early as the end of the first week of the disease. The discovery of the typhoid bacillus in the mouth, Mondolfo says, is a valuable diagnostic measure in the early stages of the disease.—*La Riforma Medica.*

# SOME INJURIES OF THE INNER EAR.*

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Case I.—Mr. F. G. R., 45 years old, was seen by me on May 2, 1913. He said that he heard well until three weeks ago, when he was hit in the right occipital region by a golf ball weighing 1½ ounces. The patient was twenty-five feet from the place where the ball was played. He was "terribly" hit. The ball bounced back 75-100 feet. Everything became dark, his knees gave way, and he was dizzy for a few minutes. He noticed about three or four hours later that evening, at home, a ringing noise in the right ear. He said that he had a bump on his head half as big as a fist. The ringing in the right ear disappeared within a week. The patient had also a ringing in his left ear. Now only the left ear rings when the patient comes home after playing three or four hours golf. Dizziness: He was dizzy only about ten minutes. Nausea: Felt nauseated after playing 1½ hours but did not vomit. He never complained in any way of his ears before the accident. Examination: Both drum membranes show a somewhat retracted hammer handle and an interrupted light reflex. Low fork 20. Low fork 40. a'; Vienna; fork and fork 4096 heard in both ears. Weber 128 = 36/100 i W, 19/100 i. After catheter: 41 100 i. W. 27/100 i. 0.5 Galton 0.0.

Iodide of potassium, gr. v, t. i. d. Patient improved. Was seen in my office March 26, 1914. 40/100 i W, 30 25 100 i.

Case II.—Mr. A. F., 40 years old, was seen by me March 4, 1913, and subsequently. He had, in July, 1908, suffered an injury to his head while riding in a vehicle which was hit by a street car. There was retraction of the hammer and interrupted light reflex in both ears. He did not hear in his left ear, and his hearing in the right ear was diminished. He said that he had heard well before the accident, but that he could not hear in either ear immediately after injury. Politzer's acoumeter was not heard in his left ear, and only 1.5 in. in his right ear. Tuning forks a', 4096, were not heard in his left ear. On March 5, 1913, forks 20 and 40 heard in right but not in left. He complains of noises in left ear since the accident.

He could not stand on one leg with his eyes closed. I saw the patient frequently. The Eustachian tubes were free. Romberg and Hinsberg impossible. When I tried to turn him in the turning chair used for labyrinthian tests I had to stop after the second time, as he showed such an amount of dizziness that I became alarmed. Since then he feared the turning chair. I tried this at a court trial, and he told me afterwards that he felt bad for about three days afterwards. III/24/13. He reported that when he sneezed he had a sensation as of being pricked by a needle in the occipital region. He had been working on a scaffold before the accident without becoming dizzy, but he could not do that any longer. There is a scar on the back of his head.

When seen again in September, 1913, the dizziness seemed to be somewhat less pronounced but the hearing in his left ear was unchanged. The noises "singing" or "like bees" which he had before, are not noticed the last two or three months. When he works hard he can not sleep and has to get up during the night sometimes repeatedly.

September 17, 1913. He says that in bad weather the whole left side of his head feels devoid of feeling.

Was seen January, 1914, and there was no change in hearing. He also stated that he could not work on high places as he could before the accident, *e. g.* not on a scaffold, although he often tried to do it.

Case III.—Mr. J. B., 27 years of age, was seen by me Dec. 16, in the office. Patient is a welder and uses an oxygen tank. On Dec. 11, at 3 P. M., the cap of an oxygen tank blew off (pressure from 1500-2150 pounds to the square inch, he says) and hit the patient slantingly on the left frontal region from the front, where a scar is still visible. Patient was unconscious for two hours and dull until about 9 A. M. the next day. The left ear was clogged up with blood, he says, and he was very dizzy for four weeks. Dizziness was very pronounced for two weeks. Even now he is dizzy when he bends over. Patient has had strabismus, but he says it is worse since the accident. To me it seems to change. Unadvised, the patient had syringed his left ear on December 26th.

He developed also some tenderness over the mastoid and discharge from his left ear. The whole left side of the head from the frontal bone to the mastoid is sore. There was a kidney shaped perforation of the left drum membrane. The patient claimed that the ear had been dry before the accident. The tenderness over the mastoid on pressure varied. On Jan. 2 he reported that he had pain in his left ear when his head was lying low. In the first week of January he also complained of a sensation of thumping and of pain, also that the left eye quivers after the thumping stops. January 8, reported that he had earache the night before, from 9 P. M. on, also pain from wound in frontal region back to the ear, and that the thumping kept working. Jan. 9, felt better.

Jan. 10, did not sleep last night. Mastoid tender on pressure, dull pain in head, restless. Feels better on the 13th. On the 17th reports that ear discharged freely last night, and the tenderness over the mastoid seems gone.

On January 19 he went to work at 6:20 A. M. but noticed a dragging headache at 7. This became worse all the time. At 1 P. M. he had to leave work. On the 20th he remained in bed all day. On the 24th he reports that the pain disappears every time the left ear discharges. *X*-ray report "sclerosed mastoid with small fractures in the region of the attic." On Feb. 10, after about a week's observation in Harper Hospital, I reluctantly decided to explore the mastoid. The antrum was deeply seated in the sclerosed mastoid and not opened. The canal was removed almost to the tympanic ring. The tympanic cavity was filled with granulations which were curetted. Since that time the head symptoms improved. The hearing is practically gone since the accident. When spoken to loudly from a distance of about one foot while the noise apparatus is in the right ear, nothing can be made out by patient. On March 11, 1914, the following tests were recorded: Forks 20.40, a', 4096 not heard in left ear. The a' fork placed on left mastoid process was heard in right ear. When turned 10 times to right nystagmus position: 25 seconds to left side, when turned 10 times to left nystagmus in about 20 seconds to right side. He says that the turning caused his head to ache. On March 13, he reported that he had headache after he left my office on the eleventh and that he was nauseated, also that he was dizzy until yesterday morning. Not all nausea had disappeared on the 13th. On the way home, he says, the discharge started again more freely. It is mucopurulent.

Patient started to work on the 16th of March but the work proved too strenuous for him, the headache became violent, especially across forehead. When he does light work he is not annoyed so much. At times the spot in the frontal temporal region was "as sore as a boil." March 20, 1914. Feels much better. Pain in a spot 2½ inches behind top of auricle. March 22, felt better, pain about one inch behind auricle. March 24, pain behind ear better. March 29, when bends forward still gets dizzy. Last night pain again 2½ inches behind top of auricle.

I have selected these three cases, among others, because they show certain characteristic points. There is some probability that in patient No. 1 an outspoken chronic condition existed before the accident, whereas the patients 2 and 3 exhibit more clearly the consequence of the accident.

In a previous introductory article on the subject-matter I referred to the text-books of Politzer and Urbantschitsch, in which the subject is treated.

Dr. D. B. St. John Roosa in his text-book (Sixth Edition, 1885), speaking of injuries of the osseous labyrinth, says: "In the chapter upon fractures of the temporal bone it was seen that there were such injuries in which the tympanum only was involved, but there are also cases in which both the osseous and the membranous labyrinth are injured and absolute deafness results." He quotes:

Case 1.—Severe fall, complete deafness on one side, normal drum membrane. Sept. 14, 1865. E. M., aged eleven. Five years ago, or when six years old, had a severe fall down stairs, striking his head, and he has

*Read before the Detroit Society of Neurology and Psychiatry, April 2, 1914.

been totally deaf on the right side ever since. The drum heads of both sides are normal. He cannot hear the ticking of the watch on the right side, except when upon the mastoid region, the meatus being closed. The air is easily forced through both tubes by Politzer's method and by the experiment of Valsalva, but no improvement to hearing results.

CASE II.—(Abridged). Profound deafness from blows on head. A man 45 years old, beaten in a fight a few months ago, was unconscious for four days. Gait irregular, great difficulty in keeping his head in an erect position, even when supporting it with his hand. Marks of blows still traceable over one eye and the right mastoid. Apparently an entire absence of hearing power.

Roosa describes a case in which the inner ear was permanently injured by a kiss. The boilermakers', etc., ears are well known, also injuries caused by whistles, etc.

It is very important to remember that Politzer remarks that in luetic patients even a slight injury may cause complete deafness.

A case reported by Harry Friedenwald before the Ninth International Otological Congress belongs to the class of commotion or concussion of the internal ear. He quotes: "Barnick, who found labyrinthine hemorrhages in several cases in those killed by severe cerebral trauma, with fracture of base of the skull but not of the bony capsule of the internal ear. The hemorrhages were found in the perilymphatic spaces and in the auditory nerve, and its divisions, and he continues that Strenger's experimental injuries in rats without fracture of the skull likewise revealed labyrinthine hemorrhages, similar to those found by Barnick; that these hemorrhages may become absorbed with partial or total restoration of the organ or they may produce permanent changes by the direct injury they cause or by the subsequent changes, connective tissue formations, etc., which result."

Ostmann is quoted, stating that the "complete recovery may occur after days or weeks, or the hearing may return to its previous condition, but tinnitus remains, or deafness, tinnitus, vertigo and disturbances of equilibrium may persist for a variable period; or improvement may occur which later disappears and a steady drop of hearing follows."

Siebenmann remarks that there are postmortem findings which show that sometimes a simple fall, striking the head on a flat ground, may prove sufficient to cause a fracture through both labyrinths and total deafness. Large statistical investigations (in the Clinic in Zuerich) shows that the labyrinth participates in one-fourth of all fractures of the base of the skull. It is rare that a fracture is exclusively confined to the pyramid. Both labyrinths are concerned in one-seventh of the cases which survive. They continue, that a subdural hemorrhage occurring in another place may produce the symptoms of a laceration of vessels in the labyrinth, even though there is no fracture of the pyramid, the blood running along the perineural lymph spaces and through the aquaeductus cochleæ into the labyrinth. Paralysis of the facial nerve shows in half the cases, and discharge of cerebrospinal fluid in about one-fifth. Lesions of other nerves besides the facial are observed less frequently, and concern the abducens oculomotor, trochlear, glosso-pharyngeal and the vagus nerves.

"Subjective noises usually remain, while dizziness as a rule is annoying in the beginning only. It disappears completely later on, or is noticeable only occasionally, for example in stooping or in looking in different directions."

Boenninghaus, in speaking of commotio labyrinthi, remarks that also slight changes of the end apparatus may lead to a commotion of the labyrinth, which are, however, unknown so far but are probably a degenerative neuritis. Vertigo, he says, may be very slight and of short duration, the cochlearis being the by far more vulnerable part of the acusticus. According to the experience of Boenninghaus in the Sanitarium for Accident Cases in Breslau, vertigo and nystagmus disappear soon. After a year nystagmus could be shown by him only in one-fourth of the patients, although Rheses in 1906 found a much higher percentage. The decrease of hearing for speech and especially for high-pitched noises (watch) exists longer and a slight diminution for bone conduct exists the longest.

Boenninghaus also states that the vasomotor complex of symptoms after a concussion of the skull is generally well differentiated from a traumatic neurosis. He quotes Freund (1904), who says that in plain cases the patients complain of constant or occasional headache, feeling of dizziness, intolerance toward alcohol, inability to work in a bent position and to remain bent for a while and to lift heavy objects. Scintillating before the eyes, buzzing in the ears and sometimes a strange sensitiveness for noises and light exist. Dizziness is present when the patient bends over, whereas it is absent as a rule when the eyes are closed."

Camp, in an article, "The Differential Diagnosis of Conditions Causing Increased Intracranial Pressure," (*The Cleveland Medical Journal*, January, 1912), says that it should be remembered that the intracranial pressure varies somewhat with the position of the body. It is also influenced directly by the blood pressure; if the blood pressure is very high the intracranial pressure will also be high, and the blood pressure may be reduced by the drawing off of cerebrospinal fluid sufficient in amount to reduce the intracranial pressure, as shown by the observations of Parisot and himself. He continues that traumatism to the skull frequently results in a marked increase in intracranial pressure as shown in the cases reported by Weitz, when the pressure, by lumbar puncture, was found to be from 200 to 300 mm. of water. The reason for the increased pressure found in these cases is not clear; there was no fracture of the skull and the negative findings in the cerebrospinal fluid withdrawn would apparently exclude hemorrhage or inflammatory change. Apparently the increased pressure is due to a simple transudation of serum. It may persist for months after traumatism and explain the continued headache, epileptic attacks, etc., sometimes seen in these cases, and which may cause worry for fear a fracture of the skull or hemorrhage has been overlooked. De Schweinitz (*Annals of Ophthalmology*, April, 1911) has called attention to the fact that choked disc can occur under these circumstances and that, while it is sometimes an indication for operation, it frequently disappears without treatment."

Siegmund Erben, in an article, "Diagnostic Considerations of Vertigo" (*Medizinische Klinik*, Nov. 26, 1912), says: "After injuries to the skull, with and without commotion, the list of complaints almost constantly contains that of vertigo. The labyrinth can be affected even in slight injuries to the skull. This shows itself already in the first days after the accident by disturbances of hearing. The hearing test furnishes the symptoms spoken of and the vestibular irritations show lack of reactions.

Vertigo after those lesions is never lasting. After a few weeks it has disappeared, even if the injuries to the acoustic nerve or vestibularis can still be shown. The vertigo persisting after months has the character of the neurasthenic vertigo. If the injury to the head resulted immediately in syncope, vomiting and slowing of the pulse, we must admit for the first half year the possibility of moderate attacks of vertigo (the vertigo appearing suddenly in caisson workers is of labyrinthian origin). This vertigo can be explained by disturbances of the regulation of the arteries of the brain or by a chronic inflammatory condition of the coverings of the brain emanating from the seat of injury. The latter can be assumed if the region of the injury remains sensitive to tapping, and if besides a psychical irritation exists. In a small percentage of injuries to the head this vertigo is the beginning of a psychosis."

In the *Wiener Klinik*, 1880, Urbantschitsch, speaking of forensic considerations of the hearing organ, says that concussion of the head or a blow on the top of the skull can affect such parts of the central nervous system which are of greatest importance for hearing, because they are the acoustic centers. While Urbantschitsch is aware of the fact that this is a hypothesis, he refers to the beautiful experiments of Duret concerning the hemorrhages in the central nervous system (especially on the base of the brain and the medulla) in consequence of concussions. "A blow on the head," he continues, "with apparently no effects whatever, must perhaps be considered a few days later as the cause of a lasting deafness."

*Conclusions.*—1. It is essential that in any case of injury to the head, be it direct or indirect, an inquiry should be made concerning the hearing before the accident.

2. As soon as possible after the accident the condition of the middle ear and the inner ear, the blood pressure, also the absence or presence of syphilis, should be established.

3. The patient should be under constant supervision, at necessary intervals, in order to watch the functional disturbances on the part of the ear, besides other complications, *i.e.*, mastoiditis, etc.

4. The prognosis concerning the restitution of hearing should be very guarded.

5. The convalescence after some injuries of the head is often very protracted.

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## THE MEDICAL MANAGEMENT OF EXOPHTHALMIC GOITER.*

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A DISEASE which has no definite etiology nor specific therapy must of necessity be a football of empiricism. This is the history and experience of exophthalmic goiter from the time Parr, Basedow and Graves introduced it to the medical world.

The etiology of exophthalmic goiter was, and still is, a prolific source of investigation, speculation, theory and dogma. To mention but a few, the medulla was blamed for the disease; then the cervical sympathetic; then the pneumogastric; then the cerebrospinal system; then "some specific muscle poison"; then autointoxication of intestinal origin; then the thyroid gland itself. Among the less important but yet responsible etiological factors may be mentioned influenza, scarlet fever, pregnancy, disappointment in love, other psychical shocks and that impalpable influence, heredity.

Hand in hand with these causative factors were linked what appeared to be, for the time being, logical, rational, and appropriate remedies. Thus the medulla was soothed by sedatives; the cervical sympathetic was resected; the pneumogastric was stretched; the cerebral spinal system was humored with static, galvanic, and faradic electricity; the intestinal tract was cleaned and disinfected; the thyroid gland operated on; love affairs adjusted, etc. Yet, after all these varied measures, we still have the problem of treating Graves' disease on hand.

Some observers did not worry about the etiology of the disease, their study was the symptomatology, and thus we are confronted by a list of drugs imposing in length and variety, some good, some bad, and some indifferent—most of them at present are forgotten. The most astonishing thing in the medicinal treatment of exophthalmic goiter is that drugs were employed with alleged good results which are considered to-day not only contraindicated but actually fatal. I refer to the thyroid extract. To treat exophthalmic goiter with thyroid extract is like adding fuel to the flame. In my early experience with that extract, just about the time that it was put on the market, I came perilously near sending patients with Graves' disease to actual graves by feeding them on thyroid. As a matter of fact, continuous taking of thyroid extract may be responsible for serious forms of Graves' disease. Yet, as stated above, the drug was given freely and "favorably"; for aught I know to the contrary some may still give it.

The tendency to-day is to think of exophthalmic goiter in terms of hyperthyroidism, a condition resulting from hyperplasia and hypertrophy of the thyroid gland. An enlarged gland means an increased secretion, perhaps a perverted secretion; the increase or surplus secretion is apparently responsible for all the mischief.

As this is a medical paper, it can only be mentioned parenthetically that surgeons are taking advantage of this conception of exophthalmic goiter and resect a good part of the thyroid body, leaving just enough glandular substance to produce a normal amount of secretion. The results are claimed to be excellent. Now, what causes the hyperplasia and the hypertrophy? There is the rub and the crux and the mystery of the situation.

As often as I have studied exophthalmic goiter, just as often have I wondered that so very little, if anything at all, is said about the means of preventing the disease. Observers, writers, clinicians, all are busy with the full-fledged affection, but not with its beginnings. Now, as with all ills that human flesh is heir to, prevention in this disease is superior to cure. Prevention may not succeed in every case, but our efforts are rewarded in some. Graves' disease is far and away more common in women than in men. I believe that the foundation of the trouble is laid in the turbulent days of budding womanhood, the period of puberty. It must be your observation, as it certainly is mine, that the thyroid gland in young girls swells and puffs before and

*Read before the New York Physicians' Association, March 26, 1914.

partly during menstruation to return again to normal size when that period is over. In these modern days of the "Culebra cut" in the sternal region of woman's apparel, one can pick out on public thoroughfares and conveyances the menstruating girl by the size of her conspicuous thyroid gland. The disturbance of the nervous system before and during menstruation manifests itself in many ways. These manifestations are apparently physiological, but their frequent repetition concurrently with added work, excitement, worry, or disappointment, increases and aggravates the normal manifestations and the nervousness becomes pathological. Under such circumstances, it will be found that at every returning menstrual period the thyroid gland will be larger and larger until the increase in size becomes permanent. Then, if not before, the heart action grows rapid, the tremor of the hands is rendered visible, and one or two of the many eyelid signs will appear if not the exophthalmos itself.

The prophylaxis is plain and simple, namely, noticing these nervous disturbances and enlargement of the thyroid, let us insist on absolute rest both of body and mind before and during menstruation. And if there be any elements of disquiet they should be promptly and radically removed.

I never heard it mentioned, but I know it to be a fact, that persistent polyuria in a young woman is a forerunner of Basedow's disease. Frequent and excessive micturition is occasionally associated with exophthalmic goiter, but he who interprets this sign properly, long before serious clinical symptoms appear, may prevent the occurrence of the disease and be blessed by the patient for evermore. Polyuria minus glycosuria is frequently diagnosed as diabetes insipidus, but in reality it may presage Graves' disease. I have at present a young woman with exophthalmic goiter under treatment, who gives a history of polyuria which preceded the goiter, exophthalmos, and rapid heart by fully six months.

Another suggestive sign of the approach of exophthalmic goiter is unaccountable and persistent night-sweats occurring in young women without any discoverable organic lesion. These patients frequently have also palpitation of the heart.

Still another sign which occasionally heralds the onset of exophthalmic goiter in young and middle-aged women is paroxysmal tachycardia. By and by the paroxysmal attacks become continuous, constituting one of the four cardinal signs of Morbus Basdowii.

Yet one more sign which I noted in one case and which preceded the disease by many months, occurring in a young anemic girl, was uncontrollable diarrhea, without a discoverable cause.

All these signs are danger signals, pointing to the road of prevention. A quiet mode of living, digestible and nutritious food, suitable tonics, and a change of climate will prevent the occurrence of the disease. Parallel to these border-line cases of exophthalmic goiter are border-line cases of insanity. In many instances both types of perversion can be prevented by correct interpretation of warning signs and timely interference.

The treatment of a full-fledged case of exophthalmic goiter is difficult but not hopeless. One grand and encouraging feature about the disease is the readiness with which patients lend themselves to every new form of treatment, and are confident that the new remedy will surely cure them. This is not bad, because hope and cheer will favorably affect a psychically disturbed patient, and besides, until the new remedy has grown old and impotent, the physician has ample time to arm himself with another one. .This favorable influence of new drugs may account for the great variety of organic and inorganic substances, from extract of spleen to sodium phosphate, which are credited with the cure or improvement of goiter.

The ideal treatment of exophthalmic goiter is found in complete isolation, rest, and freedom from every conceivable care and worry. With this treatment, no medicinal agents need be associated. Yet many of us have seen classical Basedow's disease in jaded and careworn housewives who did as well as their more favored sisters of leisure, with only the ordinary remedies.

One should never grow weary of looking for a cause in every case. If, however, diligent efforts in that direction are not crowned with success, may I suggest syphilis as a cause? In 1901 (*Phil. Med. Journ.*, February, 1901) I correctly diagnosed and successfully treated three pronounced cases of exophthalmic goiter of syphilitic origin. In those days there was no Wassermann to help along, but now I would advise that a Wassermann be made in every case to make sure that ubiquitous syphilis is not the underlying cause. A case of this kind was recently reported by Dr. Harold J. Lewis of Rochester, N. Y. (*Journ. Am. Med. Assn.*, Nov. 1, 1913). The late Dr. Leonard Weber of this city, reported a few years ago a goodly number of cases of Graves' disease treated with arsenic and bichloride of mercury internally and cured. Those cases were undoubtedly of syphilitic origin, although Dr. Weber refused to accept a luetic origin for them. Similarly, the literature of the disease abounds in instances where the external application of a mercurial ointment or plaster to the thyroid gland and the internal use of iodides resulted in either complete cure or very marked improvement. If a Wassermann is not available, one should resort to the therapeutic test: let the patient take potassium iodide for a week or so added to or coupled with corrosive sublimate. If the patient shows signs of improvement the goiter may be assumed to be of syphilitic origin; if on the other hand the patient gets worse, the origin of the disease is not luetic. The same thing is done in aortic disease. Long before the Wassermann test was discovered, our aortic patients were given iodide of potassium. A good many of them wonderfully improved under this form of treatment; nobody, however, suspected the particular reason for the improvement; the Wassermann test came and shed light on our Egyptian darkness. We were shown that 80 per cent of aortic lesions are of syphilitic origin and this accounted for the improvement under iodides and mercury. The same may hold good for those forms of exophthalmic goiter which do so well under the same drugs. At any rate this reasoning has the merit of plausibility. However, while the treatment of some cases of exophthalmic goiter can be specific, yet most of the time and most of the cases the treatment must be shaped according to signs and symptoms.

The most distressing sign of the disease is the rapidity of the heart action. I find, in my experience, that the tincture of strophanthus given in 5 or 10 minim doses, three times a day, is most useful to steady the heart. This drug has been my standby in a practice covering a period of twenty-three years. For a long time strophanthus was dis-

credited in Graves' disease for the reason that it produced diarrhea. At present the tincture of strophanthus is free from that drawback and can therefore be given with the same safety, security, and confidence as any other tincture without running the risk of undesirable side effects. If, however, strophanthus fails, the tincture of belladonna in the same dose is a good second best. Strange to observe, digitalis, the sheet anchor in many a form of cardiac disease, acts badly on the heart in Basedow's disease, although there is noted a strong functional similarity between the heart of Basedow's and some types of rheumatic cardiac lesions.

The other distressing conditions in exophthalmic goiter are tremor and nervousness. These are very well controlled by ammonium bromide in doses of twenty grains three times a day; this need be given for a short time only, because when the strophanthus begins to act the nervousness subsides, as a good share of it results from the consciousness of a rapid and pounding heart.

The lukewarm shower-bath is another means to allay tremor and nervousness. The bath also works well as a hypnotic. Iron is rarely indicated, an opiate never. Once in a great while, when the patient is much disturbed at night with frequent urination, one-quarter grain of codeine taken at bedtime will mitigate that evil.

There is no direct means of reducing the size of the thyroid except by the method of treatment thus far and further indicated. Yet plaster of any kind, belladonna, zinc, or adhesive, seems to reduce the size of the gland; the reduction is apparently affected by pressure of the plaster. I have seen a fair degree of diminution of the thyroid body obtained by repeated application of flexible collodion. The patients instinctively know the value of external pressure as they learn to put ribbons tightly around their necks, although in the beginning the ribbons are employed to hide the deformity.

The eyes rarely need attention, although in one case the eyelids were partially sewed up to keep the eyeballs from falling out. That was the severest case that I ever saw.

The diet should be of the simplest kind; some of these afflicted individuals have ravenous appetites for a time. I indulge them until they are satisfied; after they are surfeited they become docile and are willing to take advice. Tea and coffee are the bane of exophthalmic goiter. These beverages should be forbidden if necessary at the point of the bayonet.

I have used serums in the treatment of this disease. As Dr. Beebe* is here to speak, he can tell you more than I can about the serum with which his name is honorably associated. I have used his serum and also another one, the antithyroidin of Mobius. Unlike Beebe's serum, this one is given by the mouth. The dose ranges from ten to thirty drops three times a day. I can report a complete cure in one case. Another, which is at present under treatment, and is as typical a case of Graves' disease as ever I saw, is doing remarkably well under this serum. This case failed to respond to complete rest in bed, strophanthus, belladonna, and Beebe's serum. After taking the antithyroidin the young woman goes to work, climbs five flights of stairs several times a day without dyspnea, and remains free from nervousness.

I propose to treat a patient in the near future with her own serum and will report the result.

*Dr. Beebe discussed the serological treatment of Graves' disease at this meeting.

It is not the province of this paper to discuss the surgical treatment, except to state that exophthalmic goiter once in a while gets well without treatment; more often its symptoms are held in abeyance by medicinal measures; occasionally ordinary remedies cure it; now in view of all these considerations surgery should be the very very last resort. None of my patients were operated on.

I wish to state that the conclusions in this paper are drawn from my own personal experience. The experience of others may be better but my object here is to record and to report, not to classify and to compile.

257 West Eighty-eighth Street.

## WRIGHT'S SOLUTION: A SUBSTITUTE FOR ANTISEPTIC SOLUTIONS

By G. K. DICKINSON, M.D.,

Jersey City, N. J.

The recent epidemic of suicide and disaster with bichloride tablets makes a statement as to the excellent properties of Wright's solution timely.

The medical profession as well as the public have long been employing washes for wounds, sinuses, and running sores of all kinds, so it will be impossible to prevent this type of domestic treatment, for that which is customary in clinics and at hospitals will become popular with the public.

In the preantiseptic days balsam of Peru and balsam of fir were used for wounds. They had stimulating properties and in a mild degree produced a hyperemia, but did not aid the serum and were dirty and ineffective.

Lister introduced carbolic acid to the profession and it reached the public mind. By it bacteria were killed, but chemical pus was formed. Local irritation, disturbed healing and its absorption frequently resulted in irritation of the kidneys.

Then came bichloride of mercury and its allied compounds. These could be easily compressed into tablets and were kept in the hospitals and clinics for immediate use and also in the home on the closet shelf alongside other tablets of similar appearance.

Bichloride is not an ideal. It coagulates albumen. It is destructive to tissue as well as to microbes. It does not assist Nature in producing local hyperemia and bringing out the serums for wound healing. To be potent in a reasonable time, it must be made in strong solution.

Practically the majority of solutions used in surgery have not been potent because of the time required for antibacterial effect and the little time given for this purpose.

At our clinic in Christ Hospital carbolic was discontinued years ago because of dermatitis, bloody urine, and other disturbances following its use. Bichloride has not been used for over two years, nor has any other antiseptic been employed in the treatment of wounds.

The delightful effects of the Wright's citrated isotonic solution* came to our attention and for the last two years nothing but it has been used. In all the thirty-seven years we have been attending surgical cases never have we noted such prompt results and such beneficent effect as obtained by the *proper* application of this solution. We have practised

*Formula: Sodium citrate, 0.5; sodium chloride, 3.0; distilled water, 100. From Wright's "Studies on Immunization," p. 464.

long enough to be accustomed to the novel and the specific in action, but nothing in the surgical treatment of wounds has pleased as much as has it.

It is helping Nature on her own lines. Nature heals through hyperemia. The salt in the solution produces a mild hyperemia. Nature sends the phagocytes and opsonins into the wound. The citrate of sodium keeps the wound itself free from deposit and allows of the permeation of the healing serum. Wounds are embarrassed by the accumulation of dead leucocytes and decomposing serum, and the presence of microbes in this accumulation, which neither the mercury salts nor the phenols efficiently controlled.

Wright's solution keeps the wound clean, favors proper granulation, and hastens the separation of small sloughings. To be properly applied there should be sufficient gauze kept *well-sopped*. If hospitals and clinics would but thoroughly try out this simple, cheap, and physiologically effective method, the public would soon follow suit and the bichloride tablet and its dangers would disappear.

During the two years in which it has been in constant employment in Christ Hospital it was used at first only for wounds that failed to heal (such as after appendicitis operations), and those that had become infected. The more it was used the more confidence we had in its ability to cleanse and promote the healing processes à la Nature. Boils were effectively treated by it. A huge carbuncle on a big neck was incised, then gauze applied and kept sopped with Wright's solution, the gauze being changed frequently. There was an improvement in conditions and a cleansing and recuperation beyond that ordinarily expected. In erysipelas and lymphangitis gauze kept sopped added to the comfort of the patient and controlled extension. The solution as an irrigant at a temperature of 110° plus, is also used with great success in vaginitis, septic endometritis, and in infected wounds following gall-bladder surgery.

One should not be too enthusiastic in the estimation of the value of therapy, but it has long been recognized that the truth is always simple, and that the things that cure are seldom complicated. One cannot controvert the idea that when a physician is curing a patient he is aiding Nature. If the patient recovers in spite of the treatment, however, the treatment cannot be said to be not on a line with Nature's method.

According to the experience gained at Christ Hospital the sooner the profession relegates the chemical antiseptics to the background and follows out the ideas promulgated by Wright, the more sensible and the more successful the treatment will become.

280 Montgomery Street.

## Medicolegal Notes.

**What Constitutes Employment—Is a Physician Giving Services Gratuitously Liable for Malpractice?**—In an action for malpractice in diagnosing and treating a felon on the plaintiffs finger, the close question of fact was the defendant's employment. There was no direct request to treat the finger, no promise of payment for services, and apparently no expectation thereof on the part of the defendant. As he was leaving a patient's house, having attended to his patient, he found this plaintiff near the door where she and her employer had been discussing her aching finger, and one of them asked the defendant if he thought the trouble was a felon. After looking at it he gave his opinion that it was not, and suggested salt pork as an application. The next time he visited the house he examined the finger, opened it with a needle, and gave directions to continue with the use of salt pork. The last time, after attending to the patient on whose account he made these three visits, he again inquired about the finger, was informed that it felt worse, examined it, and advised that some one open it up with a needle.

This version of the facts, given by the plaintiff, was denied by the defendant, who stated that he merely gave the finger a look on the first visit; but the jury adopted the plaintiff's version. It was held that if the defendant undertook to diagnose, treat, or prescribe for the ailment, his responsibility for failure to possess and use the skill and care of the ordinary physician was not dependent upon an express agreement of employment or promise to pay for the services. If the defendant undertook to render services, the law implies an agreement to pay therefor. It has also been held that even as to charity patients and those whose treatment is undertaken without the expectation of pay the physician must possess the skill and use the care of the ordinary practitioner. The defendant was on a professional visit in the home where the plaintiff was one of the household. She was suffering; the pain interfered with her employment. The head of the house directly or impliedly asked the defendant to examine the finger. Under these conditions his acts in attending to the plaintiff's suffering were held to be quite persuasive of the relation of physician and patient between the two.—Peterson v. Phelps, Minnesota Supreme Court, 143 N. W. 793.

*Note.*—In support of its statement as to the liability of a physician who undertakes gratuitous treatment, which, it is to be noted, is mere obiter, and not necessary to the decision of the case, the court in the above case cited McNevins v. Lowe, 40 Ill., 209; Du Bois v. Decker, 130 N. Y. 329, and Peck v. Hutchinson, 88 Iowa 320. The two last named cases are also merely obiter on the point. In McNevins v. Lowe it is said: "If a person holds himself out to the public as a physician he must be held to ordinary care and skill in every case of which he assumes the charge, whether in the particular case he receives fees or not. But if he does not profess to be a physician or practise as such, and is merely asked his advice as a friend or neighbor, he does not incur any professional responsibility."—J. S.

**Malpractice — Evidence — Nonliability of Charitable Hospital.**—Action was brought against a surgeon and his employer, a charitable hospital, for alleged malpractice of the surgeon in performing an operation. While using a uterine packer, the surgeon lost the spring out of the machine, which became imbedded in the uterus of the patient. The spring was about 12 inches long, and remained some fifteen days after the operation, when it was discovered by another physician, who removed it. One end he found in the neck of the uterus; the other had pierced the posterior vaginal wall, and passed into the rectum. It appeared that the packer used by the surgeon was not then used by those possessing average learning and skill in the locality. It was held that the surgeon was negligent in leaving the spring in the cavity, in failing to discover and remove it, and in using a packer that was unsafe. In the circumstances the jury were held to be authorized to infer negligence without the aid of expert evidence. The surgeon was held liable.

The hospital, however, was held not liable. The rule was stated to be that where a hospital is incorporated for charitable purposes only to found a medical and charitable sanatorium, hospital, and asylum for the care of indigent or other sick persons, the property acquired being devoted exclusively to the maintenance of the institution, such hospital, having exercised reasonable care in selecting a surgeon, is not liable for his negligence or malpractice. The rule applies where the plaintiff has paid for the services rendered, where the amount received was not for private gain, but more effectually to accomplish the purpose for which the charity was founded. Some of the cases hold that a corporation conducting a charitable institution is not liable for the negligence of an employee even where it had failed to exercise reasonable care in selecting him. This is upon the ground that all the institution's property is a trust fund, and that that fund cannot be diverted to extraneous objects. In the present case the court was not required to go to that extent.—Wharton v. Warner, Washington Supreme Court, 135 Pac. 235.

MEDICAL RECORD.

*A Weekly Journal of Medicine and Surgery.*

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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## RECENT INVESTIGATIONS ON ACIDOSIS.

THE subject of acidosis is one that has awakened considerable interest within recent years. One of the newest investigations along this line is the determination of acidosis in diabetes by means of the measurement of the carbon dioxide pressure in the respiratory air. This investigation was made by L. S. Fridericia, who reports his results in the *Zeitschrift für klinische Medizin*, Vol. 80, Nos. 1 and 2. He finds that in the case of diabetics the determination of the carbon dioxide pressure yields results that are fully in agreement with those obtained by the measurement of the ammonia excretion in twenty-four hours specimens of urine, as obtained by the methods of Björn Anderson and Lauritzen. The author notes that in the case of diabetics the abnormally large amount of acetonebodies that accumulates in the blood results in an increased elimination of acids by way of the urine and an increased formation of ammonia in the intermediate metabolism. In addition, by means of an increased respiratory activity, the carbon dioxide content of the arterial blood is diminished. Beddard, Pembrey, and Spriggs were the first to note that in diabetic coma the carbon dioxide pressure in the respiratory air is reduced to one-half the normal amount. Other observers have recorded that in untreated diabetic acidosis the carbon dioxide pressure in the respiratory air is always reduced and is most pronounced in cases of threatening acidosis. Fridericia investigated the carbon dioxide content of the respiratory air in eight diabetic patients who also gave evidence of acidosis. The method employed was that devised by Haldane. At the same time the urinary ammonia was measured. The estimations were made twice daily. The results were recorded by means of graphic curves, which showed that coincident with an increased ammonia excretion there is an abnormally low carbon dioxide pressure in the respiratory air. The author believes that the measurement of the carbon dioxide pressure of the respiratory air should be employed as a routine clinical method by means of which diabetic acidosis may be determined and its variations closely followed. The method has a number of advantages over the one commonly employed. Thus the former requires no accumulation of a twenty-four hour specimen of urine. The only drawback is the fact that the average clinical laboratory does not possess an apparatus for the analysis of air, but Fridericia has devised a simple apparatus of this kind, which he promises to describe in the near future.

In the same numbers of the *Zeitschrift für klinische Medizin* Marius Lauritzen discusses the clinical value of the determination of acidosis in diabetes mellitus and extols the practical value of Fridericia's method. He finds that it is possible to follow with great ease the variations in acidosis that are evoked in response to dietetic and medicinal measures. His investigations have shown that moderate grades of acidosis accompanied by the excretion of two to three grams of ammonia may be overcome solely by dietetic measures. Only in advanced cases is it necessary to employ for some time increasing doses of alkalies.

A most important clinical study of the essential features of acidosis and of its occurrence in chronic renal disease has been made by A. W. Sellards, who reports his results in the *Johns Hopkins Hospital Bulletin*, May, 1914. He finds that the essential feature is a dearth of the body in bases or in substances such as sodium carbonate that readily give rise to bases. The fundamental features of acidosis are an increased intolerance of the body to fixed bases, a diminution in the titratable alkalinity of the blood serum, and a diminution in the carbon dioxide of the blood. Of eminent clinical importance is the fact that an acidosis of high degree occurs in certain diseases of the kidney. This acidosis reaches its maximum in the uremia of acute and of chronic diffuse nephritis. It is often present many months before the development of uremia. It represents the effect rather than the cause of the renal lesions and is only of secondary importance.

Sellards points out that some of the toxic symptoms of uremia are due, not to the presence of a toxin, but to the absence of a normal constituent of the blood, namely, the carbonates. Therefore, the therapeutic bleeding for the removal of any toxins that may be circulating causes at the same time a still further diminution in a substance in which the blood is already seriously depleted. This disadvantage could be readily obviated by the injection of bicarbonate of sodium at the time of bleeding. This acidosis is perhaps the result of a defective function of the kidney in the normal separation and excretion of acid salts. If this supposition is correct, the acidosis would be an indirect expression of renal retention. In support of this it has been found that the acidosis is in general parallel to the ordinary signs of renal retention, such as the suppression of the excretion of dyes and sugars and the accumulation of non-protein nitrogen in the blood. Some of the clinical symptoms of uremia are attributed to an impoverishment of the body in bases and are found to be partially relieved by the injection of sodium bicarbonate. In uncomplicated cases the typical air hunger which sometimes develops and the accompanying bright color of the mucous membranes are further expressions of acidosis. In the acute nephritis of Asiatic cholera, the early injection of massive doses of so-

dium bicarbonate results in permanent benefit. Chronic diffuse lesions of the kidney lead eventually to the development of acidosis, which, if not treated, will progress to such an extent as to produce the clinical picture of air hunger. In the stage of uremia acidosis sometimes constitutes the immediate cause of death. In the selection of the proper alkali for administration the bicarbonate of sodium meets the essential requirements. The administration of the normal sodium carbonate is regarded by Sellards as unnecessary and inadvisable. In any case of acidosis the administration of bicarbonate of sodium may be continued until the urine becomes alkaline, even though extensive renal lesions are present.

One of the principal points brought out by Sellard's study is that an acidosis of high grade may occur in the absence of any disturbance in the carbohydrate metabolism and without producing an increase in the excretion of ammonia.

## SANITATION MISAPPLIED.

It affords striking evidence of the value placed on sanitation by the general public, that commercial concerns make a feature of their advertising in the statement that their business is conducted on sanitary lines. Naturally this is especially the case with groceries, bakeries, barber shops, etc., and in establishments in which food and clothing are sold. This is a healthy sign and up to a certain point can do nothing but good, but it is evident that in order to do the most good it is necessary that all those who thus advertise should live strictly up to their professions. If they do not, more harm than good will be effected. In *Public Health Reports*, May 5, 1914, attention is drawn to this fact and it is pointed out that where the sanitary influence exists in name only or by implication in the presence of some "sanitary-looking" mysterious apparatus or exterior it frequently occurs that a false sense of security is indulged in by the user, and quite possibly to his detriment. For instance, the public is often gulled by the ignorant use or misuse of disinfectants and deodorants. Of course disinfectants are valuable, indispensable in fact in cases in which their employment is indicated, but although good in themselves when misapplied their use is a farce and they lead to a fake sense of security. Deodorants again, are of questionable value and may even become a menace, since at the best they absorb or neutralize an odor which may indicate the presence of some harmful substance which ought to be disposed of, and at the worst merely substitute a stronger and perhaps less disagreeable odor, without in either case having destroyed the dangerous substance whose presence they only mask.

The advertising of sanitary measures by commercial concerns is too frequently glaringly manifested in the case of so-called pasteurized milk. Pasteurization conducted in the manner it is conducted frequently by milk dealers is a very harmful practice. It induces a feeling of security, whereas in reality milk so treated is more dangerous than if it had been left in its raw state. Pasteurization, properly done, is essential, and so also other sanitary measures properly carried out are in the best interests of public health; improperly or ignorantly carried out they are a menace to the health of the community.

## FULMINATING GANGRENE OF THE GENITALS.

This mysterious affection is usually regarded as a composite of various clinical entities which pursue analogous or identical courses. Now and then we can hardly avoid the conclusion that a true venereal propagation has occurred, while in other cases a simple injury from coitus has become inoculated with a germ of great virulence. The fact that in a recent case of this sort a salvarsan injection terminated the condition suggests that the spirochete of syphilis, or at least some spirochete was the pathogenic agent.

This affection has received a great deal of study at the hands of French writers, and is in fact known by Fournier's name. A very large morbid material has been collected and analyzed. It is therefore of interest to mention a case recently reported by Löhe before the Society of Physicians of Charité Hospital, Berlin (*Berliner klinische Wochenschrift*, May 4). The patient, a man of 61, under treatment for a genital affection not named, suddenly developed an enormous swelling of the penis which extended centralwards. The organ was of the size of a man's forearm, while the scrotum swelled to the dimensions of a child's head. Only at a later period did blebs develop, giving exit to a gangrenous fluid. The patient was anesthetized, and free incisions made, the prepuce being split. In this manner 100 c.c. of the same fluid was evacuated. The patient recovered under a combined surgical and supporting plan of treatment.

The author, like others in the past, seems to regard this affection as practically an erysipelas, in which intense inflammation brings about lymphatic stasis and gangrene. Such a theory hardly accounts for the majority of these cases, for the initial lesions may be gangrenous vesicles. In the present case constitutional disease (diabetes) and urinary infection could be excluded despite the coincidence of enlarged prostate.

## Some Reactions of the Blood After Cancer Inoculation.

A physician of Grahamstown, South Africa, Dr. G. Carrington Purvis, for some time past has been pursuing experiments with the view to preparing a cytolytic serum, or a serum which would kill the cells of cancer occurring in a human being. The results of these experiments were described in the *Lancet*, 1912, Vol. 2, page 438. More recently Dr. J. A. Shaw Mackenzie has been investigating the blood conditions in carcinoma, and on the chemical side of the cancer problem, and published a paper on the subject in the *Medical Press and Circular*, May 13, 1914. Experiments on goats, sheep, rats, and mice, and by repeated inoculation with fresh cancerous material showed that a certain degree of reaction was produced. Remarking on the results of his investigations Mackenzie said that such re-

actions of the blood after cancer inoculation in animals, so far as they went, seemed to show an analogy with other forms of immunity. The reactions of the blood after repeated inoculation ran parallel with the reactions in anti-diphtheritic serum and other antitoxic sera and vaccines. It was pointed out that in the present stage of inquiry definite conclusions were obviously impossible. If, however, the analogy of the reactions described following inoculation with fresh cancerous material was admitted, this did not necessarily commit one to a parasitic theory. Mackenzie had regarded the reactions as tissue or chemical reactions, supported as this view was by similar initial reactions in mice and rats after one inoculation of fresh normal tissues, tissue extracts and substances. The more immediate point was whether serum obtained by the method of Purvis or by repeated inoculations of fresh human cancer tissue or serum in animals possessed any therapeutic value. Purvis thinks that he has obtained some improvement by these methods in two or three cases of malignant growth.

### Glaucoma.

Our knowledge of the mysterious and much dreaded "green cataract" of ancient practitioners advances but slowly. Quite recently, however, certain evidences of an increase along this line were collated by Fleischer in a paper read during the year before a Tübingen medicoscientific body (*Münchener medizinische Wochenschrift*, April 14). Schur followed with advances in glaucoma therapy. The normal tension of the eye as determined by Schlötz's tonometer is from 15 to 27 mm. of mercury. We know that most of the alkaloids used in eye practice (cocaine, atropine, etc.) elevate the tension. In simple glaucoma increased tension is not always present, which fact adds much to the obscurity of this affection. Important are the results of study of the visual field by Bjerrum's procedure. It appears from an analysis of these complex finds that certain individual nerve bundles are affected. The cavernous atrophy of the optic nerve seen in simple glaucoma has also been noted in myopia. Schur divides all glaucome cases into operable and practically non-operable, although the distinction is not arbitrary. In the operable type vision is preserved or may be normalized by reduction of intraocular pressure. Fortunately, non-operable cases are in the great majority. Under favorable conditions they need not exceed 14 per cent., and modern knowledge and technique will surely reduce this figure. In from 3 to 4 per cent. of all cases of glaucoma the prognosis of operative intervention cannot be determined in advance.

### Permanent Drainage in Ascites.

This principle of treatment has now been applied in a great variety of resources. The oldest of these is the establishment of an "Eckfistula," so called, in which the portal vein is implanted into the vena cava; and of the corresponding lateral anastomosis between these vessels. The last named operation has been done successfully in mankind. The Talma-Drummond operation, through which the portal vein is drained into the systemic circulation, has been widely practiced with a record of from 30 to 50 per cent. of favorable results. Ruotte has made a communication between the great saphenous vein and peritoneal cavity. In at least one case the result was a success. Others have simply allowed the ascitic fluid to seep into the subcutaneous tissues of the thigh. Rosenstein has established a valvular opening between the peritoneal cavity and bladder, with partial success. At a meeting of the Freiburg Medical Society, held last February (*Münchener medizinische Wochenschrift*, April 21), Oberst describes a simple modification of the direct drainage of ascitic fluid into the subcutaneous tissues. Instead of the crude methods of his predecessors, he formed by plastic work a tubular structure narrow at its peritoneal end and spread out at its lower extremity beneath the skin of the thigh.

## News of the Week.

**Public Health Education.**—President Butler of Columbia University, New York, recently appointed a committee composed of members of the Faculties of the University, to study the question of work in public health, sanitary science, and preventive medicine, and report to the University what courses should be given in these subjects in the College of Physicians and Surgeons and other departments of the University. The committee includes Prof. R. A. Seligman, Chairman; Dr. Frederic S. Lee, professor of physiology; Prof. James C. Egbert, director of the summer session and of extension teaching; Dean Samuel W. Lambert, of the Medical Faculty; Prof. Henry C. Sherman; Miss Mary A. Nutting, professor of nursing in Teachers College; Dr. Robert E. Chaddock, associate professor of statistics; Prof. Alexander Smith; Daniel D. Jackson, associate professor of civil engineering; Dr. Hans Zinsser, professor of bacteriology; Dr. Walter Bensel, and Dr. Haven Emerson.

**Long Island College Hospital.**—At the meeting of the Alumni Association of the Long Island College Hospital, Brooklyn, on June 9, announcement was made of the adoption by the college of a five years' course, and of various changes in the curriculum as a result of this departure. Candidates from the high schools, possessing a full medical student's certificate, will be admitted to the subfreshman class of the college, and will take up chemistry, biology, physiology, embryology, physics, and French or German. The freshman and sophomore years will be spent entirely in the various laboratories, which have been fully equipped. Clinical work in medicine and surgery and daily dispensary attendance will occupy the fourth year, and the fifth or senior year will be given over to hospital bedside work. The Long Island College Hospital, when its new wing is completed this summer, will contain 450 beds, to which the students will have free access, and as all the clinical branches will have full time resident instructors ample opportunities in clinical instruction will be afforded. Some changes have also been made in the personnel of the Faculty, which is at present as follows: Archibald Murray, M.D., professor of pathology; William Lintz, M.D., professor of bacteriology; John C. Cardwell, M.D., professor of physiology and pharmacology; Matthew Steele, M.S., Ph.D., professor chemistry; William Francis Campbell, M.D., professor of surgery; William B. Brinsmade, M.D., professor of clinical surgery; Joshua M. Van Cott, M.D., professor of clinical medicine; E. H. Bartley, M.D., professor of pediatrics. The chair of anatomy, histology, and em-

bryology has not yet been filled, but Thomas H. Evans, M.D., has been appointed a full time assistant professor in this department.

**The Yale Medical School.**—Yale University has received the sum of $125,000 for the erection and equipment of a clinical and pathological laboratory to be known as the Anthony N. Brady memorial laboratory. The announcement is made also that members of the Brady family will establish the Anthony N. Brady memorial foundation of $500,000, the income from which is to be given annually to the university for a term of ten years in order to enable the university to declare operative at this time the agreement with the General Hospital Society of Connecticut and to conclude the alliance between the New Haven Hospital and the Yale medical school. If within the ten-year period the university receives a total of $2,000,000 additional for medical school endowment and building funds the $500,000 will become the absolute property of the university. Over $1,110,000 has already been pledged, and if $390,000 more is obtained before January 1, 1916, the General Education Board will give the $500,000 necessary to complete the $2,000,000.

**Changes in Medical Faculty.**—The Board of Trustees of the Medical College of the State of South Carolina have announced the resignation of Dr. Joseph Maybank as professor of clinical medicine, and the appointment of W. H. Ziegler, Ph.D., as professor of pharmacology, and of Joseph B. Hyde, Jr., Ph.G., as full professor of theoretical pharmacy.

**Dr. Sturm Fined.**—Dr. Maurice Sturm, who was associated with Dr. F. F. Friedmann in the introduction of the latter's turtle serum in this country, was fined $1,639 by Supreme Court Justice Blanchard on June 11, for failing to obey an injunction order. The injunction was obtained by the Standard Distributing Company, after it had bought the rights to the turtle serum in this country, to restrain Dr. Sturm from offering the treatment. It was shown that Dr. Sturm, subsequent to the issuance of the injunction, had treated patients here and had contracted for the sale of the North Dakota rights to the serum. The amount of the fine imposed was the cost of the contempt proceedings.

**Proposed New Hospital Site.**—The New York State Hospital Commissioners, it is reported, are considering the purchase of a site at Oakside, Long Island, on which to erect a new State Hospital for the Insane. The site consists of 162 acres of meadow land fronting on Great South Bay. It is feared that some opposition to the plan may develop among the wealthy summer residents of the neighborhood.

**Doctors Sail.**—The White Star liner *Oceanic*, which sailed from New York on June 13, carried 140 physicians, the first official delegation to the International Congress of Surgeons which will be held in London early next month.

**To Investigate Coroners.**—The recent trial of Coroner's Physician Otto H. Schultze on charges of neglect of duty may lead to the abolition of the ancient officer of coroner in New York. The long threatened investigation of the department by the Commissioner of Accounts was ordered by Mayor Mitchel on June 12, at the request of the City Club, which, because of the serious charges made during the trial affecting the efficiency and integrity of the performance of the Coroner's function in this city, urges the importance of an independent official investigation.

**Hospital Controversy.**—The trouble between Commissioner Kingsbury of the Department of Charities, New York, and the private hospitals of the city because of the Commissioner's refusal to approve some of the bills of the hospitals for the treatment of ambulance cases, was partly removed when ten members of the Hospital Alliance met the Commissioner on June 11. Mr. Kingsbury requested that the Alliance appoint a committee to confer with him regarding the needs and desires of the hospitals, and assured the members of the Alliance that his department desired to cooperate with the private hospitals and that all complaints would be received and carefully considered. The following committee was appointed: Dr. A. J. Rongy, Lebanon Hospital; E. M. Gattle, Hospital for Deformities and Joint Diseases; Dr. Royal S. Copeland, Flower Hospital; Edward I. Lazansky; Tobias A. Keppler; Frank Moss; and the Rev. William Farrell, Williamsburg.

**Ambulance Head to Go.**—At a meeting of the Board of Ambulance Service of New York, held on June 10, it was decided to abolish the office of Director of the Ambulance Service of New York City, which is at present held by the Rev. Dr. Daniel C. Potter. The position, which has carried a salary of $5,000, will be abolished on June 30, 1914. The Board will ask for a revision of the city's charter so that the ambulance service can be transferred to one of the departments in charge of the public hospitals or to the Welfare Department which has been proposed to consolidate all the hospital work of the city. In the meantime the work of the ambulance service will be under the direction of Commissioner Kingsbury.

**Charitable Bequests.**—By the will of the late Dr. Everett Herrick of New York, the sum of $25,000 is left to the New York Skin and Cancer Hospital; $10,000 to the Society for the Relief of Wives and Children of Medical Men; $10,000 each to the Association for Improving the Condition of the Poor and the Children's Aid Society; $25,000 to the Academy of Medicine to establish the Everett Herrick Library Fund; and $25,000 to the same institution to establish the Everett Herrick General Fund.

Bequests of $100,000 each are made to the Presbyterian Hospital, St. Luke's Hospital, and the New York Post-Graduate Medical School and Hospital, by the will of the late Mr. Harris C. Fahnestock of this city.

**Smallpox in Passaic.**—The occurrence of one death from smallpox, the first in the town from this disease since 1893, has been reported. No fear of an epidemic is felt.

**Diagnosis of Cancer.**—At a recent meeting of the executive committee of the American Society for the Control of Cancer, the following resolution was adopted: "That it is the sense of the executive committee that the City of New York should undertake free diagnosis of specimens of tissue suspected of being cancerous." The Department of Health now has the matter under advisement and will consult with its Medical Advisory Board before taking action. In the meantime, the Commissioner of Health would be glad to learn whether the cooperation of the Department is desired by medical practitioners who do not command laboratory facilities in hospitals or elsewhere.

**Medical Degrees Conferred.**—At the commence-

ment exercises of the Fordham University College of Medicine, New York, on June 9, the degree of Doctor of Medicine was conferred by the Rector of the University on twenty-nine graduates in medicine, and the following award of prizes was announced: To Eugene T. O'Connor, the prize given by Prof. Justin Herold for the best thesis by a senior on medical jurisprudence, and the first prize offered by Prof. R. C. Kemp for a thesis in gastrointestinal diseases; to Thomas K. Ryan, the second Kemp prize; to Edmund B. Sullivan, the prize in dermatology offered by Prof. W. S. Gottheil; to Francis Treiber, Thomas K. Ryan, and Bernard O'Connor, the prizes given by Professor Coughlin to the three men most proficient in clinical work at Gouverneur Hospital; to Maurice Lyons and Maurice Pollock, the junior prizes for work in gastrointestinal diseases; and to J. O'Connor, the sophomore prize given by Dr. M. C. O'Brien for work in physical diagnosis.

At the commencement eyercises of the Cornell University Medical College, held June 11, twenty graduates received the medical degree from the hands of President Schurman. The prizes awarded were as follows: The John Metcalfe Polk Memorial Prizes for general efficiency to Helen Letitia Palliser, Philip Moen Stimson, and Robert Joseph Shea; Prizes for Efficiency in Otology, presented by Professor Whiting, to Philip Moen Stimson and Robert Joseph Shea.

Eighty-three graduates of the University and Bellevue Hospital Medical College, New York, received their degrees from the Chancellor of the University on June 10. The announcement of the award of prizes was made by Dr. William Hallock Park, Dean of the College, as follows: The Valentine Mott Medal, to George J. Geisler; the Glover C. Arnold Surgical Prize of $100, to Charles M. Robbins. Hospital appointments have been given to all the members of the graduating class.

The sixty-second annual commencement of the Woman's Medical College of Pennsylvania was held on June 3, when the medical degree was conferred on eighteen graduates.

At the annual commencement of Temple University, Philadelphia, on June 4, eighteen graduates of the Medical Department received degrees.

Fourteen students were graduated from the Hahnemann Medical College and Hospital, Philadelphia, on June 4.

The medical degree was conferred on seventy-six graduates of the Medico-Chirurgical College of Philadelphia on June 5, when Dr. John Grier Hibben, President of Princeton University, spoke on, "The Physician's Philosophy of Life."

**City Death Rate.**—During the week ending June 6, there occurred in New York City a total of 1,291 deaths, giving a death rate of 12.06 per 1,000 of population, as against 1,447 deaths and a rate of 14.05 for the corresponding week of 1913. This makes an absolute decrease of 156 deaths, equivalent to a relative decrease of 213. The decrease occurred chiefly among infants under one year, ninety-one less deaths being reported in this age group. The death rate for the first twenty-three weeks of 1914 was 15.15 per 1,000, a decrease of 0.21 compared with the same period of last year.

**Immigration Records.**—During the first ten months of the present fiscal year, which ends on June 30, immigrants have been arriving at American ports at the rate of nearly 3,000 a day, and the indications are that by the end of the year all records will be broken. During April 119,885 were admitted, and the total for the ten months was 1,038,956. In 1907, 1,285,349 immigrants reached here, and this has been the record for a single year. The 1914 total is estimated now at 1,351,000 immigrants.

**Personals.**—Dr. J. Howard Agnew, formerly first assistant in the department of medicine, University of Michigan, has accepted the full time Professorship in Medicine in the University of Alabama, School of Medicine, at Mobile.

Surgeon-General William C. Gorgas, U. S. A., received the honorary degree of D.Sc. from Princeton University at the commencement exercises on Tuesday of this week. On the following day Yale University conferred upon him the honorary degree of doctor of laws.

Dr. Parker Syms announces his removal to 361 Park Avenue, New York.

Dr. Henry W. Rihl of Philadelphia, who was graduated from the Jefferson Medical College in 1849, celebrated his ninety-first birthday on June 2.

**The American Association of Immunologists.**—The first annual meeting of this association will be held at the Hotel Chelsea, Atlantic City, on Monday, June 22, under the presidency of Dr. Gerald B. Webb of Colorado Springs. The secretary is Dr. Martin J. Synnott of Montclair, N. J. The program contains a list of fourteen papers on the Abderhalden test, the Wassermann reaction, vaccine therapy, autosero-therapy, and related subjects.

**Medical Society Elections.**—American Society of Tropical Medicine: Annual meeting at the Harvard Medical School, Boston, on May 30. Officers elected: *President*, Dr. Charles F. Craig, U. S. A.; *Vice-Presidents*, Dr. Milton J. Rosenau, Boston, and Dr. Bailey K. Ashford, San Juan, Porto Rico; *Secretary*, Dr. John M. Swan, Rochester, N. Y.; *Assistant Secretary*, Dr. Allen J. Smith, Philadelphia; *Treasurer*, Dr. Joseph D. Weis, New Orleans; *Councillors*, Dr. Samuel T. Darling, Ancon, Canal Zone; Dr. Henry J. Nichols, Washington, and Dr. Victor G. Heiser, Manila.

Northeast Texas Medical Association: Semiannual meeting at Texarkana on June 3. Officers elected: *President*, Dr. R. H. T. Mann, Texarkana; *Vice-President*, Dr. G. A. Mosely, Jefferson; *Secretary*, Dr. E. L. Beck, Texarkana.

Willimantic (Conn.) Medical Society: Annual meeting at Willimantic on June 3. Officers elected: *President*, Dr. Laura S. Hills; *Vice-President*, Dr. W. P. S. Keating; *Secretary-Treasurer*, Dr. Charles A. Jenkins.

East Tennessee Medical Association: Annual meeting at Harriman on May 22 and 23. Officers elected: *President*, Dr. George P. Zirkle, Kingston; *Vice-Presidents*, Dr. W. Dexter Padget, Lenoir City, and Dr. Arthur W. Gross, Dayton; *Secretary-Treasurer*, Dr. Hiller P. Larimore, Chattanooga.

Orleans County (Vt.) Medical Society: Annual meeting at Orleans on May 14. Officers elected: *President*, Dr. Robert M. Wells, Orleans; *Vice-President*, Dr. B. D. Longe, Newport; *Secretary-Treasurer*, Dr. James F. Blanchard, Newport.

Vermont Homeopathic Medical Society: Annual meeting at Montpelier on May 27. Officers elected: *President*, Dr. Robert H. Burke, West Burke; *Vice-President*, Dr. Edwin B. Clift, Fair Haven; *Secretary*, Dr. George I. Forbes, Burlington; *Treasurer*, Dr. Fred E. Steele, Montpelier.

**Obituary Notes.**—Dr. Edward A. Reiley of Atlantic City, N. J., a graduate of the New York University Medical College in 1881, and a member of the American Medical Association, the Medical Society of New Jersey and the Atlantic County Medical Society, died at his home on June 9, aged 59 years.

Dr. Murdoch Alexander Lindsay of Halifax, N. S., a graduate of the University of Edinburgh, Scotland, in 1908, and professor of pathology and bacteriology in the Dalhousie Medical College, Halifax, is reported to have been lost in the wreck of the *Empress of Ireland* in the St. Lawrence on May 29.

Dr. Arthur R. Tiel of Matteawan, N. Y., a graduate of the Eclectic Medical College of the City of New York in 1878, died at his home on June 1, aged 60 years.

Dr. Amos Lawrence Mason of Boston, a graduate of Harvard University, in 1863, and of the Harvard Medical School in 1872, physician to the Carney Hospital from 1878 until his death, consulting physician to the Boston City Hospital, formerly associate professor of clinical medicine at the Harvard Medical School, and a member of the Massachusetts and Suffolk District Medical Societies, and the Association of American Physicians, died suddenly from heart failure, at Albany, N. Y., on June 5, aged 72 years.

Dr. James A. Blake of Brooklyn, N. Y., a graduate of the Albany Medical College in 1868, and of the College of Physicians and Surgeons, New York, in 1869, and a member of the New York State and Kings County Medical Society, and the Physicians' Mutual Aid Association, and formerly on the staffs of the Methodist Episcopal Hospital and the Brooklyn Eye and Ear Hospital, died at his home on June 8, aged 71 years.

Dr. Francis Bishop Harrington of Boston, Mass., a graduate of the Harvard University Medical School in 1881, since 1889 a member of the staff of the Massachusetts General Hospital, and for many years surgical chief of staff, a lecturer at Harvard University, and a member of the American Medical Association, the Massachusetts State and Suffolk District Medical Societies, being a former president of the latter, and the American Surgical Association, died at his home in Brookline, after a long illness, on June 8, aged 60 years.

Dr. George Dallas Nutt of Williamsport, Penn., a graduate of the University of Pennsylvania, Department of Medicine, Philadelphia, in 1869, and a member of the American Medical Association, the Medical Society of the State of Pennsylvania and the Lycoming County Medical Society, died at his home on May 30, aged 69 years.

Dr. D. Winton Dunn of Duquoin, Ill., a graduate of the American Medical College, St. Louis, in 1890, formerly mayor of Duquoin, and a member of the American Medical Association and the Illinois State and Perry County Medical Societies, died on June 7, in the sixty-second year of his age, as a result of pistol shot wounds inflicted the night before by a man with a fancied grievance against the physician.

Dr. John Andrew Lee of Pine Hill, Ala., a graduate of Vanderbilt University, Medical Department, Nashville, in 1887, and a member of the Medical Association of the State of Alabama, and the Wilcox County Medical Society, died at a hospital in Birmingham, on May 29, aged 51 years.

## Correspondence.

### OUR LONDON LETTER.

(From Our Regular Correspondent.)

GENERAL MEDICAL COUNCIL—PRESIDENT'S ADDRESS—ANOMALIES OF REGISTRATION—FINANCES—PHARMACOPŒIA—COMMITTEES AND OFFICERS APPOINTED—CHARGES OF MISCONDUCT—FALSE CERTIFICATES: OF DEATH, OF ILLNESS, AND INCAPACITY FOR WORK — GRESHAM LECTURES ON NURSING—SMALLPOX PREVENTION—AVICENNA'S TOMB —OBITUARY.

London, June 5, 1914.

The General Medical Council has been holding its summer session. Sir Donald Macalister opened with an inaugural address much after the usual pattern. A reference to his illness during the November meeting, with thanks for the help and cooperation he had then, as always, received; to the retirement of some and the deaths of two others, was followed by remarks on the extension of the Medical Act of the dominions and reciprocity under that act to India, Japan, and other countries.

The bill for amending the provisions for the election of direct representatives was mentioned next, the President having been given to understand that "if the conditions were favorable" it will receive support from both sides of the House —a big "if" which may not count for much. The next topic was the unsatisfactory state of the law in relation to certification of deaths. Complaints from coroners pointing out anomalies in registration have led to extracts from the council's minutes being supplied to the Registrar-General who has replied that fresh instructions were being issued and these will effect improvements long desired by the Council. In particular local registrars were to be instructed that any death for which no certificate from a registered practitioner was produced must be reported to the coroner; further the certificate must be by the practitioner in attendance during the last illness. In addition the president held much more should be done to safeguard both the public and the profession and he contemplated that fresh legislation might be necessary. He had been requested to give evidence in two royal commissions as to the inquiries in the purview of the Council and had supplied reports, tables, and other information in answer to questions. As to India he had asked the chairman, Sir C. Ball, to take his place as witness. The king had appointed Drs. McVail and Norman Walker with the president on a board for improving medical and nursing services in Scotland and they had already found the need of better training for midwives.

The finances of the Council were spoken of as satisfactory—at the end of 1913 the old deficit was paid off and the new year started with a balance to the good of £282.

The new edition of the British Pharmacopœia was practically ready for publication and a revised proof would be laid on the table in the expectation that subject to corrections of the final proof it would appear during the summer. As chairman of the Pharmacopœia Committee the president expressed deep obligations to the editors, Professors Tirard and Greenish, and to several committees of reference. The proofs were laid on the table before the session closed. To

the chairman of the education and examination committees he had suggested another cycle of inspection being undertaken. Since the reports of the last cycle a number of new licensing bodies had been ordered by Parliament and are now fully organized for work and it would seem well that the Council should possess detailed information from actual inspection to supply on demand by government.

The President was thanked for his address, tables showing results of competitions for commissions in the services were referred to committee on examinations and other formal business carried through, including appointments of various committees, assistant examiners, and the reception of the financial report.

During the session a number of cases of unprofessional conduct have been investigated and the Council has convicted some and has further expressed itself distinctly as to some others which have been dealt with more leniently. One of the earliest complaints was so carefully gone into that the trial, so to say, went over to the second day. It was that of a practitioner accepting the post of medical officer to an association, formed after the Insurance Act was in operation, knowing members were sought by canvassing and solicitation of the Miners' Union and assisting in the same way. The Council found that the practitioner had by public speeches in the district and advertising in those speeches his qualifications taken a prominent part. He was ordered to appear at the November session and produce evidence of his conduct in the interval.

Another case was one of giving a false certificate as the cause of death which had been proved in the Westminster police court and a fine inflicted. The practitioner pleaded that the certificate was filled in correctly, excepting the omission of the word miscarriage before the immediate cause —peritonitis—and this was done to save the girl's reputation, not to deceive. He had promised not to divulge the patient's secret.

The Council took the gravest view, but as he had been already convicted and punished would suspend judgment until November when he must appear again and produce evidence from medical men and others that in the interval his conduct had been without reproach.

Another practitioner convicted of giving to an insurance agent certificates of deaths of seven persons, none of whom he knew, was struck off the register.

Besides false certificates of death another group of untrue or misleading certificates were brought before the Council. These related to sickness and in regard to some of them the complaints were made by the Lords Commissioners of the admiralty whose counsel stated that at naval ports men were given short leave and sometimes when the time expired certificates were sent in that the man was unable to follow his occupation. It was ascertained in some cases the doctor had not even seen the man and the admiralty felt it would be most unfortunate if they could not rely on medical certificates and therefore they reported cases to the Council. One doctor admitted he had been guilty in his case but declared he had not thought he was doing wrong at the time. He gave the certificate on the representation of the man's landlady, believing he was suffering from another attack of a malady for which he had previously treated him, and he promised never to do so again. He was ordered to appear at the next session with evidence from his medical colleagues and others of his conduct in the interval, etc.

Other cases were brought forward but these will suffice to show how the Council exercises its disciplinary powers. It has only one penalty it can inflict—exclusion from the Register. To enable it to deal with cases for which this seems rather too severe, for the effect of exclusion is to disqualify the offender from practice, the Register being the only legal authority, the Council has adopted the plan of adjourning their decisions, as seen in the foregoing cases. It seems a clumsy way of measuring penalties but only legislation can revise it.

Dental cases are referred to the dental committee for investigation and on its report the Council passes judgment in the same way, viz., either erases the name of the accused from the Dentists' Register or adjourns the decision to another session. The dental committee and the British Dental Association seem alike determined to put down canvassing, advertising, and all unprofessional practices.

At Gresham College, Professor Sandwith has been lecturing on Modern Nursing which he traces to the inspiration of Pastor Fliedner whose first wife began with him a society to befriend discharged prisoners. Out of this grew eleven institutions. There was some opposition when Fliedner bought a small house and fitted it up as a hospital. Women responded slowly to the demand for nurses but those who came were carefully trained and called deaconesses. The example set by Fliedner, said Professor Sandwith, brought a new atmosphere into hospital management—an atmosphere which can be felt now even in our workhouse infirmaries. It was at Kaiserwerth, where Fliedner began, he added, "that Florence Nightingale resolved wholeheartedly to devote herself to the service of God in the service of man."

The Port Sanitary Committee has reported to the London Corporation that the arrangements for preventing the entry of smallpox into the country are inadequate and suggested that vessels arriving from ports where the disease exists or is suspected to exist should be inspected as is done in the case of yellow fever, cholera, etc. The local government board does not favor this course—at any rate for the present.

The Historical Section of the Royal Society of Medicine has approved of a proposal made by Sir William Osler to join the French Society of the History of Medicine to restore the tomb of Avicenna who was buried at Hamadan about 1030 and sadly needs repairs. The original sarcophagus is there. Whatever the position of Avicenna in medicine, he was undoubtedly the greatest of the Arabian physicians.

The Aberdeen University staff has sustained the loss of a distinguished member by the death of Dr. George Dean, professor of pathology since 1908. Some years before being appointed to this chair, he had charge of the serum department of the Lister Institute. He had also been an examiner in bacteriology and held other appointments.

Dr. Alfred Harvey of St. Leonard's, M.D., Aberdeen, 1860, died on May 28 at the age of 87.

Surgeon-Mayor-General Robert Lewer, A.M.S. (retired), died suddenly on May 29 in his seventy-ninth year.

## OUR CANADIAN LETTER.

(From Our Regular Correspondent.)

MEETING OF THE SIXTH NATIONAL CONFERENCE ON CITY PLANNING IN TORONTO—MEETING OF THE ONTARIO MEDICAL ASSOCIATION IN TORONTO—COMING MEETING OF THE CANADIAN MEDICAL ASSOCIATION—COMING MEETING OF THE CANADIAN ASSOCIATION FOR THE PREVENTION OF TUBERCULOSIS — HOSPITALS IN ONTARIO — FOTHERGILL MEDAL FOR DR. ADAMI—ADDITION TO ROYAL VICTORIA HOSPITAL, MONTREAL—RECEPTION HOSPITALS FOR THE INSANE IN ONTARIO—RESIGNATION OF DR. F. J. SHEPHERD, MONTREAL.

TORONTO, June 5, 1914.

THE Sixth National Conference on City Planning was opened in Toronto on May 25 by H. R. H. the Duke of Cannaught. The attendance numbered 275, most of whom came from the large cities of the United States. Representatives were present from England and the cities of Canada were well represented. The Duke of Connaught in his opening speech laid stress on the importance of the subject and the need for giving due consideration to it at this stage of the development of our cities, if they were not to suffer from the evils of slums and congested districts which lack of foresight had led to in the countries of Europe. The whole question was one in which prevention was more effective by far than cure, for once a vicious system was firmly established, with vested interests grown round it, the uprooting of the system was likely to prove a lengthy, controversial, and desperately expensive process. To deal with this potential evil substantive legislation was absolutely necessary. The speaker offered three suggestions; the need for the provision of ample park and playground space, the creation of main arteries of communication in cities and last and most important, the securing of proper and adequate housing conditions for the increasing urban population.

Mr. George McAneny of New York made a reply to the address and in the course of his remarks drew attention to the fact that the men and women present were not faddists, but were interested in the problem of the completion of cities along the correct lines of development. Many cities had grown up wildly, and the measure of the correction of their ills was a formidable one from the monetary standpoint. In discussing the growth of the town planning idea the speaker congratulated the Duke of Cannaught on the part which the British nation had played, the inspiration for the work on this continent having come from England. Hon. Clifford Sifton, chairman of the Commission of Conservation of Canada, said that Canada had paid but little attention to the problem of building for the future, and one of the important matters before the convention was to stimulate public interest and intelligence with a view to preparing legislation for submission to the Canadian Government in order that an adequate and comprehensive Town Planning Act might be placed on the statute books of the Dominion. Unlike the cities of Europe and some American cities, Canadian cities were not yet out of control and the next ten years should see the solution of all the housing difficulties and preparation made for the future.

Mr. G. T. Hewitt spoke of the garden city movement and told of the movement for the establishment of model towns in England and declared that the only solution of the problem of homes for the worker lay in the establishment of garden cities.

The Ontario Medical Association opened its thirty-fourth annual meeting in Toronto on May 26. Nearly 200 delegates were present. As at the previous meeting most of the time was devoted to clinics. The outstanding feature of the meeting was the discussion of the proposed separation of the Ontario Medical Association from the Canadian Medical Association. Dr. Adam Wright of Toronto moved that the connection between the two associations should be severed. After a brief consideration, an amendment to Dr. Wright's motion was moved by Dr. Wallace of Hamilton and seconded by Dr. W. A. Powell of Toronto, or, rather a new motion was adopted which places the whole matter upon the shoulders of a special committee, and shelves it for a year by instructing that committee to report back at the next annual meeting. An event of the opening day was the vigorous attack made upon "quackery" and the forms of so-called healing that call for no particular training or education on the part of the practitioner, made by Dr. C. F. McGillivray, president of the association in his annual address. It was pointed out that while the matriculation entrance requirement to medicine was being made harder every year the university course had been lengthened from four to five years. Yet with the qualified members of the profession compelled to measure up to constantly advancing standards the chiropractor, the osteopath, and the Christian Scientist had the way smoothed for them. There was but one way of dealing with the problem, declared Dr. McGillivray, that was to set a high standard and require all to come up to it. He was certain that the faddists would soon disappear if they were required to spend five years in study and pass examinations of a stringent kind. The Government should cooperate with the medical profession to bring this about. The day's programme was divided into two sections. In the medical section five addresses were given dealing with treatment of tetanus by carbolic acid, on tuberculosis, Vincent's angina, and Banti's disease. The afternoon session was devoted to a discussion on the treatment of syphilis. At the evening session Dr. Finney of Johns Hopkins University, Baltimore, gave an address on the cause of failure in operations for cholelithiasis.

The annual meeting of the Canadian Medical Association will take place at St. John, N. B., on July 7 to 10. The address in medicine will be given by Dr. Thomas McCrae, professor of medicine at Jefferson Medical College, Philadelphia. The address in surgery will be given by Mr. J. Rutherford Morison, F. R. C. S., professor of surgery at the University of Durham. The address in obstetrics will be given by Dr. Henry Jellett, F. R. C. P. I., master of the Rotunda Hospital, Dublin. A public lecture will be given by Dr. C. A. Hodgette of Ottawa, medical adviser to the Canadian Commission of Conservation. There will be held a symposium on intestinal stasis, in which Dr. Max Einhorn of New York, Dr. J. T. Case of Battle Creek, Mich., and Dr. L. G. Cole of New York will take part.

According to a report issued recently by Dr. Bruce Smith of Toronto, there are in Ontario 89 public hospitals, 57 private hospitals, 37 refuges, 8 sanatoria for consumptives, 33 orphanages, 3 homes for incurables, and 31 county houses of refuge. During the year ending Sept. 30, 68,738 patients received hospital treatment and 4,058 deaths and 4,210 births occurred. The amount expended

on hospitals during the year was $3,155,340, of which $232,276 was granted by the provincial government.

The Fothergill gold medal of the Medical Society of London for 1914 has been awarded to Dr. John George Adami, professor of pathology at McGill University for his work on pathology and its application to practical medicine and surgery.

Plans are in course of preparation for adding a wing to the Royal Victoria Hospital, Montreal. It will be called the Ross Memorial Pavilion. A small portion of the cost has been subscribed but the greater part of the expense will be borne by Mr. J. K. L. Ross in memory of his father, the late Mr. James Ross. The new wing will provide accommodation for 150 private patients and will increase the total accommodation to 475 beds.

A bill affecting cities was introduced into the Ontario Legislature by Provincial Secretary Hanna. The bill provides for the establishment of reception hospitals for the insane by cities having a population of 100,000 and over. The plans and cities must be approved by the Government and the institution must be under the control of the Provincial Secretary. The cost of the maintenance in excess of the amount provided by the municipalities from which the patients are admitted is to be paid by the provincial government. Dr. F. J. Shepherd of Montreal has resigned the professorship of surgery at McGill University.

## Progress of Medical Science.

### Boston Medical and Surgical Journal.

*June* 4, 1914.

1. Cancer of the Uterus. F. Cobb.
2. The Use of Neosalvarsan from a Clinical and Serological Standpoint. J. H. Blaisdell.
3. Cancer of the Tongue Based Upon the Study of Over One Hundred Cases. J. C. Bloodgood.
4. The Use of Iodoform Oil in Joints. E. G. Brackett.

**1. Cancer of the Uterus.**—F. Cobb presents a complete analysis, from the standpoint of end results, of all the cases of cancer of the uterus at the Massachusetts General Hospital for fourteen years, from 1900 to 1913, inclusive, 367 in number, of which 70 were the author's own personal cases. He emphasizes the importance of early diagnosis of cancer of the cervix, shows the possibilities of cure by the extended abdominal operation, and describes certain original methods of operating which are of importance. The commonest early symptom of uterine cancer is bleeding; pain is a late symptom. In every case where a radical operation is inadvisable one should make determined and repeated efforts toward the prolongation of life and relief of pain and hemorrhage. Curettage without the use of the cautery is unwise and the cautery itself probably has a positive influence in checking cancer growth much deeper than the surface actually cauterized. Between cauterizations much good can be done by local applications of either acetone or formalin. In cases in which radium emanations can be obtained they should be tried, not neglecting general treatment, bromide of arsenic, and tincture of iodine, and the judicious use of opium. In reviewing the hysterectomies certain features are pointed out by the author as worthy of special note. Simple vaginal hysterectomy was the safest in the hands of a large number of operators and gave a larger percentage of cures than simply abdominal hysterectomy by numerous surgeons. The important factors in the radical operation are: The preliminary preparation; the anesthetic with special reference to the prevention of shock; the abdominal incision; the freeing and handling of the uterus; removal of the parametrium and glands; control of hemorrhage; prevention of peritoneal infection and implantation metastasis from the growth itself; and drainage and aftertreatment.

**4. The Use of Iodoform Oil in Joints.**—E. G. Brackett discusses this subject. He notes that there are two general types of cases for which the procedure may be used: (1) Those in which there is no active disease at the time, and in which the object of the injection is largely mechanical, as, for instance, cases of old arthritis with adhesions, in which it is necessary to keep the surfaces apart after freeing the adhesions. (2) Those in which there is present active disease, and in which the object of the injection is largely for the effect of the agent employed on the immediate process, as, for instance, in synovitis, of tuberculous, gonorrheal, or other origin. The injection of olive oil is always made by open incision and not by puncture. Sufficient fluid is always left in the joint to keep the capsule under tension, therefore some form of stitch is necessary by which the tension can be maintained at the time of the withdrawal of the syringe. The adhesions in old cases are broken up before the joint is filled with oil and the capsule closed; other than this no violence is done to the cavity of the joint, and no handling is permitted, particularly of the tuberculous joints. Fixation by plaster or splints is seldom used. Olive oil has been used in all of the cases of the series.

### New York Medical Journal.

*June* 6, 1914.

1. Neurotic, Psychasthenic, and Hysterical Children. J. P. C. Griffith.
2. The Abortive Treatment of Syphilis. B. Lapowski.
3. Tuberculous Peritonitis. A. Judd.
4. Decapsulation of the Kidney. D. J. Lynch.
5. Surgery in Modern Warfare. A. K. Yoosuf.
6. Fracture of the Lower End of Humerus. J. D. Whitall.
7. Avulsion of the Scalp. W. J. Gillette.
8. Ulceration of the Stomach and Duodenum from the Medical Standpoint. A. F. Chace.
9. Fatal Accidents Following the Injection of Antimeningitis Serum. S. P. Kramer.
10. Predetermination of Sex. I. Bram.

**1. Neurotic, Psychasthenic, and Hysterical Children.**—J. P. C. Griffith finds that symptoms of nervousness may be seen even in infants, for instance, in those who cannot sleep in a room without a light, wake on the slightest noise, vomit if moved or disturbed in any way, although never vomiting during sleep, or vomit a food of a new taste. In many cases vomiting in infants is largely a nervous habit. In many instances the giving of a pacifier immediately after the bottle will set the mind at rest and prevent vomiting. As a rule the employment of any such article is to be discountenanced but there are times in which in this way it does good. The condition of simple nervousness is separated by no very sharply marked boundary line from that of psychasthenia. The difference consists in the predominance of the psychic element to an excessive degree in the symptoms of the latter affection. Certain manifestations of hysteria are undoubtedly seen in infancy, but that this is unusual. In childhood hysteria is not common, and there is no difference in the susceptibility of the sexes until puberty is approached, when the disorder becomes more frequent, and is seen oftener in girls. No very exact definition seems possible. One can only speak of hysteria as a psychic neurosis in which there is great emotional excitability; an exalted egoism, a desire to attract attention, defective will power, and imperative and perverted ideas often produced by suggestion or autosuggestion.

**3. Surgical Treatment of Tuberculous Peritonitis.**—A. Judd emphasizes the use of 50 per cent. peroxide

of hydrogen for the purpose of diagnosis, and through oxidation, or possibly by increasing the congestion, to destroy the tubercles. It has seemed that the primary union which the author has had in every case so far has been due in large measure to the liberal use of the same agent. The results have seemed remarkable to the author, and is certainly better than he has been able to obtain in ordinary laparotomy wounds. Thorough flushing of the abdominal cavity is necessary in order that the peroxide may come in contact with all the affected areas. The necessity of getting these patients out of bed as quickly as possible should be borne in mind. One well knows how badly they do, if housed or kept upon their backs. The necessity for aftertreatment in the form of proper hygiene, nutrition, and appropriate medication is alluded to.

5. **Surgery in War.**—A. K. Yoosuf concludes that both in theory and in practice surgery in war is similar to emergency practice in ordinary life. The surgeon must give the same attention to and take the same precautions against infection in the soldier as in the ordinary man. The fate of the wounded depends more or less on the men applying the first aid. A surgeon must not attempt to disinfect a wound on the battlefield. In emergencies operations must be performed in the field hospitals. No probing for bullets must be made on the battlefield. Tourniquets, for hemorrhage, must be applied for not more than four to six hours, as there is danger of gangrene. The *x*-ray is the most valuable diagnostic agent in war. Gunshot wounds of the extremities demand conservative surgery. Penetrating gunshot wounds of the skull indicate operative interference. Gunshot wounds of the chest demand strict antosepsis. Celiotomy is indicated in penetrating gunshot wounds of the abdomen.

6. **Fracture of the Lower End of the Humerus.**—J. D. Whitall states that occasionally a case cannot be dressed in Jones's position owing to compression of the brachial artery. A useful joint function may be preserved with an anterior angular splint, early passive motion, massage, and use of electricity.

8. **Ulcer of the Stomach and Duodenum.**—A. F. Chace concludes that the suggestive symptoms of ulcer are the existence of characteristic pain, vomiting, localized areas of tenderness in the epigastrium and over the Boas point in the back, and hypersecretion, and that confirmatory signs are found in the presence of blood in the vomitus or in the stools, a break in the peristaltic wave in the *x*-ray pictures, and the presence of food particles in the stomach twelve hours after meals. It should be remembered that many cases of ulcer remain latent throughout their entire course. The conditions from which ulcer has to be differentiated are gastric neuroses, cholelithiasis, the gastric crises of tabes, and cancer. One of the greatest difficulties in diagnosticating the foregoing conditions is the fact that gastric ulcer can exist simultaneously with any of them. Gastric neuroses may be differentiated by the irregularity of symptoms, the absence of blood in the vomitus or stools, and the negative character of the *x*-ray examination. In gallstones the pain bears no definite relation to the meals, and often radiates to the right shoulder. Tenderness over the gallbladder, and to the right of the ninth, tenth, and eleventh vertebrae posteriorly is suggestive of gallstones. In cholelithiasis, moreover, one is apt to have hypersensitiveness over Head's zone, and other signs, such as Moynihan's and Murphy's.

9. **Fatal Accidents Following the Injection of Anti-meningitis Serum.**—S. P. Kramer states that in March, 1913, he reported a number of cases of respiratory paralysis following the injection of anti-meningitis serum. Because of the similarity of these accidents to those following the lumbar subdural injection of cocaine, and as the result of an experimental investigation, he concluded that the accident was due to the phenol contained in the serum as a preservative. There was a sudden paralysis of respiration without dyspnea, coming on in from five to twenty minutes after the lumbar injection of serum containing tricresol, exactly as sometimes happens when cocaine is injected into the subdural space. This the author regards as due to acute intoxication of the respiratory center in the medulla by phenol, a well known nerve poison. The cases reported by French observers following the injection of Dopter's serum (without tricresol), are typical cases of serum disease without respiratory paralysis, and are held to be such by the authors who reported them and by Dopter himself. The author warns the profession against injecting serum containing tricresol into the subarachnoid space.

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**Journal of the American Medical Association.**

*June* 6, 1914.

1. Has the American Gynecological Society Done its Part in the Advancement of Obstetrical Knowledge? J. W. Williams.
2. Typhoid Fever. E. O. Jordan.
3. The Prevention of Surgical Shock and Postoperative Pain. A. B. Cooke.
4. Results from the Use of Living Lactic Acid Bacilli on Diphtheric Throats in Two Groups of Cases. E. V. Goltz and W. D. Brodie.
5. The Use of Hirudin in the Transfusion of Blood. H. S. Satterlee and R. S. Hooker.
6. Arthroplasty for Intraarticular Bony and Fibrous Ankylosis of Temporomandibular Articulation. Report of Nine Cases. J. B. Murphy.
7. A Case of Pseudomyxomatous Cyst of the Appendix. H. Hartman and G. C. Kindley.
8. The Early Diagnosis of Lead Poisoning. H. Linenthal.
9. The Effect of Intraspinal Injections of Serums, with and without Preservatives. J. Auer.
10. Appearance of Non-Colloidal Ninhydrin-Reacting Substances in the Urine under Normal and Pathological Conditions and During Pregnancy. F. H. Falls and W. H. Welker.
11. The Viability of the *Spirocheta Pallida* in Diffuse Light at Room Temperature. H. Zinsser and J. G. Hopkins.
12. The Practical Significance of the Adrenals. R. G. Hoskins.
13. Practical Study of Goat's Milk in Infant Feeding as Compared with Cow's Milk. DeWitt H. Sherman and H. R. Lohnes.
14. The Hemaurachrome Reaction. H. S. Carter, Selma Granat, and Sara DuPont.

3. **Prevention of Surgical Shock and Postoperative Pain.**—A. B. Cooke notes that the four cardinal principles of anoci-association are: (1) The preliminary administration of a hypodermic of morphine and scopolamine. (2) The use of nitrous exide and oxygen for general anesthesia. (3) The complete blocking off of the operative area by the infiltration of a solution of novocaine. (4) The infiltration of all tissues traumatized which are supplied with sensory end-organs (except the skin) with a solution of quinine and urea hydrochloride. To these the author adds a fifth, referring especially to the prevention of gas pains following abdominal operations, namely, early opening of the bowels. The preliminary hypodermic of morphine and scopolamine is designed to allay apprehension and tranquillize the patient. Nitrous oxide is preferable to ether for general anesthesia, even in face of the fact that it possesses certain inherent disadvantages. The combination of local with general anesthesia may be termed the crucial feature of anoci-association. The anesthetic effect of quinine and urea hydrochloride is maintained for from forty-eight to seventy-two hours; that of novocaine is quite transient. It has been the author's regular plan to begin the administration of calomel in powder form, usually combined with cerium oxalate, twenty-four to thirty-six hours following operation, giving a half-grain of the former and one grain of the latter at a dose every hour until six doses are taken.

4. **Living Lactic Acid Bacilli in Diphtheria.**—E. V.

Goltz and W. D. Brodie note that the average quarantine period of six cases of diphtheria in which the lactic acid bacillus was used was twenty days. The average quarantine period of the six controlled cases treated locally only with Seiler's solution as a gargle was sixteen days. The average quarantine period of fifty-seven cases admitted to the hospital during January, February, and March, 1914, comprising all cases discharged with the required cultures, was twenty-one days. Lactic acid bacilli in the authors' experience hasten the disappearance of the membrane, but do not hasten the disappearance of the diphtheria bacilli from the throat.

5. **The Use of Hirudin in the Transfusion of the Blood.**—H. S. Satterlee and R. S. Hooker state that in making use of herudin for transfusion they employed their regular pipettes and cannulas, but they dispensed with the paraffin coating of the cylinders. They prepared the pipettes by introducing from 3 to 5 c.c. of a 1:500 solution of hirudin in salt solution, flowing this liquid very thoroughly over the interior of this cylinder and draining away the excess through the tip of the pipette just previous to use. From 1.5 to 2 c.c. of this solution or approximately 3 milligrams of hirudin are retained by adherence to the walls of the pipette and for more than twenty minutes this is sufficient to prevent 220 c.c. of blood, drawn into the pipette, from clotting. With the exceptions already noted, the operation with hirudin is conducted in precisely the same way as with the paraffin-coated apparatus. The preparation of the pipettes is the same, except that the first coating of the cylinders with paraffin is omitted. A partial coating with paraffin, however, is advisable. This coating should be done by aspirating the sterile melted paraffin mixture just within the neck of the cylinder and expelling it again. This use of paraffin from the tip to the neck is primarily to insure an airtight junction of the pipette tip with the metal bushing, and of the latter with the neck of the cylinder, but it also has a demonstrable effect in lessening thromboplastin formation during the aspiration of blood, and permits the employment of a minimal quantity of hirudin. The hirudin method may be employed without any paraffin whatever by using a 1:300 solution of hirudin for coating and with care that the interior of the pipette tip is perfectly smooth and brightly polished and that all connections are tight against airleakage, but these contingencies are so surely and easily provided for by aspirating a little sterile paraffin just above the neck of the pipette, that the latter method is to be preferred.

8. **The Early Diagnosis of Lead-Poisoning.**—H. Linenthal concludes that in the diagnosis of plumbism, the most frequent type of occupational poisoning, there is in many quarters a tendency to give too much emphasis to the presence of the lead-line or basophilic degeneration of the red cells. While the presence of these signs is often of great aid in the diagnosis of obscure cases of non-industrial origin, their absence should not prevent a diagnosis when certain symptoms characteristic of early plumbism manifest themselves, more particularly when a history of exposure to contact with lead can be obtained. The history of exposure is the all-important aid in the diagnosis; careful inquiry should be made by the physician as to the details of the patient's work, and he should not be satisfied with a general designation which may not give any indication of exposure to lead.

12. **The Practical Significance of the Adrenals.**—R. G. Hoskins states that the available evidence indicates that the suprarenals secrete a substance of remarkable potency, which selectively affects the tissues having sympathetic nervous control, thereby influencing many vital functions. Suprarenal discharge occurs when the individual is subject to stress, as strong emotions, pain, or asphyxia. The discharge integrates the body for muscular response: (a) by shifting the blood from the vegetative to the motor, nervous, and respiratory organs; (b) by increasing blood pressure; (c) by causing a discharge of dextrose into the blood for the use of the laboring muscles; (d) by dilating the bronchioles, permitting freer breathing, and (e) by reducing fatigue. It also hastens the coagulation time of the blood. The first three functions are of direct clinical importance. During quiet existence the suprarenal secretion, if occurring at all, is below the threshold necessary to stimulate the sympathetic system. Sympathetic activity *per se* is not impaired by suprarenal extirpation. Suprarenal destruction results in fatal asthenia of the skeletal and cardiac muscles. This is probably due to the loss of the suprarenal cortex, not of the specific secreting tissue. Addison's disease is probably due, therefore, to a functional failure of the suprarenal cortex.

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## The Lancet.

*May* 30, 1914.

1. Intrinsic Cancer of the Larynx. Sir St. Clair Thomson.
2. A Note on a Method by which Remedial Agents May be Mingled with the Cerebral Cerebrospinal Fluid. C. A. Ballance.
3. The Treatment of Parenchymatous Syphilis by Intracranial Medication. H. Campbell.
4. The Intrathecal Injection of Salvarsanized Serum. G. W. Spencer.
5. The Occurrence of Ascites of a Non-Tuberculous Origin in Chronic Recurrent Diarrhea in Childhood. F. J. Poynton.
6. An Operation for Undescended Testicle. R. Thompson.

1. **Intrinsic Cancer of the Larynx.**—Sir St. Clair Thomson concludes that cancer of the vocal cords is in its early stages a very slow, progressive, and strictly limited process. Alteration of voice is the principal and may be the only symptom. Persistent hoarseness in any patient calls for a definite diagnosis. Diagnosis is based chiefly on inspection of the larynx. Only in certain cases where the growth is a superficial and not an infiltrating one can it be confirmed by microscopical examination. The growth, even when it occupies almost the entire length of a vocal cord, can sometimes be completely removed by endolaryngeal operation in early cases. But this completeness can only be ascertained when by laryngofissure the remains of the vocal cord and adjoining soft parts have been removed and submitted to the pathologist. Laryngofissure is, therefore, the operation of choice in all cases of endolaryngeal cancer. The operation offers the very best prospects; first, because the disease remains for some time superficial and limited; and, second, because laryngofissure cannot be considered a dangerous operation. Statistical results show a lasting cure in 80 per cent. of the cases and if all cases presented themselves and were diagnosed early there is no reason why the results should not be even more satisfactory.

2. **Remedial Agents and the Cerebrospinal Fluid.**—C. A. Ballance states that salvarsanized serum or other remedies introduced into the subarachnoid space of the brain will reach the nerve cells. There are certain obvious objections to the injection being made into the substance of the brain, and a considerable operation would be necessary if the serum were to be injected into the basal cisternæ. To inject the serum underneath the arachnoid over the cortex might injure the surface of the brain, and the opening made for the passage of the cannula might allow of its subsequent

escape. These considerations seemed to point to the lateral ventricle as the best site for the injection. The author's technique was as follows: The patient was anesthetized and the head arranged in a position as nearly vertical as possible. A trephine opening was made to the right of the middle line just in front of the bregma. The dura was then opened and the inner surface of the right cerebral hemisphere was gently drawn outwards by means of a retractor bent at a right angle. It had previously been ascertained that the anterior cornu of the lateral ventricle was distant 6½ to 7 cm. from the surface of the scalp at the midline on the vertex. A cannula (having a lumen of 1 mm. and a length of 3 inches) was then passed through the anterior part of the corpus callosum about a quarter of an inch to the righ of the middle line. It was felt to enter the anterior cornu of the lateral ventricle. The cannula was fitted with a stylet whose rounded end projected beyond the end of the cannula. The passage of the stylet and cannula through the corpus callosum could not divide any vessel and might be thought of as pushing aside rather than cutting any of the commissural fibers of the corpus. On the entrance of the cannula into the lateral ventricle the stylet was withdrawn and the cerebrospinal fluid escaped, not continuously, for there was a distinct ebb and flow due to the arterial pulsation or to the respiratory movements. A rubber tube attached to a graduate glass vessel was then fixed to the cannula and the infusion into the ventricle commenced, at first with normal saline solution and then with salvarsanized serum. Of the latter quantities varying from 35 c.c. to 60 c.c. have been used. As the infusion proceeded it was noticed that the brain bulged into the trephine opening but on closer inspection it was clear that the bulge was not a brain hernia and that the cortical subarachnoid space was filling up with fluid. The 90 c.c. of fluid (salt solution and serum) took about twenty minutes to infuse and the pressure varied from 6 to 18 inches. No ill-effects have occurred from the injection of the serum into the ventricle. In the first case as the fluid was flowing very slowly the glass vessel was raised when a little respiratory difficulty occurred which was probably due to pressure in the fourth ventricle, the fluid not escaping quickly enough through the foramen of Majendie.

3. **Intracranial Medication in Parenchymatous Syphilis.**—H. Campbell calls attention to the technique adopted by Ballance who decided that the best way to introduce a large quantity of serum into the cranial subarachnoid space would be via the anterior horn of the lateral ventricle, by means of a cannula passed along the side of the falx cerebri through the corpus callosum, and this operation Ballance performed successfully on a case of general paralysis. The patient made a rapid recovery. The operation was performed on another patient and this time five drops of Fowler's solution were added to the serum. Convalescence on this second occasion was attended by a slight mental disturbance, the result probably of the Fowler's solution. The intraventricular operation was undertaken in the belief that by its means a considerable proportion of the serum introduced is enabled to reach the upper cranial chamber, where it can circulate freely over the cerebral cortex. A word of caution is sounded. The plan of treating syphilitic diseases of the central nervous system by the introduction of remedies into the cerebrospinal fluid opens a new chapter in therapeutics, and has a great future before it, but it is one beset with many dangers, and needs to be carried out with the utmost caution, not only as regards strict asepsis but also as regards the remedies employed, and the strength, number and intervals of the injections.

4. **The Intrathecal Injection of Salvarsanized Serum.**—G. W. Spencer concludes that the intrathecal injection of salvarsanized serum offers a hopeful method of treating and arresting the progress of tabes and other parenchymatous diseases of the spinal cord. Before its introduction these cases resisted all efforts, and finally drifted into the asylums and work houses. A cure of the lightning pains can almost definitely be promised. The injections if carried out with special aseptic care and technique do not endanger the patient's life. There is a great future before this treatment when further work will have been done in perfecting it. Physicians now working on definite scientific lines for the cure of a condition which has previously baffled all efforts mainly because the pathology has not been fully understood.

## Berliner klinische Wochenschrift.

*May 25, 1914.*

**Present Status of Epilepsy Research.**—Loewi devotes considerable space to alcoholic ascendants of epileptics. In Amann's recently published statistics of the disease in Switzerland it readily appears that 5 per cent. of the population are epileptics. The compilation of these figures leaves nothing to be desired, and they serve to discredit many other statistics in common use. Lundborg's statistics for Sweden show a higher percentage of disease than the Swiss figures and a much higher percentage than those of Norway and Denmark, and this excess is attributed to the excessive alcoholic consumption of Sweden. A. Collins finds an alcoholic heritary component in 34 per cent. of epileptics, but Loewi regards the material as too small for statistics. Papers read at the last meeting of the International League for Combating Epilepsy, by von Bechterew, Anfimow and Tamburini, on alcoholic heredity contain little that is new. In fact nothing really new appears anywhere in Loewi's summary on nature and causation. In the treatment of intestinal autointoxication milk enzymes appear to give better results than a more selected diet. In diagnosis we have possible new resources; in addition to Abderhalden's reaction there is Schultz's blood picture —lymphocytic leucocytosis plus eosinopenia.

**Influence of Nutriment on Growth.**—Aron sums up his article as follows: In addition to the well-known dietetic groups described in all physiologies we are now forced to add certain unknown substances, the absence of which causes specific diseases—scorbutus, beriberi, and perhaps pellagra. In regard to feeding in the period of rapid growth the optimum food is a mixture of casein, starch, bran, and butter, with mineral matter. Butter may act partly as a relish. The normal protein and caloric values should be secured. The above optimum, calculated for rapidly growing animals, must be modified for children, for whom vegetables and fruits are demanded. We have also much to learn of the food value of extractives and lipoids, irrespective of their calories

**Nephroparatyphus.**—Klienberger reviews our knowledge of nephrotyphus and of the entirely new conception of typhoid since the passing of the old exclusive enterogenous and unicistic theories. The term nephroparatyphus dates back to about 1905. Two cases are reported of which the atypical typhoid characteristics are marked. In both cases there had been a chronic inflammation of the urinary apparatus with bacillary excretion. In both the disease began acutely, as if the chronic urogenital disturbance had been lighted up, and for a period the general condition appeared to be one of sepsis. Both patients recovered after prolonged illness. The urinary bacteria seemed to stand close to

the hog-cholera group, and could be isolated only from the urine. One patient was attacked with typhoid-like symptoms, with the addition of severe lumbal pains and oliguria. He had already suffered from cardiac and renal (?) crises (lumbalgia). After thorough examination the case was diagnosticated as parenchymatous hemorrhagic nephritis, with suspicion of typhoid or paratyphoid fever, the suspicion having been based on exclusion rather than on positive clinical finds, although the Widal was positive. The paratyphus B, or one closely resembling it was cultivated from the urine, and showed close analogies to the hog-cholera bacillary group.

### Münchener medizinische Wochenschrift.

*May* 19, 1914.

**"Streaked" Nephritis Following Graves' Disease.**—Huismann refers to a report by Grauppner in 1910 on nephritis following Graves' disease. When half of the affected thyroid had been removed the nephritis became rapidly worse. As a rule in such cases there was persistence or hyperplastic thymus. In nearly all severe cases of Graves' disease we find the status thymicolymphaticus. The nephritis is thyreogenic and terminal in character, showing diffuse epithelial neurosis. As a rule thyroidectomy exerts a favorable result, especially when followed up by the use of thyroid tablets. A question of importance is "does the nephritis by vicious circle destroy the patient? Or, in other words, is uremia the cause of death? There seems to be no evidence that such is the case. Death occurs amid symptoms in which a thyreogenic element stands in the foreground; but the efficient cause may be summed up as an intoxication resulting from a disturbance of pluriglandular interaction. The author's case in brief is as follows: a woman aged 33 had suffered from enlarged thyroid for 15 years. The enlargement began in the midst of health and caused little trouble for years until a picture of Graves' disease was finally involved. When first seen an operation was at once performed. Most of the left lobe of the thyroid was left behind. The patient died before twenty-four hours had expired. The operation had been a success and death occurred amid restlessness and failure of the circulation. Autopsy showed enlarged but normal thymus, hypostasis pulmonum, typhoid-like spleen, and a peculiar type of nephritis. The capsule peeled off to a considerable extent, but was adherent here and there, especially at the upper pole of the right kidney. In the cortex completely necrotic streaks. Glomeruli intact. At the beginning of Bellinis tubes total fatty degeneration of the parenchyma cells. In regard to the exact cause of death the author reminds us that sudden death is common in Graves' disease, whether or not operation has been performed. There are so many ways in which death might occur in theory that it is difficult to rely upon a simple explanation.

**Recent Remedies for Cancer.**—In this number Rapp, an assistant of Czerny, publishes the latter's results with borate of cholin injected intramuscularly, and Keil of Münich relates his recent experiences with mesothorium. In regard to cholin it is the belief that its action is akin to that of *x*-rays and radium. Given subcutaneously it produces untoward results, and Czerny has recently been testing the intramuscular route. The technique is elaborate, so that considerably over a column of the *Wochenschrift* is required to describe it. At best it is an auxiliary to the *x*-rays, radium, and mesothorium. In all desperate or inoperable cases in which all available resources may be pushed at once, cholin, as an artificial radioactive substance, should have a place. In regard to mesothorium, Keil analyzes forty cases of cancer, ten of which were of cancer of the corpus uteri and one was a chorioepithelioma. The remaining twenty-nine cases were examples of cancer of the cervix. Of this combined material, eleven cases seem to have been arrested if not cured. These include six cases of cervix cancer (three primary and three cicatricial recurrence); and five cases of cancer of the corpus (three primary, two recurrence in scar). In the case of chorioepithelioma with metastases, the results on the latter were striking.

### Deutsche medizinische Wochenschrift.

*May* 21, 1914.

**Pulmonary Embolism.**—Ulrichs sums up as follows: even with the most exact attention and observation the distinction between operable pulmonary embolism and other kinds of sudden death, *e.g.* cardiac failure from myodegeneration, cannot always be established. Other affections are mistaken for embolism, while the latter cannot be recognized as such. In one-fourth of all the author's cases, death occurred instantly, while in the remaining number the interval was from 10 minutes up. In one-third of the author's cases the patients were elderly or much weakened, in whom intervention seemed absolutely excluded. The anatomical finds showed that but five cases could be recognized as technically operable. Of this series three patients died instantly and the other two were extremely weak. The author concluded that opportunities for Trendelenburg's operation are few, indeed, but that sooner or later a case must come along in which this intervention is called for. The actual material analyzed seems to be 16 cases, but figures of other men are quite corroborative.

**Syphilitic Myocarditis.**—Rosenfeld reports a case studied by him in great detail. The patient, a woman of 27, fainted during her morning toilet. She had eaten an after-theater supper, but slept well. Three weeks before she had had a similar attack, milder. The second attack left her weak and nauseated. She was in partial collapse and became rapidly worse, despite analeptics of all kinds, until she died. Various antemortem diagnoses were shown by autopsy to be wide of the mark. Death had occurred from a gumma of the heart. The lesion had softened, but in itself could hardly explain the fatal termination. The patient showed numerous evidences of the status lymphaticus. The date of infection was recent—within a year, and gumma is almost always a late lesion. There was mesaortitis with thickening of the intima. Coronaries normal. The softened gumma was seated between the orifices of the aorta and pulmonalis. Above the left semilunar valve was a central necrosis communicating with the abscess. There was a certain amount of fatty degeneration in the heart muscle. According to Virchow syphilis of the heart occurs in two forms, viz.: myofibrous, undistinguishable from the same lesion with other causation, and myocarditis gummosa. The two forms often coexist. "Gummous alteration" of the heart describes the condition and is a frequent cause of sudden death.

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**Santonine Poisoning in Infants.**—A. Chassevant points out that santonine is not a safe vermifuge in the infant, at any rate, under two years of age. He reports the case of a child who had received two centigrams of santonine in the evening and the following morning a dose of castor oil. Following this medication the child developed convulsions, fever, and somnolence, which symptoms lasted for several days.—*Journal de Médecine de Paris.*

## Insurance Medicine.

**American Association of Medical Examiners.**—The following papers, in addition to those reported last week, will be read at the meeting of this association at Atlantic City on June 22: "Work of the Life Extension Institute, Viewed Especially from the Standpoint of the Medical Examiner," by Dr. A. T. Gaillard, Medical Referee, Travelers' Insurance Company, Philadelphia, Pa. Discussion opened by Dr. Eugene L. Fisk, Director of Hygiene, the Life Extension Institute, New York. "The Eye in Its Relation to Medical Selection," by Dr. John Ranly, Clinical Instructor in Ophthalmology, College of Medicine, University of Cincinnati, Cincinnati, Ohio. Discussion opened by Dr. G. V. Woollen, Medical Director American Central Life Insurance Company, Indianapolis, Ind. "Applied Physical Chemistry in Heart Disease," by Dr. John Aulde, Philadelphia, Pa. Discussion opened by Dr. James H. Stowell, Medical Director North American Life Insurance Company, Chicago, Ill. "Value of Cystoscopic Examinations," by Dr. E. O. Smith, Professor Genito-Urinary Surgery, College of Medicine, University of Cincinnati, Cincinnati, Ohio. Discussion opened by Dr. J. W. Guest, Medical Inspector Equitable Assurance Society, Louisville, Ky. The president of the association is Dr. Henry Wiseman Cook; the secretary is Dr. G. Strohbach, Cincinnati.

**Medico-Social Problems from the Insurance Point of View.**—Sir Thomas Oliver recently delivered an address with the above title before the Insurance Institute, Newcastle-upon-Tyne. In the course of the address he pointed out that if an insurance manager were asked his opinion as to whether there was any change in mortality rates within recent years and any increase upon the claims of his company by one disease more than another, he would unhesitatingly answer that the claims from cancer had risen. From an insurance, not less than from a medical and a racial point of view the increase of cancer calls for careful inquiry. Dr. E. F. Bashford, of the Imperial Cancer Research Fund, does not believe that there is an increased death rate from cancer. The cancer returns are based, he says, mainly upon the number of lives over 35 years of age. It is maintained, therefore, that the incongruity of the age constitution of the population between 1901 and 1911 has led to an overestimation of the cancer death rate in the later years of the inter-censal period. Against this must be placed the statement of the Registrar-General that the mortality from cancer in 1910 was the highest on record, and that while there was a slight decrease among females, this was more than counterbalanced by the increase among males. In 1860 in England the mortality for females from cancer was 500 per million; in 1910 it was 1,070. A similar increase applies to males. The chances of our escape from the malady are said to be 10 to 1. Although no age, practically speaking, is exempt, the disease falls with increasing frequency after 35 upon each succeeding decade. What is taking place in Great Britain has also been occurring in Germany. From the report of the German Cancer Commission Inquiry, 1900, it is learned that cancer is more frequent in the larger towns than in country districts, more frequent in women than in men, and that it is less frequent in both sexes in industrial towns and mining centers than in Berlin and Hamburg. During the 13 years, 1888-1900, the mortality from cancer in Germany in males rose from 373 to 574 per million living persons. As in England so in Germany the increase of cancer in males is mainly due to disease of the stomach and intestines, a circumstance which suggests that the influence of food cannot be altogether disregarded.

Regarding cancer houses as sources of infection, Oliver, judging from his own investigations and from the investigations of others, is of the opinion that the matter is more than a coincidence. As for the transmission of cancer, the questions are asked: Is there any law of transmission? Does the father hand on to the son and the mother to the daughter, or is it a case of cross transmission? There are no British statistics bearing upon these points, but from the report of the German Cancer Commission it is gathered that in 82.9 per cent. of all cases of cancer hereditary influences can be excluded, that is, that in 17.1 per cent. hereditary influences, direct or indirect, were more or less probable. In 84.1 per cent. of 3,408 male patients there was no hereditary history, in 4.7 per cent. there was a history of the father having had cancer, and in 4.3 per cent. the mother had suffered, that is to say a total of 9 per cent. Of 5,739 female patients heredity could be excluded in 82.2 per cent., in 7.2 per cent. there was a history of the disease in the mother and of 3.1 in the father, giving a total of 10.3 per cent. of hereditary influence in female cancer. Not only, therefore, does the mother's influence weigh more for the transmission of cancer than the father's, but the incidence of the disease in the female is more than twice greater than that of the male, although fathers transmit to their sons slightly more frequently than they do to their daughters. Further, Oliver draws attention to the fact that the data obtained by experimental inquiry go to support his opinion of the disease in man; that, however impossible to explain it, the part played by heredity in the causation of malignant disease cannot altogether be ignored.

With regard to athletics, the author states that in his opinion hard athletic exercise is not always the best training for young men who are going to become clerks or who are likely to lead a sedentary life. One of the consequences of hard rowing, running and football playing is an increase in the size of the heart, especially of the left ventricle. While enlargement of the heart may be good enough for the youth of 22, who takes exercise freely, it is not the best for a sedentary clerk of 30. The man of 30 would find himself with more heart than he required, the circulation would be rather embarrassed than lightened, for it is difficult to tone down the heart to the diminished needs of the economy. Oliver thinks that the tendency of the age is to overestimate athletic exercise. It has yet to be shown that from those schools which pride themselves in games and physical culture rather than in intellectual training, the longevity of their pupils is greater, and that when the work of life is summed up they have taken as good a place as those who were pupils in colleges renowned more for a happy mean in mental training and physical exercise.

Sir Thomas Oliver ends by commending compulsory military training, mainly because it teaches discipline, coördinates training, mental and physical, and instils into the young man a sense of duty and patriotism which will do more for a nation than the steeping of its young manhood in sport.

# Book Reviews.

ARTERIOSCLEROSIS; A Consideration of the Prolongation of Life and Efficiency After Forty. By LOUIS FAUGÈRES BISHOP, A.M., M.D., Clinical Professor of Heart and Circulatory Diseases, Fordham University School of Medicine, New York City; Physician to the Lincoln Hospital; Consulting in Cardiovascular Diseases to Mercy Hospital, Hempstead; late Chairman of the Section of Medicine of the New York Academy of Medicine; Member of the American Medical Association, the New York Pathological Society, Alumni Association St. Luke's Hospital, etc. Price $3.50. London: Henry Frowde and Oxford University Press, Hodder & Stoughton; New York: Oxford University Press, 1914.

DR. BISHOP is of the opinion that owing to our latter-day mode of life, and the continual striving to outdo one's neighbor, arteriosclerosis is much more frequent than formerly. He thinks that reaction through the nervous system upon the chemical organs of the body prepares the way for this disease. Of course, the author considers his subject from the clinical standpoint, and after dealing with the causes of arteriosclerosis, one of the most important of which he deems to be auto-intoxication, he goes on to suggest treatment. Dr. Bishop's theory is that many sufferers from high blood pressure and arteriosclerosis are susceptible to the action of certain, though not all, proteins of animal origin, and the therapeutic problem is to discover which are the offending substances. If these can be found the patient may partake of the others with impunity, but if not, the safest way is to cut out all meat, fish, and eggs and rely upon vegetables and cheese to supply the amount of protein essential to health. He is, therefore, an advocate of a regulated diet, the avoidance to a very large extent of animal foods, in the treatment of the class of patients suffering from general cardiovascular disease of chemical, or at least toxic, origin. The volume is distinctly suggestive and original, is well printed, and judiciously illustrated.

PRACTICAL SANITATION. A Handbook for Health Officers and Practitioners of Medicine. By FLETCHER GARDNER, M. D.; Captain Medical Corps, Indiana National Guard; First Lieutenant Medical Reserve Corps, United States Army; Health Commissioner of Monroe County, Indiana; and JAMES PERSONS SIMONDS, B.A., M.D., Professor of Preventive Medicine and Bacteriology, Medical Department, University of Texas; lately Superintendent, Indiana State Laboratory of Hygiene. Illustrated; price $4.00. St. Louis: C. V. Mosby Company, 1914.

THIS volume of about 400 pages aims simply to provide a safe way for the health officer to meet any emergency which may arise. It is compiled from many sources. The book was designed to fill a vacancy in literature. Up to the present there has never been a serious endeavor to provide within the covers of a single moderate-priced volume a plain, non-technical exposition of the duties of the health officer, written by one experienced in the routine and emergencies of the local sanitary service and familiar with the needs of the local health officer. One particularly interesting chapter is devoted to the rat and a summary of recommendations, aids in limiting the numbers of rats and reducing the losses from their depredations. In the appendix are to be found schemes for sanitary surveys of cities, public buildings and schools. As Dr. J. N. Hurty, Health Commissioner, State of Indiana, states in the introduction: "This book treats of public and personal hygiene, entering into details and discussing their many features. Its teachings are true and to date, and it may be confidently stated that if its directions and lessons are heeded the efficiency, wealth and happiness of the commonwealth will be greatly augmented."

DIE CHRONISCHEN KATARRHALISCH-ENTZÜNDLICHEN ERKRANKUNGEN DES DARMES. By Dr. FRIEDRICH CRÄMER. Munich: J. F. Lehmann, 1914.

THE author thinks that the various catarrhal inflammations of the bowel are still worthy of considerable study. He expresses himself as follows: "What has been proposed for the solution of the bowel problem, *i.e.* for the prevention of chronic affections and premature ageing? First: The formation of lactic acid to prevent putrefaction, through milk preparations, yoghurt, etc. Lately Metchnikoff recommends tablets containing three varieties of bacteria, viz.: the *Streptococcus bulgaricus*, *Bacillus bulgaricus*, and glycobacterium, which latter, discovered by Metchnikoff, has the faculty of thriving in the large bowel and splitting up sugars into lactic acid. This lactic acid is supposed to kill the harmful bacteria, to reduce the intestinal poisons to a minimum, and thus to prevent premature old age. This would constitute a biological freeing of the intestine of its toxins.

"Secondly: Reduction of toxin absorption from the bowel through surgical resection of the colon, artificial opening through the appendix (appendicostomy) for the purpose of irrigating the large bowel, measures stimulating peristalsis, elysmata, intestinal lavage.

"Thirdly: Neutralization of the toxins absorbed by the blood from the bowel by means of organic extract. Another important postulate is the maintenance of motility of the movable parts of the bowel, viz., the small intestine, and increased rapidity of transit through the fixed bowel portions, viz., the large bowel.

"The first and third requirements we have been trying to meet for a long time, but we are aware that our success is limited. The second requirement, surgical intervention, is such an incisive measure that we have all cause to oppose it. The results of such severe surgical intervention, as the elimination of the large intestine, are really not encouraging. Lane has operated upon fifty cases for severe constipation; the end-result is claimed to be splendid, but the mortality is 24 per cent. The radical methods do not prevent the formation of extensive adhesions, which again reproduce the old conditions, to relieve which this heroic therapy was instituted."

Crämer's monograph forms a very useful addition to our knowledge of intestinal diseases.

THE UNCONSCIOUS. The Fundamentals of Human Personality Normal and Abnormal. By MORTON PRINCE, M.D., LL.D., Professor Emeritus of Diseases of the Nervous System, Tufts College Medical School; Consulting Physician to the Boston City Hospital. Price $2.00. New York: The Macmillan Company, 1914.

THE author, as a member of the committee appointed by the American Psychological Association to investigate the relation of psychology to medical education, is in a position to know the preliminary psychology that should be a part of the training of every medical student and also of what a course in more practical psychology, such as should precede the special study of psychiatry and neurology, should consist. It is to fulfil the latter need that the present volume is designed. While it serves as an introduction to abnormal psychology through the problems with which it is concerned, many of these problems belong equally to normal psychology. The author endeavors to avoid controversial questions as far as possible and bases his experimental work on the phenomena of memory, conscious and unconscious. By the inductive method he arrives at the conclusion that "mind" includes more than conscious processes; that it includes a vast store house of acquired "dispositions," deposited by the experiences of life; that these acquired dispositions provide material for conscious and unconscious processes. He finds evidence that a conserved idea may undergo subconscious incubation and elaboration, and that unconscious processes may acquire a marked degree of autonomy, may determine or inhibit conscious processes of thought, solve problems, enter into conflicts, and in various modes produce all sorts of psychological phenomena such as hallucinations, impulsive phenomena, abulia, amnesia, dissociation of personality, etc. To the psychiatrist the book probably presents nothing new, but it is a very lucid presentation of the modern view of subconscious mind.

ÜBER BRÜCHE DES KNÖCHERNEN TROMMELFELRANDES; EIN BEITRAG ZUR UNFALL-LEHRE. Von Prof. Dr. HEINRICH WALB, Geheimer Medezinalrat, Direktor der Universitäts-Poliklinik für Ohren, Hals, und Nasenkranken Bonn. Price 3 marks. Bonn: A. Marcus und E. Webers Verlag, 1914.

PROF. WALB reports twenty-five cases of fractures of the bony edge of the tympanic membrane, which, on injury to the head by fall, blow, or thrust are frequently shown by a considerable bleeding from the ear. These fractures mostly heal by primary intention. Hearing is little disturbed, if at all. The traumatic tympanic membrane cases heal without leaving permanent perforations even if the injury is accompanied by an inflammation of the middle ear. If a large, round perforation is found with continual suppuration, the physician may conclude that the disease existed before the accident occurred.

MODERN MEDICINE—ITS THEORY AND PRACTICE. In Original Contributions by American and Foreign Authors. Edited by Sir WILLIAM OSLER, Bart., M.D., F.R.S., Regius Professor of Medicine in Oxford University, England; Hon. Professor of Medicine in the Johns Hopkins University, Baltimore; formerly Professor of Clinical Medicine in the University of Pennsylvania, Philadelphia, and of the Institute of Medicine in McGill University, Montreal; and THOMAS MCCRAE, M.D., Professor of Medicine in the Jefferson Medical College, Philadelphia; Fellow of the Royal College of Surgeons, England; formerly Associate Professor of Medicine, the Johns Hopkins University. Volume II.—Diseases Caused by Protozoa and Animal Parasites. Diseases Due to Physical, Chemical, and Organic Agents; Diseases of Metabolism and of the Respiratory System. Second Edition, thoroughly revised. Price $6.00. Philadelphia and New York: Lea & Febiger, 1914.

PART I consists of papers dealing with protozoan infections and diseases caused by animal parasites, all of which are written by well-known authorities. Dr. R. P. Strong discusses amebic dysentery. The author states that in his experiments he has found that solutions of ipecac have not shown as great amebicidal action as quinine sulphate against free living amebæ in cultures, but in treatment ipecac and emetine have proved successful. Col. Sir David Bruce contributes a paper on trypanosomiasis, revised by Dr. Low. Referring to the question of the extermination of the sleeping sickness, the author points out that the transference of the population to a district not infected by the tsetse fly, with the view of getting rid of the flies by providing them with no human hosts has not been attended by success. It is believed that big game are carriers of the disease and the only means of extinguishing the malady is by the destruction of the big game in an infected area as to the means of prevention and treatment. The subject of syphilis is ably and exhaustively treated by Sir William Osler and Dr. John W. Churchman. It is pointed out that in order to eradicate syphilis both the medical progession and the public *must be educated*. The authors warn against the indiscriminate use of the arsenic preparations in the treatment of syphilis. Especially is the administration of salvarsan contraindicated in the acute stage of syphilis of the central nervous system. Part II is concerned with the diseases caused by animal parasites, and the entire question is generally and lucidly discussed by Dr. C. Wardell Stiles. Part III is devoted to a consideration of diseases due to chemical and organic agents. Dr. Alexander Lambert in writing of the treatment of alcoholism emphasizes the fact that there is no specific for this condition. With regard to the use of narcotics, he points out that the more highly cultivated and mentally developed a race, the more intolerant of pain are its members. Pellagra is still considered under the head of food poisonings. A very elucidative paper on the autointoxications is given by Dr. Alonzo E. Taylor.

Part IV deals with diseases of metabolism, and metabolism is discussed in a general way by Dr. Philip B. Hawk. Dr. Thomas B. Fletcher writing on diabetes mellitus lays stress on the important rôle played by the internal secretions in carbohydrate metabolism. Dr. James M. Anders discusses obesity. Dr. George F. Still draws attention to the fact that the prevention of rickets depends almost entirely on dietetic measures. The surest safeguard is the continuance of breast feeding alone for nine or ten months after birth and the use of fresh milk as the chief article of diet until the end of the second year.

Part VI is given over to diseases of the respiratory tract. Dr. H. Amory Hare writes on diseases of the lungs, Dr. Frederick T. Lord on diseases of the pleura and pneumothorax, and Dr. Henry A. Christian on diseases of the mediastinum.

The volume is of a high standard and reflects great credit on its editors and contributors. It is well printed and clearly illustrated.

GRUNDSÄTZE FÜR DEN BAU VON KRANKENHÄUSERN. Von Obergeneralarzt Dr. THEL, Inspekteur der 5. Sanitätsinspektion, Berlin. Price 6 marks. Berlin: August Hirschwald, 1914.

IN this second edition of his book on hospital building Dr. Thel remarks that the pavilion system is no longer favored, that there is more demand for the building of small hospitals, and that there is a tendency to refrain from planning large wards, and to increase the number of single rooms. Dr. Thel has added some notes on the cost of ground for hospital parks, on the building of small hospitals, and the protecting the patients from noise by means of cement layers and sand filling between the floors.

DIE FREIE SELBSTBESTIMMUNG BEI DER WAHL DES AUFENTHALTSORTES nach dem Reichsgesetz über den Unterstützungswohnsitz. Von Prof. Dr. phil. et med. H. LIEPMANN, Berlin-Oberarzt a. d. städt Irrenanstalt Dalldorf. Price 1.20 marks. Halle a. S.: Carl Marhold, 1913.

IN this discussion of pages 12 and 24 of the German Reichsgesetz on free self-determination in the choice of the place of residence, Prof. Liepmann agrees that the proof that self-determination was not free is given when the mental functions necessary to so important a decision as that of residence are essentially disturbed, and when the diseased processes in the person's brain are so pronounced that the special processes necessary to the choice of residence must inevitably be influenced. In the case of the mentally defective, Professor Liepmann denies their free volition, and he regrets that the laws do not permit the confinement of drunkards in asylums.

KOPFSCHMERZ UND MIGRÄNE. Von. A. CORNELIUS. Price 1.50 marks. Berlin: August Hirschwald, 1914.

CORNELIUS believes that migraine is a severing of nerveends based on a hereditary predisposition, which, appearing periodically, is shown in nervous symptoms and sensorial disturbances affecting the entire body, and accompanied by a peculiar psychical alteration. These attacks occur at comparatively regular intervals in response to irritations in any part of the body, but they are not to be considered as simply independent, but as the irritation symptoms of already diseased nerve-ends having a paroxysmal and overflowing character.

MANUEL PRATIQUE DE LA MÉDICATION HYPODERMIQUE. Par MM. les Docteurs G. BOSC, Ancien Interne des Hôpitaux de Paris; FERNET, Ancien Interne des Hôpitaux de Paris, Assistant a l'Hôpital St. Louis; H. GILLET, Ancien Interne des Hôpitaux de Paris; MAUTÉ, Ancien Interne des Hôpitaux de Paris; Saïssi, Ancien Interne des Hôpitaux de Paris; TOURNADE; GALLOT, Dentiste; et par L. LECOQ, Pharmacien de 1re Classe, Ancien Interne Médaille d'or des Hôpitaux de Paris. 2e Edition. Price 2 francs. Paris: Laboratoire D'Hypodermie, 1914.

THE subject of hypodermic medication is fully covered in this volume. The first part takes up the technique of the different methods of injection of sterilized solutions. The second section discusses the application of the hypodermic method in general therapeutics. Local anesthesia is discussed in the next section. The hypodermic method in the treatment of syphillis is taken up in the next section. There are separate sections on serum therapy, vaccine therapy, toxin therapy; on the applications of the hypodermic method in the specific treatment of tuberculosis; on the injections of quinine in the treatment of malaria; on local anesthesia in dentistry; and on the applications of the hypodermic method in diagnosis. The volume contains a large number of formulæ.

DIAGNOSEN AV BARNETUBERKULOSENS KLINISKE INITIALFORMER. By HERMAN G. GADE, Tillægshefte til *Norsk Magazin for Lægevidenskaben*, Januar 1914. Kristiania: Steen'ske Bogtrykkeri, 1914.

THE diagnosis of incipient tuberculosis in children is the theme of this volume. The first part discusses the syndrome associated with tuberculosis of the bronchial lymph nodes. The anatomical basis for the clinical picture of this condition is set forth with the aid of lucid diagrams. The pathological anatomy and pathogenesis is then taken up. It is pointed out that Rilliet and Barthez found tuberculosis of the bronchial lymph nodes in 86 per cent. of autopsies, Fröbelius in 99.2 per cent., Steiner and Neureuther in 94 per cent., and Neumann in 78 per cent. The second section of this work deals with the symptomatology, diagnosis, general symptoms, and local symptoms of early tuberculosis in children; the objective diagnosis by means of percussion and auscultation; and the *x*-ray methods of diagnosis, including a discussion of the normal thoracic picture. There are appended a large number of admirable *x*-ray pictures of the thorax, showing the initial forms of tuberculosis of the lungs and of the bronchial lymph nodes. This volume covers a useful field and should prove of distinct service not only to the pediatrist, but also to the *x*-ray specialist and phthisiologist.

# Society Reports.

## AMERICAN SURGICAL ASSOCIATION.

*Annual Meeting, Held in New York City, April 9, 10, and 11, 1914.*

THE PRESIDENT, DR. WILLIAM J. MAYO, IN THE CHAIR.

**The Prophylaxis of Cancer.**—DR. WILLIAM J. MAYO of Rochester, Minn., said that all vertebrate animals suffer from cancer in situations affected by their habits or conditions of life, leading to local lesions in the protective mechanism. We should look upon local lesions as an invitation to cancer without regard to just what the actual cause of cancer may be. The term precancerous should be limited to those conditions which clinically and microscopically cannot be said to be surely benign or surely malignant. The character of the cells was changed; they lacked differentiation, but as yet there was no infiltration of the surrounding tissue. This cellular change was found in the periphery of malignant growths and in conditions which afterward developed malignancy. The local lesion was the invitation and the precancerous condition the probable acceptance. Sites of local irritation were divided into three groups: (1) Congenital, or acquired neoplasms, such as moles, warts, and benign tumors which might undergo malignancy; (2) trauma, which strongly influenced the development not only of sarcoma, but of carcinoma; (3) chronic irritation, which was the most important of all the precancerous conditions, whether the result of mechanical, chemical, or infectious agencies. It was important to apply the evidences of local chronic irritation in the production of cancer to the solution of problems as regarded the development of cancers on the internal mucous surfaces of the body. For example, cancer of the gall-bladder from gallstone irritations and cancer of the stomach following gastric ulcer. Fifty per cent. of cancers of the pelvis of the kidney were demonstrably superimposed on extensive renal calculi formation. Carcinoma of the appendix usually occurred in association with chronic obliterative processes. In the sigmoid and rectum, the irritation in diverticula may have given rise to malignant disease. Cancer of the stomach occurred in 30 per cent. of all cancers in civilized man, but was not common in primitive races or in lower animals. When cancer of a certain organ was found in only one class of individuals or one species, it meant a single cause, as in the case of betel-nut cancer and Kangri cancer. Cancer of the stomach must be due to one cause; if many, the lower animals and primitive races would be more often affected. Something in the habits and customs of civilized man in connection with the cooking and preparation of food must be responsible for this large percentage of cancer of the stomach. A comparative investigation would be of value.

**Some Problems in the Early Diagnosis and Treatment of Sarcoma of the Long Bones.**—DR. WILLIAM B. COLEY of New York City said the results were submitted of 121 cases coming under personal observation. Of the cases in which the mixed toxin treatment was used either before amputation in the hope of saving the limb, or immediately thereafter in the hope of preventing recurrence, 19 had remained well for from three to fifteen years. In the cases in which the toxins were not used four had remained well for over three years. Attention was called to the extreme malignancy of sarcoma of the long bones, especially of periosteal sarcoma. Of the older statistics quoted by Butlin nearly a generation ago, in 143 cases of periosteal sarcoma of the long bones only one remained well after three years from the date of operation. Of 106 cases observed in the last decade at St. Thomas' Hospital in London 53 were suffering from periosteal sarcoma, and only one of these remained well three years after operation. Of the total number of cases, including the central or myeloid type, only ten were alive and well three years after operation. A very important point was that the preliminary use of the mixed toxins had resulted in the saving of the limb in nine cases in the speaker's own experience. Combining this with the experience of other men, the toxins had proved successful in about 20 cases. The results of this series of cases established beyond reasonable doubt the advantages of the preliminary use of the toxins before sacrificing the limb; and, after operation, as a prophylactic against recurrence. Early diagnosis required accurate clinical knowledge of all the conditions most likely to stimulate sarcoma; and also a great amount of actual examination and careful clinical study of a large number of cases of sarcoma of the long bones. The tactile sense was of inestimable diagnostic value. While the *x*-ray might often be misleading in the early stages of sarcoma of the long bones, it might also be of valuable help in making early diagnosis, and large experience in interpreting the *x*-ray was required. The advantages and disadvantages of exploratory operation and microscopical examination of the specimen removed were discussed at length. With the history and clinical signs strongly positive the speaker would not subject the patient to the risk of an exploratory operation, but would immediately perform the operation indicated. The chief requirements for the early diagnosis of sarcoma of the long bones might be summarized as follows: (1) A more careful study of all known clinical data. (2) A large clinical experience in the diagnosis of sarcoma of the long bones. (3) Early *x*-ray examinations in all suspected swellings of the long bones, especially those following trauma. (4) Exploratory operation and microscopical examination of the tissue removed in selected cases, but *not* as a routine measure. (5) The importance of not placing implicit reliance upon the negative report of the pathologist, especially when in conflict with clinical and *x*-ray evidence that is strongly positive.

DR. C. A. PORTER of Boston reported a case of sarcoma of the upper lumbar vertebra in a boy of 19 in which large doses of the Coley toxins were given and the boy was now perfectly well one year and a half since operation.

DR. JOHN H. GIBBON of Philadelphia had one case of periosteal spindle-cell sarcoma in a girl of 17; prompt recurrence after incomplete operation, refusal of shoulder joint amputation. She was then given the toxins and *x*-rays; it was now five years with absolutely no evidence of recurrence. In another case Dr. Allen operated for a recurrent spindle-cell sarcoma of the forearm. Prompt recurrence taking place, the patient was put on the toxins and *x*-ray treatment. The growth melted under it, and at present, eight or nine months since the treatment was started, there was no evidence of recurrence.

DR. THOMAS W. HUNTINGTON of San Francisco reported two satisfactory cases treated with the Coley toxins.

DR. ARCHIBALD MACLAREN of St. Paul, Minn., said Dr. T. deWitt drew his own toxins from a case of erysipelas and, using them, obtained a real result. In one case of partial removal of the spindle-cell sarcoma of the parotid treated by the toxins there was recurrence inside of a year. Under the toxins the growth entirely disappeared. There was again a return which disappeared after an ordinary attack of typhoid fever. In five years the woman died with general sarcomatosis, so that the original condition must have been sarcoma. There was no question that the growth disappeared after typhoid fever, nor was there any question of its complete disappearance under the administration of the toxins. Now, what was it?

DR. HOWARD LILIENTHAL believed in the postoperative use of Coley toxins in every case of sarcoma and also in cases of carcinoma of the breast. He had used the toxins regularly and consistently, and had had few recurrences.

DR. WILLIAM L. RODMAN of Philadelphia had had no case of recovery after the use of the toxins for lesions in the long bones; yet had had cases in which the condition was improved after the use of the toxins when the lesions were in the throat and in one case in the parotid gland.

DR. N. B. CARSON of St. Louis reported the case of a patient seen many years ago, with a tumor under the clavicle with a diagnosis of sarcoma. The Coley toxins were used and the tumor gradually disappeared. In another case in the practice of a colleague the whole lower abdomen was filled with what was taken to be a sarcoma. Under the use of Coley toxins the tumor gradually disappeared and the patient was well three years after treatment. He had sometimes used the toxins in sarcoma without success, and frequently in carcinoma with no success whatever.

DR. WILLY MEYER of New York City said the point mentioned by many speakers of the Coley toxins having no effect in carcinoma is substantiated in his observation; neither had it any effect in endothelioma. In a case of sarcoma of the chest there were all the typical symptoms of tumor in the anterior mediastinum—compression of veins, etc. The patient, a doctor, insisted upon thoracotomy, but was asked to first see Dr. Coley. After discouragement because of fever and

chills, he again asked for operation, and was again dissuaded. Dr. Coley not long ago told the speaker that this patient had written him that he was so much better that he wanted to continue the treatment at his own home. There was no doubt that sarcoma, and inoperable sarcoma particularly, needed the Coley toxins besides the *x*-ray treatment.

Dr. Stanley Stillman of San Francisco reported a case of sarcoma of the chest wall attributed to the irritation produced by leaning over a boat in fishing, the tumor entirely disappeared upon the Coley toxins. The man, however, had mediastinal metastasis, and died just as he was thought to be getting well; the parent growth entirely disappeared.

Dr. Charles H. Peck of New York reported one case of incompletely removed sarcoma of the submaxillary region operated upon five years ago, which was treated afterward with the Coley toxins, and was followed by a complete cure. He had used the toxins in a number of cases, but this is the only one with beneficial results.

Dr. John B. Murphy of Chicago said we were indebted to Dr. Coley for keeping alive an element of hope in showing that there was something that we did not understand, and that did occasionally produce an alteration in the clinical course and brought a good result.

Dr. Arthur Dean Bevan of Chicago was prepared to accept the fact that in the course of thousands of cases a limited small number, which if all of the cases were taken into consideration amounted to a considerable number, but a small percentage had been influenced by the use of toxins. In 75 or 100 cases he had never seen a cure from the use of the toxins in either carcinoma or sarcoma, though he had seen marked effects and continued to use the toxins in inoperable cases. In his experience the *x*-ray had been of very much more benefit in both inoperable carcinoma and sarcoma than the toxins.

Dr. Coley, in closing, said he had little idea that the paper would provoke such a discussion and so favorable a one. Despite the serious discouragements, no one could see the benefit in the cases that were hopelsssly inoperable without believing there was something valuable in the toxins, and with that belief he had been obliged to continue the work. Dr. Lilienthal had reported the only case of melanotic sarcoma cured by the toxins, although there was one case in Leeds, England, now well three years. Of 80 successful cases out of 715 which he had personally treated, 52 patients were well from 3 to 20 years after the treatment. He believed the greatest value of the toxins was as a prophylactic after amputation. Cure of even a small percentage of inoperable sarcoma proved it to be of great value.

**The Two-Stage Operation, Especially in Its Relation to Treatment of Cancer.**—Dr. George W. Crile of Cleveland, O., said the newer developments in surgical technique, by which most of the danger and most of the suffering and discomfort even of surgical operations had been eliminated, had enabled the surgeon to utilize fully the advantages of two-stage operations for cases heavily handicapped by lowered vitality, while in cancer cases the danger of immediate reimplantation was minimized. Critical cases of acute infections of the pelvis, of the appendix, or of the gall-bladder might be more safely treated by a preliminary drainage, the operation being completed after the margin of safety had widened. If we adjusted the operation to the patient, rather than the patient to the operation, the mortality rate which now accompanies the surgical treatment for cancer of the stomach, intestine, larynx, and tongue would be greatly reduced.

Dr. Fred B. Lund of Boston said he had employed the two-stage operation in ulcer and cancer of the stomach only in cases in which the patient was very weak. In cases in which there was doubt of the diagnosis of cancer he would be more inclined to use the two-stage method than in those in which he was sure of cancer, because not only might cancer progress during the waiting stage, but it might be more extensive than anticipated and the adhesions from the previous gastroenterostomy might hamper a thorough operation at the second stage.

Dr. James E. Moore of Minneapolis had for a long time been a firm advocate of the two-stage operation in selected cases. He knew of no more satisfactory procedure than, with enlarged prostate and infected bladder where ether anesthesia would be fatal, to make a small incision suprapubically, under a local anesthetic, and drain the bladder. He was also in accord with Dr. Crile in reference to appendectomies. There was a strong tendency to undertake too much and to interfere with some of the undertakings of the Almighty. Many times he had opened a large abscess and not being able to find the appendix without ripping things up had left it, and after recovery from the operation did a second operation, followed again by recovery.

Dr. Howard Lilienthal of New York said it was now five years since he emphasized in a paper published in the *Annals of Surgery* what he thought was the importance of the two-stage operation in resection of the pylorus. Since then he had concluded that the method was even more valuable than he at first thought. In ulcer cases particularly it was of importance.

Dr. Arpad G. Gerster of New York said there was no doubt that the two-stage operation, where indicated by special conditions, was a very useful expedient, but the argument advanced by Dr. Moore that in appendicitis we were doing too much and thus interfering with the designs of the Lord might be applied to all surgery, which was all an interference with the designs of the Lord. There was a great difference between doing a two-stage operation where necessary, and doing it under all circumstances. He believed the broad application of this principle as a routine was entirely unnecessary. If he ever had to be operated on he would be willing to run a little additional risk in order to get through at one clip.

Dr. Frederic Kammerer of New York said his experience in carcinoma differed from that of Dr. Lilienthal, for after a gastroenterostomy at the first stage he had found the removal of the tumor at the second stage much complicated. It was his belief that it was better and easier to do a resection and gastroenterostomy at one time.

Dr. Alexander Primrose of Toronto agreed with Dr. Gerster that the two-stage operation should not be the routine method of procedure. For example, Dr. Crile spoke of the value of drainage of loops of gangrenous bowel; here the speaker would take issue with him under certain conditions, and in illustration would refer to volvulus high up in the small bowel where the gangrenous area existed within some twelve inches of the duodenojejunal juncture; there the excision of the bowel was made, or, rather, drainage with partial excision because no further operation could be done, and we had here the further difficulty of nutrition to contend with. We were compelled to do a second operation in twelve days, and the condition of adhesions was such that the operation was exceedingly difficult and the patient succumbed. We could have possibly saved this life if we could have performed immediate operation in the first stage. In acute appendicitis also, he thought the gangrenous and septic appendix was a source of great danger and should be removed if at all possible. His experience was that there was trouble locally with danger of spreading infection along the lymphatics and resulting subphrenic abscess when the appendix was left in and the abscess drained.

Dr. Crile said that, of course, he did not propose the two-stage operation for everything, but naturally for the healthy risks which he had stated at the beginning of his paper. The only way to determine whether it was best to break down the walls of adhesions in a circumscribed abscess in acute appendicitis was to make a long series of observations. He could show over 200 cases of all sorts of acute appendices, not those in which the resections were easy, but all kinds of cases, without a fatality.

**Systemic Blastomycosis.**—Dr. Charles A. Powers of Denver reported two cases both of which were fatal. The first had been studied bacteriologically for nearly two years, the cultures of the microorganism being carried successively from one animal to another. Blastomycosis generally resulted in death when it became systemic. Prolonged and increasing doses of potassium iodide and of cupric sulphate might possibly be of value. The condition generally began with cutaneous or subcutaneous lesions and generalization might be prevented by very early and very wide excision of the affected tissues. Early diagnosis of the cutaneous and subcutaneous condition was of prime importance.

Dr. McNeil said examination of the slides showed this material to be not the ordinary type of blastomycosis, but distinguished by the fact that the parasite reproduce not by budding, but by endogenous spore formation. The character of the microorganism differed from the ordinary blastomyces and should be separated from the general group of parasites causing

blastomycosis. A definite specific name should be given it, such as toxoides granuloma. About twenty-four cases had so far been recorded, with only two recoveries. In one instance the limb was amputated while the disease was localized in the thigh. The other was a case reported by Wolbach in which thorough surgical treatment obliterated the disease.

Dr. Arthur Dean Bevan of Chicago said that, shortly after Gilchrist announced his first case of this disease the speaker saw a case, which was reported in the literature as the Hcktoen-Hyde-Bevan case. He tried a series of experiments in this particular case with bichloride of mercury internally, with no effect; potassium iodide with marked effect—an extensive lesion clearing up almost entirely as a gumma was found disappearing under the iodide. In a considerable series of cases, however, this was not always true, but the drug had a marked effect on the organism. Later he used copper with some effect.

Dr. N. B. Carson of St. Louis: Some time ago we seemed to have an epidemic of blastomycosis and two or three of the cases were of the systemic type, all of which died. They seemed to tolerate drugs very badly. We tried varying forms of treatment and in the local cases with very good results.

Dr. Emmet Rixford of San Francisco said there was some confusion on this subject. The term blastomycosis was given to the disease which Dr. Powers and Dr. McNeil had reported. The organism was very different from the blastomyces, that is, the fungus which multiplies by budding. The cases mentioned by Dr. Bevan were cases of true blastomycosis. The disease reported by Dr. Powers was entirely limited to California and to a single valley, San Joachim valley. The first case was found by the speaker in 1894. Dr. Stiles of Washington to whom the material was submitted gave the name coccidiodes. Shortly thereafter he found a second case in which the organism was distinctly different as were also the clinical manifestations. The organism in this second case was much larger. There were high fever and great depression, and death occurred within six weeks of the first manifestation of the lesion. In the first case which lasted two years nothing did any good except vigorous local surgical procedures. Before the man died his face, eyes, and mouth, were destroyed. There were lesions in his bones and at autopsy his lungs were found to be completely consolidated with innumerable white tubercles about the size of oldish miliary tubercles. The adrenals were as large as duck eggs and consolidated with caseous material.

Dr. Powers said his pathological friends gave him these various names, but as he was hardly able to handle the pronunciation of them, he decided to stick to the original term, blastomycosis. The point which he would like to drive home is that, as in both of his fatal cases, the condition began as a small skin nodule or a small abscess beneath the skin. The best hope of preventing dissemination and, therefore, of preventing the mortality which attended the systemic form, lay in the early and wide excision of these nodules.

**The Value of Gluzinski's Test in the Diagnosis of Gastric Ulcer.**—Dr. John Nicolaysen of Christiania, Norway, said Kocher in 1912 recommended Gluzinski's test as a means of making the differential diagnosis between ulcer and cancer of the stomach. Ulcer was as a rule accompanied by hyperacidity while cancer was attended by an atrophic catarrh which caused the disappearance of the free hydrochloric acid. When cancer developed upon the basis of an ulcer there might be demonstrated at an early stage of the disease an insufficiency of hydrochloric acid production. This was made by giving two test meals, one following immediately upon the other. While the amount of free HCl would increase from the first light meal to the second heavier (beef) one in cases of ulcer, it would decrease in cases of cancer of the stomach. The author and his assistant, Dr. Grondahl, had examined 86 cases of ulcer of the stomach and duodenum, cancer of the stomach, gastroenteroptosis, appendicular dyspepsia, and gallstones. Of the cases of cancer, only two had free HCl in the gastric contents. These gave Gluzinski's reaction, to wit: the amount of free HCl decreased in the second meal. But the same insufficiency of function was also found in cases of gastroenteroptosis. In all cases of ulcer but one, there was found a pronounced increase in the amount of free HCl in the second meal. Gluzinski's reaction was reliable, nevertheless, its result was to be considered only as a symptom which must be judged in conjunction with the other symptoms and the history of the case.

**Résumé of the Röntgenological Diagnosis of Surgical Lesions of the Stomach and Duodenum.**—Drs. George Emerson Brewer and Lewis Gregory Cole of New York City said the most satisfactory diagnostic method up to the present time had been serial röntgenology, *i.e.* the study of 50 or 60 röntgenograms of the patient in various postures, taken in several series at intervals of two hours until the stomach is empty. They had perfected a true röntgenocinematographic machine, capable of making 50 röntgenograms of a single cycle, or 200 röntgenograms of an individual peristaltic contraction from the fundus to the pylorus. The information gained by such an examination included size, position, and shape or type of the stomach; activity of peristalsis and width of peristaltic contractions; character of the systole and diastole; depth of the rugæ and the direction in which they ran; degree of dilatation and the motor phenomena of the descending and horizontal duodenum; character of the pyloric sphincter and of the cap (pilleus ventriculi). The interpretation of findings had been worked out by a study of about 20,000 röntgenograms of 680 cases. A report on 27 consecutive cases examined röntgenographically by Dr. Cole and operated upon by Dr. Brewer showed the accuracy of the method.

**Pylorectomy or Excision of the Ulcer-Bearing Area.**—Dr. William L. Rodman of Philadelphia said that if ulcers were situated at or near the pylorus, as they were in about 80 per cent. of all cases, and the pyloric end of the stomach and proximal portion of the duodenum could be easily mobilized, pylorectomy, which got rid of the present ulcers and prevented future ones to a large extent, removing as it did, four-fifths of the ulcer-bearing area, was certainly the operation of choice. If, however, the converse obtained, the stomach and duodenum being bound down by adhesions to adjacent viscera, simple gastroenterostomy, the anastomosis being made about the middle of the stomach, or preferably to its left, should be practised. If the symptoms were not relieved within a reasonable time, then pylorectomy might be performed.

**A Method of Subtotal Gastrectomy.**—Dr. Francis T. Stewart said the method of subtotal gastrectomy consisted in removing the diseased segment of stomach from left to right, after performing end-to-side anastomosis between the lower portion of the incision which amputated the stomach and the upper part of the jejunum, the operation being so conducted that the suturing necessary to unite the stomach to the intestine was completed before either viscus was opened.

**Jonnesco's Membrane.**—Dr. John E. Summers of Omaha read this paper. The Jonnesco-Jackson-Reid membranes, he said, should be considered as congenital; they could always be demonstrated in every individual should the incision admit. They were purposive and intended by Nature as ligamentary supports preventive of intestinal stasis rather than causative; and if this was so, they should be divided only after they had become restrictive of intestinal function from loss of nervous and muscular tone resulting from chronic intestinal toxemia. The so-called "white line" was the line of fusion of the duodenal and colonic peritoneum with the parietal peritoneum after rotation had been completed, and could be made manifest by rotating the attached hollow viscus in a direction continuous with the course of the blood-vessels and fibers of the membrane, a direction opposite to the fetal rotation. These membranes, although present in children, seldom produced symptoms in them because intestinal peristalsis was sufficiently powerful to overcome minor difficulties. Most of the sufferers were from thirty to sixty years of age.

Dr. Jabez N. Jackson of Kansas City, Mo., said that, when he first presented this subject in 1908 most of the Fellows said there was no such thing; now it was said to be a congenital condition in everybody. Although he had seen a considerable number, he was still in doubt as to its etiology. He wished to say that under no circumstances would he consider anything to be Jackson's membrane, unless it could be positively demonstrated to be producing mechanical interference with the gut, and had become the subject of surgical discussion, just as a tendon became surgical when producing a contracture. Regarding treatment of this pericolic membrane, there were two distinct factors that could be absolutely demonstrated—the presence of constriction and, following this, the presence of obstruction. Removal of the obstruction was not suffi-

cient, and he had combined the idea of the Germans of plicating the cecum and removing the membrane without removal of the gut.

**Ligation of the Innominate Artery for Subclavian Aneurysm.**—Dr. C. A. HAMANN of Cleveland reported the case of a woman aged 68 years, who was operated upon in February, 1913. Partial resection of the clavicle was done in order to facilitate access to the vessel; the innominate was tied with a double-braided silk ligature and the right common carotid with chromicized catgut. Prompt healing of the wound occurred, and the aneurysm was completely cured. Fourteen months after the operation the patient was found to be in good condition and there was no trace of the aneurysmal sac to be felt. There had been 53 cases of ligation of the innominate artery up to the present time; of these 14 recovered, the most frequent cause of death was secondary hemorrhage.

**Technique of Intrathoracic Operations.**—Dr. ALEXIS CARREL of New York said the report of intrathoracic operations by American and European surgeons showed that pleurisy was still a frequent complication. In the experimental operations performed lately by the writer, this complication was completely avoided by a few technical details which prevented the irritation and infection of the pleura. Through a small opening a silk membrane was introduced into the pleural cavity. Afterwards two large compresses made of a sheet of absorbent cotton and two sheets of black Japanese silk were introduced into the pleural cavity and used for walling off the operating field. The pleura was never seen by the operator or touched by his fingers. This would protect against the germs of the air, and the blood from the operating field was absorbed by the cotton inside the compresses.

**Auricular Fibrillation from Traumatism Occurring in a Heart Previously Normal.**—Dr. GEORGE E. ARMSTRONG of Montreal reported the case of a man 46 years of age, who had been shot in the chest. The bullet entered the fourth intercostal space a little to the left of the left border of the sternum. Fluoroscopically the bullet could be distinctly seen in the pericardium. It was quite free and readily changed its position when the man was rolled from side to side. Tracings showed complete auricular fibrillation. The pulse was irregular and of poor volume. Twelve hours after the bullet had been removed the pulse, which had previously been 130 to 140, slowed down to 90 and became quite regular. The tracing taken then showed normal auricular and ventricular contraction.

**The Interpleural Exposure of the Heart by Means of Longitudinal Section of the Sternum.**—Professor REHN of Frankfort, Germany, recommended this operation in which the pleura was not opened. The incision was made from the left second chondrosternal articulation to the middle of the xiphoid process, then it followed the left costal arch; the latter incision was deepened, rectus and transversalis abdominis were cut, and the incision continued along the under surface of the costal arch and the sternum above. The finger easily separated the delicate fibers of the diaphragm and entered the mediastinum. The xiphoid process was now either pushed aside or removed. A well-rounded sponge was passed up into the mediastinum and pushed the pleura out of the way on both sides. The sternum was split up to the third or even second chondrosternal articulation, and was then forcibly held back by hooks and the pleura protected by gauze. The anterior surface of the pericardium was now freely exposed and could be opened as far as desired. The heart was just as easily accessible and the incision offered an especially good opportunity to compress the venæ cavæ.

**Surgical Intervention in Cases of Pulmonary Infections.**—Professor ANTOINE DEPAGE of Brussels said the results of Forlanini's method for lung tuberculosis were most favorable in cases in which one lung only was affected and in which there were no pleural adhesions. Forlanini's treatment by artificial pneumothorax was rather medical than surgical, though based on a surgical principle.

**Pulmonary Abscess and Bronchiectasis.**—Dr. HOWARD LILIENTHAL of New York reported fourteen operations in 11 cases of non-tuberculous intrapulmonary infection. There were five cases of brochiectasis with one death in the hospital and one death a year later of hemorrhage; 3 cases of acute abscess with two recoveries; 1 chronic apical abscess recovered: 1 extensive gangrene died; 1 fetid bronchitis, with minute abscesses mistaken for brochiectasis, died. The various operations were: For direct drainage; free opening of the pleura; multiple rib resections; Tuffier's extra pleural tamponade; in one convalescent case not yet discharged the entire right lower lobe was removed for bronchiectasis.

**Surgical Treatment of Tuberculosis of the Lungs and Bronchiectasis.**—Professor C. HENSCHIEN of Zurich said that severe and moderate cases of unilateral tuberculosis of the lungs, cavernous as well as infiltrated, could be cured by lung collapse and compression. The treatment should begin with an attempt at artificial pneumothorax; if the latter was impracticable on account of adhesions, then extrapleural thoracoplasty was indicated, with which in the clinic in Zurich out of 122 cases 20 per cent. were clinically cured, 34.6 per cent. considerably improved, and 26 per cent. improved. In certain selected cases extrapleural pneumolysis and plugging also gave favorable results.

**The Surgical Aspects of Bronchiectasis.**—Drs. JAMES G. MUMFORD and SAMUEL ROBINSON of Clifton Springs, N. Y., read this paper. They said that granted bronchiectasis was commonly the result of bronchial obstruction by foreign body, tumor, or disease, the first indication should be the removal if possible of this obstruction. Bronchoscopy for the removal of a foreign body had not infrequently arrested bronchiectasis. In the earlier stages of the disease, nitrogen gas injection producing artificial pneumothorax was indicated, and should always be tried. Pleuropneumolysis, or extensive rib resection, was a dangerous procedure, with additional dangers in bronchiectasis. In late cases of bronchiectasis, where the disease was obviously confined to one lobe, lung resection was the sole source of relief.

**Bronchiectasis.**—Dr. WILLY MEYER of New York said his paper was written to give a picture of the present status of this disease and because, so far, there was no treatise on this subject in the English language. It might be said that bronchiectasis was to-day a surgical disease, since other forms of treatment merely alleviated. It must be borne in mind that bronchiectasis was an affection of the bronchial tree, not of the pulmonary parenchyma. Hence, methods of benefit in tuberculosis could here have the same effect. A definite diagnosis was not easy. Stereoscopic radiography was here of great assistance. Since it had been shown that injection of a number of cubic centimeters of fluid into the bronchi was well borne, he expected to try insufflation of argyrol, with the idea of enabling the radiographist to show more distinctly the contour of the walls of the distended bronchial cavities. The larger cavities of the lung were best treated by pneumotomy and in localized and early cases this had given a number of cures. Loosening of the lung in conjunction with the costal pleura from the endothoracic fascia (pneumolysis) and the filling of this cavity with a transplant of fat tissue or omentum kept in cold storage (Tuffier) had given some good results. A paraffin filling of the cavity might be of use, as also thoracoplasty with resection of a number of ribs. The loosening of the lung from its adhesions with the pleura and fastening its base further up on the diaphragm, giving the complementary space a chance to close by granulation was of benefit in one case of Garre's Sauerbruch's and Brun's method of ligating branches of the pulmonary artery, which the speaker had done three times, produced marked connective-tissue formation in the affected lobe and firm adhesions between pulmonary and costal pleura, thus allowing the lobe to be compressed by thoracoplasty and phrenicotomy to be performed later. In not a single case had a real cure been obtained. Only the removal of the diseased lobe or lobes of the lung—pneumectomy—could effect real cure in these patients. The efforts of the surgeon must be continued in the direction of overcoming the obstacles to this radical interference. There were on record eight pneumectomies for bronchiectasis with a mortality of 50 per cent.

Dr. GERARDO M. BALBONI of Boston said his experience with artificial pneumothorax comprised 61 cases treated during the last three years; 57 were cases of pulmonary tuberculosis; 4 were non-tuberculous; there were 2 lung abscesses and 2 cases of brochiectasis. The experience with these four non-tuberculous cases was pertinent to this discussion. One lung case and one abscess case might be regarded as cured; the other two as improved. The puncture method was used in all these cases. The chief dangers associated with this method of treatment are pleural shock, gas embolism, spontaneous pneumothorax from rupture of the lung, and rupture of the mediastinum. It was best to pro-

duce the pneumothorax gradually by frequent injections of nitrogen, bringing it to the desired volume and pressure. It should be maintained uninterruptedly for the entire period of treatment to bring about anatomical healing.

**Pleural and Pulmonary Complications in Tropical Abscess of the Liver.**—Dr. JAMES E. THOMPSON of Galveston said that infection of the lung and pleura occurred by direct extension and metastasis. The former was by far the more common. When the abscess penetrated the lung and opens into a bronchus, the patient would spit up chocolate-colored pus. Spontaneous cures had been reported where the abscess was completely evacuated by this route. Usually the liver abscess emptied itself partially and continued to drain intermittently through the lungs. Amebic infection spread to the lungs and produced cavitation. The prognosis was very unfavorable. Many authors placed it as high as 84.8 per cent. The author's mortality was 45.4 per cent.

**Double and Anomalous Forms of Empyema.**—Dr. KENNETH A. J. MACKENZIE of Portland, Ore., reported in detail four of his own cases of double empyema occurring during an epidemic of influenza in the Northwest in the year 1899. In all cases either bilateral simultaneous thoracotomy or bilateral thoracotomy with a few days' interval between operations was done. A preliminary report of a substitute for acute operative pneumothorax is submitted. The plan was to replace the serous or purulent fluid of pleurisy or empyema by a non-toxic and non-absorable fluid, such as petrolatum or liquid paraffin. The method offered the advantage of relieving empyema without the shock of a traumatic pneumothorax. The hydrocarbon would act as an inhibitor of bacterial growth. By holding the surfaces apart until inflammation was allayed, dense adhesions were prevented. The non-absorbable and non-toxic fluids might prevent progression to the purulent stage. This procedure might be substituted for compression of the lung by nitrogen gas in the care of tuberculosis.

**Visceral Pleurectomy for Chronic Empyema.**—Drs. CHARLES H. MAYO and E. H. BECKMAN of Rochester, Minn., said that in a considerable percentage of cases of chronic empyema the lung would expand to a greater or lesser extent if visceral pleurectomy, combined with gridironing of Ransohoff, was performed. In the experience of the authors, the operation was not as severe or as dangerous as the Schede operation. Patients should be carefully prepared for operation by securing drainage at the most dependent part of the cavity, by reducing the infection to a minimum, and the resistance of the patient to the maximum by vaccines.

**Arthroplasty for Intraarticular Bony and Fibrous Ankylosis of Temporomandibular Articulation.**—Dr. JOHN B. MURPHY of Chicago reported nine cases of this operation. It consisted in the division of the mandible at its condyles, the removal of a third of an inch of the entire diameter, the interposition of the temporal fascia and fat flap, and closure of the wound; then the separation of the teeth on the operated side by a block for two weeks and the institution of passive motion after the third week. The pedicled flap, consisting of the mucous membrane of the soft and hard palates, had rendered excellent service in the interalveolar cicatricial type of contractions. Of the nine cases he had been able to trace eight. In seven the result had been ideal. In the eighth, in which the coronoid process and the zygoma were involved, restriction of motion resulted.

**Cancer of the Tongue.**—Dr. JOSEPH C. BLOODGOOD of Baltimore said it had been demonstrated in this study of over 100 cases that the failure to cure when cancer of the tongue was fully developed was due chiefly to the neglect to remove the muscles of the floor of the mouth below the cancer. The high mortality after operations for cancer of the tongue was chiefly due to the removal of the floor of the mouth without removing at the same time a section of the lower jaw. The investigation had also shown that if a lesion of the tongue is subjected to immediate operation within a few weeks after the onset of the lesion the chances of a permanent cure were best. In this stage it would usually be sufficient to remove the local lesion with a good margin of healthy tissue, and this removal should be accomplished with the electric cautery. The center of the lesion should be preserved for microscopic study. While the chances were that the lesion would be found to be benign, should it prove to be cancer, the possibilities of cure were almost 100 per cent. The majority of cases of cancer of the tongue sought surgical aid at an unnecessarily late period. In every case the patient was warned—there was always something to be seen and felt in the tongue or floor of the mouth. If such a lesion was investigated at once, a local operation with the electric cautery should be sufficient; in a later stage removal of the glands and repeated cauterizations of the mouth lesions; in still later stages, resection of the jaw must be done. In the 14 cases personally operated upon by these newer methods in the past five years, there had been no postoperative mortality, and so far but one patient was dead from recurrent carcinoma, and there was evidence of recurrence in only one case.

Dr. MORESTIN of Paris said the prognosis of cancer depended chiefly on the time of treatment and upon the methods employed. The complete extirpation of the menaced or invaded lymphatic vessels and glands was absolutely necessary—as essential as the removal of the cancer, which should be done by cutting wide of the tumor mass. For instance, in the case of carcinoma of one side of the tongue, which was very common and quite typical, the part of the organ corresponding to the diseased section should be extirpated, as well as the floor of the mouth and all the subclavicular, carotid, and submaxillary glands and those glands lying below the hyoid bone. The carotid region should be carefully closed by sutures uniting its muscles—the external wound should be completely closed, the bucco submaxillary wound packed and food given only through the stomach tube until cicatrization of these wounds was completed. The patient should be allowed to get up on the day of the operation or on the following day.

**The Function of the Gastroenterostomy Opening in Cases of Permeable Pylorus.**—Professor HENRI HARTMANN, Paris, France, read this paper. He said it was generally accepted that in presence of a permeable pylorus, the gastrojejunal opening tended to close in consequence of its physiological uselessness, the chyme following the pylorus. This was an error. The gastrojejunal stoma well lined by mucous membrane, without ulceration whatever, without any scar tissue, remained permeable forever. He has collected 44 cases of obliteration of the gastrojejunal anastomosis; 37 cases of pyloric or subpyloric stenosis, 4 indisputable cases of peptic ulcer, 3 cases of free pylorus. The radiological examinations, made on patients with a permeable pylorus, who underwent gastroenterostomy, confirmed the results of experiments on dogs. Briefly then, there was no more fear of an anatomical obliteration of the gastrojejunal opening in the cases of a permeable pylorus than in any other case. This anastomosis was physiologically useful when it was established in the pyloric antrum in the neighborhood of the greater curvature.

**Extirpation of the Spleen for Diseases of the Blood.**—Dr. RANZI of Vienna reported 20 extirpations of the spleen for diseases of the blood, performed at the Surgical Clinic of Prof. v. Eiselsberg, Vienna. The indications for these operations made by Professor Eppinger were: hemolytic icterus (3 cases), pernicious anemia (5 cases), Banti's disease and hypertrophic cirrhosis of liver (9 cases), thrombophlebitic forms (3 cases). Four patients died after the operation. The results in the other 16 cases were very satisfactory. The patients, formerly very weak and obliged to keep their beds, had regained their strength and weight and were again able to work, especially the cases of pernicious anemia. In pernicious anemia the extirpation was very easy; in other cases sometimes very difficult on account of the excessive adhesions and enlarged blood vessels. The operations were performed under local anesthesia.

**Results of Treatment of Cystic Disease of the Breast.**—Drs. ROBERT B. GREENOUGH and CHANNING C. SIMMONS of Boston read this paper, of which the following were the conclusions: (1) Of 83 cases of partial operation for cystic disease of the breast, 17 or 20 per cent., were successful. (2) In 4 cases carcinoma occurred in the breast tissue left by the partial operation, 4.8 per cent. (3) In 5 cases the disease recurred only in the other breast, 5.9 per cent. (4) In 8 cases the disease returned in the breast tissue left by the first partial operation, 9.6 per cent. (5) The occurrence of carcinoma in cases of cystic disease, estimated at about 10 per cent. of cases, demanded radical treatment in all but the mildest cases. (6) The operation of choice should remove all of the gland tissue of the

affected side, and when the disease was bilateral, of both sides. (7) This could best be accomplished by subcutaneous amputation, leaving the nipple and areola, or by elliptical amputation. (8) Where grave doubt as to diagnosis was present, elliptical amputation was to be preferred. (9) Local excision of nodules in the breast, suspected of being malignant, should never be performed. (10) The operation of local excision or partial plastic resection should be restricted to the earliest and mildest types of cystic disease. In such cases plastic resection was to be preferred.

**Blepharoplasty by a Pregrafted Flap.**—Dr. C. L. GIBSON of New York said the older operations for plastic repair of the eye-lid were, for the most part, defective from exaggerated shrinkage and the raw surface was made to lie in contact with the eyeball. The author's method consisted in preparing a flap which was lined with a skin graft entirely healed and provided against eventual shrinkage of the flap. The grafted skin which came in contact with the eyeball, assumes the character of mucous membrane and furnished a free edge and movable eyelid. The operation was done in two stages. The best flap was a modification of that devised by Fricke, the flap being taken from the skin above and external to the external canthus. At the first stage a horizontal incision, starting at the external canthus, was made corresponding to the length of the proposed flap. This incision was underminded so that a pouch was made into which the skin graft was tucked, raw edges in contact. This was allowed to heal in place, and in about ten days the second stage was completed by cutting away the diseased area of the eyelid and transplanting the pregrafted flap into the defect and suturing it accurately into place. The results of this operation physiologically and cosmetically had been most satisfactory. The operation was destined to compete favorably in the treatment of malignant growths of the eyelid with the newer remedies, such as radium and *x*-ray which, however, lacked a guarantee of permanent cure as attained by such radical operations.

**Uncomplicated Tuberculous Foci in Bones and Their Treatment.**—Dr. THOMAS W. HUNTINGTON of San Francisco dealt with cases in which the focus existed (*a*) as an incipient lesion, but sufficiently advanced to cause symptoms; (*b*) as a lesion that had recurred after a period of quiescence. In neither case had it become the seat of mixed infection or invaded the adjacent joint. Exception was taken to the conservatism of the orthopedist where the focus was accessible through an extracapsular route. Attention was called to the too frequent and humiliating failures at the hands of men of great skill and experience, and to the general surgeon was suggested the propriety of assuming jurisdiction in early cases. The term "latency" in this connection was regarded as a misnomer.

**Fracture of the Patella.**—Dr. W. BEECKMAN DELATOUR of Brooklyn reported a total of 101 fractures in 87 patients. Three were simultaneous of both patella and in one there was also a fracture of the cervical vertebra. Upon these cases there were 96 operations with no operative mortality, and in all useful joints resulted; in four motion was somewhat limited. The operation consisted in a curved transverse incision across the knee above the patella, suture of the tears in the lateral capsule and across the front of the patella with chromic catgut. These were reinforced by a suture passed through the patellar tendon above and then below in mattress fashion, and tied. The object of the suture was to relieve the transverse sutures of strain when there was contraction of the quadriceps muscle. Early passive motion was important. A posterior splint should be worn for at least 12 weeks. Operation was as a rule, done at the end of 48 hours. Results where the bone was broken in several fragments were as good as in the simple transverse cases.

**Frontal Sinus Suppuration.**—Dr. HOWARD A. LOTHROP of Boston said Intranasal treatment for frontal sinus suppuration should always be given a thorough trial before instituting more extensive operations. The results of external operation in obstinate cases were manifested by many successes obtained by all methods and also by many failures. The problem presented was the healing of suppuration in a natural bone cavity surrounded entirely by rigid walls. No method known took full advantage of the anatomical possibilities. The following technique was suggested: A small opening was made in the frontal bone just above the upper extremity of the nasal process of the superior maxilla. The sinus was explored. The probe was passed through the ostium into the nose and left in this position while the anterior ethmoid cells were broken through with a small curette. Then, working from above, but chiefly from below, all the dense bone situated at the base of the nose was removed. This included the interfrontal septum, the nasal spine, the nasal crest, the upper, thick ends of the nasal bones and nasal processes. Thereby both sinuses were made into one, a thin shell of bone remained in front of the level of the ostium; and as the adjacent portion of the septum of the nose was likewise removed, an instrument could be passed through either nostril into either sinus and could be swept across from one side to the other. In certain cases it was desirable to epidermize the frontal sinus and this was accomplished by turning a flap from the upper eyelid.

## PRACTITIONERS' SOCIETY OF NEW YORK.

*Two Hundred and Sixty-first Regular Meeting, Held March 6, 1913.*

THE PRESIDENT, DR. WALTER B. JAMES, IN THE CHAIR.

**Some Recent Therapeutic Procedures in Acute Infections.**—Dr. MEARA presented this case—a girl of ten with a history of severe digestive disturbances during the first year of life and comparatively good health thereafter until 9 years, when appendix was removed. In the spring of 1912 a persistent dry cough, slight temperature, and loss of flesh suggested tuberculosis. All laboratory tests and *x*-ray plates were negative. In March she had her first attack of asthma; was then more or less ill until July when she developed bronchopneumonia. She was given autogenous vaccine made from pneumococcus isolated from sputum, also complete outdoor life and a generous diet. She improved greatly and had quite recovered when in October she developed a colitis followed by asthma. She was now placed in St. Luke's Hospital and at this time many rheumatic nodules were found and a blowing systolic murmur at apex. On careful questioning there was a history of "growing pains," sort throat, stiff neck, and painful joints. These manifestations yielded to salicylates, but shortly after there developed innumerable attacks of asthma which persisted all winter interspersed with a variety of other infections. Blood cultures were negative. In January, 1913, her chest was clear, but she developed an otitis media followed by a mastoiditis. On February 1 she had a pneumonic consolidation of left upper and lower lobes. On February 8 she got stupor, stiff neck, and headache which led to a lumbar puncture with negative findings. These symptoms were removed by exploring the mastoid wound and evacuating pus from the sphenoid sinus. Asthma recurred, continuing with varying severity through March. On April 9 she developed diphtheria; she received 5,000 units antitoxin intravenously at 11 P. M. and 5,000 units intravenously at 10 A. M. next day, and 5,000 units intramuscularly at 6:30 P. M.; next day 3,000 units intramuscularly. Cultures were negative after the nineteenth. Urine showed albumin, granular casts, and many leucocytes; all this time the asthma persisted. Complement fixation tests against organisms isolated from tonsils and sputum were positive for a hemolyzing streptococcus and a green producing capsulated streptococcus (probably pneumococcus). The patient was taken to the country about June 1. At first she improved markedly, but about July 10 rheumatism recurred severely as a polyarthritis, erythema nodosum, and carditis with fever. She emaciated rapidly and developed a hematuria, bleeding from the rectum and multiple petechiæ. Urine was markedly diminished and contained blood, much albumin and many casts. The child was stuporous and the whole appearance suggested a malignant infection. A strongly positive complement-fixation test against *Streptococcus viridans* was obtained. Using the father as a donor, patient was transfused first on July 18, receiving 280 c.c. She improved slowly, but remained very ill, and on August 1 was again transfused, 300 c.c. of blood being given. She continued to improve and on August 8 260 c.c. was transfused; on August 15 220 c.c.; on August 22 260 c.c.; on August 29 280 c.c. were transfused. After the last transfusion she developed a general urticaria. Improvement had been steady; diarrhea had ceased and one week later she was out in an automobile, and has since continued in good health. All attempts to connect the asthma with a definite exciting cause had failed. Sputum cultures

showed various kinds of streptococci and pneumococci. Anaphylactic tests of many substances were all negative. Vaccination was encouraging, but by no means convincing. The organisms isolated were all members of the group whose transmutations have been studied by Rosenow.

Dr. Wm. H. Park said the development of the case was full of interest for him in view of work they had been doing recently upon some of the diseases which this child happened to have. It might be of interest to bring up the fact that normal people sometimes had and sometimes had no protective substances in the blood. Schick's intracutaneous toxin test for the presence of diphtheria antitoxin proved antitoxin to be present in 70 per cent. of healthy persons. Schick pointed out that about 80 per cent. of children got antitoxin from their mothers, as infants, which lasted for perhaps one year; a percentage developed it, so that at the end of two years there were less than 60 per cent. with antitoxin. Later in life the percentage again rose. Such persons did not require immunization because they were already immune. Many normal persons were found to have more antitoxin than the average of those who recovered. Some children who had never had diphtheria had as much as 12-15 units of antitoxin. It was a difficult matter to measure antibodies, but undoubtedly normal adult persons carried protective substances. With the usual amount of pneumococci and streptococci in the air passages people carried antibodies antagonistic to them. In the case of the child quoted who had had two injections of 5,000 units intravenously and then one intramuscularly, the results of experiment and observation clearly proved that a single injection of 10,000 units was more effective than those of 5,000. The antitoxin remained in the blood four or five days. When you gave a child 5,000 units that child would have about four units per c.c. during the first 24 hours, enough to neutralize 1,000 times as much toxin as could possibly be present. It was like applying oil and lime water to a burn and expecting the burn to recover without waiting for the necessary time. The diseased tissues took time to recover. At the present time very few children in the Willard Parker Hospital got more than one dose. Dr. Rosenow had done much work upon causing variations in organisms, but other workers found it difficult to believe that one could change one definite organism into another of a definite type. You could rob an organism of its characteristics. You could take a hemolyzing streptococcus and grow it under circumstances which made it less and less hemolyzing, but put it back into animals and it would get back its properties; but it was doubtful if you could change it into a pneumococcus. At to the question of getting vaccine from non-toxic substances, there had been many attempts by Vaughan to split the organism and to use the non-toxic part. In certain diseases the toxic part was the only important one. In others the non-toxic parts might give rise to antibodies which would be bactericidal against the organism, but the results so far were disappointing.

Dr. Meara said that a medical friend had had a severe experience with horse asthma. On the occasion of a tracheotomy for laryngeal diphtheria, the patient coughed and sprayed the doctor who decided to take antitoxin. He had 1,000 units or 3 or 4 c.c. and had an immediate anaphylactic shock as soon as the needle was withdrawn. His asthma became very intense. He was given adrenalin and atropine, but his asthma increased and he became black in the face with intense dyspnea and inability to expire. His lungs were expanded to the utmost extent. They had recourse to the rather severe treatment of squeezing air out of him by brute force. He then had a profuse urticaria. The next day the fascial planes of the neck were markedly emphysematous. He was rendered immune for a time.

Dr. Park said that he knew of two physicians in the past two months who had been subject to horse asthma. They had received antitoxin in small divided doses of 25 c.c. with no bad effects. He added that enough should be given in the first dose, such as 10,000 units to severe cases in children, and in adults 20,000. With these large doses, no toxin remained in the body after a few hours, but the blood contained an enormous surplus of antitoxin.

Dr. Thacher asked if that applied to tetanus antitoxin.

Dr. Park said that it did. Thus in a severe case that finally recovered Dr. Nichols gave a second dose, but bled the child first to find whether it was necessary. The child's blood was found to contain five units in each cubic centimeter. The need of the large dose was not to match the amount of toxin but rather to rapidly gain access to all parts of the body.

Dr. Brannan asked Dr. Park if Dr. McCullum of the Boston City Hospital still gave repeated large doses and what was his maximum total dose.

Dr. Park replied in the affirmative, that Dr. McCullum gave repeated doses of 10,000 units each up to the maximum of 250,000 units.

Dr. Robert A. Cooke said that the case Dr. Meara had presented showed one of the evidences of a reaction that it was customary to regard as an evidence of sensitization of the human to foreign protein, namely, asthma. In this case there had been attempted the determination of a specific factor for the asthma, by means of the cutaneous reaction, later to be described; and Dr. Meara thought it would be of interest to discuss briefly in this connection the studies that had been made in cases of asthma and hay fever during the past three years. He said that his interest in this work had been stimulated by a personal experience with the reaction—its immediate dangers and discomforts as well as the later advantages—and it had occurred to him that the principle of this reaction could be applied as a rational therapeutic measure. Two facts were now generally accepted with regard to the anaphylactic or sensitization state. First, that it was the first step in the process of immunity, and, secondly, that in the human, the clinical type of the reaction depended on the cells that were sensitized. Of the pathogenesis of human sensitizations but little was known. Heredity was, however, an important predisposing factor in the majority of cases. For example, one patient had hay fever of the fall type in association with asthma; her mother had the early type of hay fever and sensitization to fish, and the grandparent, on the same side, was sensitive to horse. Again, a boy of six years had spring hay fever and sensitization to egg; his father had sensitization to egg. In other words, certain individuals inherited a capacity for abnormal bioplastic activities, which might or might not take the same form as those of their affected forebears. But direct inheritance by passive sensitization might also take place. Etiologically considered, asthmatic paroxysms might be specific or non-specific. (a) Specific: due to absorption of native protein from (1) upper respiratory tract, "inhalation asthma"; (2) intestinal tract, "food asthma"; (3) chronic infectious foci, "bacterial asthma." (b) Nonspecific: a heterogeneous group of causes, such as climatic changes, dust, irritating vapors. A careful study of true asthma showed that these factors were not operative in the early stages, but after an individual had developed the asthmatic habit, so to speak, there seemed to be opened up reflex paths along which stimuli from various organs as brain, stomach, intestine might reach the bronchi. Inhalation asthma was the commonest form and was usually associated with coryza, and due to animal or vegetable protein. These latter constituted the well-known cases of hay fever, a few with but usually without asthma. The usual specific factors in the early cases of seasonal coryza and asthma were grasses: timothy, June, red top, rye, wheat; flowers: daisy, dandelion, rose, honeysuckle; trees locust, chestnut. In late cases the inciting agents were ragweed, goldenrod, salt-marsh grass, clematis, aster, and others. The diagnosis was made in general on the history with the final determination of the particular pollens, by means of a cutaneous reaction. A solution of the pollen injected intradermally would, in individuals sensitive to that form of protein, give a reaction beginning in five to twenty minutes, and consisting of an urticarial wheal, surrounded by a zone of hyperemia and usually associated with considerable itching. In non-sensitive cases there was no reaction. These solutions were prepared as follows: The dried and pulverized pollen-iferous portion of the flower was extracted in a weakly alkali-saline solution, precipitated by two volumes of acetone, and the precipitation redissolved in saline. They were standardized by their nitrogen content and doses expressed in fractions of a milligram of nitrogen. One 1/1000 milligram intradermally gave a good positive reaction in sensitized individuals. Having determined the specific factor in any case, he had gone a step further and attempted an active immunization. Some ten years ago Dunbar showed that it was possible, by injections of pollen extract in the horse, to produce a serum which had some therapeutic effect in hay fever. He tried the active immunization in the human, but desisted on account of violent reactions

following injections. Dr. Cooke had to establish his dosage empirically, and, as a result of experience with over one hundred cases, it might be said that an initial dose of 0.01 milligram nitrogen subcutaneously, did not give rise to constitutional symptoms. The best results were obtained in the seasonal cases, by giving four or five injections at week intervals before the attack, and continuing injections every week or ten days until within two weeks of the end of the season. In this way it necessitated about ten injections. Of twenty-five early cases treated the previous year, all were progressing satisfactorily up to July, when about half developed symptoms which were found to be due to pollens of new varieties just coming into bloom. Of eighty late cases, 50 per cent. gave satisfactory results; about 20 per cent. were improved and 30 per cent. no result. In no sense was this immunity permanent and treatment was required each year. There was a group of sensitization cases that he did not believe suitable for immunization, purely on account of the short duration of immunity. This included the cases sensitive to animal emanations and the food proteins. They should avoid the sources of trouble. This applied equally to the cases sensitive to certain perfumes and sachets, as orris. There was still a good deal of work to be done, but the results thus far obtained showed that the procedure was rational and the hyptothesis justified.

Dr. J. A. Miller asked whether in hay fever cases, sensitization to food proteins was a factor. Did the ingestion of certain forms of proteins cause persistance of the asthmatic attacks.

Dr. Cooke said that there was a sensitization to proteins by ingestion in which case that particular protein when ingested would always induce an attack. During an attack of asthma from some other cause, there might be an exacerbation of the trouble from ingested foods, but it was not likely that this was the protein of the food but rather a reflex affair and therefore not specific.

Dr. Miller asked if the diet had to be regulated in these cases.

Dr. Cooke said yes, in those in which diet played a part, whether acting specifically or as non-specific reflex.

Dr. Edward Lindemann said that Dr. Meara had so fully covered the case of the ten-year-old girl, that he could add only a word as to his impressions of the child as he first saw her. He had had considerable experience with many children, as resident at Bellevue, and at a children's hospital in Boston. The child looked to him moribund. Dr. Meara had not expected that anything could be done that would be of service. Blood transfusion was justifiable as a last resort. He was no less surprised at the result than Dr. Meara. From observations on the case in which the prominent conditions were of chronic sepsis, severe anemia and finally multiple petechial hemorrhages secondary to sepsis, and of observations upon five other cases, he was convinced that the transfused blood contained bactericidal elements. An important distinction was to be made between blood and blood serum. In transfusion the passive immunity was greatest, immediately following the introduction of the blood. A modification of the patient's blood took place with the introduction of fresh blood, which seemed to possess the power of inhibiting bacterial action. Later the blood introduced lost its activity and the bacterial activity became renewed; at this point the condition of the patient was unrelieved. With small doses the disease subsided for a time only and then recurred, so that unless blood were introduced repeatedly the bacterial activity was only checked but not removed. The parallelism of anemia to actual resistance was well known. Anemia produced sepsis and sepsis produced anemia in a vicious cycle. In the terms of the red blood cells, the hemoglobin produced an active immunity. Transfusion developed an immunity by destroying the organism causing the disease. In support of this theory he would present a few facts which were well known in work on immunization. The reactions were of different characters and might be briefly summarized: toxins and antitoxins, bacteriolysins, agglutinins, precipitins, cytolysins. The antitoxin immunity was not a bactericidal one. Diphtheria antitoxin, for instance, had no effect on the diphtheria bacillus. Opsonins and phagocytosis were other forms of immunity. Streptococcus and staphylococcus immunity could not be grouped among the toxin and antitoxin group or the cytolysin group, but were to be counted among the phagocytosis group. Rats' blood seemed to be highly immune to anthrax. The immunity did not seem to be embodied entirely in serum; there were other elements which were important factors. Workers in phagocytosis found that when resistance was low the phagocytic power was very low and that when resistance was high the phagocytosis was high. In chronic infections adaptation was another striking feature; for instance, he found that an organism would live with a host for a long time; there was constituted a sort of harmony and this might persist for a long time without injury to the host. Ultimately the host killed the organism or the organism killed the host. The phenomena had caused Welch to raise the hypothesis that just as the individual could form antibodies or protective substances, so could parasites form protective substances against the host. All of these facts went to show that the problems of immunity did not lie entirely with serum but were bound up in other elements of the blood. What has taken place in this case had not only been with blood serum but also a change in the condition of the white cells of the blood and possibly with complement. For instance, if one considered bacteria in certain forms of this immunity, substances known as bacteriolysins were formed. One assumed that bacteria must fix bacteriolysins. This meant diminution of bacteriolysins in the blood and in such cases one expected to find the immunity power of the blood decreased. In fatal infections this was borne out. In the staphylococcus and streptococcus infections the immunity had the nature of opsonic and phagocytic action. There was a change in the complement. Complement played a part in infections. Possibly there was an activity of the actual leucocytes introduced into the whole blood where the patient's own leucocytes were unable to cope with the disease. In streptococcus infections there seemed to be a definite erythrocytolysis or hemolysis of the red cells. In long standing streptococcus and staphylococcus infections extreme anemia was produced by the hemolyzing toxins, elaborated by these organisms. In the whole blood valuable substances were introduced which cured the anemia. Dr. Lindemann reported one case of infection of the uterus going on for several weeks, resulting in hemorrhage and severe anemia and sepsis. After the transfusion the temperature remained practically normal. He showed charts of other cases in which, after the transfusion, the temperature gradually came to normal. In no case of chronic infection that had been transfused did the patient fail to recover. In one case of acute infection in a child of six years there had been a fatal ending, but in acute cases there was a totally different condition to deal with.

Dr. Thacher asked in how many cases of sepsis transfusion failed and in how many was it successful.

Dr. Lindemann said transfusion was successful in all but one of seven cases of sepsis in which he had tried it.

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**Patent Ductus Arteriosus.**—W. Essex Wynter reports the case of a female patient, aged 35, who was admitted on December 19, 1913, for hysterectomy on account of uterine fibroids. The patient had been admitted twice during the past two years, once at St. Mary's Hospital, and once at St. Bartholomew's Hospital; at the former, operation was thought inadmissible on account of the heart condition. The same doubt arose at the Middlesex Hospital, but the view that the murmur was due to a patent ductus having been arrived at, no objection remained either to the operation or to the anesthetic. Total hysterectomy was performed on December 20 by Sir John Bland-Sutton. No trouble was experienced with the anesthetic, the patient bearing the operation well and making a very rapid recovery. The patient had scarlet fever at the age of seven. "Cardiac weakness" had been diagnosed for five years since the third and youngest child was born. With the dysmenorrhea which occurred during that time, there were often associated pseudoanginal attacks. A loud systolic murmur was heard in the third left intercostal space, accompanied by a thrill. There were no appreciable cardiac changes or enlargement. The temperature was normal and there was no dyspnea, even on exertion. The patient played hockey and cricket in girlhood, and activity had not been restricted by the heart condition. No secondary changes, such as enlarged liver or edema, had occurred. By the *x*-ray screen the heart appeared normal in size and position, but there was bulging of the pulmonary artery above the heart shadow (second and third ribs).—*Proceedings of the Royal Society of Medicine.*

## Books Received.

*The* Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

Traitement Efficace et Pratique de la Tuberculose Pulmonaire. Par le Dr. J. F. Larrieu. Paper; 62 pages; price 2 francs. Librairie Vigot Frères, Paris.

Diseases of the Heart. By John Cowan, D.Sc., M.D., F.R.F.P.S. Cloth; illustrated; 438 pages. Lea & Febiger, Philadelphia and New York.

Twelfth Annual Report of the Bureau of Science to the Honorable the Secretary of the Interior. By Alvin J. Cox. For the year ending June 30, 1913. Paper; illustrated; 131 pages. Bureau of Printing, Manila.

Recent Studies of Tuberculosis. Medical Symposium Series, No. 3. A reprint of articles published in the *Interstate Medical Journal*. Paper; illustrated; 299 pages; price $1.50. Interstate Medical Journal Company, St. Louis, Mo.

Blood-Pressure in Medicine and Surgery. By Edward H. Goodman, M.D. Illustrated; cloth; 226 pages. Lea & Febiger, Philadelphia and New York.

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Collected Studies from the Bureau of Laboratories, Department of Health, City of New York. Dr. William H. Park, Director. Volume VII, 1912-1913. Paper; illustrated; 463 pages.

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Die Prognosenstellung bei der Lungentuberkulose. By Dr. D. O. Kuthby and Dr. A. Wolff-Eisner. Illustrated; paper; 572 pages; price $4.50. Urban & Schwarzenberg, Berlin and Wein.

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The Simpler Natural Bases. By George Barger, M.A., D.Sc. Price, $1.80 net; cloth; 215 pages. Longmans, Green & Company, London, New York, Bombay, and Calcutta.

## Therapeutic Hints.

**The Medicinal Treatment of Acute Bright's Disease.**—Norbert Ortner states that tannin has long been a favorite drug in the reduction of albuminuria. It is strongly recommended by Pribram of Prague in the following prescription:

℞ Sodium tannate, 0.10 to 0.20 gram.

This dose should be given in cachet form. Three to five cachets should be given daily. Not more than 1 gram a day should be administered. Ortner has repeatedly tried this prescription but without marked success. In his experience with subacute nephritis after scarlet fever, he has often used quinine tannate as follows:

℞ Quinine tannate 0.10 to 0.20 gram.

This drug should also be given in cachet form, two to four times a day. Ortner has more recently used tannalbin, 2 to 3 grams a day, but without affecting in the least the progress of the disease as such:

℞ Tannalbin, 1 gram.

This may be given in a cachet two or three times a day. But Ortner now prefers the alkalies to tannin, particularly bicarbonate of sodium, 6 to 8 grams a day, or lithium benzoate or carbonate, 1 to 2 grams. Their administration has repeatedly been followed by a rapid increase in the amount of urine and decrease in its blood content. The alkalies also reduce the congestion. Almost all other drugs recommended have even less in their favor than tannin and tannalbin. Provisionally, methyl violet or methylene blue, 0.10 gram in wafers, or sodium benzoate may be employed for their bactericidal effect. Methyl violet possibly also reduces the albuminuria. Sodium benzoate may be prescribed as follows:

℞ Sodium benzoate, 3 to 4 grams.
Distilled water, 170 grams.
Syrup of orange, 20 grams.

Of this solution one tablespoonful should be given every two hours. The salts of strontium have been strongly recommended by French authors and have been tried in Vienna on Drasche's recommendation. Strontium bromide, strontium nitrate, and strontium lactate are used, the last most frequently. It is prescribed as follows:

℞ Strontium lactate, 6 to 8 grams.
Distilled water, 170 grams.
Syrup of orange, 20 grams.

Of this solution one tablespoonful should be given every two hours. Ortner considers that a venesection, taking 300 c.c. of blood from the vena pediea according to Baccelli's procedure is more effective than is the use of any styptic. In a short time, sometimes in 24 hours, it will reduce the blood content of long standing to a mere microscopic trace or may even cause it to disappear entirely from the urine.

**A New Solution of Iodine.**—Giovanni Zanetti has found that benzol is an excellent solvent for iodine, and furnishes a preparation that is quite efficacious for surgical antisepsis. A 10 per cent. solution of iodine in benzol is called by the author "iodo-benzol." This solution penetrates the skin with greater ease than does tincture of iodine. The advantages of the benzol solution are, in addition, the facts that it contains a high percentage of iodine, that it has a marked stability, and that it is much cheaper than the alcoholic solution of iodine, that is commonly used for surgical purposes.—*Il Policlinico.*

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## Original Articles.

### THE SERVICE OF MEDICINE TO CIVILIZATION.*

BY VICTOR C. VAUGHAN, M.D.,

ANN ARBOR, MICH.

PRESIDENT OF THE AMERICAN MEDICAL ASSOCIATION.

FELLOW members of the American Medical Association: I wish to express my appreciation of the honor conferred on me in being called to officiate as your President at this time. I had been content to serve in the ranks, and I have regarded this position as too honorable to be sought, or to be lightly regarded when spontaneously bestowed. During my term of office I will give you my most devoted service.

In ancient times, civilization was born, grew for a few generations and fell into decay. In all instances it was local and covered only small areas. Its habitations were oases in the world-wide desert of ignorance and superstition, and after an ephemeral existence all were buried in the sand. Relatively small bodies of men occupying salubrious regions developed the elements of science and for a few centuries flourished. Their superior knowledge gave them dominion over their less fortunate neighbors, who were converted into slaves. Conquest brought disease and the local civilizations were obliterated by contagion. History is replete with instances in which triumphant heroes have brought to their rejoicing countries with their prisoners of war invisible and intangible agents of death, which have ultimately vanquished the victors.

The Egyptians of the Pharoahs drained the land, built aqueducts, disposed of their dead hygienically, reared temples and cities, maintained law and order, developed the elements of literature and science and devised and employed simple machinery. In speaking of the ancient Egyptians, Diodorus says: "The whole manner of life was so evenly ordered that it would appear as though it had been arranged by a learned physician, rather than by a lawgiver." Herodotus declared ancient Egypt the healthiest of countries, but filled with physicians of whom "one treats only the diseases of the eye, another those of the head, the teeth, the abdomen, or the internal organs." Writing of a later time, Gibbon said: "Ethiopia and Egypt have been stigmatized in all ages as the original sources and seminary of the plague." It is evident that in the time of its great civilization Egypt was salubrious; coincident with the decline in the learning and wisdom of its people it was visited and desolated by pestilence. That Egypt had lost its salubrity as early as the period of the exodus of the Israelites is shown by many passages in the Bible in which the chosen people are threatened with the diseases of Egypt if they neglect or violate the laws. Moses, "learned in all the wisdom of the Egyptians," codified his sanitary rules and regulations in the form of religious rites and ceremonies and thus secured their observance among the faithful even down to the present time.*

The Greek developed the most glorious civilization of antiquity because he was the most ardent student of science, but he was unable to cope with malaria and bubonic plague, and his descendants have been in bondage to malaria for nearly twenty-four centuries. The medicine of Hippocrates, the wisdom of Socrates, the philosophy of Plato, the plays of Aristophanes, the laws of Pericles, and the science of Aristotle could not save the Greek from the degrading effects of disease, and under its withering influence the civilization of this great people slowly but surely decayed. Its matchless marbles were thrown into the waste, its magnificent temples were allowed to crumble, its altars were deserted, its literature became insipid, its philosophy lost its virility, its science was forgotten, and the children of this blighted civilization were sold in the slave markets of Rome and in later generations paid tribute to the Slav and the Turk. There certainly were eminent Greek scientists and physicians for centuries after Hippocrates, but they were not products of Greek soil. They developed in Asia Minor, Egypt, Italy, and elsewhere. It is of interest to note in this connection that malaria, according to Jones, was introduced into Greece in the fifth century, B. C., and the fourth century showed the decline of Hippocratic medicine. Neuburger says: "The sons and grandsons of Hippocrates, as well as his immediate disciples, Apollonios and Dexippos, were at the head of that series of physicians who laid emphasis upon theoretical conjecture and gave to medicine in the fourth century B. C. its speculative coloring." Taken with the fact that other departments of learning showed similar retrogression at the same time, this sequence between the introduction of malaria and the trend of medicine toward speculation is worthy of record. That pestilence aided the barbarians in the final desolation of Greece is indicated by the following quotation from Thumb:

* President's address before the American Medical Association, at the Sixty-fifth Annual Session, Atlantic City, June, 1914. From advance proof through the courtesy of the editor of the *Journal of the American Medical Association.*

*Neither the papyrus of Ebers nor that of Brugsch throws any light on the problems discussed in this article. Indeed the value of both these papyri was at first overestimated. They are now regarded as compilations and consist largely of lists of remedies and furnish no information concerning epidemics or their effects upon the people, except to indicate that hookworm or bilharzia infection, one or both, at that time (about 1500 B. C.) afflicted the Egyptians. These parasites may have contributed to the deterioration of the people: this is a suggestive possibility.

At a time when the German tribes began moving, that is to say, at the end of the third century A.D., a gradual immigration of Slavonic tribes into the Balkans began; their invasions became more and more frequent, since the Goths chose Western Europe as the goal of their conquering expeditions and left to the Slavs an open passage into the Balkan countries. But a real Slavonization of some Greek territories took place only in the eighth century, and attained its highest point when a horrible plague in 746 depopulated the Greek territories.

I am aware of the fact that some have objected to considering the present inhabitants of Greece as descendants of ancient Greeks. The former have been designated as "so-called Greeks," "a bastard people," "a mosaic of Vlacks, Arnauts, and Slavs." Some years ago Fallmerayer made the very positive statement that "no drop of ancient Greek blood flows in the veins of the modern Greek." Thumb has shown the absurdity of these statements and declares that cranial measurements, local names, customs, and religion show that while some admixture with the Slav has taken place, the modern Greek is a lineal, and on the whole a fairly pure descendant of those who established the greatest civilization of antiquity. Modern Greek Christianity is only a modification of ancient Greek paganism, in which gods have been supplanted by saints. "Charon the old ferry-man in the underworld is to-day the god of death; he conducts the souls in a dreary procession to his realm. As in antiquity, a copper coin is put into the mouth of a dead person as a fee for the ferry into the other world. The ancient Moirai or fates (to-day, Mires) still determine the fate of the new-born child, spin and cut the thread of life. The bride is conducted into her new home, the dead are buried with ceremonies which the Greeks used already two thousand years ago. A sick person seeks recovery by lying down to sleep in the church of a saint, like those persons who once made a pilgrimage to the temple of Asklepios in Epidaurus. The Greeks of to-day are descendants of the ancient Hellenes, not in the sense in which every modern Greek could trace his origin back to an ancient Athenian or Spartan, but in the sense that in the modern people ancient blood flows largely and in some districts almost purely, and still more in the higher sense that the modern race shows a development of the Greek population of the ancient world."

The broken remnants of older civilizations found refuge and asylum in the salubrious climate of the Italian peninsula and soon its hillsides were covered with vines and olives while its plains and valleys bore abundant harvests. Rome was built and her empire promised to extend to the remotest parts of the world, but the ancient Roman contributed but little to science, and we are told by the historian that "a pestilence raged for fifteen years (251-265) and carried off one-half of the inhabitants of the Empire." The seat of civilization was moved to the shore of the Bosphorus, but the lamp of science was well-nigh extinguished and the clouds of the middle ages enveloped the world and shrouded its inhabitants for more than a thousand years. "A fabulous and formless darkness overcame the fairest things of earth."

If one reads the history of the decline of the Roman Empire, he can hardly fail to see that disease was an important factor in that retrograde movement, which involved the greater part of the then known world. Jones and Ross find the earliest reference to malaria among the Romans in the comedian Plautus, who died 184 B. C., and they quote Terence, who died 159 B. C., and whose language is explicit in showing not only the prevalence of malaria, but also the recognition of the different forms. From that time on, reference to the wide prevalence of malarial diseases, not only in the open country, but also in the city, is frequent and definite. Jones says:

There is then, every reason for supposing that malaria was unknown in Italy in early times, was well known at the beginning of the second century B. C., and that it gradually became more common during the next two hundred years. If this be so, it is at least a plausible conjecture that it was introduced by Hannibal's Carthaginian mercenaries. Africa seems to have been the original home of the disease, and it is probable that some of his troops were infected. The constantly repeated devastation of Italy in the second Punic war would be sure to turn a large part of it into marshy land, thus affording a convenient breeding-place to the mosquitos which were infected by the malarial patients among the Carthaginians. The similar conditions of Attica during the closing years of the fifth century B. C. offers a striking parallel. This opinion does not rest on mere conjecture. We are told by Livy that in the year 208 B. C. a severe epidemic attacked Italy. It did not cause many deaths, but resulted in much lingering disease, that is, most probably, chronic malaria.

Malaria, however, was not the only disease which contributed to the degeneration of the Roman people. I have already referred to the pestilence of the third century, which is said to have destroyed half the inhabitants of the vast empire within fifteen years. This certainly was not malaria. Moreover, this was not the first great pestilence which afflicted the Roman Empire. Neuburger says:

The "plague," so called by Galen or Antonine, was first introduced from Syria by the Roman army. . . . The extraordinary contagiousness of the epidemic is emphasized in all contemporary reports. There appear to have been a variety of simultaneous manifestations, the descriptions indicating afflictions chiefly resembling smallpox, or dysentery, but adequate criteria on which to express an opinion are wanting. The "plague" commenced 165 A. D., claimed innumerable victims and lasted at least fifteen years.

Jerome writes: With peace, order and good government, a curious lethargy fell on the warrior state deepening into a coma in which it died so quietly that neither the contemporaries nor we moderns can fix the date of the decease. The fact, however, finally became apparent when the phenomena of decay were indubitable and the world, deprived of the master, fell back helplessly into a condition hardly more advanced than in the ages before its subjection, save that it had the imperishable memory of Rome to give it hope, direction and courage.

In the fourth century the seat of government was removed to Byzantium. It is probable that this change was, in part at least, determined by the insalubrity of Italy. Early in the fifth century Rome was pillaged, but the real conquerors of Rome were not the Goths and Vandals, but malaria and the plague. Disease continued to devastate Italy. Creighton says:

About the year 668 the English archbishop-elect, Vighard, having come to Rome to get his election confirmed by the pope, Vitalanius, was soon after his arrival cut off by the pestilence with almost all who had gone with him. Twelve years after, in 680, there was another severe pestilence in the months of July, August, and September, causing a great mortality at Rome and such a panic at Pavia that the inhabitants fled to the mountains. In 746 a pestilence is said to have advanced from Sicily and Calabria and to have made such devastation in Rome that there were houses without a single inhabitant left.

From that time on the plague periodically spread over Italy until the seventeenth century, while malaria has been in continuous possession down to our own time. We are told that the epidemic of 1348 reduced the inhabitants of the Eternal City to 20,000.

We are familiar with the graphic description of the plague in Florence by Bocaccio, who wrote:

Such was the cruelty of Heaven, and perhaps of men, that between March and July following, it is supposed, and made pretty certain, that upwards of a hundred thousand souls perished in the city only, whereas, before that calamity, it was not supposed to have contained so many inhabitants. What magnificent dwellings, what noble palaces were then depopulated to the last person, what families extinct, what riches and vast possessions left, and no known heir to inherit, what numbers of both sexes in the prime and vigor of youth —whom in the morning neither Galen, Hippocrates, nor Esculapius himself, but would have declared in perfect health—after dining heartily with their friends here, have supped with their departed friends in the other world.

There are but few passages in literature so tragic as the short record of the plague of the fourteenth century begun by the friar of Kilkenny, but soon interrupted by his death:

I friar, John Clyn, of the order of Friars Minor and of the convent of Kilkenny, wrote in this book those notable things which happened in my times, which I saw with my eyes, or which I learned from persons worthy of credit. And lest these things worthy of remembrance should perish with time and fall away from the memory of those who are to come after us, I, seeing these many evils, and the whole world lying, as it were in the wicked one, *among the dead, awaiting death*—as I have truly heard and examined, so have I reduced these things to writing; and lest the writing should perish with the writer, and the work fail altogether with the workman, I leave parchment for continuing the work, if haply, any man survive, and any of the race of Adam escape this pestilence and continue the work I have commenced.

That the period of the Byzantine Empire (395-1453) was one of general degeneracy is shown on every page of the historian. It produced no literature of merit, and "the study of nature was regarded as the surest symptoms of an unbelieving mind." Neuburger says:

The Byzantines merely followed the downward path. Surfeited with tradition, which made modes of thought appear inevitable, because customary, filled as a nation with overweening self-conceit, fed by the glories of the Graeco-Roman past, they neither could nor would destroy the historic bridge nor replace the crumbling ruin with a new edifice. It lay outside the sphere of their interests to enter into that conscious emulation of antiquity which, emphasizing the growing contrast between past and present, and eliminating the obsolete and the inert, is the essence of mental cultivation. Forgetting that it was the free development of the national spirit which constituted the greatness of the past, they went so far as to smother its liveliest expression by denying, in their rigid adherence to Attic speech, all part in literature to the language of the people. The more incapable did the Byzantines become of grasping the spirit, the more tenaciously did they cling to the letter—a reflection of the mania for titles and ceremonies in political life—and thus they dragged the inanimate mechanism, the dry bones of antiquity through a thousand years, instead of erecting a new edifice on the foundations of antiquity.

The physician and historian, Procopius, in his account of the great pestilence in the reign of Justinian "emulated the skill and diligence of Thucydides in the description of the plague at Athens." Of this epidemic Gibbon says:

In time its first malignancy was abated and dispersed; the disease alternately languished and revived; but it was not till the end of a calamitous period of fifty-two years, that mankind recovered their health, and the air resumed its pure and salubrious quality. No facts have been preserved to sustain an account, or even a conjecture, of the numbers that perished in this extraordinary mortality. I only find that during three months, four and at length ten thousand persons died each day at Constantinople, that many cities of the east were left vacant, and that in several districts of Italy, the harvest and the vintage withered on the ground. The triple scourge of war, pestilence and famine afflicted the subjects of Justinian, and his reign is disgraced by a visible decrease of the human species, which has never been replaced in some of the fairest countries of the globe.

This epidemic spread over the whole of Europe and it took more than a century to reach England, where "it fabled long after in prose and verse as the great plague of Cadwalladers time." Then for quite a thousand years it reaped its periodic harvests as often as immunity was lost in new generations.

The historian, as a rule, confines his descriptions to martial and political events and consequently gives a wholly erroneous idea of true conditions. Gibbon says: "If a man were called upon to fix the period in the history of the world, during which the condition of the human race was most happy and prosperous, he would without hesitation, name that which elapsed from the death of Domitian to the accession of Commodus" (from 96 to 180 A. D.). Noah Webster, in his work on epidemics and pestilence, quotes the preceding with the following just comment:

It is certain that, at this time, the Roman Empire was in its glory, and governed by a series of able and virtuous princes, who made the happiness of their subjects their principal object. But the coloring given to the happiness of this period is far too brilliant. The success of armies and the extent of empire do not constitute exclusively the happiness of nations; and no historian has a title to the character of fidelity, who does not comprehend, in his general description of the state of mankind, moral, and physical, as well as political evils.

Let us make brief inquiry into the diseases of this "most happy and prosperous" period. It was preceded by, it begun in, continued in, and closed in pestilence. That the plague was endemic in Italy at that time and that it developed in epidemic form with each increase in susceptible material there can be no doubt. Of the epidemic of 68 A. D. Tacitus says:

Houses were filled with dead bodies and the streets with funerals; neither age nor sex was exempt; slaves and plebeians were suddenly taken off, amidst the lamentations of their wives and children, who, while they assisted the sick, or mourned the dead, were seized with the disease, and perishing, were burned on the same funeral pyre. To the knights and senators the disease was less mortal, though these also suffered in the common calamity.

About this time the plague appears to have spread over the whole of Asia, northern Africa and Europe. According to Short, the deaths from this disease in Scotland between 88 and 92 A. D. amounted to not less than 150,000. This was probably not less than one-fourth, possibly one-half, the population of Scotland at that time.

In the year 80 A. D. the deaths from the plague in Rome at the height of the epidemic numbered 10,000 a day. It is estimated that the population of Rome at that time was somewhat more than one million. Exacerbations of the disease in Rome are recorded for the years 102, 107, and 117 A. D. According to Short, 45,000 died of the plague in Wales in 114. The year 167 A. D. is noted for an unusually severe outbreak of the plague at Rome, where it continued for many years. In the year 173 A. D., the Roman army was threatened with extinction by disease, and special epidemics, or rather exacerbations of the epidemic, prevailed in Rome in 175 and 178 A. D. That the "happy and prosperous" period was followed by a continuation of

the plague is shown by the following quotation from Herodian:

A great pestilence raged throughout Italy at that time (about 187 A. D.), but with most violence in the city, by reason of the great concourse of people assembled from all parts of the earth. The mortality among men and cattle was great. The Emperor, by advice of physicians, retired to Laurentium, on account of the coolness of the place, which was shaded with laurels. It was supposed that the fragrance of the laurels acted as an antidote against the contagion. The people in the city also, by the advice of physicians, filled their noses and ears with sweet ointments and used perfumes, etc.

Under the spell of the historian we have been inclined to regard the period when the greater philosopher, Marcus Aurelius Antoninus, sat on the throne of the world, as the golden age. Let us therefore listen to a few words from his personal attendant, courtier and historian, who writes:

Unless he, M. Antoninus, had been born at this juncture, the affairs of the empire would have fallen into speedy ruin; for there was no respite from military operations. War raged in the east, in Illyricum, in Italy, and in Gaul. Earthquakes with the destruction of cities, inundations of rivers, frequent plagues, a species of locusts ravaging the fields; in short every calamity that can be conceived to afflict and torment man scourged the human race during his administration.

It is estimated that during the dark ages the average of human life was less than twenty years. A high birth-rate was necessary to keep the race alive, but notwithstanding this, Europe was sparsely inhabited. At the time of the Norman Conquest the inhabitants of England numbered between two and two and one-half million, probably nearer the former, for they had not reached the greater number a hundred years later. Creighton says: "It would be within the mark to say that less than one-tenth of the population was urban in any distinctive sense of the term. After London, Norwich, York and Lincoln, there were probably no towns with five thousand inhabitants." Indeed, urban life, as we now know it, was quite impossible in this age of pestilence and would soon become so again were the functions of preventive medicine related.

Most of the great epidemics of the middle ages were designated as *pestilentia* or *magna mortalitas*. In the most deadly visitations the bubonic plague is so accurately described that there can be no doubt about its identity, but it must not be supposed that the people enjoyed any high degree of health even in those periods when this contagion languished on account of exhaustion of susceptible victims. Ergotism, under the name of Saint Anthony's fire, was endemic in France and adjacent territories; Normandy was filled with lepers, but Christ's poor were not confined to that country. England was regarded as the special home of hunger, but abundance was a stranger to the masses in every land. The mysterious sweating sickness, apparently brought to England with Henry Tudor in 1485, developed in five distinct epidemics which were characterized by the fact that the mortality was greater among the rich than the poor. Typhus, known as *morbus pauperum*, prevailed largely in the jails, on ships, and among the squalid inhabitants of the cities. Even the discovery of America carried to Europe the scourage of syphilis, which was spread over Italy by the soldiers of Charles VIII, and within a few years reached the most distant parts of Europe. Smallpox appeared in England in the sixteenth century, having journeyed, according to the most reliable authority, all the way from the Orient. That tuberculosis, diphtheria, dysentery, and other diseases, still with us, prevailed during the middle ages is shown by the records, but they were overshadowed by the higher mortality of those mentioned above. Improved agriculture has extinguished the fire of St. Anthony, except in the most benighted provinces of Russia. The great fire in London in 1666 destroyed the infected rats and relieved England of the bubonic plague, which had been endemic in that country since 1349. Something more than one hundred years later the discovery of Jenner robbed smallpox of its horrors, wherever vaccination is properly enforced. The investigations of Howard improved the sanitation of jails and workhouses, and did much to eradicate typhus.

The claim has been advanced that the infectious diseases have benefited the race by the destruction of the unfit. This idea I have combated most vigorously since our study of typhoid fever in the Army in 1898. My colleagues and I found that out of 9,481 soldiers who had previously been on the sick report and could not be regarded as possessing standard health 648, or 6.8 per cent., contracted typhoid fever; whereas, out of 46,384 men who had no preceding illness, 7,197, or 15.3 per cent., developed typhoid fever. More than 90 per cent. of the men who developed typhoid had no preceding intestinal disorder. Under ordinary conditions the strong, busy man, especially the one whose activities demand wide excursions from his home, is more likely to become infected than the one whose sphere of action is more limited on account of infirmity. The reason for this is too obvious to need statement, and it follows that more men than women and more adults than children have typhoid fever. Moreover, the case mortality is greater among the strong, because death in the infectious diseases is often due to the rapidity with which the invading organism is broken up by the secretions of the body cells and the protein poison made effective. From this I have concluded that contagion, like war, destroys the very flower of the race. This view is sustained by the historians of the pestilences of former times.

Thucydides in his description of the plague at Athens says: "Moreover, no constitution, whether in respect of strength or weakness, was found able to cope with it; nay, it swept away all alike, even those attended to with the most careful management."

Procopius in his account of the Justinian epidemic states that youth was the most perilous season, and females less susceptible than males.

Cogan, in describing the outbreak of typhus at Oxford in 1577, writes: "The same kind of ague raged in a manner over all England, and took away very many of the strongest sort, and in their lustiest age, and for the most part, men and not women and children, culling them out here and there, even as you would choose the best sheep out of a flock."

In his account of the plague of 1665 in London, Boghurst makes the following statement: "Of all the common hackney prostitutes of Luteners-lane, dog-yard, cross-lane, Baldwins-gardens, Hatton-gardens and other places, the common criers of oranges, oysters, fruits, etc., all the impudent drunken, drubbing bayles and fellows and many others of the *rouge route*, there is but few missing—verifying the testimony of Diemerbroech that the plague left the rotten bodies and took the sound." Like testimony comes from an account of the plague at Moscow: "Drunkards and persons of

feeble temperament were less subject to attack."

Davidson observed that typhus fever was more frequent among the robust than the weak. He states that out of 429 cases the spare and unhealthy taken together made only about 17 per cent. He adds that the death-rate among the poor was one in twenty-three, while among the well-to-do it was one in four. The greater mortality of typhus among the higher classes has been noted by Barber and Cheyne and by Braken.

Hurty, nearly a century ago, wrote: "A fever which consigns thousands to the grave, consigns tens of thousands to a worse fate—to hopeless poverty, for fever spares the children and cuts off the parents, leaving the wretched offspring to fill the future ranks of prostitution, mendicancy and crime."

Creighton says:

The best illustrations of the greater severity and fatality of typhus among the well-to-do come from Ireland in times of famine, and will be found in another chapter. But it may be said here, so that this point in the natural history of typhus may not be suspected of exaggeration, that the enormously greater fatality of typhus (of course, in a smaller number of cases) among the richer classes of the Irish families, who had exposed themselves in the work of administration, of justice, or of charity, rests on the unimpeachable authority of such men as Graves, and on the concurrent evidence of many.

A surgeon in the British navy at the time of William III and Anne tells how he was led to practise bleeding in fever as follows:

I had observed on a ship of war, whose complement was near 500, in a Mediterranean voyage in the year 1694, when we lost about 90 or 100 men, mostly by fever, that those who died were commonly the young, but almost always the strongest, lustiest, handsomest persons, and that two or three escaped by such natural hemorrhages, which were five or six pounds of blood.

The middle ages were indeed dark physically, intellectually, and morally. Here and there, now and then, some man of genius towered above the general low level of his contemporaries and not infrequently he paid dearly for his audacity. For some centuries the Arab, especially in Spain, stood out alone as the torch-bearer of science, and he, when driven back into the insalubrity of Northern Africa, lapsed into barbarism. Neuburger writes:

Fortunately the fate of medieval medicine was not dependent on Byzantium alone. An admirable illustration of the doctrine of conservation of energy is afforded by the fact that, with the decline of intellectual energy at home, a contemporaneous development of Greek medicine took place abroad, which, if at times misguided, was yet full of vitality, whilst the medical art of the newly arisen world of Islam reached a height unsurpassed during the middle ages.

In the greater part of Europe, ignorance and disease held full sway. In the midst of great calamities "the will-o-the-wisp of superstition is an irresistible attraction and offers the only ray of hope." Strong men, neglectful of their earthly duties, betook themselves to secluded places and lost themselves in dreams of a heavenly paradise. Mysticism, fanaticism, and superstition dominated all conditions of men. Rulers, illiterate, immoral, and even incestuous, occupied palaces while the masses died of starvation. The history of the time is a record of diseased, degenerated, demented man. There can be no doubt that disease has overthrown civilizations in the past, and there is no surety that it may not do so again. The recent outbreak of the plague in Manchuria and its more recent appearance in Cuba are not without their warnings. It remains to be seen if those who control our government have the intelligence necessary to protect our country against the invasion of pestilence. The failure to provide for camp sanitation in 1898, the behavior of California officials on the finding of plague in San Francisco, and the general indifference of national and state authorities toward the eradication of disease discouraged the hope that intelligent patriotism is widely distributed among us. As a contemporary of Mr. Dowie and Mrs. Eddy and as a citizen of a country in which the osteopath and chiropractic flourish, I feel some embarrassment in speaking of the fanaticism and ignorance of the dark ages.

The history of medicine is that of mankind. Born in naked ignorance, bound in the swaddling clothes of credulity and nursed on superstition, medicine has had its savants and its fakers, its triumphs and its failures, its honors and its disgraces. It has attracted and still attracts to its ranks men of the purest motives and those who are impelled by the basest desires. It can be said without fear of contradiction that medicine has done more for the growth of science than any other profession, and its best representatives in all ages have been among the leaders in the advancement of knowledge, but the average medical man conforms in intellect and character to the community in which he lives. The food of the faker is ignorance and he thrives where this commodity is most abundant. The uncontrolled fool moves to his own destruction. This is the only way in which Nature can eliminate him. A wise government protects its incompetents from medical and other fakers, but such government can exist only where wisdom predominates.

A study of epidemics shows that in the presence of widespread contagion mankind in the mass tends to revert to the barbaric state. This is the unvarying testimony of all authorities, medical and lay, secular and religious, who have made the records. The historian Nibuhr, in discussing the report on the plague in Athens by Thucydides says: "Almost all great epochs of moral degradation are connected with great epidemics." F. A. Gasquet, abbot president of the English Benedictines, in his history of the black death, writes: "The immediate effect on the people was a religious paralysis. Instead of turning men to God, the scourge turned them to despair, and this not only in England, but in all parts of Europe. Writers of every nation describe the same dissoluteness of manners consequent upon the epidemic." A Venetian historian notes the general dissoluteness which followed the disease and its effects in lowering the standard of probity and morals. Covino of Montepellier bears testimony of the baneful effects of the scourge on the morals of those who escaped, and concludes that such visitations exercise the most harmful influence on the general virtue of the world. William of Nangis, in his history of the plague in France in 1348, concludes with the following:

But alas! the world by this renovation is not changed for the better. For people were afterwards more avaricious and grasping, even when they possessed more of this world's goods than before. They were more covetous, vexing themselves by contradictions, quarrels, strifes, and lawsuits.

Many similar references could be given, but these suffice to show that disease breeds ignorance, immorality, and strife. Our inquiries into the influence of disease on civilization, however, have brought out the fact that people living in compara-

tive health have within a few generations made beginnings, at least, some, highly creditable, in government, literature, and science. The Hellenic tribes of Greece built up their wondrous civilization within a few centuries. It is true that Rome was not built in a day, but the seven hills were covered with houses and temples, the great aqueducts brought abundant supplies of pure water from the mountains and the wonderful sewers remain as evidence of sanitary skill, and all this was accomplished in a relatively short period measured in the history of the race. The world moved forward at a rapid pace with the dawn of science in the last century. It is not extravagant to prophesy that with ten centuries of freedom from disease, both inherited and acquired, the world would be regenerated and the superman be born.

It is not necessary to turn to history for examples of the degrading effects of disease on man. We see it to-day in the physical inferiority, intellectual weakness, and moral irresponsibility of those peoples who are still under the domination of malaria and kindred diseases. My illustrious predecessor in this office, Dr. Gorgas, has demonstrated what scientific medicine may accomplish in these pestilential regions, and it is within reason to look forward to the time when the tropics may supply choice locations for civilized man. In like manner the valleys of the Tigris and Euphrates are being reclaimed and Babylon and Nineveh may again become seats of learning and culture. The modern sanitarian is quite competent to rebuild the home in which the cradle of civilization was rocked.

After the last epidemic of the plague in London in 1665 the death rate, so far as it can be ascertained, fell to between 70 and 80 per 1,000. During the next century it fell as low as 50, but fluctuated with recurring epidemics of typhus and smallpox. In the nineteenth, it gradually and quite constantly decreased and is now about 14. In 1879-80, the first year in which the mortality statistics of the United States possess sufficient accuracy to be of any value, the death rate in the registered area was 19.8; in 1912 it was 13.9—a decrease of 30 per cent. During the same time the mortality from typhoid fever has decreased 50 per cent.; that from scarlet fever 89 per cent.; that from diphtheria 84 per cent.; that from tuberculosis 54 per cent. Hoffman states that had the death rate for tuberculosis in 1901 continued there would have been 200,000 more deaths from this cause from that date to 1911 than actually did occur, or the actual saving of lives from death by tuberculosis accomplished in that decennium averaged 20,000 per year. A battle in which 20,000 are slain stirs the world at the time and fills pages of history later. Preventive medicine measures its successes by the number of lives saved, and 20,000 a year preserved from death from one disease is no small triumph. In the last century the average of human life has been increased fifteen years and this increase could be duplicated in the next twenty years if the facts we now possess were effectively employed.

Hoffman further states that the addition to the material wealth of this country secured by the reduction of deaths from tuberculosis within ten years amounts approximately to 6,200,000 years of human life, covering its most productive period. Medicine discovered the facts which have made this great work possible and has directed their application. With evidence of this kind before them, will our lawmakers listen to those who demand recognition as practitioners of medicine without proper qualification?

The further developments of medicine, both curative and preventive, depend on scientific investigations. The public is the beneficiary and should in every way encourage medical research. By the application of discoveries already made, the burden of disease has been lightened, sickness has become less frequent and less prolonged, a greater degree of health has been secured, the efficiency of the individual and of the nation has been increased, and life has been prolonged and made more enjoyable. The federal government and the states should sustain and promote scientific research. That government is the best which secures for its citizens the greatest freedom from disease, the highest degree of health, and the longest life, and that people which most fully secures the enjoyment of these blessings will dominate the world.

Medicine consists of the application of scientific discovery to the prevention and cure of disease. All else which may go under the name of medicine is sham and fraud. Without advancement in the physical, chemical, and biological sciences there can be no progressive movement in medicine. Scientific knowledge is gained only by observation and experiment. Before the time of Jenner, we are told by the historian, it was unusual to meet in London one whose face was not marked by smallpox. There was a popular belief that one who had cowpox was immune to smallpox. Jenner put this belief to a scientific test and the result was the discovery of vaccination, and this secured the abolition of this disfigurement and a marked reduction in mortality.

In 1849, a village doctor, with a crude microscope, studied the blood of animals sick with anthrax and compared it with that of healthy ones. He discovered the anthrax bacillus. This work was extended by Daviane, Pasteur, Koch, and others, and from this the science of bacteriology has been developed. The particulate causes of many infectious diseases have been recognized, isolated, and their effects on animals demonstrated. Many of the mysteries of contagion have been revealed and the conditions of the transmission of disease made known. The fundamental principles of preventive medicine have been developed into a science which is to-day the most potent factor in the progress of civilization.

Finlay suspected a certain mosquito to be the carrier of the virus of yellow fever. Reed and his coworkers demonstrated the truth of this theory, and the work of Gorgas has freed Havana from the pestilence, and the construction of the Panama Canal is an accomplished fact.

We are sorry for the Greek, whose bodily health, mental strength, and moral sense were depressed by the invisible and insidious organisms of malaria, and truly his memory deserves our sympathy. He had no microscope, and how could he detect or even suspect that the mosquitos which had annoyed his ancestors for generations had armed their lancets with deadly poison brought from Africa? The Greek had never heard of quinine and the other cinchona alkaloids. He did not know the land whose forests were even then elaborating those products, which, centuries later, were of greater value than gold to man, and proved to be an essential help in the uplift of mankind. Laveran discovered the *Plasmodium malariæ*. Ross studied its life history and the fetters of this disease, which has so long retarded the progress of man, have been broken.

Mitchell and Reichart investigated the poisonous properties of snake venon. Sewall immunized animals with it. Ehrlich studied the similar bodies, abrin, ricin, and diphtheria toxin, and von Behring and Roux gave the world antitoxin, the magical curative value of which has greatly reduced the mortality from this disease. The experiments of Villemin demonstrated the contagious nature of tuberculosis, long suspected and frequently denied. The diligent research of Koch resulted in the recognition and isolation of the causative agent, and since this discovery the mortality of the Great White Plague in Europe and the United States has been diminished more than half, and it is within the range of sanity to look forward to the time when the former "Captain of the hosts of death" will be known only by the fearful records he once made in the history of man's struggle to be relieved from the heavy tribute paid to infection.

We boast of a great civilization, but this is justified only within limits. Science more nearly dominates the world than at any time in the past. Learning permeates the masses more deeply, but credulity and ignorance are widely prevalent. In this country of nearly one hundred millions, there are thousands whose greed impedes the progress of the whole, tens of thousands whose ignorance retards their own growth, and other thousands who live by crime and procreate their kind to feed on generations to come. We have our schools, colleges, and universities, while our almshouses, insane asylums, and penal institutions are full. In our cities we see the palatial homes of the ultra rich, the splendid temples of trade and commerce, the slums of want and poverty, and the homes, both rich and squalid, of vice and crime. No nation in this condition can be given a clean bill of health. Our hill tops are illuminated by the light of knowledge, but our valleys are covered by the clouds of ignorance. We have not emerged from the shadows of the dark ages. The historian of the future will have no difficulty in convincing his readers that those who lived at the beginning of the twentieth century were but slightly removed from barbarism, as he will tell that the school, saloon, and house of prostitution flourished in close proximity; that the capitalist worked his employees under conditions which precluded soundness of body; that the labor union man dynamited buildings; that whilst we sent missionaries to convert the Moslem and the Buddhist ten thousand murders were committed annually in our midst, and that a large percentage of our mortality was due to preventable disease.

Evidently there is much to be done before we pass out from the shadows of ignorance into the full light of knowledge. In this great work for the betterment of the race the medical profession has important duties to perform. I do not mean to imply that the uplift of mankind devolves wholly on the medical man. The burdens are too many and too diversified, the ascent too steep and the pathways too rough for one profession to hope to reach unaided the high plateau we seek. Moreover, other callings have no right, and should have no desire, to shirk the moral responsibilities, which rest alike on all. But in past ages, medical men have been the chief torch-bearers of science, the only light in which man can safely walk, and we must keep and transmit to our successors this trust and honor. I know of no scientific discovery, from the ignition of wood by friction to the demonstration of the causes of infection and the restriction of disease, which has not sooner or later assisted in the betterment of the race. It may be added that nothing else has so aided man in his slow and halting progress from the pestilential marshes of ignorance to the open uplands of intelligence.

In so great a work as the eradication of preventable disease, all intelligent people must cooperate. The law must support it by proper enactments, and these must be enforced with justice and intelligence; it must recognize that the right to enjoy health is quite as sacred as that to possess property; that to poison men in factories and mines, to pollute drinking water supplies, to adulterate foods, and to drug with nostrums is manslaughter. Religion must teach the sanctity of the body as well as that of the soul, that ignorance is sin and knowledge virtue, that parenthood is the holiest function performed by man, and that to transmit disease is an unpardonable sin. The teacher must know hygiene as well as mathematics. The capitalist must recognize that improvement in health and growth in intelligence increase the efficiency of labor. There never has been a time when scientific medicine has had so many and such efficient and appreciative helpers as it has to-day. Our sanitary laws are for the most part good, but their administration is weak, on account of ignorance. The pulpits of the land are open, for the most part, to the sanitarian. The respectable newspapers are most effective in the crusade against quackery and disease. The philanthropist has learned that the advancement of science confers the greatest and most lasting benefits on man.

There is a moral obligation to be intelligent. Ignorance is a vice and when it results in injury to any one it becomes a crime, a moral, if not a statutory one. To infect another with disease, either directly or indirectly, as a result of ignorance, is an immoral act. The purpose of government is to protect its citizens, and a government which fails to shelter its citizens against infection is neither intelligent nor moral. To transmit disease of body or mind to offspring is an unpardonable sin. In a reasonable sense it is worse than murder, because it projects suffering into the future indefinitely.

That medicine has become a fundamental social service must be evident. To return one incapacitated by illness or injury to the condition of self-support benefits not only the individual, but the community, in as much as it increases its productive capacity. Infirmity is a direct burden on the individual and scarcely less direct on the community. Weakness in any part diminishes the strength of the whole. It is a fully established principle in social economy that widespread intelligence and growth in knowledge are beneficial to the state.

It was in full recognition of this that the framers of the Ordinance of 1787 wrote into that immortal document. "Religion, morality, and knowledge being necessary to good government and the happiness of mankind, schools and the means of education shall forever be encouraged." The Territory of the Northwest, the government of which was provided in this ordinance, was at that time a vast waste of forest and prairie, furnishing a scant and precarious subsistence for savage tribes and attracting to its borders a few of the most hardy sons of civilization. The knowledge for whose growth and diffusion the wise provision was

made, has drained the malarial marshes, converted wild prairie and tangled wood into fruitful orchards and fertile fields, dotted the whole area with neat villages, reared great cities, linked all parts with steam and electric roads, and provided comfortable homes and abundant food for millions. The men who wrote the Ordinance of 1787 left a great inheritance which is temporarily in our possession. Let us write into this great document: "Every ill which can be relieved shall be removed, and every preventable disease shall be prevented." The wisdom of our fathers has secured for us a greater measure of health and a longer term of life; let us do as well for those who are to possess this fair land in the next generation. Let us live not only for ourselves and the present, but for the greater and more intelligent life of the future.

Not myself, but the truth that in life I have spoken,
Not myself, but the seed that in life I have sown
Shall pass into ages—all about me forgotten,
Save the truth I have spoken, the things I have done.

All things are relative and health is no exception. With a greater degree of health among all, religion will become more effective for good, morality will have a deeper significance and a wider application, and knowledge will multiply and distribute its blessings more widely.

In the further improvement of the physical, mental, and moral conditions of the race, medicine should continue to be a leader. There is no other calling so essential to this movement, and in order to more thoroughly fit itself for this important task the profession should first of all look to its own betterment. The medical man should possess intelligence of high order, manifest industry without stint, and show the highest integrity in all he does. That it is the aim of this Association to attract to its colors men possessing these qualifications and to deny admission to others is shown by the advance in the standard of medical education, the enforcement of medical registration laws and the denunciation of every form of medical charlatanism. In all these directions the profession has the support of the more intelligent men in other callings. The improvement in medical training secured within recent years in this country is without a parallel in the history of education. The requirements for admission to the medical schools have been rapidly advanced and standardized; the number of medical schools has been reduced from 166 to 104 by obliteration and combination, much to the improvement of all, and a far better class of matriculates has been secured. The courses of instruction have been lengthened and made more scientific. Each good medical school is doing more or less of research which is not confined to laboratory investigators, but is fast finding its way into hospitals. Indeed, some of our clinical men are now making most valuable contributions. Every medical man should have much of the spirit of research. It is the pabulum on which medicine feeds and without it the profession atrophies and starves. It is the glory and strength of the profession that it is not bound by dogma and pays no heed to *ipse dixits*. I have no sympathy with the idea that medical research should be largely relegated to special non-teaching institutions. These have their function and we rejoice in their foundation and support and hope that they may multiply, but the man who is devoid of the spirit of scientific investigation has no place in medicine as student, practitioner, or teacher, and the most elaborate medical training without opportunity for scientific observation is barren. Besides, opportunities for medical discovery should be widely distributed. Science makes no provision for an aristocracy. There can be no papal bulls issued in the domain of medicine. The workers must be many, all must be free to pursue knowledge in their own way, and all must be compelled to prove their claims, for "life is short, art is long, opportunity is fleeting, experiment fallacious, and judgment difficult."

In this work of self-improvement the profession has had the aid of the more intelligent law makers and administrators. In carrying out these progressive changes there has been much sacrifice of money and personal pride by many members of the profession. Large schools have willingly submitted to marked reduction in the numbers of their students and consequently in financial support. A medical education costs more in time and money than that demanded by any other profession, and the emoluments of the average practitioner have decreased as preventive medicine has become more effective. No other profession pays so heavily the great cost of eradicating the infectious diseases, but this is the function of medicine and no sacrifice should be regarded as too great. While intelligent medical men have been leading the crusade against greed, ignorance, and disease, our legislative halls have been crowded with the representatives of sects, cults, and charlatans demanding legal recognition. If I mistake not, herculean efforts will be made in the near future to lower the standards demanded of the medical practitioner. These endeavors have been promised aid from those who have heavy financial backing, but if we are worthy of the trust which we bear, we will not yield. We must appeal to the good sense of the people for whose welfare we labor. We must show what scientific medicine has done for the public good and point out the greater things it may do with increased opportunity. It must be admitted that in the crusade for the restriction of tuberculosis many physicians have manifested but little interest. This is shown by their slowness to employ methods of early diagnosis and consequently by their failure to recognize the disease in its curable stage, also by their unwillingness to comply with the laws of notification. It is an undeniable fact that there are many medical men who know less about hygienic measures than the more intelligent of the laity. With advancing knowledge among the masses these professional fossils will be correctly labeled and properly shelved in the local museums of antiquities.

I believe that medicine is now attracting excellent young men. It should appeal to this class. It does not point the way to great financial reward, but it offers a service unsurpassed by any other calling. The historian tells us: "For the Roman patriot the only worthy stage was the forum or the battlefield; every other pursuit was left in the hands of slaves and could not free itself from the taint of servitude." Modern medicine offers a field in which the advancement of knowledge, the improvement of health conditions, and the saving of lives are the measures of success.

Preventive medicine, still in its youth, has accomplished great things. As I have stated, within the past thirty years in this country the mortality from tuberculosis has been reduced more than half and with scarlet fever and diphtheria the results have been more striking. Within the past ten

years the average life has been increased four years. Great epidemics which once devastated continents are no longer known in the more intelligent parts of the world. In fact, it may be said that the death rate is now an excellent measure of intelligence. In 1911 the death rate in London was 15 per one thousand, while that of Moscow was 27.3. Preventive medicine is the keystone of the triumphal arch of modern civilization, and its displacement would precipitate mankind into relative barbarism. Should the health administrators of any great commercial center fail, for even a few months, to exercise the function of restricting disease, the history of the epidemics of the middle ages might be repeated. Great things have been done, but greater tasks lie before us, and their accomplishment depends on the scientific wisdom of our profession and the intelligence of the people. Without the harmonious adjustment of these forces the greatest efficiency cannot be secured. While the mortality from tuberculosis has been reduced half in the past thirty years, we must not assume that the total eradication of this disease will be accomplished in the same number of years. Only the more progressive members of the profession have taken the initiative, and only the more intelligent members of the community have responded. Intelligence and the sense of moral responsibility must grow as the work proceeds. It remains for all who have the welfare of the race at heart to plan wisely and carry forward courageously the campaign against greed, ignorance, and disease.

The sanitarians of this country seem to be in harmony in regard to the general procedures to be followed. These are embodied in bills recently introduced in the legislative assemblies of a number of States. In New York an excellent bill was passed and its operation is now being inaugurated under the directorship of Dr. Biggs, whose long and effective service in the city of New York demonstrates the wisdom of his selection. I regard it as highly fortunate that the operation of this new and important law is to be directed by one so well qualified.

My own ideas are embodied in the "Amberson bill" of the Michigan legislature of 1913. Among the provisions of this bill the following may be mentioned: The State is to be divided into health districts. In each such district a health commissioner is to be appointed for a term of four years. The fitness of the commissioner is to be determined by the State Board of Health after examination. The salary of the commissioner varies with the population of the district, but in most instances would run from three to six thousand dollars. There is to be an additional appropriation for laboratory expenses and for carrying out the purposes of the act.

It shall be the duty of the health commissioners to be vigilant in the work of disease prevention and the conservation of the public health, and to enforce all health laws of the state and health ordinances of their respective localities, together with all rules and orders of the state board of health; to collect and report to the state board of health morbidity statistics and to make a monthly report of the work done by them in narrative form to the state board of health and in such tabular form as may be prescribed by the state board of health. Copies of such reports shall be retained by each commissioner in permanent record books. They shall make such sanitary inspections and surveys of the district as may be required from time to time by the state board of health or by the city for which appointed, or by resolution of the board of supervisors of each county. They are hereby authorized and invested with the power to enter on and inspect private property at proper times in regard to the possible presence, sources or cause of disease, to establish quarantine and in connection therewith to order whatever is reasonable and necessary for the prevention and suppression of diseases; to close schools, churches, theaters, or any place of public assemblage, to forbid public gatherings in order to prevent or stay epidemics; to collect statistics concerning insanity, feeble-mindedness, tuberculosis, and other infectious diseases, to inspect slaughter-houses, and markets of all kinds where food is sold. They shall inspect at least once each six months and make a sanitary survey of the publicly owned buildings and institutions within their respective jurisdiction and shall keep a report thereon as part of the records of their office. They may inspect any school buildings or grounds within their jurisdiction as to sanitary conditions and shall have power to close any school when the sanitary conditions are such as to endanger or imperil the health or life of the pupils attending the same. They shall include all such sanitary inspections in their monthly reports to the state board of health. They shall at all times be subject to the orders of the state board of health in the execution of the health laws of this state and may perform any duty where required by the state board of health, or any member of said board acting for the entire board, which might be performed by said board of health or an officer thereof.

Further duties of the health commissioners are defined in the bill, and I have given only enough to show the purpose and scope of its provisions.

The successful operation of such a law would require the highest class of sanitarians. They must possess intelligence, industry, and integrity. They must be devoted to their work, remembering that the Father of Medicine said: "Where love of mankind is, there also is love of art." With these qualifications I believe that such a law might be operated with great benefit to the people. Is the medical profession of this country prepared to do this work? I believe that many of the recent graduates of our best schools are fitted for this highly important function. They may need special training in the courses in public health now being inaugurated. If I mistake not, our profession will soon have wide opportunity to demonstrate its usefulness in this direction. If the public makes this demand, preventive medicine will have the opportunity to do a patriotic service which has never come to any profession at any time. With proper facilities and helpers, such commissioners might within a few years become acquainted with the conditions surrounding every permanent resident within his jurisdiction, and with properly qualified administrators of the law much might be done to abate disease, improve health, increase efficiency, eradicate the venereal diseases, stamp out vagrancy, pauperism, prostitution, alcoholism, and crime. Crime is a disease due to heredity or environment, one or both. We now permit it to breed and multiply in our midst. Its causes must be determined and eliminated and its habitations must be discovered, disinfected, or destroyed. We have heard too much about the rights of the individual; let us know more about his duties. Too much stress has been laid on the sacredness of private property and too little on the duty of all to contribute to the welfare of the whole. Preventive medicine has demonstrated in a practical way the force of the biblical statements that no man liveth to himself alone, and that every man is his brother's keeper. Preventive medicine is the most potent factor in the socialistic movement of the day with which every good man feels himself more or less in sympathy; besides it is at the same time the most powerful weapon against the anarchy with which some would threaten us.

If preventive medicine is to bestow on man its

richest service, the time must come when every citizen will submit himself to a thorough medical examination once a year or oftener. The benefits which would result from such a service are so evident to medical men that detail is not desirable. When recognized in their early stages most of the diseases which now prevail are amenable to treatment. The early recognition of tuberculosis, cancer, diabetes, nephritis, heart disease, etc., with the elimination of the more acute infectious diseases would add something like fifteen years to the average life, besides saving much in invalidism and suffering. The ultimate goal of science is the domination of the forces of nature and their utilization in promoting the welfare of mankind. Science must discover the facts and medicine must make the application for either cure or prevention.

The local health authorities for which the bills referred to make provision must be supervised by State Boards of Health or State Commissioners. Many of our State Boards of Health are already doing much, but this is little compared with what they might do. They should be absolutely free from party dictation, should be made up of men both qualified and interested, and their executive officers should be distinguished for their knowledge of sanitation. Their appropriations should be greatly increased, for health is a purchasable commodity. Pure water, pure food and even pure air cost money, but they lead to health, which is worth more than gold to both the individual and the State.

Our present national health service is doing most excellent work. It demonstrated its strength in eradicating the plague in California and the suppression of yellow fever in New Orleans. It has charge of the administration of the laws affecting the admission of immigrants, so far as their health is concerned, and it performs this service well. The Public Health Service is now investigating the pollution of certain rivers, studying trachoma in the mountains of Kentucky, pellagra in South Carolina, and the spread of typhoid fever in certain districts. The Hygienic Laboratory at Washington has made valuable researches in addition to the routine work of the examinations of vaccines and serums. This bureau should be developed into a department with a member in the cabinet. The study of contagion in our midst is quite as important as anything within the range of the activities of the Departments of the Interior, Agriculture, and Commerce and Labor. Our health relations with other nations concern us quite as much as our trade relations. The one thing above all others against which our doors should be shut is disease, whether it be of plant, animal, or man, whether it be of body, mind, or morals. The highest function of the State is not to make millionaires out of a few importers or to find profitable investments for its surplus wealth in foreign lands, but to advance to the highest degree the health, intelligence, and morality of its citizens.

In each State there should be a hygienic laboratory equipped with able men supplied with facilities for the study of sanitary conditions and for the prosecution of scientific research. The Hygienic Laboratory at Washington should be developed into a great institution for research which would improve the conditions of life. The greatest asset of any nation is the health of its citizens and the people who secure this in the highest degree will dominate the earth for the dominion of the superman, when he comes, will extend from pole to pole, not by force of arms, but by example and education.

Younger members of the profession: One who is soon to be mustered out of service, on account of disability and old age, salutes you. An old soldier who has served in the ranks nearly forty years, steps from his decimated regiment, lifts his cap and cheers you, as you pass by in your new dress and armed with weapons of greater efficiency than was known when he enlisted. The cause is the liberation of the race from the bonds of superstition and ignorance and it is a glorious one. The contest began before the genus *homo sapiens* came into existence. Countless generations have served their time, some well, some ill, and have passed into oblivion, but their partial victories have made you stronger and placed on you a greater responsibility. Your intelligence is greater, your judgment is sounder, and your effectiveness has been increased. Where the past has failed or only partially succeeded, your success will be greater. But the battlements of ignorance still bristle with heavy-fire guns. Only a few of the outposts of the enemy have been captured. It is for you to do and then like all your predecessors to die. You stand to-day within the firing line. Go on courageously and when eons of the future have become the past, the superman, born out of the struggles of his predecessors, will demolish the last citadel of ignorance and vice, and firmly plant on the highest peak of the mountain of knowledge the flag of human progress, and when the silken banner shall unfold there shall appear on it this legend:

*Pra gloria omnium nationum et hominum honore.*

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## SPLENECTOMY FOR PERNICIOUS ANEMIA: REPORT OF A CASE.*

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In March, 1913, Eppinger and Decastello reported three cases of pernicious anemia upon which they had performed the operation of splenectomy. Other cases have since been published in Germany[1] and one case in this country by Harpole and Fox.[2]

We report the following case in order that it may assist in determining ultimately the value of the procedure.

Andrew K., 27 years old, a plumber by occupation, was first admitted to Bellevue Hospital, September 10, 1911, suffering from a high grade anemia for which no cause could be found but which appeared to belong in the group of simple anemias. After treatment with syrup of the iodide of iron, Blaud pill, and sodium cacodylate, the patient improved to such an extent that he was discharged November 1.

On June 23, 1913, the patient again entered the hospital. He had been employed as a street car conductor but became so weak that he was compelled to stop work. He denies syphilis.

The most essential features of the physical examination were: the characteristic lemon-yellow color of the skin and scleræ; extensive pigmentation of the lower half of the abdomen with many

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areas of leucoderma; a number of teeth had been lost, the remaining teeth were in bad condition, and, in addition, the patient suffered from a severe type of pyorrhea alveolaris; the spleen extended three fingers' breadth below the free border of the ribs and presented a hard, sharp edge.

The blood picture on June 24 was as follows: red cells, 1,600,000; Hb, 50 per cent.; color index, 1.6; marked aniso- and poikilocytosis, slight polychromatophillia; 1 normoblast to 200 white cells; leucocytes, 6,000; polymorphonuclears, 59.5 per cent.; transitionals, 3.5 per cent; lymphocytes, 32 per cent.; large mononuclears, 3.5 per cent.; eosinophiles, 0.5 per cent.; mast cells, 1 per cent. The Wassermann reaction was negative on June 24, 1913. The stools contained neither parasites, ova, nor blood. (Later examinations were likewise negative.)

During the ensuing four months various typical symptoms of pernicious anemia were observed, such as low, continued fever, with occasional exacerbations, attacks of diarrhea, progressive weakness, increasing intensity in the coloration of the skin and sclerae, and high pulse-rate.

Also, during this time, all of the better known methods of treatment were employed; iron alone or combined with Fowler's solution, Fowler's solution or sodium cacodylate alone. Examination of the gastric contents showed a low total acidity and an absence of free hydrochloric acid, and the patient was given large amounts of this acid. The pyorrhea alveolaris was brought under control with trichloracetic acid or with iodine. In addition, the patient was transfused four times by Dr. Edward Lindeman by the syringe-cannula method. The last transfusion was interrupted after 100 cc. of the donor's blood had been injected because hæmolysis was occurring. Two hours later the patient had a severe chill, the temperature rising to 103.8° F.; four hours later he passed two ounces of blood-stained urine, and, at the expiration of five hours, he was sweating profusely and suffering from dyspnea.

Except for short periods when the patient was better subjectively, his condition became progressively worse. At various times the blood gave evidence of transient attempts at regeneration, as indicated especially by an increase in the number of normoblasts, but the general tendency was toward further deterioration.

July 8, examination of the blood gave the following result: red cells, 824,000; Hb, 23 per cent. (Dare); color index, 1.4; marked aniso- and poikilocytosis; slight polychromatophilia; 26 normoblasts to 100 white cells; no megaloblasts; leucocytes, 2,000; polymorphonuclears, 64 per cent.; transitionals, 2 per cent.; lymphocytes, 30 per cent.; large mononuclears, 3 per cent.; eosinophiles, 1 per cent.

On September 26 the blood showed: red cells, 1,448,000; Hb, 38 per cent. (Dare); color index, 1.3; moderate aniso- and poikilocytosis; no normo- or megaloblasts or polychromatophilia; leucocytes, 5,000; polymorphonuclears, 47 per cent.; transitionals, 2.3 per cent.; lymphocytes, 45.3 per cent.; large mononuclears, 1.3 per cent.; eosinophiles, 2.6 per cent.; mast cells, 0.6 per cent.

About this time our attention was attracted to the cases reported by Eppinger and by Decastello in which benefit appeared to have followed splenectomy, and the advisability of performing the operation upon our patient was taken under consideration. In view of the emphasis which Eppinger laid upon the urobilin content of the feces as a measure of the hemolytic activity of the spleen, Dr. John H. Richards attempted to determine this for us, but was unable to find a method which was free from objection.

Since all other methods of treatment had failed to benefit the patien and the outlook appeared hopeless without operation, this was advised.

On Oct. 27 the blood presented the following picture: red cells, 1,744,000; Hb, 29 per cent. (Dare); color index, 0.8; marked aniso- and poikilocytosis; slight polychromatophilia; no normoblasts or megaloblasts; leucocytes, 2,600; polymorphonuclears, 60.5 per cent.; transitionals, 1.5 per cent.; lymphocytes, 29.5 per cent.; large mononuclears, 5.5 per cent.; eosinophiles, 3 per cent.

The operation was performed October 29, under ether, in the following manner: A straight incision was made through the left rectus from the last rib to below the umbilicus, and was carried through the peritoneum. The spleen was non-adherent and easily delivered without putting traction on the pedicle. Double rubber-protected clamps were placed on the pedicle and the spleen cut away. The pedicle was ligated with two double No. 3 plain catgut sutures. The abdominal wall was sutured in layers, plain catgut for the peritoneum, chromicised gut for the fascia, and silk-worm gut for the skin. There were no difficulties encountered in the operation and owing to the lack of adhesions the procedure was accomplished without loss of blood.

During the postoperative course the patient suffered from the fifth to the fourteenth day from very severe pains in the upper left quadrant of the abdomen. This has been noted in two other cases where an enlarged spleen had been removed. The cause is not explained.

Dr. Richard Weil was kind enough to study the spleen for the presence of hemolysins and has furnished the following report:

"The spleen was delivered to me immediately after operation. Two portions of the organ were at once removed and prepared for hemolytic tests in the following manner: One portion was weighed and then thoroughly crushed in a mortar. To it were then added nine times its own weight of physiological salt solution. The suspension was shaken for two hours in a mechanical shaker, and was then centrifuged. The supernatant fluid was used in the tests to be later described. A second portion was added to 95 per cent. alcohol in the same proportions as above described. This portion was then centrifuged, and the supernatant fluid used in the hemolytic tests. A histologically normal spleen, obtained at autopsy from a cardiac case, was prepared as a control in the same fashion. The red cells were obtained from four human beings, comprising two normal individuals and two cases of pernicious anemia, one of which was the individual who supplied the spleen. These cells were washed in three changes of normal salt solution, and were then made up to a 5 per cent suspension.

"In making the tests, one cubic centimeter of each of the suspensions of red blood cells was treated with one cubic centimeter of the splenic extracts. The extracts were diluted in graded proportions for a quantitative estimation of their hemolytic activity. The results need not be given in detail; suffice it to say, that no differences of moment could be detected between the action of the normal spleen and that of the case of pernicious anemia upon the red blood cells."

We are indebted to Dr. E. E. Butterfield of Dr. Norris' laboratory for the pathological report: "Spleen measures 14 x 10 x 4.5 cm. Weight approximately 300 g. Organ is firm; capsule is uniformly opaque. In the middle of the anterior border there is a small cyst filled with clear fluid measuring 5 mm. in diameter. Section is dark red in color. Splenic follicles are very numerous and enlarged, the largest, 1½ to 2 mm. Otherwise the section is uniform and presents no other noteworthy gross lesions."

"Histological Examination.—The most striking characteristic of the microscopic section is the extreme vascularity of the organ.

"The lymph follicles are well preserved and rather large; they consist almost exclusively of small lymphocytes; there are no germ centers. On the margin of the follicles occasional eosinophiles and large, non-granular cells are found. Central arterioles are normal in appearance.

"The sinuses are wide and filled chiefly with red blood corpuscles. Numerous polymorphonuclear eosinophiles, polymorphonuclear neutrophiles, and occasional nucleated red cells are also found in the sinuses. There are numerous cellular strands running irregularly through the pulp. The strands are composed of neutrophile and eosinophile myelocytes, groups of cells of the plasma cell type, and occasionally nucleated reds, some of which show nuclear figures. Clusters of three or more neutrophile myelocytes with nuclear figures are also encountered in the splenic veins. Capsule and trabeculæ normal. No hemosiderosis.

"Conclusion.—The cytological details of the splenic picture are essentially those of erythrogenesis and myelogenesis. The lymphatic elements are normal or slightly hyperplastic. There is little or no regressive change and no definite evidence of blood destruction. The red blood cells are intact and the phagocytosis of red cells encountered frequently in the spleen in other conditions is absent."

The patient's recovery from the operation was rapid. By November 3 the lemon-yellow color of the skin and scleræ had disappeared and he presented the appearance of a patient with severe secondary anemia.

November 11 the blood examination was: red cells, 1,605,000; Hb, 31 per cent. (Sahli); color index, 1.0; marked aniso- and poikilocytosis; slight polychromatophilia; 12 normoblasts to 200 while cells; leucocytes, 4,500; polymorphonuclears, 71.6 per cent.; transitional, 2.6 per cent.; lymphocytes, 18 per cent.; large mononuclears, 7.6 per cent.

On November 17 the leucocytes had risen to 12,000; they reached 16,000 on December 6 and 22,400 on January 6. Similar increases in the number of leucocytes have been reported in other cases, and Musser and Krumbhaar[3] found that it occurs after experimental splenectomy in animals.

The only other essential change in the blood picture was observed on December 29, when, with 1,280,000 red cells and 27 per cent. Hb, 51 normoblasts and 11 megaloblasts were noted in counting 200 leucocytes.

The patient improved both subjectively and objectively for a time after the operation; he grew stronger and was up in a chair for a part of each day. Later he lapsed into his former condition and, following the suggestion of Bramwell,[4] was given neosalvarsan in doses of 0.2 gm., January 13, 1914, intramuscularly, and January 20 and 29 intravenously. As the patient continued to grow weaker the last two doses of the series were not administered.

On January 13, before the administration of the neosalvarsan, the blood examination was as follows: red cells, 1,760,000; Hb, 25 per cent. (Dare); color index, 1.4; marked aniso- and poikilocytosis; slight polychromatophilia; 18 normoblasts and 8 megaloblasts to 200 leucocytes; leucocytes, 14,200; polymorphonuclears, 49 per cent.; transitionals, 7 per cent.; lymphocytes, 36 per cent.; large mononuclears, 7 per cent., and eosinophiles, 1 per cent.

February 25, examination of the blood gave the following result: red cells, 1,264,000; Hb, 18 per cent.; (Dare) color index, 0.7; aniso-, poikilocytosis, and polychromatophilia marked; 111 normoblasts and 16 megaloblasts in 200 white cells; leucocytes, 17,450; polymorphonuclears, 46 per cent.; lymphocytes, 44 per cent.; large mononuclears, 8 per cent.; eosinophiles, 1 per cent.; mast cells, 1 per cent.

The use of the neosalvarsan makes it impossible, of course, to draw any conclusion as to the effects of the splenectomy except in the interval before its administration. In this interval there was no evidence of more than temporary improvement, as has previously been stated.

At the present time, April 24, six months after the operation, the patient, while looking better and feeling better, is just beginning to sit up. The blood examination is as follows: red cells, 1,060,000; Hb, 22 per cent. (Dare); color index, 1+; marked aniso- and poikilocytosis; slight polychromatophilia; 52 normoblasts and 3 megaloblasts to 200 white cells; leucocytes, 18,400; polymorphonuclears, 45.5 per cent.; transitionals, 3 per cent.; lymphocytes, 32 per cent.; large mononuclears, 10 per cent.; eosinophiles, 9.5 per cent.

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# PRIMARY LUPUS OF THE LARYNX.*

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THREE cases of lupus of the larynx, two of them primary, have been under my care during the past year, recalling the study made of this affection by the writer and presented to the American Laryngological Association at its Nineteenth Annual Congress in 1897.[1] Their histories are subjoined together with a brief résumé of the few similar cases that have been recorded in the past seventeen years, thus permitting a comparison with the viewpoint then existing, as also of noting the progress made, especially in the diagnosis and treatment of this affection.

CASE I.—L. K., male, aged 44 years, Roumanian by birth, came to my service in the dispensary of Mount Sinai Hospital on April 20, 1913. He gave a history of cough without pain or hoarseness. He claimed to have been well until recently, when he had been told that he had tuberculosis. His physician noted a white spot on

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his tonsil and sent him to me for examination. The white spot proved to be a concretion in the tonsil. The laryngoscope showed a surprising condition of affairs accompanying such a meager history. His epiglottis was one large infiltrated mass with irregular nodules, having lost all its original appearance; both arytenoids were infiltrated; there was an infiltrate at the right false cord, and breaking down in various parts. The lungs were examined by Dr. Taschman, who found widespread tuberculosis of the lung, a small cavity at the left apex. His entire absence of distress with the far-advanced destruction made the diagnosis of lupus of the larynx in its final stages as the only tenable one. At no time during the after treatment was there appreciable dysphagia or dyspnea, and he died ten months later of his tuberculosis.

Case II.—D. W., male, aged 36 years, was admitted to Mount Sinai Hospital, service of Dr. Howard Lilienthal, December 31, 1913. He gave a history of having had a cough four years ago, was treated for four weeks when he recovered. His present illness began seven weeks ago, when he began to have some difficulty in swallowing and hoarseness; his breathing was difficult. He had been referred to the hospital for treatment. Examination showed marked stridor with respirations; no pulmonary disease found.

January 2.—Examined by Dr. Mayer: "The entire epiglottis is involved in an enormous mass which extends into and covers almost completely the lumen of the larynx. The arytenoids are so swollen and indurated that no view of the interior of the larynx is obtainable. Owing to the extensive obstruction in the larynx, a preliminary tracheotomy is advisable before removal of a portion of the growth for examination." January 2.—Wassermann test made by Dr. Kaliski: Negative.

January 3.—Tracheotomy performed under local anesthesia by Dr. Lilienthal.

After recovery, on January 19, under cocaine anesthesia, two pieces of tissue were punched out from the epiglottis, by the writer, and sent to the pathologist, Dr. Mandlebaum, who reported tuberculosis (lupus).

January 27.—The entire protuberating mass of the epiglottis I now removed with punch forceps, under cocaine with little or no discomfort to the patient; his breathing at once improved and his dysphagia ceased.

On January 30 his tracheotomy tube was removed and on February 3 he was discharged from the hospital.

He attended my service in the dispensary for local treatment thereafter.

Pulmonary examination showed no sign of tuberculosis. This, together with the presence of the enormous mass of slow formation and without symptoms until his respirations became impeded made the diagnosis of primary lupus of the larynx at an advanced stage of the affection indubitable.

Case III.—I. H., male, aged 50 years, was seen by myself April 20, 1914, and is of interest here only as a case of secondary lupus, for it is associated with a similar affection in the right upper jaw on the cheek, in the antrum of Highmore on the right, and in the nose on the same side. The same absence of distressing symptoms, with no pulmonary involvement, in spite of far-advanced tumefaction and destruction of the larynx, characterizes this as a case of lupus, and the lesion of the mucous membrane of the jaw bears this out, though we have no means of ascertaining positively whether the larynx was the original site or not.

G. Brat[2] mentions five cases of primary lupus of the larynx which he examined in the clinic of Burger. "The disease begins almost always in the aditus of the larynx, the epiglottis is nearly always affected; the aryepiglottis folds in 45 per cent., the interarytenoid region in 42 per cent., while it very rarely affects the subglottic region. Subjective and functional disturbances are often entirely missing and the disease is discovered quite accidentally. Pain, cough, and expectoration are very rare." He says further: "In comparison to other tubercular diseases of the larynx, lupus is entitled to stand alone. Lupus of the larynx compares with lupus vulgaris of the skin; ulcerative tuberculosis of the larynx with similar conditions of the skin; and tubercular laryngeal tumor with scrofuloderma."

F. Massei,[3] in recording a typical case of lupus of the larynx in a girl aged 10, eventuating in tuberculosis, thinks the distinction between lupus of the larynx and tuberculosis should not be made.

J. Durazzo[4] reports a case in a female aged 22.

Oppenheim[5] reports a case in a male aged 28.

Talbot R. Chambers[6] presented a case in a female, aged 21, where he successfully excised the epiglottis.

Thomas J. Harris[7] reports a case in a woman aged 73. This patient had been seen by Jonathan Wright three to four years before Harris saw her, at which time two-thirds of the epiglottis was present, and the diagnosis lay between epithelioma and lupus. Later the epiglottis became totally destroyed.

H. E. Smyth[8] presented a case of this affection in a male, aged 47 years, at the New York Academy of Medicine. This case was examined and discussed by Gleitsmann, Douglas, and Mayer.

St. Clair Thomson[9] reports a case in a woman aged 22.

In the discussion of an article on lupus of the mucous membrane of the upper air passage by M. Senator,[10] Edmund Meyer (Berlin) stated that he had observed a case of primary lupus of the larynx in a patient whose age and sex is not given.

Dundas Grant[11] mentions a case in a boy aged 10.

Rosenberg[12] reports two cases: One, a female aged 36, a very mild case in which the epiglottis, aryepiglottic fold and false cords were involved, but not the true cords. Spontaneous recovery ensued. In the other case, a female, aged 15, a diaphragm was formed in the region of the vocal cords producing hoarseness and great dyspnea. The conjunctival reaction was negative in both cases.

L. Neufeld[13] found twenty-four cases of primary lupus of the larynx recorded in the literature up to the time of his publication (1908).

He records a case of this affection in a female. There was recent hoarseness. On the laryngeal surface of the epiglottis there were six brownish-red nodules, whitish at their apices; the false cords were indurated and had the same prominence as the epiglottis. For the existing dyspnea the right false cord was removed, subsequently the left false cord was also removed, and its base treated with lactic acid, with good results eventually.

G. F. Guild[14] mentions a case of this affection in a female aged 43. Tracheotomy followed by thyrotomy and removal of diseased tissue with no recurrence in eight years.

Bornasch[15] (St. Petersburg) reports a case of primary lupus of the larynx, age and sex of patient not given.

E. Baumgarten[16] reports a case of this affection in a female aged 18, in which there were white linear scars on the free border of the epiglottis, nodules on its laryngeal surface as also on the false cords. No tuberculosis was present. Tuberculin caused severe reaction in the larynx. He considers the affection to be a tuberculosis of the mucosa.

Donelan[17] presented to the Laryngological Section of the Royal Society of Medicine a case of laryngeal tuberculosis which was three years under treatment. Complete rest of voice for two years, forty galvanocautery applications, guaiacol spray and guaiacol internally were followed by cure. Thomson considered this a case of lupus.

Kilson[18] had a case of a female aged 36, treated

successfully with galvanocautery and internal administrations of arsenic.

J. Safranek[19] presents three cases of primary lupus of the larynx. The first case was a male, 36 years old, slight hoarseness; family history negative. This strong and healthy looking man had an epiglottis thickened in its entirety, mostly, however, in its center; the border covered with small pink nodules breaking down in places, with a deep redness of the laryngeal surface. The aryepiglottic folds were likewise infiltrated and covered with isolated nodules; false cords infiltrated and some subcordal infiltration. There was no temperature and no involvement elsewhere, the lungs were free. The second case was a male, aged 36, spontaneous recovery. The third case was a female, aged 39, with suspected empyema of the accessory sinuses and lupus of the larynx was quite accidentally discovered.

Forchhammer[20] found 5 per cent. of the lupus cases to be laryngeal, but none of those were primary, which he considers to be a rare disease. These statistics were obtained after examination of 1200 lupus patients in the Finsen Light Institute, Copenhagen.

J. Dresch[21] believes that the primary focus in lupus of the mouth, pharynx and larynx exists in the nose, while Rosenberg[12] places the laryngeal cases as being esophageal in origin.

Harms[22] says that although Baumgarten and von Dahrung believe that lupus is of hematogenous origin and does not originate from an external infection, most authors believe that the dissemination in the blood vessels is due to an infection from without. This is shown by the fact that in most of the lupus processes the lungs are not primarily affected, and secondly that the picture of metastatic tuberculosis of the skin differs entirely from that of the mucous membrane. "Primary lupus of the larynx is extraordinarily rare."

Pregnancy has a bad effect on lupus of the mucous membranes especially of the primary sort; Safranek[19] saw a case of primary lupus of the larynx in a pregnant woman in which edema of the larynx supervened and tracheotomy had to be performed. Recovery was prompt after induced abortion.

To differentiate between lupus and syphilis, the Wassermann reaction being negative, and also antisyphilitic treatment with iodides and mercury failing, a hypodermic injection of the old tuberculin may be given, under precautions, however, as laryngeal edema often supervenes upon the tuberculin test. The smallest dose therefore should be given at first. It occurs more frequently in females than in males.

*Treatment.*—Treatment may be medical or surgical. As local applications, lactic acid, caustic potash followed by pyrogallic acid, muriatic acid, after spraying with ethyl chloride, and also calomel have been used.

Pfannenstill[23] has made use of the following treatment: The iodide of sodium is given internally in daily doses of 2 grams following which inhalations of ozone are made. It is claimed that iodine is thus set free and its powerful bactericidal effect is made use of to good advantage.

Ove Strandberg[24] following the method of Pfannenstill, substitutes sprays of hydrogen dioxide acidulated, for the ozone inhaler, and claims that much benefit is obtained.

Rudolph Mandl,[25] believing that the iodine is best applied locally, has prepared a powder which is powerfully hygroscopic. It is a hydro-iodoborate called ulsanin. This is applied directly to the diseased part, a brownish stain results as soon as it becomes moist, and hence must be most carefully applied.

Katschanowski[26] suggests the advisability of local applications of permanganate of potassium.

Koichi Fujinami[27] (Tokio) presents a new method of treating lupus of the larynx with the parallel rays of the Finsen lamp. A funnel is added to the distal end of the apparatus with water flowing about the mouth end. The patient is seated, tongue protruded, with the funnel introduced in the mouth and set with thumb screw. At first the treatment is given once daily and from three to five minutes' duration. The sittings are increased to fifteen or twenty minutes as soon as the patient becomes accustomed to the discomfort to the tongue. As soon as reaction occurs, treatment is interrupted and resumed on disappearance of the reaction. It requires five or six treatments before pain in deglutition, redness and tumefaction occur; from this time improvement begins.

Albanus[28] recommends the use of the high frequency current. The Finsen light could not be used because of the difficulty of applying the rays to the larynx. Radium has not been sufficiently tried to state its value.

The Roentgen rays, while of enormous benefit in lupus of the mouth and pharynx, is technically difficult in the larynx, and can not be carried out efficiently, while external application is necessarily less useful.

The treatment with superheated air is followed by brilliant results. With the proper apparatus and the superheated air directed to the part, the bacilli are killed and the lupoid tissue destroyed. To reach the larynx with this a laryngo fissure should be performed (Safranek[19]).

Operative treatment, however, radical removal of diseased parts, followed by galvano cautery and lactic acid is by all means the best form of treatment, and the earlier this is done the better. The suspension laryngoscope of Killian will undoubtedly lend itself in many ways toward the treatment of these parts.

The total number of cases of primary lupus of the larynx recorded in the literature up to the present time, including the two here presented, is 35, indicating the rarity of this affection, which was first described by Ziemssen in 1876.

It is perhaps noteworthy that the two cases presented by the writer in his former communication were of primary lupus of the larynx in their earliest stages, and were observed for many years, one of them being under his care for eighteen years; while the two here presented were in the later stages of the disease.

With but one exception each writer who has observed primary lupus of the larynx is strongly in favor of the distinctive appellation of lupus as against tuberculosis. All agree that the similarity is very great, for lupus presents the same reactions after subcutaneous injections of tuberculin, vaccinated animals because tuberculous, the tubercle baccilli are produced in pure culture, and injected guinea-pigs become tuberculous. It is very rare for a lupus deposit to become caseous. With this close similarity all other resemblance ceases.

Lupus of the larynx is a chronic disease with but the slightest symptoms, is most frequently an acci-

dental discovery, and the prognosis as to life is relatively good. For these reasons, therefore, we feel that we most cordially endorse the statement that the distinctive appellation of lupus should be maintained, and that primary lupus of the larynx, though rare, does exist.

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## ARTERIAL HYPERTENSION:

### ITS CLINICAL SIGNIFICANCE AND LATTER DAY TREATMENT.*

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Determination of the blood pressure becomes of more and more importance as our knowledge of its significance increases. A relatively recent addition to our diagnostic armamentarium, there exists much confusion as to its real value. In its consideration we are confronted with certain questions, our interpretation of which governs to a very large extent the significance that we attach to this condition.

The answer to these questions depends upon what we conceive the condition arterial hypertension to be. Is it a disease entity of itself? Is it merely a symptom, or is it a condition the result of certain pathology and itself a factor in the production of additional pathology?

Unquestionably, there are patients in whom arterial hypertension is the main etiological factor in their complaints. These are instances of chronic toxemia, defective metabolism, dependent usually upon autointoxication of intestinal origin. Alcohol, syphilis, gout, and lead poisoning probably are next in importance as sources of chronic toxemia.

The fact that the toxins of each of these several sources of origin, circulating in the blood current, are capable of causing vascular hypertension is well proven. These cases constitute a class of patients, usually mature individuals of 25 to 45 years of age, in whom the sphygmomanometer shows the presence of a moderate degree of hypertension, ranging from 120 to 145 mm. of mercury. These patients have developed no degenerative changes of the cardiovascular system and may with proper control be returned to a normal condition. But there probably is no disease so insidious in its onset as is arteriosclerosis, and vascular hypertension in the class of patients under consideration is always to be taken as warning which, unless heeded, will eventually result in the merging of a now curable condition into cardiovascular-renal disease.

A second class of patients in whom arterial hypertension is regularly present are those cases of early arteriosclerosis with a tension of 150 to 175 mm. of mercury in which the degenerative change in the arterial walls is yet in its early stages. Inseparably interrelated with these cases of pure arteriosclerosis are those in which the degenerative changes have advanced further to the development of myocarditis and vascular nephritis. While it is true that the pathologist has on more occasions than one pointed out these different conditions and correlated their signs, yet their clinical separation is at times extremely difficult if not impossible.

Arteriosclerosis may exist and in its early stages be confined to one set of vessels, such as the splanchnics, the cerebral arteries, the coronaries, etc. It may even confine itself to the terminal arteries of an extremity, as witness Raynaud's disease. But, despite these variations in its location, there does not exist an arteriosclerosis in the presence of a good heart which does not invariably show an arterial hypertension, and the degree of hypertension taken in comparison with the pulse pressure gives most valuable evidence in arriving at correct conclusions regarding the degree of arterial involvement and the extent of involvement of additional closely related organs.

When renal changes have begun to develop the so-called arteriosclerotic or vascular nephritis, the most constant and characteristic sign is an additional increase in the hypertension. The range of readings after the development of renal changes may be considered as between 175 mm. of mercury for the minimum up to the highest recorded readings of 300 mm. and over, for in no other disease is such a degree of hypertension found as in vascular nephritis secondary to arteriosclerosis. The pulse pressure ranges from 70 to 90 or even 100 mm., witnessing the large amount of excess work the heart is called upon to perform.

The significance of the third stage findings, or that of myocardial degeneration, may be summed up under that well worn expression, "the begin-

*Read before the Alabama State Medical Association, Montgomery (Ala.) Session, 1914.

ning of the end." A high blood pressure and a wide pulse range indicate a well sustained circulation and a fairly adequate renal function, while a lowering pressure and a narrowing pulse range gives warning of a failing circulation to be followed by progressive renal insufficiency.

We conceive arteriosclerosis, vascular nephritis, and myocarditis, in the relationship above outlined, as constituting a single disease entity in which arterial hypertension exercises a most conspicuous part, not alone in the rôle of effect but also in that of cause. Excessive resistance in the systemic circulation, in a word hypertension, is probably the most important single factor concerned in the production of arteriosclerosis. Furthermore, arterial hypertension is the primary cause of the cardiac hypertrophy developing in the early stages of the disease and this same hypertension, greatly increased as the result of more general arterial involvement and the development of renal change is the primary cause of the final cardiac dilatation.

Excess tension in cardiovascular-renal disease therefore we do not consider compensatory in the sense that it is compensatory in tubular nephritis. A well sustained blood pressure at the time of the development of this triad of pathological changes is a most wise provision on the part of nature to maintain an adequate renal function, in so far as hypertension for this purpose may be necessary; but the all-important factor in this third stage is one of cardiac integrity and the progressive lowering of the blood pressure is an indication of a gradually dilating heart, the result of overloading, such overloading present in the form of excessive arterial tension.

The proof of this is shown by certain cases of generalized arteriosclerosis with high blood pressure, renal, and cardiac changes, in which conservative treatment by methods that reduced the blood pressure without depressing the heart, result not alone in improvement of the patient's subjective symptoms, but even in a moderate rise of the specific gravity of the urine, indicating, at least for the time being, improvement in metabolism and better elimination.

We do not pretend to assert that there is not a form of hypertension that is purely compensatory and that this hypertension is a salutary and beneficent process not to be lightly interfered with or illadvisedly altered. Such is the case in tubular nephritis in which there is interposed in the path of the circulation swollen and congested kidneys with lowered urinary output and the areolar tissues choked with fluid. In these cases the all-important object of treatment is the maintenance of a sufficiently high blood pressure to insure an adequate renal function and to prevent stasis and edema.

In the field of the acute infectious diseases hypertension is rarely seen during the ordinary course of the disease, but in two of these particularly, an estimation of the blood pressure is of peculiar value. In scarlet fever with its specter of acute nephritis constantly present, a gradually increasing blood pressure or more commonly, a sudden change from a hypo- to a hypertension, is the most trustworthy evidence we have of the onset of kidney involvement. In pneumonia we have in the blood pressure record most valuable evidence of the time at which stimulants are vitally indicated. In this connection the suggestion of Gibson serves as an excellent guide "when the pulse in number of beats exceeds the blood pressure in mm. of mercury, stimulants are indicated."

In obstetric practice blood pressure estimations are rapidly assuming an importance comparable with that of uranalysis. As an early sign of the development of the toxemias of pregnancy, hypertension is oftentimes present many weeks prior to the development of other objective symptoms. In a pregnant woman arterial hypertension is to be considered as a warning of defective metabolism and a definite indication for eliminative treatment.

In considering the treatment of arterial hypertension, of first importance is diet, for we believe that autointoxication is a factor to be reckoned with in all instances of this condition. By means of diet, together with proper elimination, we are able practically to control the hypertension of intestinal toxemias and modify that of all forms of toxemia. The skimmed milk diet of Oertel in nephritis and cardiac degeneration probably owes its greatest benefit to the marked reduction in blood pressure which ensues during its administration.

Ordinarily an excellent working rule in the dietetic management of hypertension is to reduce the total quantity of food taken perhaps by half for at least the first few days of treatment. This is of much more importance than merely to limit the protein consumption and increase in proportion the carbohydrate and fat. A mixed diet is preferable provided its quantity be sufficiently limited.

In medication we have in some cases a valuable means of controlling certain symptoms. To this end use is made of spirit of nitre, the nitrites, and upon occasion of nitroglycerin. Sodium iodide in small doses continued over a long period of time is of value in controlling excessive hypertension.

The question of exercise is one dependent almost entirely upon the condition of the myocardium. In very high pressure cases active exercise is contraindicated because of the danger of acute cardiac asystole or of hermorrhage. In cases with a moderate hypertension exercise is very valuable as a means of increasing metabolism and the elimination of waste products.

With the latter day therapeutic apparatus there is offered a most efficient means of combating many of the disease processes dependent upon faulty metabolism. Included among these is arterial hypertension with its associated cardiovascular-renal disease. The high potential static modality with its immense voltage and the high frequency coils and transformers with their high amperage are the two most efficient means with which to obtain therapeutic results.

Autocondensation, according to the method of D'Arsonval, with transformer, resonator, and dielectric in proper circuit, has proven itself a most valuable means of holding in check the pathological advances of this disease and particularly in controlling the excess arterial hypertension. This result is dependent upon a complex action of the current, first upon metabolism producing increased tissue combustion and accelerating the processes of elimination, as shown by increased solids in the urine, and by its effect upon the vasomotor centers and the arterioles, inducing relaxation.

The physiological effects of autocondensation as thus outlined are indicated in the care of all patients showing an arterial hypertension, provided such hypertension is not compensatory. In the presence of hypertension, compensatory in character, as that of tubular nephritis, autocondensation

should not be employed but rather those means which promote increased hyperemia in the peripheral vessels. Such are radiant light and heat. Hyperemia induced by convective hot-air baths increases the lumen of peripheral vessels, relieves congestion and augments the elimination of toxins. These methods of treatment persisted in with care and discretion will enable us to improve very much the results of the past in the care of this class of patients.

## VARIX OF THE INTERNAL SAPHENOUS VEIN RESEMBLING A STRANGULATED FEMORAL HERNIA.

By G. P. COOPERNAIL, M.D.,

BEDFORD, N. Y.

THE following case presents certain points of interest which make it appear worthy of record:

Mrs. W. J., aged sixty-two, married, born in U. S. Occupation, housewife.

*Family History.*—Father died of cancer of the liver at the age of seventy-one. Mother's father died of cancer of the glands of the neck at the age of sixty-one. One sister died of cancer of the uterus at the age of fifty-five. Her mother had a large umbilical hernia. Two of her brothers and one sister had inguinal hernias.

*Past History.*—Never had any serious illness until the present trouble. Menses began at thirteen, always regular, no pain or hemorrhages. Menopause at the age of fifty. Had three children, youngest twenty-two. Never troubled with constipation. About twenty years ago when she was carrying a small wooden tub to the sink she slipped and forced the edge of the tub against her right groin, the bottom of the tub striking the sink. She fell against the edge of the tub with no little force and the injury was very painful. A few hours later she noticed a lump in her groin where the edge of the tub struck her. When she first noticed it, it was the size of a hen's egg. A physician was called in and told her that she had ruptured herself and advised her to wear a truss. She wore a truss for six months but found she was more comfortable without it so she discarded it and never used a truss since that time. This lump has slowly increased in size up to date of present trouble when it was the size of an orange. It would always disappear on pressure and when the patient was lying on her back it would decrease very much in size. It was always a little sensitive and when the woman was working hard and on her feet all day it would ache and at times pain her quite severely. The pain would radiate up into her abdomen and down her leg. The present trouble dates from June 21, 1912. She was in the city and had been on her feet all day shopping. Late in the afternoon she began to have pains in the lump in her groin, so much so she could not walk home. She slept very little during the night on account of the pain. The morning of the 23d she felt a little better so was able to go to her home in the country. Shortly after she arrived home she had a chill, and following this she had an attack of vomiting and the lump became very painful. She then noticed that for the first time she could not reduce it. Also that it had increased very much in size. She had a very bad night, having several attacks of vomiting and a good deal of pain. The morning of the 24th she was no better and during the day she became progressively worse. During the day she had several attacks of vomiting, but there was no very bad odor to the material she vomited. The bowels had not moved since the beginning of the trouble but she had passed a little flatus. I saw her for the first time in consultation the 24th at five P. M. She had had no physician before the morning of the 24th.

*Physical Examination.*—The patient is well nourished; examination of heart, lungs, and kidneys negative. Abdomen slightly distended, tender over the right iliac region, with some rigidity of right rectus. In the right groin is a tumor located over the femoral fossa extending upwards over the edge of Poupart's ligament. It measures 10 cm. long and 8 cm. wide. It is very tender and hard on pressure, slightly movable, no pulsation, slight impulse on coughing. It could not be reduced by quite persistent taxis or by the use of the ice bag. Pulse 110, temperature 101°, respiration, 26. The patient says she feels very sick, and the tumor in the groin gives her much pain.

A diagnosis of strangulated femoral hernia was made, and an operation was advised at once. She was moved to the hospital where she was seen by three of my colleagues and they confirmed the diagnosis of strangulated femoral hernia.

*Operation* the same day at eight P. M. Anesthetic, ethylchloride and ether. Incision made across center of the tumor. When the sac was exposed we found the contents quite firm and as seen through the thin wall of the sac, dark and of the appearance of a gangrenous gut. The sac was first separated below and found to communicate with a blood-vessel. With further dissection down the leg it was found to be a varix of the internal saphenous vein. Incision was made into the tumor and it was found to be filled with a firm but not organized blood clot. This was easily shelled out and as soon as it was removed the blood welled out of both ends of the vein. The vein was so large that when I first discovered that it was a blood-vessel I thought it was the femoral vein:

The hemorrhage was easily controlled by clamping above and below. Both ends were ligated and the sac was removed. The wound was closed without drainage.

The wound healed by primary union. Twenty-two months after operation there had been no recurrence or further trouble in that region.

## Medicolegal Notes.

**Negligence—Evidence.**—In an action against a physician for negligence in treating a wound it appeared that the plaintiff had the index finger of his right hand crushed between two pieces of iron and immediately went to the defendant for treatment. The wound was dirty and ragged. The hand and forearm, within less than a week, became so infected that several operations at a hospital to which the plaintiff afterwards went had to be made to drain off pus and insert drainage tubes; and the usefulness of the plaintiff's hand was largely impaired. After washing the wound, the defendant had stretched the skin over the bone and stitched it in place. The trial court directed the jury to find for the defendant. On appeal this was affirmed. There was no expert testimony as to whether the infection was caused by the defendant's failure to sterilize his instruments or by the removal of the bandage by third persons without authority, but the evidence seemed to show that the infection developed after such removal, and there was no expert testimony as to the effect of the subsequent treatment of the wound at the hospital to which the plaintiff went. It was not error to exclude a question to an expert witness as to what would be indicated if the skin when stretched over the bone and stitched was tight, where the witness fully covered the point in his testimony, and it was not claimed that the infection complained of was produced by the manner in which the skin was stretched.—Moline v. Christie, 180 Ill. App. 334.

**Recognized School of Medical Treatment—Measure of Degree of Care and Skill.**—On the trial of an osteopath for manslaughter it was held to be erroneous to permit an allopathic physician to testify as an expert as to the correctness and professional skill of the treatment administered. The treatment of a physician of one particular school, it was said, is to be tested by the general principles and practices of his school, and not by those of other schools, and a physician or surgeon is bound to exercise such reasonable care and skill as is possessed and exercised by physicians and surgeons generally in good standing of the same system or school of practice or treatment in the locality and community of his practice, having due regard to the advanced state of the school or science of treatment at the time of such treatment. "When a patient selects any one of the many schools of treatment and healing to save him, he thereby accepts and adopts the kind of treatment common to that school or class, and the care, skill, and diligence with which he is treated, when questioned in a court of justice, should be tested by the evidence of those who are trained or skilled in that school or class."—State v. Smith, Idaho Supreme Court, 138 Pac. 1107.

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## ELECTRICITY IN THE ABORTIVE TREATMENT OF ACUTE GONORRHEA.

THE use of electricity in the treatment of chronic gonorrhea and its sequelæ is a well known, even if little used, procedure, but Virghi (*Journal d'Urologie*, April, 1914) has gone a step further and employs this remedy in the abortive treatment of acute gonorrhea. Before describing his method the author discusses the indications for abortive treatment. Cases of acute gonorrhea fall into one of two classes: (1) There may be a reinfection from a deep focus; these cases will not respond to abortive treatment since the deep focus cannot be reached and may constantly reinfect the anterior mucosa. (2) The attack may be the first that the patient has ever had, or it may be a fresh attack in a patient who has had gonorrhea previously but had been entirely cured; these are both amenable to the abortive treatment. As to the time limit of successful abortion of the disease, he says the duration of life of the gonococcus on the surface of the mucosa has usually been estimated as not over three to seven days, after which time the organisms which live have insinuated themselves into the subjacent tissues. Virghi thinks, however, that the period is longer than this, for he has treated cases successfully by his method as late as the eleventh day after the appearance of the discharge.

The treatment proposed by Virghi is divided into two stages. In the first, or electrolytic stage, the patient having urinated, the anterior urethra is washed with sterile water by repeated and gentle syringing. Then 5 c.c. of a 2 per cent. cocaine solution is thrown into the urethra, and retained three or four minutes, while the penis is drawn forward in order to distend the folds of the mucosa and thus allow the solution to come in contact with the entire surface. The solution is now expelled by stripping the urethra carefully and then an injection is made of 5 c.c. of protargol, which is retained in the anterior urethra until the completion of treatment. The positive electrode is placed anywhere on the left thigh, and the negative electrode, composed of a flexible metallic staff with insulated surface, carrying a ball, size 13-14 Charrière, attached at the tip, is passed into the urethra, care being taken that none of the protargol escapes. An assistant, charged with regulating the amount of the continuous current, moves the switch, noting the progressive displacement of the needle of the milliampèremeter, and calls out the degree attained. At the same time the operator imparts to the staff gentle and slow movements in and out, touching successively all the walls of the urethra as far as the bulb, in order to conduct the continuous current there through the ball which is plunged in the protargol solution. When the patient, who has been previously warned, experiences a sensation of smarting or tingling in the region of the positive electrode, the intensity of the current is reduced without, however, suspending the movements of the olive. The maneuvers in the interior of the urethra do not cause any disagreeable sensation. Three to four minutes suffice for this portion of the séance. At the end of twenty-four hours this procedure is repeated in every detail. Whether a third treatment should be given will depend upon the result of microscopic examination of the secretion. The presence of the gonococcus constitutes a definite indication for it, providing the reaction of the urethra or the sensitiveness of the patient permit it; if not, the treatment must be deferred to the following day, the anterior urethra being irrigated with boric solution.

The second stage of the treatment consists in the daily lavage of the anterior urethra with boric solution or with sterile water, followed every two or three days by massage upon a straight sound. In addition endoscopic applications of protargol or 4 per cent. silver nitrate solution, according to the resistance of the local infiltration, are made in the region of the fossa navicularis. If the gonococcus reappears in the secretions another series of two electrolyses should be given in order to rid the urethra permanently of this organism.

The author has treated ninety-two cases in about two years, and claims 100 per cent. cures. The duration of treatment varies in accordance with the more or less prompt employment of the method after the first appearance of discharge. In fifty-seven cases where the début was one to three days previously, cure was obtained in eight days on the average; in twenty-four cases where the discharge existed four to six days, all were cured in eleven days; in nine cases of seven to ten days' standing, cures resulted in twenty to twenty-five days; while one case of eleven days' duration required thirty-three days for the cure. There were no complications that Virghi thinks should be attributed to the method, though there were some due to forcible injections made by the patients before consulting him.

The author claims that the abortive electrolytic procedure is the only one which is capable of giving absolutely sure and permanent results in recent cases of acute gonorrhea, it being understood that the operator is master of the technique and the patient obeys his directions. If these claims are verified by other observers, a great step forward will have been made in the treatment of this treacherous disease.

## THE PATHOLOGY AND ETIOLOGY OF DUODENAL ULCERS.

At the recent meeting of the International Society of Surgery in New York the subject of duodenal ulcers was fully discussed and perhaps the question of their causation and treatment was placed on a firmer basis. Nevertheless, our knowledge of the causation of such ulcers is still lacking in many respects and any investigations which will tend further to elucidate the matter, will, of course, be welcomed.

At a meeting of the Edinburgh Medico-Chirurgical Society held on May 6, 1914 (*Lancet*, May 23). Mr. D. P. D. Wilkie read a paper on the pathology and etiology of duodenal ulcer. In this paper he demonstrated certain facts gained chiefly from the postmortem room. During the past three years he had investigated the condition of 400 cadavers and he had met with 41 cases of duodenal ulcer, in only six of which had the ulcer had any direct connection with the death of the patient. In only six cases had a diagnosis been made before death and in all of these operation had been performed. In one or two cases where a chronic ulcer had been found it had caused during life none of the typical symptoms. Such "silent" ulcers might attain considerable size and cause death from hemorrhage or perforation without having previously given any noteworthy symptoms. The "syndrome pylorique" described by Soupault and resembling the Moynihan symptom-complex of duodenal ulcer might be, but was not invariably associated with a duodenal ulcer. This point was emphasized by some of the French surgeons who took part in the discussion at the Surgical Congress in April.

Wilkie concluded from his investigations that (1) Duodenal ulcer is a disease of frequent occurrence and one which often passes unrecognized. (2) Although, as a rule, readily recognized, a chronic ulcer may occasionally exist and give rise to none of the characteristic symptoms, the first evidence of such a "silent" ulcer being sometimes its perforation; (3) "Silent" duodenal ulcers are met with most frequently in the subjects of arteriosclerosis and are found for the most part on the posterior wall. (4) Some toxic or irritative factor, usually within the abdomen and most often associated with the colon or appendix, is found in a large proportion of cases. (5) Probably many acute duodenal ulcers are primarily follicular ulcers from the breaking down of inflamed lymph follicles. (6) Whatever be the primary cause of a gastric or duodenal ulcer, spasm of the muscular coats of the viscus is an important factor in determining its chronicity. (7) The situation of the opposing ulcers on the anterior and posterior walls on the boundary zone of the areas supplied by the anterior and posterior branches of the supraduodenal artery suggests that a common vascular deficiency, rather than a contact infection, accounts for the multiple ulceration with its tendency to chronicity. (8) This vascular deficiency may be due to arteriosclerosis, but probably it is usually due to spasm of the muscular coats of the duodenum induced by a slight local anemia consequent on strain on the supraduodenal vessels, this muscular spasm being favored by the increased vagotonus and the irritable condition of the autonomic nervous system which exists in such cases. (9) The sex incidence of duodenal ulcer is to be explained on anatomical grounds. The relatively high pylorus and short fixed duodenum of the male allow of its vascular supporting ligament, the hepatoduodenal ligament, being exposed to strain, which in the female with her relatively low pylorus and lax duodenum falls on the left border of the gastrohepatic omentum and lesser curvature of the stomach. (10) The fixity of the male duodenum further predisposes to kinking at the first duodenal angle and thus to an unduly long exposure to the acid chyme from the stomach.

It will be gathered from the above conclusions that Wilkie favors Sir Arbuthnot Lane's theory as to kinks and bands being causal agents of duodenal ulcers in that they subject the first part of the duodenum to an unduly long exposure to the acid chyme from the stomach.

## A STATE MEDICAL SERVICE.

The old order is changing everywhere. In England more quickly than in any part of the civilized world. Whether, however, many of the changes are for the ultimate good of the individual, the community, the nation, or the race is an altogether different matter. It is argued by some that the State should assume control of most human activities, as such a course must benefit the people as a whole. Although this is not the place to discuss the question, it may be pointed out that in those countries in which the State has taken upon itself the direction of many activities the result has not been strikingly successful. Unfortunately, so long as politics enter so largely into the guidance of all human affairs there will be corruption, and the fact that the State is at the helm affords no guarantee that concerns under its management will be run either efficiently or honestly.

Recently there has been raised by some medical practitioners in certain countries, notably in Great Britain, the cry that the medical profession should be State controlled, and a beginning in this direction has been made by the establishment of national insurance. In *Popular Science Monthly* for June, 1914, Prof. Paul L. Vogt pleads for a State controlled profession mainly for the reason that the prevention of disease would be more greatly aimed at than its cure. This is true to a large extent and prevention of disease might be greatly aided by a medical service devoted chiefly to this end. But it must not be forgotten that disease will be always with us, and that treatment will ever be the chief part of the physician's work. One objection urged in England against the establishment of a State controlled medical service is that patients would not be able to have free choice of medical attendants. The pros and cons are numerous and the entire matter requires much more discussion ere the medical profession or the community will be convinced that a State controlled medical service is desirable.

### The Bacteriology of the Blood in Typhoid Fever.

An important study of this subject has recently been made by Stanislaus Sasky, who reports his results in the *Zeischrift für klinische Medizin*, Vol. 80, Nos. 1 and 2. His investigation was carried out on eighty cases of typhoid fever. Blood cultures were made in conjunction with the determination of the Widal reaction. The author's conclusions are fully in agreement with those that have been arrived at by other investigators. Thus the typhoid bacteriemia is an almost constant occurrence in the first week of the disease and tends to disappear in the course of the following weeks. In certain mild cases of typhoid fever the causative organisms may be detected in the blood even during the entire febrile period of the disease. There is a relationship between the bacteriemia and the severity of the disease. In the severe and moderately severe cases the bacilli may be isolated from the blood in the second and even in the third weeks of the disease, whereas in the majority of the mild cases the microorganisms are no longer to be found in the blood in the second week of the disease. In comparing the bacteriological findings with the results of the Widal reaction the author notes that even in the course of the second week the blood culture gives a higher percentage of positive results than does the agglutinative reaction. This apparently holds true of the first week, but on account of his scanty clinical material Sasky does not feel justified in drawing a definite conclusion upon this phase of the subject. Following the second week the relationship is reversed. Accordingly the bacteriological findings must be regarded as the most reliable diagnostic criterion of the early stages of typhoid fever, while the febrile curve must be regarded as the most important diagnostic feature of the later stages.

### Treatment of Villous Tumors of the Bladder with the High Frequency Current.

The work of Beer of New York on the "oudinization" of vesical papillomata is well known both at home and abroad. Indeed von Frisch of Vienna terms this procedure "Beer's method." Often termed fulguration, it is said to be in reality a method of desiccation only—an expulsion of all aqueous content without any strict caustic or coagulant action. Judd of the Mayo Clinic has found this method of treatment of the greatest value in heading off recurrence. It is therefore calculated to surprise us when we note in the transactions of the recent Congress of the German Surgical Society (*Berliner klinische Wochenschrift*, May 11, 1914) that Joseph, in a paper on the high tension current in the treatment of villous tumors of the bladder, does not even allude to the work of the Americans, and the same silence is maintained in the discussion of his paper. It is true that Joseph uses diathermy, or, in other words, thermocoagulation to gain his end. His high frequency current serves for this purpose only. His indications and results, however, seem to be closely allied to those reported by Beer, Judd, and others. From the discussion it appears that thermocoagulation has been in use for at least three years in this clinical field, coincident with the introduction of diathermy into practice. It may therefore slightly antedate the method of "oudinization" of Beer. In any case the failure to allude to the latter's independent pioneer work is strange.

## News of the Week.

**Hospital Ship Ashore.**—The hospital ship *Maine*, which was presented to the British nation by Americans and equipped and mantained during the South African War by the Hospital Ship Maine Committee, composed of American women, went ashore on the west coast of Scotland on June 17 and suffered severe injury. A large number of patients were on board but all were removed in safety.

**Opium Conference.**—The International Conference on Opium opened at The Hague on June 15, when it was announced that all the States except Servia, Turkey, and Greece had given their adherence to the decisions of the last convention.

**"Eugenics" Law Upheld.**—The Wisconsin Supreme Court on June 17 sustained the so-called Wisconsin "eugenics" law, which provides that couples intending to marry must in order to obtain a license present certificates from physicians stating that they are physically fit. The Supreme Court thus reverses the decision of the lower court, which had held that the law was unconstitutional.

**New Drug Law.**—On July 1, 1914, the recently adopted act to amend the public health law of New York State in relation to the sale of habit-forming drugs becomes effective, and physicians are advised that it is important to make immediate application to the Secretary of the State Board of Health, Albany, N. Y., for a supply of official order blanks for the purpose of providing themselves with heroine, morphine, codeine, etc., after that date. At the same time it is reported that, because of the failure of the Legislature to make an appropriation for the purpose, no blanks for physicians' and pharmacists' use have been printed.

**Charitable Bequests.**—The will of the late Mr. James Campbell of St. Louis, Mo., disposing of an estate estimated to be worth from $30,000,000 to $60,000,000, provides that all but a few million dollars shall eventually go to St. Louis University for the founding of a large hospital. Subject to a life interest of the testator's widow and daughter and to bequests of $1,000,000 each to the daughter's heirs, Mr. Campbell ordered that the entire estate twenty-one years after the death of his daughter should be turned over to the university to be used "for the erection, equipment, and maintenance of a hospital in St. Louis or St. Louis County for sick and injured persons and for the advancement of the science of medicine and surgery, absolutely and forever." St. Louis University is a Roman Catholic institution and is conducted by the Jesuits. It is doubtful that the will be admitted to probate without a contest on the part of some of the relatives of Mr. Campbell.

The Presbyterian Hospital of Philadelphia receives a bequest of $1,000 by the will of the late Mrs. Annie E. Claghorn of that city.

The Stamford Hospital, Stamford, Conn., receives a bequest of $7,500 by the will of the late Mrs. Alice P. Getman, the money to be used for the endowment of a bed to be known as the Charles H. Getman bed. The will also contains a bequest of $1,000 to the Servants of Relief for incurable cancer patients, New York.

The city of Vinton, Ia., is to be provided with a hospital through the generosity of the late Mrs. Virginia Gay, whose will provides for a bequest of $50,000, of which $20,000 is to be used for the

building and $30,000 for maintenance. The city is to provide a site and the institution is to be known as the Virginia Gay Hospital.

Mr. George W. Nevil of Philadelphia has made a gift of $5,000 to St. Joseph's Hospital for the endowment of a perpetual free bed in memory of the family of Joseph and Amelia Nevil.

**New Memorial Hospital.**—Mr. E. C. Benedict of Greenwich, Conn., has promised the Greenwich Medical Society that he will provide a modern hospital for the town, on condition that the present General Hospital and Greenwich Hospital are abandoned. The former will probably be converted into a hospital for contagious diseases and the latter may become a private hospital. The new hospital is to be known as the Benedict Memorial and will, it is estimated, cost about $125,000.

**Gift to Johns Hopkins.**—It has been arranged by the General Education Board to pay in a lump sum the recent grant of $1,500,000 to the Johns Hopkins Medical School for the establishment of the William H. Welch Endowment for Clinical Education and Research. The fund will be turned over to the school within two weeks.

**Personals.**—Dr. HERBERT S. BIRKETT, professor of otology and laryngology in McGill University, Montreal, has been appointed dean of the medical faculty of the university, succeeding Dr. Francis J. Shepherd, resigned. Dr. Birkett was graduated from McGill in 1881, and is an ex-president and a member of the Council of the American Laryngological Association, and a member of the American Academy of Ophthalmology and Oto-Laryngology, the British Medical Association, the Montreal Medicochirurgical Society, and other special societies.

Dr. EDWARD ANTHONY SPITZKA of Philadelphia, who since 1906 has been professor of anatomy in the Jefferson Medical College, has recently resigned his chair and will establish himself in New York.

**Honorary Degrees.**—At the 214th commencement of Yale University on June 17, the honorary degree of Master of Arts was conferred on Dr. Edward Robinson Baldwin of Saranac Lake; Dr. Fred Towsley Murphy of St. Louis, professor of surgery in Washington University; Dr. John Howland of Baltimore, professor of pediatrics in the Johns Hopkins Medical School; Dr. Charles Franklin Craig of Washington, director of the Army Medical Museum; Dr. Elliott Proctor Joslin of Boston, assistant professor of medicine in Harvard University; Dr. Henry Hun of Albany, professor of diseases of the nervous system in the Albany Medical College; Dr. Oliver Cotton Smith of Hartford, Conn.; and Dr. William Francis Verdi of New Haven, Conn. The degree of doctor of science was conferred on Dr. Richard Pearson Strong of Boston, professor of tropical medicine in Harvard University.

Dr. L. Emmett Holt of New York, professor of pediatrics in the College of Physicians and Surgeons, Columbia University, received the degree of Doctor of Science from Brown University on June 17.

Dr. Milton Joseph Rosenau of Boston, professor of preventive medicine and hygiene in the Harvard Medical School, was given the honorary degree of Master of Arts by Harvard University on June 18.

Dr. Michael J. Lawlor of Waterbury, Conn., received the honorary degree of Master of Arts from Holy Cross College, Worcester, Mass., on June 17.

**The Mohansic Hospital.**—Governor Glynn has vetoed a bill passed at the recent session of the New York State Legislature, which provided for the abandonment of the State Hospital at Mohansic, N. Y., as well as a companion bill appropriating $200,000 with which to begin a new State hospital for the insane at another place. In a memorandum explaining his action the Governor points out that to abandon the Mohansic State Hospital now, after the State has invested nearly half a million dollars in erecting buildings, providing water pipes and drainage, and building a railroad, would be unwise and extravagant. The sale of the site for other purposes at the present time would, it is estimated, entail a public loss of more than $250,000. The hospital has been planned to relieve the congestion in the hospitals for the insane in New York City, and the site selected is situated only forty miles from the city. Construction has been halted because the health authorities refused to permit a large institution to be situated in the watershed, but their objections have been overcome by the provision of an adequate system of sewage disposal, and there seems to be no good reason why the work should not proceed at once.

**Medical College Commencement.**—At the annual commencement exercises of the Jefferson Medical College, Philadelphia, on June 6, the degree of doctor of medicine was conferred on 147 graduates. The valedictory address was delivered by Dr. Henry Harbaugh Apple, president of Franklin and Marshall College, who spoke on "Ideals of Education for the Profession of Medicine."

**Medical Society of New Jersey.**—The 158th annual meeting of the Medical Society of New Jersey will be held at the New Monmouth Hotel, Spring Lake, N. J., on June 29 and 30 and July 1, 1914, under the presidency of Dr. Enoch Hollingshead. The oration in medicine will be delivered by Dr. Lewellys F. Barker of Baltimore, and the oration in surgery by Dr. John B. Deaver of Philadelphia. On the first day the society will hold a joint meeting with the New Jersey State Pediatric Society, and on the next day there will be a symposium on hospitals at the morning session, and the annual banquet in the evening.

**Medical Society of the Missouri Valley.**—Under the auspices of the Polk County Medical Society, the twenty-seventh annual meeting of the Medical Society of the Missouri Valley will be held on September 17 and 18 at Colfax Springs, and on September 19 at Des Moines, Ia., the scientific sessions being held on the first two days, and an interesting series of clinics on the last. Dr. Charles Wood Fassett of St. Joseph, Mo., is the secretary of the society.

**Medical Society Elections.**—MAINE MEDICAL ASSOCIATION: Annual meeting at Portland on June 10 and 11. Officers elected: *President*, Dr. Herman L. Bartlett, Norway; *Vice-presidents*, Dr. Albert L. Stanwood, Rumford; and Dr. Leander A. Dascombe, Showhegan; *Secretary*, Dr. John B. Thompson, Bangor; *Treasurer*, Dr. Edwin W. Gehring, Portland.

MASSACHUSETTS MEDICAL SOCIETY: Annual meeting at Boston on June 9 and 10. Officers elected: *President*, Dr. Charles Francis Withington, Boston; *Vice-president*, Dr. Samuel B. Woodward, Worcester; *Secretary*, Dr. Walter B. Burrage, Boston; *Treasurer*, Dr. Edward M. Buckingham, Boston; *Librarian*, Dr. Edwin H. Brigham, Brookline. Dr. Everett A. Bates, Springfield, was appointed to

deliver the annual oration at the meeting next year.

Alumnae Association of the Woman's Medical College of Pennsylvania: Annual meeting at Philadelphia on June 5. Officers elected: *President*, Dr. Elizabeth L. Peck; *Vice-presidents*, Dr. Marie L. Bauer and Dr. Frances C. Van Gasken; *Recording Secretary*, Dr. Jacobina S. Reddie; *Corresponding Secretary*, Dr. Mary Buchanan; *Treasurer*, Dr. Ellen C. Potter.

**Centenarians Again.**—Mrs. Maria Lossaso of West Paterson, N. J., who was married five years ago, when 105 years old, died of heart disease, at St. Joseph's Hospital, Paterson, on June 8, at the age of 110 years.

In London, on June 9, Rebecca Clark, said to be the oldest Englishwoman, gave a birthday party on her 110th anniversary.

**Obituary Notes.**—Dr. Maus Rosa Vedder, until recently of New York, a graduate of the College of Physicians and Surgeons, New York, in 1861, formerly assistant surgeon in the United States Army, and a member of the New York State and County Medical Societies, died at his home in Caldwell, N. J., on June 13, aged seventy-nine years.

Dr. Leland Madden Baker of Lynn, Mass., a graduate of the Boston University School of Medicine, Boston, in 1894, died at his home, from Bright's disease, on May 26, aged 45 years.

Dr. Carroll E. Proctor of Weld, Me., a graduate of the Dartmouth Medical School, Hanover, N. H., in 1880, a member of the Maine Medical Association and the Franklin County Medical Society, and from 1894 until 1902 superintendent of schools at Weld, died at his home, from lead poisoning, after a long illness, on May 13, aged 55 years.

Dr. Samuel Flagg of Worcester, Mass., a graduate of Dartmouth University, Hanover, N. H., in 1841, and of the University of Pennsylvania, Department of Medicine, Philadelphia, in 1845, a surgeon in the United States Army during the Civil War, died at his home at Lake Quinsigamond, on June 5, aged 93 years.

Dr. William Jasper Wilhite of Modesto, Cal., a graduate of the College of Physicians and Surgeons, Keokuk, Ia., in 1867, a surgeon in the Confederate Army during the Civil War, died at his home on May 31, aged 77 years.

Dr. Otto Gustaf Ramsey of New Haven, Conn., professor of obstetrics and gynecology in the Medical Department of Yale University, died at his home from pneumonia, on June 12, at the age of 44 years. Dr. Ramsey was graduated from the University of Virginia, Department of Medicine, Charlottesville, in 1890, and later served as associate in gynecology at the Johns Hopkins Medical School. In 1899 he joined the Medical Faculty of Yale. He was consulting physician to the New Haven Hospital, and was also a member of the American Medical Association, the Connecticut State and New Haven County Medical Societies, and the Medico-Chirurgical Faculty of Maryland. During his last illness he received two transfusions of blood from his friend, Dr. B. H. Moore, a service for which the entire senior class of the school had volunteered.

Dr. Sidney H. Gardiner of Brooklyn, N. Y., a graduate of Queen's University Medical Faculty, Kingston, Ont., in 1889, formerly adjunct surgeon to the Long Island College Hospital, and associate physician to the Bushwick Hospital, and a member of the American Medical Association, the Clinical Congress of Surgeons of North America, and the New York State and Kings County Medical Societies, died in a sanatorium, following an operation for appendicitis, on June 11, aged 52 years.

Dr. Ezra New of Dublin, Ga., a graduate of the University of Georgia, College of Medicine, Augusta, in 1887, and a member of the Medical Association of Georgia and the Laurens County Medical Society, died at his home after a brief illness, from angina pectoris, on June 5, aged 54 years.

Dr. Edward J. O'Brien of Chicago, a graduate of the Rush Medical College, Chicago, in 1906, died at West Baden, Ind., where he had gone to recover his health, on June 5, aged 35 years.

Dr. T. E. Enloe of Nashville, Tenn., a graduate of the University of Nashville, Medical Department, in 1874, died at his home from paralysis, on May 26, aged 69 years.

Dr. Henry St. George Lyons Hopkins of Fresno, Cal., a graduate of the University of Pennsylvania, Department of Medicine, Philadelphia, in 1855, a veteran of the Civil War, having served throughout with the Confederate Army, and for thirty-three years a practitioner in Fresno, died at his home, on May 25, aged 79 years.

Dr. James M. Keller of Hot Springs, Ark., a graduate of the University of Louisville, Ky., Medical Department, in 1852, died at his home on May 27, aged 82 years.

Dr. George W. Newman of Brooklyn, N. Y., a graduate of the New York University Medical College in 1864, surgeon in the Fifth New York Heavy Artillery during the Civil War, died at his home on June 13, aged seventy-two years.

Dr. Eli R. Tullis of Camden, N. J., a graduate of the Hahnemann Medical College and Hospital, Philadelphia, in 1879, and a member of the staff of the West Jersey Homeopathic Hospital, died at his home on June 12, aged seventy-seven years.

Captain George P. Bradley, M.D., Medical Director in the United States Army, a graduate of the College of Physicians and Surgeons, New York, in 1870, and a member of the American Medical Association and the Massachusetts and Worcester District Medical Societies, died at his home on June 14, aged sixty-five years. Dr. Bradley entered the navy as an assistant surgeon in 1870, and was promoted until, in 1887, he became a medical inspector, serving on the *Indiana*. In 1900 he was placed in charge of the Mare Island Naval Hospital and in the same year was made a medical director. From 1903 to 1905 he was in charge of the Naval Hospital in Washington, and from 1905 to 1907 of the Naval Hospital at Portsmouth, N. H.

Dr. Frank R. Newman of Brooklyn, N. Y., a graduate of the Bellevue Hospital Medical College, New York, in 1871, died at his home on June 13.

## Correspondence.

### OUR LONDON LETTER.

(From Our Regular Correspondent.)

"DILATATION MURMURS"—LEUCEMIA—SUSPENSION LARYNGOSCOPY—"DRUGS OF ADDICTION"—HOSPITAL FINANCES—PATENT MEDICINE COMMITTEE—HOUSE FLIES—SMALLPOX.

London, June 12, 1914.

Murmurs in a dilated heart are often the subject of some anxiety or annoyance on account of the difficulty of explaining them. Dr. Samuel West, on the 26th inst., read a paper on them at the Medical Section of the Royal Society of Medicine, of which

he is president. He began by saying murmurs were audible eddies, a definition to which objection was afterward taken. He said a so-called jet produced violent eddies and then enumerated the conditions which led to eddies and murmurs in the vessels, according as blood was passing into or out of a dilatation of a vessel or through a constriction of it. Their force would vary with the force of the circulation. Similar conditions might be met with in the heart with organic disease, but he was only concerned on this occasion with murmurs where there was no organic disease, but only dilatation. These, which he called "dilatation murmurs," might be basic or ventricular and in each case on the right or the left side. *Basic* murmurs were sometimes called hæmic or functional, both undesirable terms; if on the left side and arising in the pulmonary artery they might be due to eddies caused by the blood passing through the normal orifice into a dilated artery above; more likely out of the dilated right ventricle behind; sometimes possibly to a dilated left auricle pressing on the pulmonary artery. At the right base a peculiar systolic murmur over the aorta might for a moment suggest aortic disease when it was found transient on longer observation. *Ventricular* dilatation murmurs were almost always systolic in time, soft and flowing in character, limited to the preordial area, and rarely propagated to the axilla or back. They were commonly referred to regurgitation through the auriculoventricular orifice. If they were they should be propagated as those due to organic disease but were not. He held they were caused by intraventricular eddies.

Dr. A. F. Voelcker said he too had been in the habit of calling these sounds "dilatation murmurs," but though there was much to learn as to their cause, there was no evidence that an eddy could produce a murmur—if it could it would be by vibration of the cardiac wall. Apical systolic murmurs were common in children in any acute illness; he had always thought them best explained by dilatation of a ventricle—but of the right, not of the left. Dr. Alexander Morison said occasionally apical murmurs were rough and propagated round the left side to the back. They could scarcely be other than due to forcible regurgitation through the mitral orifice dependent on acute dilatation, which might pass off or be fatal. The apical murmurs described by the president he regarded as due to actual regurgitation. The aorti systolic murmur referred to he thought due to dilatation of the left ventricle with relative stenosis of the aorta. The importance of apical murmurs in young people was at the present time often made too light of. Dr. Bezley Thorne called these murmurs "postural." They were curable but not to be made light of, as they were not produced by healthy hearts. Dr. Parkes Weber mentioned the murmur about one ear synchronising with the pulse ("pulsating tinnitus"). It worried patients but was not due to aneurysm. It was transient.

At the same meeting Dr. Michell Clarke read an account of the pathological changes in a case of leucemia under the prolonged use of *x*-rays—more or less continuously from 1908 to 1913. At first the spleen only was rayed, later the bones also. For two and a half years the treatment was successful. The enormous spleen, reaching to the iliac crest, gradually became small and hard. Then the liver began to enlarge and at length seemed to fill the abdomen. After 1911 the rays seemed to lose their power of keeping the disease in check. Death took place in July, 1913, from toxemia, hectic, emaciation, and hemorrhage from the gums.

In the Section on Laryngology Professor Gustav Killian gave a demonstration of "Suspension Laryngoscopy." One patient sent for examination had a laryngeal growth. I was not at the meeting, but a friend gave me a report of the proceedings and estimated that the most prevalent opinion was not in favor of the new method. One practitioner asked an old laryngologist what he thought of it. The wary veteran replied with another question. What would most patients think of being asked to lie on the back on the table and hang the head over the edge, with a support to steady it while the light was directed into the open mouth?

The Roentgen Society has been holding an exhibition. A large collection of plates and prints showed how *x*-rays can be utilized in exploring various parts of the body. Photographs of the bismuth meal, of tubercles, of growths in the lungs, and so on, showed their value for diagnosis. Instantaneous radiographs give clearer views than the old photos and can be obtained through the thickest tissues. They only required a 1/100 second exposure. Some new electroscopes were also said to be capable of determining the radioactive material present in ores in extremely minute quantity.

"Drugs of Addiction"—not a very elegant name, but your readers will recognize what is intended. The expression has been chosen for a letter to a newspaper warning the public against the danger of morphine and other sedative drugs. The writer gave a very good account of the injury produced by indulging in their fascinating (shall we not say intoxicating?) effects. He pointed out that various countries had restricted their sale by legislation, but that our parliament had done nothing. As a physician to a large public asylum, he spoke of his own experience of dozens of brilliant careers wrecked and homes ruined through the drug habit. Not engaged in private practice, he was well qualified to appeal to the public and tell them many things familiar enough to the profession. Perhaps in his enthusiasm he was rather rhetorical, and the physician to another asylum forthwith accused him of exaggeration and declared that few cases admitted to his institution were due to the drug habit, adding that the Report of the Commissioners in Lunacy last year gave only twenty-six cases in five years certified as due to drugs out of over 12,000 patients entering all the asylums in England and Wales per annum, and some of these were combined with alcoholism. Thus, we have a discussion between medical officers of our asylums on the menace to the nation of the habit of drug taking.

Guy's Hospital's Anuual Report contains an appeal not only for new subscriptions but for a further capital sum of £60,000. This is to provide for separate children's wards, for more beds in special departments, and for rebuilding, including the tuberculosis out-patient department, already begun. An appendix to the report summarizes the needs of the school as distinct from the hospital. There is a heavy debt to pay off and additional clinical laboratories are required besides an increase of income of about £5,000 to free the authorities from anxiety and remunerate the teaching staff. When our great hospitals are complaining you will not be surprised that the smaller ones are equally suffering. It is generally believed that the Insurance Act has aggravated the difficulties of

hospitals, as was remarked at the League of Mercy's meeting this week, presided over by the Princess Victoria of Schleswig-Holstein. The act increases the demands upon them by patients and their expenditure. At the same time contributions have diminished.

Some Medical Officers of Health are engaging in a campaign against the house fly and trying to enlist the public in an effort to eradicate the pest by circulating information about the part played by flies as carriers of disease. The summer is very backward this year and the warning to householders to be ready to assist in destroying the scourge is pointed out by a reminder of the probable prevalence of infantile diarrhea.

An outbreak of smallpox took place in a Lancashire district at the end of May, some thirteen persons working in the same mill being attacked. Dr. Chadwick, M.O.H., thought the infection might have been brought in a bale of cotton from Mexico.

The chairman of the Select Committee of the House of Commons on Patent Medicines is now drafting the report, and there will be a meeting to consider it within a few days. It is rumored that the document contains a strong statement as to the injury caused by the unrestricted sale of proprietary or so-called "patent" medicines, and furthers a denunciation of the lurid advertisements which certain newspapers do not hesitate to admit into their columns though they must be aware that they are untruthful and a danger to credulous, suffering people.

## OUR BERLIN LETTER.

(From Our Regular Correspondent.)

DEATHS FROM SALVARSAN—PROGRESS IN THE TREATMENT OF SYPHILIS—RELATIVE VALUE OF SALVARSAN AND MERCURY—COMBINED TREATMENT.

BERLIN, May 15, 1914.

THE cases of death which for some time have been attributed to salvarsan have aroused an uncertainty in professional circles as to the use of this remedy. There have appeared notices in the papers in which a Berlin physician, connected with the government, sought to forbid the use of salvarsan. The subject of the real value of salvarsan was brought up for discussion before the Berlin Medical Society on March 4, 11, and 18. The recent progress in the treatment of syphilis was discussed. The first speaker, Lesser, maintained that a definite decision regarding the recent discoveries relating to the spirochetes, the Wassermann reaction, and salvarsan is as yet premature. It may be stated that in the early cases the progress is very considerable. The discovery of the spirochetes enables one to effect the abortive cure of early cases with the excision of the primary lesion and the use of mercury and salvarsan. In well-developed cases the speaker recommends, if there are numerous secondary foci, the use of mercury for eight to ten days and then the use of salvarsan, for in these cases salvarsan alone works too energetically. The greatest success is obtained by means of a rigid calomel treatment lasting for about five to six weeks in addition to two or three injections of salvarsan. The question whether one should persist in the intermittent treatment or whether one should be guided by the result of the Wassermann reaction is to be answered, as a rule, in favor of the former alternative. The combination of iodides, mercury, and salvarsan is also the best treatment in the late cases, particularly in affections of the internal organs. Treatment is necessary until a negative Wassermann reaction is obtained, nevertheless in quite old cases exceptions may be considered. In cases of galloping lues, calomel and salvarsan have produced results such as were not possible before salvarsan was introduced. The speaker concluded that salvarsan is a powerful remedy against lues and promises better results in certain cases than all other known remedies. Up to the end of last year 87 deaths have been attributed to salvarsan. This figure appears small in comparison with the large number of cases in which salvarsan has been employed. In hopeless cases of syphilis, if death occurs after the injection of salvarsan, one cannot always attribute the fatal outcome to this drug. The effect of salvarsan in paresis is negative; in tabes the speaker has seen marked improvement. Upon the latter point one must still suspend judgment. In hereditary lues salvarsan has a very good effect. One of the strongest advocates of the use of salvarsan was the succeeding speaker, Wechselmann. His remarks were of particular importance for he has supervised as many as 45,000 injections of salvarsan and he has used this solely without the coincident use of mercury. The speaker referred to certain patients who had not responded to mercury, but who were cured by salvarsan. The only death that he had observed after salvarsan was produced after the use of mercury by damaging the kidneys had hindered the excretion of salvarsan. Many of the instances of salvarsan deaths are to be explained in this manner. In other instances it must be assumed that there has been some disease of certain organs previous to the injection of salvarsan, as, for instance, encephalitic foci in the brain, or acute yellow atrophy of the liver, both of syphilitic origin. Of bad omen also are the status thymicolymphaticus and Addison's disease.

The next speaker, Blaschko, stated that according to his experience salvarsan is to be preferred in recent cases and mercury in later cases of syphilis, and that the combined therapy is the correct one. Of both remedies the doses are not to be too large. The important point is not the rapidity of the treatment, but the thoroughness with which it is carried out. If it be maintained that salvarsan has added a substantial means to the conquest of lues, nevertheless a decisive judgment on this point must be held in abeyance for many years, for paresis may occur on an average of eleven years after the initial infection. If he had seen no cure in cases of tabes through the use of salvarsan, nevertheless the speaker had observed many instances of marked improvement, such as occurred only seldom following the use of mercury. Citron reported his cases of death, all of which could not be attributed to salvarsan. He has already observed very good results in tabes. His course of treatment consists in the use of calomel or of mercury ointment for seven months with an injection of salvarsan every week. Since 1910 he has seen no adverse results from salvarsan treatment, even though only the bad cases came to him. The contraindications are severe disease of the kidneys and such minor infections as coryza and mild influenza. Fritz Lesser, in 26 cases with a positive finding of the spirochete, has aborted the disease completely; that is, the Wassermann reaction remained negative after two to three years. These results produced by salvarsan were never obtained with the use of mercury.

Oppenheim reported on 135 nerve cases, chiefly of a metasyphilitic nature. Among those cases treated with salvarsan were 19 cases of cerebral lues, of which 8 were treated successfully. Of 15 cases of cerebrospinal lues a pronounced cure occurred in 6; of 50 cases of tabes good results were obtained in 10; of 24 cases of paresis two or three showed a relative improvement. On the whole, it may be stated that salvarsan furnishes a valuable remedy but one whose results are not extraordinary. The discussion was taken up by a large number of speakers who presented the pros and cons of salvarsan therapy. It may be concluded that by means of salvarsan syphilis may be treated much more effectively than it has been in the past and with the exclusion of certain unsuitable cases no special danger is associated with the use of this drug.

## Progress of Medical Science.

### Boston Medical and Surgical Journal.

*June* 11, 1914.

1. The Present Status of Psychoanalysis. By J. J. Putnam.
2. Some Personal Results in Psychoanalysis, and the Future of Psychotherapy. L. P. Clark.
3. Indications for Operation on the Seminal Vesicles. J. Bentley Squier.
4. Cancer of the Uterus. F. Cobb.

1. Psychoanalysis.—J. J. Putnam believes that the psychoanalytic movement represents a great boon to many sufferers from a series of distressing and disabling maladies. This treatment, like all others, has its well-marked limitations. The persons to whom it appeals, whether as patients or physicians, are mainly limited to those who are able to see that a large share of the troubles of this world have as their basis the doubleness of the mental life and the consequent misconceptions of individuals with regard to the influences by which they are being moved. A portion of these misconceptions is due to the fact that men fail to see that they stand not as separate individuals, with duties that end in the promotion of their own superficial interests, but as members of smaller or larger communities and groups, and eventually of ideal communities. The sense of isolation, doubt, terror, jealousy, depression, and despair which are so prominent as causes of human misery, and especially of the misery of neurotic patients, would undoubtedly be far less if men were carried along by a sense of devotion to some great cause, some great religious sentiment, in which their longing for more exclusive, personal successes should be merged. There is another great element of difficulty, which consists in the existence of schisms of the personality and self-misunderstanding, that have their root in subtle disorders of development which begin in infancy. The fact cannot be too strongly emphasized that there is no necessary hostility between the psychoanalytic mode of treatment and any genuine agency for good that social life or the ingenuity of any physician has to offer.

3. Indications for Operation on the Seminal Vesicles.—J. Bentley Squier states that in selecting cases for surgical drainage of the vesicles, he groups them into three general classifications with regard to pus, pain, and rheumatism. The pus group includes those cases in which there is definite abscess formation within or around the vesicles. Rest in bed, hot rectal irrigations, etc., cause a subsidence of the acute symptoms. This group also includes cases of recurrent epididymitis following acute urethritis and vesiculitis, the operative indication being vesical drainage combined with epididymotomy; and the chronic type of seminal vesiculitis, often rather difficult to diagnosticate, as the symptoms are not as well pronounced as in the acute form. The group in which persistent perineal pain seems a sufficient indication for operation presents interesting features. The indication for operation in those cases in which joint lesions are present is definite, namely, if the focal infection can be proved to be the seminal vesicle, this should be drained. The author is convinced that drainage of the seminal vesicles offers more for the cure of typical cases of gonorrheal rheumatism than any other means as yet suggested.

### New York Medical Journal.

*June* 13, 1914.

1. Insolation. P. G. Woolley.
2. Treatment of Rheumatic Fever. H. C. Wood, Jr.
3. Urethral and Prostatic Symptoms Caused by a Large Internal Pile. V. C. Pederson.
4. The Modern Trend in the Treatment of Malignancy. R. H. Boggs.
5. Hypertrichosis in Women. J. H. Claiborne.
6. The Practice of Medicine Act. W. J. Cruikshank.
7. Post-Mortem Examinations Among the Jews. C. D. Spivak.
8. Teaching of General Medicine. C. H. Neilson.
9. Cesarean Section for Double Multilocular Ovarian Cyst. G. L. Brodhead.
10. A Magnetized Needle Holder. C. M. Stimson.
11. Facilitating the Crile Method of Transfusion. A. Kahn.

1. Insolation.—P. G. Woolley points out that the treatment of an attack of insolation is one that combines refrigeration with elimination, both active enough to produce good effects without embarrassing organs, such as the heart, which are already damaged. To accomplish the former the practice is to give ice cold packs or baths. To compass the latter recourse is commonly had to stimulants. This latter seems not to be best, except as a last resort. Stimulation of an already burdened organ can do little good and much damage. Hydrotherapeutic methods are of more value in insolation than drugs. Ice packs or iced baths have a great value, but should not be continued for more than a few minutes at a time and should be discontinued when the rectal temperature has reached 104° F. To replace the water lost to the body before the attack and to increase elimination, there is no better method than infusion of saline solutions. If it is true that the oxygen content of the body is low and the acid content is high, then such solutions should be alkaline. Such alkaline solutions as those recommended by Fischer are extremely efficacious, whether given by rectum or intravenously, in neutralizing the acids of the body and increasing elimination of water by the kidneys. The following solution for rectal use should be prepared as follows: Sodium chloride, 30 grams; sodium carbonate (crystallized), 20 grams; water, 1,000 c.c. The injection should be given slowly enough to allow retention. The time consumed in injecting a litre should not be less than one hour. For intravenous injection the following solution should be used: Sodium chloride, 14 grams; sodium carbonate (crystallized), 10 grams; water, 1,000 c.c. This also should be given very slowly. The effect of these solutions upon the secretion of urine is remarkable, and as a rule they will make it unnecessary to use digitalis. When the latter drug is used it should be very carefully administered and its effects carefully watched. The use of strychnine is not advised in the active stage of the disease. Such treatment will dispose of the immediate danger and when this has been done treatment is symptomatic. Headache may be treated with the coal tar products or the salicylates, which, however, should be used with extreme caution. Sleeplessness may be controlled with mild sedatives. In apyrexial heat exhaustion external hydrotherapeutic measures are uncalled for and treatment should be eliminative and stimulative. The internal hydrothera-

peutic methods should be very useful in these cases and should be combined with friction, massage, and warm packs, with sufficient internal stimulant medication.

10. **A Magnetized Needle Holder.**—C. M. Stimson states that some time ago it occurred to him that if a magnet were placed in the end of a needle holder it would greatly facilitate the handling of the surgical needle. Not only would it aid in picking the needle from the table, thus rendering it more accessible for adjustment in the jaws of the holder, but it would be of distinct advantage in regaining needles and pieces of needles which had accidentally fallen into inaccessible places in the field of operation. With this object in view, the author had an ordinary Doyen needle holder magnetized and found that the idea was practicable. Magnetization is not affected by the temperature of sterilization. There are several ways in which an instrument can be magnetized. A simple and easy way is to place it upon the magnet of a running dynamo and let it remain for three or four hours. This method is not very satisfactory, as it does not charge the instrument to its full magnetic capacity, yet to anyone interested in the subject it is an easy way of demonstrating the possibilities of the principle. The best method is to have a needle holder especially made of steel suitable for magnetization; it is then placed in an induction coil and charged. A coil for this purpose should be two inches long and wound with approximately 100 turns of No. 16 double, cotton covered copper wire, the core being made large enough to fit snugly the jaws of a needle holder. The charge is made with a direct current of six amperes at 220 volts, the circuit being connected with a six-ampere fuse.

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### Journal of the American Medical Association.

*June* 13, 1914.

1. Recommendation as to Sanitation Concerning Employees of the Mines on the Rand Made to the Transvaal Chamber of Mines. W. C. Gorgas.
2. Treatment of Hemorrhagic Disease of the Newborn by Direct Transfusion of Blood. V. D. Lespinasse.
3. Compound Fractures of the Bones of the Extremities. W. L. Estes.
4. The Routine Treatment of Puerperal Sepsis. J. C. Hirst.
5. The Psychanalyst and the Community. T. Burrows.
6. Aneurysm of the Sinus of Valsalva. W. A. Smith.
7. Treatment of Gall-Bladder Infections. J. H. Gibbon.
8. Gastric Hypertony and Gastroenterostomy. W. J. Mallory.
9. The Non-Specific Action of a Serum Prepared According to the Method of Beebe. M. M. Portis and I. W. Bach.
10. An Aid to Prognosis in Pulmonary Tuberculosis. A. Simple Urinary Test. J. Metzger and S. H. Watson.
11. Juvenile Paresis Treated by the Intraspinal Injection of Salvarsanized Serum. C. E. Riggs.

2. **Hemorrhagic Disease of the Newborn.**—V. D. Lespinasse concludes that direct transfusion of blood stops the bleeding, restores the lost blood, and aids in overcoming infection. Direct transfusion of blood has cured where all other methods have failed. Transfusion should be used early, but as long as there is a spark of life evident it is never too late to transfuse.

6. **Aneurysm of Sinus of Valsalva.**—W. A. Smith reports two cases of aneurysm of the aortic sinuses. The frequency of this pathological condition is difficult to determine from the literature. As Osler says, it is a medicolegal aneurysm encountered in coroners' cases, and for this reason perhaps does not get into medical literature. According to most authorities, the lesion occurs in young adults and in males rather than females, though both the cases reported by the author were in young negresses. Its causes have been attributed to increased blood pressure, atheroma, and especially syphilis. The striking signs in the first case were the loud to-and-fro "saw-like" murmur and thrill, the cardiac hypertrophy, especially of the right ventricle, the precordial pulsations, and the so-called closure sound. This last was absent in the second case. The other symptoms were mainly those of failing compensation. In the second case there was also a perforation in the pulmonary artery. In neither case was the diagnosis made before death, and this accords with all the cases which the author has found reported. In both cases death was due to myocardial degeneration and not to rupture. He, therefore, concludes that though the lesion is comparatively uncommon it cannot be excluded in the face of the finding in a young syphilitic of a saw-like bruit and thrill most marked in the pulmonary area and in the face of a negative roentgenogram.

9. **Thyrotoxic Serum.**—M. M. Portis and I. W. Bach state that nucleoproteins, so-called, of human thyroid glands do not act as specific antigens. The antibodies produced are probably due to the small amount of protein contained in the injected material. The action of the serum, so produced, is not specific for the thyroid gland alone, but has an action similar to that of other organs, especially the liver, kidney, and spleen.

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### The Lancet.

*June* 6, 1914.

1. Some Effects which Follow upon Changes in the Reaction of the Blood. F. Gowland Hopkins.
2. Acute Pancreatitis. A. E. Barker.
3. The Use of Neosalvarsan in Active Pulmonary Tuberculosis. P. Horton-Smith Hartley.
4. Two Cases of Sprue Treated by Mouth Streptococcal Vaccines and Emetine Hydrochloride Hypdermically. L. Rogers.
5. Congenital Deficiency of the Radius and a Homologous Condition in the Leg. J. Fraser and H. H. Robarts.

1.. **Changes in the Reaction of the Blood.**—F. Gowland Hopkins states that the study of the equilibrium of the blood has increased very greatly during the past few years by the introduction of microanalytical methods of research. One may now add to the quantitative studies of the morphological elements, and of the subtle bodies concerned in immunity phenomena, accurate determinations of the blood gases. One may also estimate a considerable number of ordinary metabolites as they circulate, even when one is limited to such amounts of blood as may be obtained by pricking the finger. A determination of the concentration of the hydrogen and hydroxyl ions yields an absolute measure of the potency of a solution to produce those chemical effects which are correlated with acidity or alkalinity. The fundamental method of determining the hydrogen ion concentration in a fluid is that of measuring the potential set up when a hydrogen electrode is in contact with the fluid which is being studied. In 1905 Haldane and Priestley advanced the view that under normal circumstances the tension of carbonic acid in the blood is the sole factor which regulates the activity of the respiratory center, and so determines the rate of ventilation through the lungs. Subsequent investigations by Haldane and his colleagues, and by Winterstein, Hasselbalch, and others have led to the generally accepted conclusion that carbonic acid exercises its action, not as a specific hormone, but by virtue of its acidity and that other acids have a similar action. The effects of changes in the blood reaction upon the respiratory mechanisms, nervous and chemical alike, are of the clearest kind. Michaelis and Davidoff found a definite diminution of effective alkalinity in diabetic coma. Kennaway, Pembrey, and Poulton have lately pointed out that the alveolar tension of carbonic acid is the best guide to prognosis and treatment in diabetes. A value below 25 millimeters is, according to these authors, of grave significance, and one below 20 millimeters indicates that coma is imminent.

3. **Neosalvarsan in Active Pulmonary Tuberculosis.**—P. Horton-Smith Hartley states that a short time ago a patient was admitted to his wards at the Brompton

Hospital suffering from extensive pulmonary tuberculosis of an active febrile type, both lungs being diseased, but the patient giving in addition a history of syphilis. On this account treatment with salvarsan was prescribed and with good results, the patient's condition being materially improved on his leaving the hospital. The author tried systematically the effect of neosalvarsan in the treatment of cases of acute and active pulmonary tuberculosis, in which other means had failed to bring the temperature to normal and to arrest the further progress of the disease. The neosalvarsan was given by intravenous injection. Sixteen cases were treated. The cases showed the marked effect upon the temperature which may sometimes be produced by the intravenous injection of neosalvarsan and the improvement which simultaneously results in the patient's general condition. The effect as a rule is not immediate, but shows itself after an interval of two or three days. The temperature then falls possibly to normal, where it may remain. In other cases defervescence is not complete, and a second injection is required. With the fall in the temperature an improvement in the patient's general condition occurs which is sometimes very striking, and with this there is a lessening of the cough and a diminution in the amount of the sputum. As regards physical signs these become somewhat drier, but otherwise no very marked alteration is usually observed. The author concludes that the drug is not a specific but it would appear to have the power of influencing very favorably certain cases of active and febrile tuberculous disease of the lungs which have resisted other treatment, and it merits, therefore, a more extended trial. If administered with care and with due precautions it may be given apparently without risk even in very advanced and grave forms of the disease.

## British Medical Journal.

*May* 30, 1914.

1. On Infantile Paralysis. Its Early Treatment and the Surgical Means for the Alleviation of Deformities. R. Jones.
2. Further Investigations of the Type of Tubercle Bacilli Occurring in the Sputum of Phthisical Persons. A. S. Griffith.
3. Alterations in the Blood Occurring in Hay Fever. E. E. Roberts.
4. Remarkable Variations in the Leucocytes in Certain Diseases. D. Thomson.
5. Suspension Laryngoscopy and Its Practical Use. G. Killian.

**3. Alterations in the Blood in Hay Fever.**—E. E. Roberts reaches the following conclusions: Hay fever is definitely associated with an alteration in the blood picture, which consists chiefly in a decrease of the hemoglobin content, a polycythemia, and an increase in large mononuclears and esinophiles, together with the presence of vacuolated and degenerated leucocytes and a degree of leucopenia. An increased esinophilia coincides with the symptoms of asthma. An altered but modified blood picture persists during the interval between the seasonal attacks.

## Berliner klinische Wochenschrift.

*June* 1, 1914.

**New Methods and Results in Physiology of the Brain.**—Trendelenburg gives a résumé of the methods hitherto used in arriving at results in this subject, and the collateral consequences of experimental inquiry which come under the head of artefacts. His conclusions are as follows: in any operative elimination, done within technical requirements and presumably non-irritating, of the arm region; of the cortex the severe initial functional disabilities represent complete abolition of cortical influence upon the member in question. Subsequent functional improvement represents a special adaptation of the brain to offset in part the symptoms of extirpation the nature of which is far from clear. The future should witness combinations of non-irritating extirpation of portions of cortex and methods of adjustment. The former operation may be repeated at pleasure, varying continually experimental conditions. The worker in human physiology and the psychologist should be stimulated by the results. In regard to the human brain Bárány obtained valuable results from refrigeration of the cerebellum; in so much that Rothmann and Sauerbruch will test the method in the epileptic cortex in the hope of limiting cortical irritability. Piper has tested the ape cortex in this manner. The cooling must be done at repeated intervals.

**The Psyche and Aeronautics.**—Loewy and Placzek have studied especially the mental effects of altitude. Controls exist in the sensations of mountain climbers, but the latter show no peculiarities. The tests were simply mathematical, and the rarefaction of the air in pneumatic cabinets also responded negatively in this regard. Recently Koschel has made an extensive compilation of air passengers' and flyers' sensations with special reference to the feelings. These were compared with articles published long ago on the sensations of balloonists and mountain climbers (with special reference to mountain sickness). Generally speaking but little abnormal could be found objectively, and as already stated the intellect may not show impairment in simple mathematical operations. Nevertheless, the disturbance of the emotional sphere may be marked, and represented by depression, apprehension, and the like. These sensations affect the attention notably and correspondingly the entire intellect. The flyer necessarily suffers at a height above 4,500 meters. His will reactions are slowed. His attention is strained to the limits, and the steering gear is the first to show a break in its continuity. Daring and fearlessness abate in rapid ascent at high levels. The cold of upper air plays a part, and the rigid posture and inability for self-covering intensify this element. The blood, driven inward, causes vertigo and other circulatory disturbances.

## Münchener medizinische Wochenschrift.

*May* 26, 1914.

**The Out-of-Bed Treatment of Pneumonia.**—Widmer first alludes to the experience of recent years in permitting women to sit up at a relatively early date after parturition and laparotomy. The former high mortality from postoperative pneumonia, with the patient lying in bed, has been cut in two by the sitting up management. Of the many disastrous presuppositions in medicine, justifiable from every theoretical standpoint, one of the worst may prove to be the lying down management of pneumonia, at least in certain types of the latter. The sort of bacillus involved is not concerned as a factor. There is undoubtedly a strong psychical element in pneumonia, a mental defect, which of course passes eventually into delirium. The impulse to get out of bed, as an isolated phenomenon, may be owing to a mere disorientation due to his unusual position and surroundings. From an analysis of 85 cases of the author, it was apparent that pneumonia delirium is due neither to fever nor exhaustion. The mental state is simply one with gaps in the normal consciousness. While delirium as a rule implies a total loss of consciousness, pneumonia subjects amid all of their disorientation recognize those around them and in other ways show much retention of consciousness.

In other words, a type seen in various intoxications. This is further known by the incomplete amnesia. Allowing the patient to sit up seems at once to widen the contracted consciousness. He may be dressed for a time, and rocked in a rocking chair; and through a number of such experiences the psyche is aroused. In 50 cases on the days following the initial chill, patients were taken from their beds—forcibly if necessary. Those very ill will necessarily ask to be returned to bed. In most cases on the following morning the patient will feel better and be less feverish; he will also state that he slept well. Author never waits for spontaneous remissions; even in the most violent, as well as the most dubious cases, he practises the out-of-bed treatment. From four to six hours daily of the latter is necessary for keeping the patient fresh. As a result the breathing is slowed and there is actually a slight rise of blood pressure. The author's notion of the rationale of his method seems to be that pneumonia is practically a disease of the nervous centers. His silence on other plans of treatment leaves us in doubt as to his attitude toward competitive plans, like the open-air treatment, venesection, cardiac stimulation, etc.

**Pericolitis.**—Herhold gives a general review of this subject. Pericolitic adhesions correspond in German medicine to such designations, in this country and Great Britain as Jackson's membrane, Lane's kink, etc. In Germany Lauenstein described these formations as far back as 1892. At a later period the supposed adhesions about the cecum and ascending colon, from their constancy and certain modifications became separated in the mind from mere inflammatory adhesions. A fetal or congenital origin was suggested by Lane, Mayo, Cheever, and others. Despite the zeal of Lane in upholding this view, most of the Germans and perhaps other colleagues adhere to the purely inflammatory origin. Eastman has recently shown the occurrence of the same condition in the descending colon. The number of inflammatory affections of the colon which can give rise to these adhesions is large and affects early life in numerous ways. Herhold evidently sees no weight of authority for a belief in non-inflammatory adhesions.

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### Deutsche medizinische Wochenschrift.

*May 28, 1914.*

**Treatment of Pulmonary Edema.**—Groder sums up this subject as follows: no measures should be spared to excite the heart's action. Venesection is indicated in the plethoric or in those with venous congestion, and derivatives may be used later for further unburdening of the circulation. No attention should be paid to quasi indications for antitussic and expectorant remedies, and in general narcotics are not indicated. The prognosis is always serious, and since the sheet anchor is venesection, minute directions are given for its performance. The cardiac stimulants mentioned above comprise atrophantin by intravenous injection, digitalis derivatives, camphor oil, and caffein salts. Derivatives comprise leeches, cups, mustard plasters, etc.

**Abortive Cures and Neurorecidives in the Modern Treatment of Syphilis.**—Werther sums up his article as follows: Salvarsan is an essential addition to our armamentarium. The rapid disappearance of symptoms under its use excels the action of Hg. Patients with sclerosis and papule are rapidly made safe for the community. Salvarsan is of great value when mercury is inert or not tolerated. If we apply the drug early and at the proper moment we can cure one-half of all primary cases; we can cut short the secondary stage. In tertiary syphilis only the symptoms yield. There are bad results at times which are far short of the results of the disease when contracted. Neurorecidives should *a priori* become less in proportion as more is learned of the disease.

**Larva of Malarial Parasite in Nonmalarial Country.**—Grumann and Bontemps first "enumerate" the countries in Europe in which the existence of malaria is conceded and at the same time countries in which it is presumably nonexistent. This refers to ancient domestic malaria, not to victims of tropical malaria who reach Europe. A case is reported with a negative history of exposure of any sort, which developed in a suburb of Altona. No previous case of the affection had been known here. In his military service patient had once been stationed in a place where infection was possible, but there was no history of any acute or febrile illness. His illness at Altona did not in any way suggest malaria. It might have been termed influenza. The discovery of the larvæ form of the plasmodium made the true diagnosis.

**Isolated Rupture of the Mesentery.**—Saalman mentions the extreme infrequency of this accident as a result of blunt violence applied to the intact abdomen. His patient was a milkman, aged 65, admitted to hospital for supposed internal hemorrhage, due to the impact of a heavy object on the lower abdomen. Considerable delay was involved before the hospital was reached. The patient had in the meantime vomited, but had passed neither feces nor flatus. Signs of internal hemorrhage and threatened collapse. Laparotomy was at once performed under local anesthesia. Upon opening the belly there was a free escape of blood, pure and clotted. In searching for the source a Y-formed laceration was found in the mesentery of the small intestine. The patient ultimately recovered. The cause of these tears is not understood in cases of multiple violence, and *a fortiori* when occurring alone. Many plausible mechanical theories have been advanced in explanation. The author, going back to 1845, can find but 26 of these isolated cases, 9 of which were cured by operation. Like all other uncommon accidents, however, this one occurs with greater frequency than is commonly believed. For example, certain cases regarded as lumbago, following blunt violence to the abdomen, may belong here.

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**Resection of the Pharynx for Carcinoma.**—E. B. Waggett reports a case of a woman aged 47. Operation in February, 1913. The flap was cut with the intention of removing the larynx with the pharynx, consequently no skin was available for a plastic operation. The whole of the hypopharynx was removed with the exception of a strip of the right lateral wall ½ in. broad. The case illustrates the spontaneous adaptability of the parts, the absence of cicatricial stricture, and the functional recovery of the left arytenoideus posticus muscle.—*Proceedings of the Royal Society of Medicine.*

**Resection of Larynx and Pharynx.**—E. B. Waggett reports a case of a man aged 65 years in whom there was an extensive carcinoma of the pharynx, laryngeal vestibule and tongue, commencing in the left pyriform fossa. Palliative measures were dictated by dyspnea and very severe dysphagia. At the patient's request a radical operation was performed in November. A strip of the right pharyngeal wall ½ inch broad, was retained. The case illustrates the spontaneous adaptability of the parts still in process of healing. Facial palsy was produced by a very extensive gland operation with resection of the sternomastoid.—*Proceedings of the Royal Society of Medicine.*

# Insurance Medicine.

## SUGGESTIONS TO MEDICAL EXAMINERS.

BY THE INSURANCE EDITOR.

### HYALINE CASTS.

When Osler proclaimed that in his opinion a small number of hyaline casts in the urine of persons over fifty years of age were in reality nothing more than a few "gray hairs" and carried little or no significance and, further, that life insurance companies were unjustly rejecting many risks on account of hyaline casts, he was near the truth in so far as he could judge from the standpoint of the general practitioner. Cabot (Physical Diagnosis, 1910) also states that a few hyaline casts in the urine of persons over fifty years of age have no known clinical significance and may be considered physiological.

If a few hyaline casts constituted the only impairment in some of their patients, Osler and Cabot would have been justified in reassuring them that the underlying condition was of little importance, provided they followed the good advice which would surely be given, but we may safely assume that Osler and Cabot would have kept them under observation as long as the danger signals persisted. Osler failed to realize, apparently, that the life insurance point of view differed quite materially from that which a general practitioner could entertain. When a person applies for insurance, the examination is necessarily limited to a short space of time and there is little opportunity for keeping him under observation. Nevertheless, a far reaching decision must be given at once, and if the policy is issued, it cannot be recalled if serious trouble ensues later, nor will the mistake be concealed and forgotten under an ivy-covered mound.

Insurance medical men are quite alive to the fact that a very few hyaline casts may be of no importance, but it is not always a simple matter to dispose of these cases by the examination of a few specimens of urine. It seems almost inconsistent for Cabot, after voicing the statement quoted above, to say later, that hyaline and granular casts are found in any type of nephritis, sometimes quite few in number and apparently absent at other times, as well as in many other conditions. Moreover, it is unnecessary to say that disease of the kidneys is much more common in persons he refers to, those over fifty years of age, and that it may require a long observation to determine whether the casts are due to nephritis, nervous tension, ordinary renal congestion, fatigue, etc. Even transitory hyalines have their meaning as they are not normal constituents of the urine, but the process responsible for their presence is insignificant in many instances and one that will not lead up to a more serious disturbance. On the other hand, it would seem, according to Osler, that they appear during the slightest degree of mischief or the incipiency of graver troubles. Hyaline casts probably originate in three ways: 1. From the epithelium itself, shed and altered; 2. From the coagulation of transuded plasma; 3. As a separation of a part of the tubular epithelium. In either case, there is a local disturbance of the normal conditions where they originate, but, fortunately, even when the cells of the kidneys are shed off in numbers as casts, it should be remembered that the kidney epithelium can be regenerated to a moderate extent over small denuded areas. The exact point in the nephritic process at which albuminuria and casts appear in the urine is not known.

It is generally understood then, that while hyaline and other casts are often a manifestation of some process in the kidney that is of small importance, they may prove to be danger signals of serious trouble. When, then, may their presence be ignored? This question can only be answered from a life insurance point of view in an unsatisfactory way, and the answers will vary widely if the opinions of different medical directors are sought.

An application for a large amount was written recently, the insurance to be distributed among twelve or thirteen companies. The case gave an opportunity for learning something about the attitude of different companies in regard to hyaline casts. Some companies accepted the risk without further investigation when no more than two or three casts were found in two slides from one specimen. Another company paid no attention to two or three casts at the most found on one or two slides, as long as there was no blemish on the case in other respects. Another relied upon the amount of solids in the urine when casts were found and no other blemish. The risk was acceptable to all the companies represented, notwithstanding the hyaline casts, with the exception of one. This company was more inquisitive and had six consecutive specimens examined with the following results: hyaline casts in small numbers were found in three specimens, granular casts in one, scattered red blood cells in two, a specific gravity in one so low that the examination was omitted. Indican in large amounts were found in the five specimens which were examined, and may have signified that the casts were primarily due to intestinal disturbance and to nervous tension which the applicant had been subjected to some time before the examination. Further observation was impossible on account of circumstances, and the applicant was postponed, though no direct conclusion could be formed as to the nature of the process causing the presence of these bodies. The point we wish to emphasize is that the more thorough investigation was necessary.

We believe that the presence of a few hyaline casts should be treated in the same way as albuminuria. If they persist the application should be postponed until the inspection of several specimens at some future time has demonstrated the fact that the hyalines are no longer present. As long as they persist in the urine there must be some uncertainty as to whether the process through which they are formed is serious or inconsequential, and this opinion holds even though the condition of the applicant otherwise is satisfactory.

A point to be considered is the special or individual ability of the microscopist to find casts. A decided difference may usually be noticed among several observers, unquestionably competent in other medical matters. An eye with a specially broad scope of vision is demanded so that each field in the microscope can be taken in comprehensively and quickly. Many eyes are not constituted this way and hyaline casts, often so difficult to discern, may be overlooked. The difference is due to physical, not mental, endowments, for those who can not discover casts so readily may be the best of judges as to whether a certain body, when found, is a renal cast, cylindroid, or some other body. As a matter of actual practice, it is not uncommon for some microscopist to find hyaline casts which have escaped the observation of another observer.

# Book Reviews.

KURZE PRAKTISCHE ANLEITUNG ZUR ERKENNUNG ALLER FORMEN DES KOPFSCHMERZES. Von Oberstabsarzt Dr. LOBEDANK, Hagenau i. E. Price 2 marks. Würzburg. Curt Kabitzsch, 1914.

THERE can be no question that headaches constitute the most common complaints of humanity and that their study as a symptom is of extreme interest to every practitioner. In this volume of 71 pages the author presents an introduction to the methods of examination that should be employed in studying the significance of headaches. In synoptic form he discusses the various points in the personal history that bear upon the diagnosis of the underlying cause of headaches and then gives in minute detail the steps in the examination of the patient, indicating the importance of each sign. In this manner the subject is studied with unusual thoroughness. There then follows a number of diagnostic tables comparing the headache due to various conditions, such as brain tumor, brain abscess, meningitis, migraine, hysteria, arteriosclerosis, anemia, rheumatism, disease of the teeth, disease of the ear, various forms of asthenopia, glaucoma, syphillis, dyspepsia, and renal disease. This book serves a most useful purpose as a diagnostic guide to the general practitioner.

KLINISCHE BEITRÄGE, BEITRÄGE ZUR KLINIK DER INFEKTIONSKRANKHEITEN UND ZUR IMMUNITÄTSFORSCHUNG (mit Ausschluss der Tuberkulose). Herausgegeben von Professor Dr. L. BRAUER, ärztlichen Direktor des Allgemeinen Krankenhauses Hamburg-Eppendorf. Redaktion: Für die Originale: Dr. H. SCHOTTMÜLLER, Dr. H. MUCH (Klinischer und bakteriologisher Teil) (Immunitätswissenschaftlicher Teil) beide am Allgemeinen Krankenhaus Hamburg-Eppendorf. Für die Ergebnisse: Professor Dr. H. LUDKE in Würzburg. 11 Band, 2 Heft. Price 6 marks. Würzburg: Curt Kabitzsch, 1914.

THE second number of the second volume of this valuable publication contains the following contributions: "Abortive Scarlet Fever in the First Few Months of Life," by C. Levi; "Meningococcus Serum," by P. Aaser; "The Theory and Practice of Vaccine Treatment," by L. Detre; "The Influence on Infectious Diseases, Particularly Puerperal Infection by Means of Salvarsan or Neosolvarsan," by Dr. Orlovius. This volume also contains the following reviews: "Puerperal Infection from the Medicolegal Viewpoint," by Döllner; "Lymphogranulomatosis, Particularly from Its Etiological Viewpoint," by G. Herxheimer, and the "Serodiagnosis of Syphilis by Means of the Precipitation Methods," by O. Porges.

SPEZIELLE PATHOLOGIE UND THERAPIE INNERER KRANKHEITEN. In 10 Banden. Herausgegeben von FRIEDRICH KRAUS und THEODOR BRUGSCH in Berlin. Lieferung 1-4 (1 Band, 1 Teil, Seite 1,238, mit 5 farbigen und 4 schwarzen Tafeln). Inhalt: Diabetes melitus inkl. Laevulosurie, Heptosurie, Glykuronsäureausscheidung. Nicht diabetische Glykosurien (Pentosurie), von Prof. Dr. AD. MAGNUS-LEVY, dirig. Arzt an der Abteilung für innere Krankheiten des Krankenhauses am Friedichshain in Berlin. Intermediare Stoffwechselstörungen; (a) Aminosäurendiathese; (b) Physiologie und Pathologie der Wasserausscheidung. Diabetes insipidus; (c) Kachexien; von Prof. Dr. UMBER, dirig. Arzt an der Abteilung für innere Krankheiten des Krankenhauses Westend in Berlin, mit 2 Textabbildungen und 1 Tafel. GICHT von Prof. Dr. TH. BRUGSCH, 1 Assistent an der II. medizinischen Universitätsklinik in Berlin. Mit 10 Textabbildungen und 8 Tafeln. Lieferung 5-8 (11 Band, 1 Hälfte, Seite 1,240, mit 3 farbigen Tafeln) Preis jeder Lieferung 2 M. = 2K 40h. Inhalt; Infektion und Immunität; immumodiagnostik und therapie; von Prof. Dr. R. KRAUS, Direktor des staatlichen bakteriologischen und serotherapeutischen Institutes in Buenos Aires. Typhus und paratyphus, von Prof. Dr. G. JÜRGENS, Berlin-Neukölln. Mit 3 Farbigen Tafeln. Berlin: Urban & Schwarzenberg. New York: Rebman Company, 1914.

THE scope of this work, which is to appear in ten volumes, includes a presentation of the subjects of special pathology and therapy in internal medicine. The first two installments comprise parts one to four, or the first section of the first volume, and parts five to eight, or the first section of the second volume. The first installment contains the following articles: Diabetes mellitus, including levulosuria, heptosuria, the excretion of glycuronic acid and the non-diabetic glycosurias (pentosuria). This article is by A. Magnus Levy. The second article, which is written by F. Umber, deals with the disturbances of the intermediate metabolism, and includes the following: The amino-acid diathesis, the physiology and pathology of the excretion of water (diabetes insipidus), and the cachexias. The concluding article in this installment deals with the subject of gout, which is presented by T. Brugsch. The second installment contains the following articles: Infection and immunity; immunodiagnosis and therapy, by R. Krauss; and typhoid and paratyphoid fevers, by G. Jürgens. All of these articles are written with the thoroughness characteristic of German writers, and represent the last word on the subject. They are profusely illustrated with the aid of half-tone cuts and full-page colored plates. There is one colored plate illustrating a case of ochronosis of the ear cartilage in alcaptonuria. The subject of infection and immunity is presented in great detail. For instance, the preparation of diphtheria antitoxin is fully described with the aid of illustrations. Every step in the process, from the injection of the horses to the filling of the syringe containers is given. This work promises to be a monumental one.

CHRONIC COLITIS: Its Causation, Diagnosis, and Treatment. By GEORGE HERSCHELL, M.D., late Senior Physician to the Kensington General Hospital, and ADOLPHE ABRAHAMS, M.D., Medical Registrar to the London Temperance Hospital. Price $2.00 net. New York: Longmans, Green & Co., 1914.

ACCORDING to the authors, this is the first English manual to appear on this subject, and it is certainly a most welcome one. This whole subject, together with that of constipation, which we here learn may be a symptom of colitis, has been in a most chaotic condition, and it is a distinct pleasure to find a work which considers it coolly and dispassionately. The first portion of the book is devoted to causation and diagnosis and contains the details of a large number of laboratory tests. The second part, which amounts to more than half the book, is given over to treatment. The removal of the cause is insisted upon and great attention given to the subject of diet. This includes a number of recipes which should prove useful. The work is very complete and in it the practitioner "may find a convenient work of reference in his diagnosis and treatment of one of the most chronic conditions it is possible for him to encounter."

TROPICAL MEDICINE AND HYGIENE. By C. W. DANIELS, M.D., Cantab; F.R.C.P., London; Lecturer on Tropical Diseases, London School of Tropical Medicine; London Hospital; London Royal Free School of Medicine for Women; Physician, Albert Dock Hospital, Seamen's Hospital Society; formerly Director London School of Tropical Medicine; Director Institute for Medical Research Federated Malay States; Member of Royal Society Malaria Commission, and in the British Guiana and Fiji Colonial Medical Service. With a chapter on snakes. By O. ALCOCK, C.I.E., M.D., F.R.S., Lt.-Col. I. M. S. (retired). In three parts, with colored and other illustrations. Part II. Diseases Due to the Metazoa. Second Edition. Price $3.00 net. New York: William Wood & Company, 1914.

IT was only three years ago that Dr. Daniels' work on tropical medicine and hygiene first made its appearance. That the work filled a much needed want has been proven by the comparative rapidity with which the first edition has run out. The study and treatment of tropical diseases and their prevention bulk larger every year, for white men are invading and inhabiting tropical regions continually and in greater numbers. The aim of the authors in the book before us and in the other volumes of the series has been to provide a concise description of the diseases due to various kinds of parasites, and of the manner in which they spread and the rationale of the preventive measures advocated. The metazoa are dealt with thoroughly and the numerous advances made in our knowledge of these diseases are set forth as far as possible. This volume then provides a ready and authoritative handbook concerning the diseases due to the metazoa and may be recommended as such to medical practitioners and students. The book is copiously and graphically illustrated.

# Society Reports.

## AMERICAN MEDICAL ASSOCIATION.

*Sixty-fifth Annual Meeting, Held in Atlantic City, June 22, 23, 24, 25, and 26, 1914.*

(Special Report to the MEDICAL RECORD.)

HOUSE OF DELEGATES.

*Monday, June 22—First Day.*

THE PRESIDENT, DR. JOHN A. WITHERSPOON OF NASHVILLE, TENN., IN THE CHAIR.

**President's Address.**—Dr. JOHN A. WITHERSPOON of Nashville, Tenn., begged the indulgence of the House, in that owing to ill health, he had been unable to prepare an address. He said, however, that he wished to express his appreciation of the great honor conferred upon him; it had been one of the greatest pleasures of his life to have presided over a group of men so sincere and earnest in their desire to conduct their work along lines good and noble and for the welfare of humanity. He had never met a body of men so eager to do the right thing. The Association was to be congratulated on having such a body of men to perform the functions of the House of Delegates.

**Report of the Secretary.**—Dr. ALEXANDER R. CRAIG of Chicago presented this report. He stated that on May 1, 1914, the Fellowship of the Association was 37,319; since that time 2,850 names had been deducted from the Fellowship roll for various reasons, while there had been added 5,990 names, making the Fellowship on May 1, 1914, 41,029, a net increase for the year of 3,116. At the Minneapolis session, the House of Delegates adopted a recommendation endorsing the formation of a section to be entitled the Gastro-Enterologic and Proctologic Section of the American Medical Association under the conditions that the American Gastro-Enterological Society and the American Proctologic Society be disbanded and hold their meetings jointly as a section of the American Medical Association and it was recommended that the number of papers to be read at any annual meeting be limited to fifteen. This section had not been formed as the conditions had not been met. At a conference of the secretaries of the sections at the Association headquarters in Chicago, November 6, 1913, the advisability of dividing the sections into two groups—general sections and special sections—was discussed. The former were to include Practice of Medicine, Surgery, Pharmacology and Therapeutics, Pathology and Physiology, and Preventive Medicine and Public Health; the second group was to comprise the remaining sections. It was also suggested that the by-laws be so amended that at any annual session of the Scientific Assembly a Fellow should be privileged to present one paper before a general section and a second paper before a special section. It was requested that the House consider these suggestions. In this report were presented the resolutions of the Medical Society of the State of New York urging the House of Delegates to use its influence to have the National Food and Drug Act amended to read as follows:

"That for the purpose of this act an article should be deemed to be adulterated: In case of drugs: If, when a drug was sold under or by a name recognized in the United State Pharmacopœia or National Formulary, it differed from the standard of strength, quality, or purity, as determined by the test laid down in the United States Pharmacopœia or National Formulary official at the time of investigation; or, if the strength or purity fell below the professed standard or quality under which it was sold."

The resolutions of the Medical Society of the State of New York pointing out the dangers of the present laxity in the admission of insane and defective immigrants and the need of federal legislations for the more careful mental examination of immigrants was called to the attention of the House. This report also included resolutions relative to arrangements for the proposed Medical Congress to be held in San Francisco in 1915.

**Report of the Board of Trustees.**—Dr. W. T. COUNCILMAN, Boston, Mass., submitted this report. He stated that the past year had been distinguished by no unusual events in the Association; all the forms of activity by which it served the medical profession and the public had been marked by successful effort. All Fellows and members of the Association might be proud of the demonstration which its yearly reports gave that the ideal of service to man was dominant in the minds of the medical profession of this country. In the pursuance of such ordeals it was natural that animosities should be excited, for the efforts of the Association opposed the interests of those who preyed on humanity.

Of all the activities of the American Medical Association, none had aroused more antagonism than those connected with the work of the Council on Pharmacy and Chemistry. The publicity department of their pharmaceutical manufacturers and the journals which depended on advertising for their existence were ever ready to find fault with, to condemn, and to misrepresent the Council. Nevertheless, it was gratifying to note that there was a gradually increasing appreciation of its aims and objects and what it was accomplishing. The medical profession was slowly but surely appreciating the value of the work and the manufacturers, also, both foreign and domestic, were recognizing that the reports of the Council were authoritative and final, and must be respected.

The work of the committee on a selected list of drugs had resulted in the publication of a book called "Useful Drugs." This had already been adopted as a textbook by a number of the best schools; its adoption had been considered by State licensing boards, and there was every indication that this enterprise would have a most beneficial effect. Among other constructive work by the Council was that conducted through its Committee of Therapeutic Research. Eventually this work would result in bringing back into use well known drugs—non-proprietary preparations that had been swept aside by the commercial propaganda for proprietaries. It was to be regretted that more physicians did not take sufficient interest in the Council's work and its reports.

Not the least of the enterprises of the Association was the work done in their chemical laboratory. An idea of what was done here could be only in a slight degree obtained from the material that was published in *The Journal* from week to week. The unpublished work included examinations made for the Council on Pharmacy and Chemistry, on the results of which often depended the action of the Council; also, a large amount of work was done in connection with their propaganda department in the investigation of "patent medicines," much of which was never published. Still further, considerable chemical work was done at the request of individual physicians.

The Council on Pharmacy and Chemistry was created for the purpose of enlightening the profession concerning the so-called "ethical proprietary medicines," but it was soon found that there was no dividing line between such medicines and the ordinary patent medicines sold direct to the public. There gradually developed a demand from the profession and later from the public for information regarding proprietary medicines. The attempt to meet this demand gradually broadened out until it became necessary to create a new department—the Propaganda Department.

One of the most encouraging features of the work done by the Propaganda Department was the interest it seemed to have awakened on the part of the lay magazines and newspapers in censoring the advertisements of a medical or quasi-medical nature that appeared in their pages. There was a very evident desire on the part of the better class of lay publications to exclude from their pages fraudulent medical advertisements. A number of such publications were constantly referring to the Propaganda Department for information regarding the different preparations or devices whose manufacturers sought advertising space. Not a few newspapers were submitting medical advertising copy to the Propaganda Department.

This state of affairs contrasted strangely with the attitude of the majority of the so-called independent medical journals. It was but rarely that inquiries came from these publications regarding the character of the advertisements of medicinal products they were carrying. More than once the Propaganda Department had had to advise newspapers against carrying advertisements of certain products that were at the same time being advertised in medical journals—and the advice had been taken. It was an unfortunate fact that the effect of the work against frauds in medicine was more evident in lay than in medical journals.

In speaking of the various publications of the Association it was noted that while the *Archives of Internal*

*Medicine* and the *American Journal of Diseases of Children* had been conducted at a slight loss, there was every reason to believe that it would be counterbalanced by an equivalent gain another year. The "American Medical Directory," just off the press, was a great improvement over its predecessors. In addition to the features of the former editions, there was a list of the members of various national and special societies, and the specialty of those who, while not members of special societies, have designated their desire to be classed as specializing in certain lines. By the aid of symbols and abbreviations a great deal of information had been included in a small space.

In presenting the financial report of the Association the speaker stated that the profits of the Association for the year ending December 31, 1913, were very near the vanishing point, owing to the fact that the general Association expenses had been practically doubled during the past five years. In connection with this slight surplus for the fiscal year it was pointed out that the recent social medical legislation in England had reduced the large surplus of the British Medical Association to an equally large deficit. The American Medical Association should have a reserve fund of at least $300,000. At present over 75 per cent. of the expenditure of the Association was for altruistic purposes. This was made possible by the profits of the *Journal*.

### Reports of Standing Committees.

**Report of the Judicial Council.**—Dr. Alexander Lambert presented this report. He stated that the appeal of the Home for Widows and Orphans of Physicians, which had appealed for funds, had been thoroughly considered, and while the home was a most deserving endeavor to aid the unfortunate, the funds of the association were devoted to raising the standards of medical education, enlightening the public on matters of public hygiene and public health, and in disseminating medical knowledge, and as it would require a large outlay of money to enter on such a philanthropy the judicial council felt that it should not be undertaken. A recommendation to this effect was, therefore, presented. The judicial council recommended that the by-laws relating to the judicial council be amended so as to extend the power of this council making their decisions final in all cases which arose between constituent State associations and one of its component county societies; between component county societies of the same constituent State association and the component society to which said member belonged or between members of different component societies of the same constituent State association. They asked further that the judicial council might at its discretion investigate general professional conditions and all matters pertaining to the relations of physicians to one another and to the public, and should make such recommendations to the house of delegates and the constituent associations as it deemed necessary These changes would define more clearly the functions of the judicial council. It had been the object of the house of delegates to make the judicial council amount in reality to a dignified court. At present it had only original jurisdiction in cases in which the American Medical Association or one of its constituent associations was a party. There was no appellate function which it could exercise. This was not intended as an endeavor on the part of the judicial council to gain more power, but this appellate function had been found to be necessary in the control of the fellowship of the association. After setting forth all its reasons the judicial council asked appellate jurisdiction in the cases mentioned above. The council also recommended that to the principles of ethics of this association be added the following:

"The council also recommends that to section 4, chapter III, of the by-laws, there be added:

" 'Fellowship shall be further conditioned on a fellow conducting himself in accordance with this constitution and by-laws and principles of medical ethics of this association.'

"In the opinion of the judicial council the time is ripe for the house of delegates to proclaim that fellowship in the American Medical Association is a right that must be protected. The section here recommended is not an endeavor to make the principles of ethics a code of rules and punishments. It is simply a demand that the rules of decency and honorable action shall be observed by the fellows. The principles of ethics of the American Medical Association are only those broad rules of conduct which are naturally and spontaneously followed by honorable physicians in their dealings with their fellow men. It may be said of these rules, as of all duties, it is no credit to perform them; it is personally discreditable to leave them unperformed. They are analogous to the standards of the army and the navy which require that a man shall conduct himself as an officer and a gentleman."

The judicial council believed that the functions of the different branches of the American Medical Association should be carefully preserved, and to this end a national council should not deal directly with a county society excepting through the constituent State society. After defining the position of the principles of ethics relative to advertising on the part of physicians and calling attention to the popular write-ups of scientific subjects for the daily press, which were practically advertisements, the council recommended that State and county societies should appoint publicity committees to cooperate with the editors of the public press in order to devise a plan by which articles and interviews on medical topics by members of the society, published in the daily papers, should be truthfully and correctly reported. Such a committee acted as a means by which without mentioning names and without exploitation of any individual, the daily press could obtain accurate knowledge of all matters in medicine which it desired to publish. The judicial council, therefore, presented the following resolution:

"*Resolved*, That it is the sense of the house of delegates of the American Medical Association that each county society should constitute a publicity committee whose duties shall be to give to the daily press accurate information on all medical matters of interest to the public; that this shall be freely given without the mentioning of names or from whence the information comes, and that this committee shall further act in an advisory capacity to all physicians of its society in questions relating to publications other than in the medical press. And be it further

"*Resolved*, That the secretary of the American Medical Association be instructed to forward this resolution, with the reasons calling it forth, to the secretary of each constituent State association, with the request that it be transmitted to each component society of that constituent society."

**Report of the Council on Medical Education.**—Dr. Arthur Dean Bevan of Chicago submitted this report, in which he stated that this council had now completed the tenth year of persistent and steady efforts in establishing better educational standards in medical education and the results had more than fulfilled the highest hopes of those who had urged the formation of this council. Instead of 160 medical colleges they now had 100. Instead of only four medical colleges holding fairly high entrance standards there were now 82 colleges which, after October 1, 1914, would require for admission one or more years of collegiate work in addition to a standard four years high school course. Where ten years ago there were only a few medical colleges which possessed adequate clinical facilities now there were many which had control of at least fairly adequate clinical material. Above all, instead of only a few medical colleges which were training their students in an atmosphere pervaded by the hopefulness of medical research, now at least some effective research was being conducted in a large number of colleges. The improvements in the past ten years had been so marked and the standard of preliminary education had been fixed at a point so reasonably high that it now seemed desirable to go more slowly and to allow time for a careful readjustment under the new order. It was desirable at this time to pay a deserved tribute to the medical schools of the South for the remarkable manner in which the problems of medical education had been grappled with. They had still to deal with a very large problem, that of preliminary education, but even this was being firmly and admirably met. The most serious problems of medical education were no longer to be found in the South, but rather in some of the large cities of the East and the North. The licensing boards of 31 States were now using their legal powers to refuse recognition to the low grade medical college, leaving 18 boards which did not have legal authority to do so, or which were not utilizing that power. In four States—New York, Pennsylvania, Texas, and Georgia—single medical examining boards had been secured. The present classification of medical colleges was based on ten years' study of medical education, including four inspections of practically all the medical colleges. Twenty-eight States were now supporting medical edu-

cation and in fifteen of these States the only medical school in the State was the medical department of the State university. There were only ten States having medical colleges in which the State did not contribute directly to the support of medical education. The report emphasized the duty of the State to support medical education in virtue of the fact that medicine was not only a function of the State, but one of the most important functions of the State. There was need of a reorganization of the clinical departments of our medical schools whereby clinical teaching might be placed on a more satisfactory basis. Toward this end a committee of ten prominent clinicians had been appointed who would bring in a report at the next meeting of the council. Investigation showed that at the present time there were enough good hospitals in this country to provide internship for all graduates of medical schools and the sentiment in all the better medical schools favored the adoption by State boards of a requirement that before a candidate was eligible for a license he must serve such an internship. A careful study of graduate instruction had been started by a special committee of the council. The development of graduate medical education was one of the immediate and pressing needs. There was an abundance of clinical material in our large cities which should be developed so that physicians might take graduate courses without going abroad. The development of graduate medical education was the next great step in the provision for a better trained medical profession in this country. The work of the past gave assurance that the future work of this council would become more and more effective in providing the public with well-trained physicians.

**Report of Committee on Red Cross Medical Work.**—Dr. GEORGE M. KOBER of Washington, D. C., submitted this report. He stated that this committee had been created for the purpose of making arrangements for medical relief in times of disaster. In February, 1913, a communication was addressed to the secretaries of 1,150 component societies affiliated with the American Medical Association and pointed out that the object in view could best be attained by the creation of committees on Red Cross medical work in every county medical society. This committee believed that after securing the appointments of such committees the Red Cross would be assured of the services of qualified medical men and that it would not be a difficult matter to effect concerted action between the various activities of the Red Cross in any community. Fifty-seven county societies in twenty-four States had appointed committees up to May 1, 1913. Up to May 1, 1914, 214 county medical societies located in 37 States, had appointed committees on Red Cross medical work. The committee urged prompt action on the part of all county medical societies, as the services of such committees might be required at any time.

**Report of Committee on Scientific Exhibition.**—Dr. FRANK WYNN of Indianapolis, Ind., submitted this report in which he asked for the usual appropriation of $1,000 for the exhibit. He stated that while the exhibit dealt with a wide variety of subjects its distinctive feature was the practical bearing of the exhibits on medicine and surgery. The *x*-ray exhibits and the work on the cancer problem were especially interesting and suggestive. The research exhibits were along many lines, such as the experimental induction of pneumonia, the experimental production of hydronephritis, lateral blood vessels anastomosis in arteriovenous aneurysm, the effect of pituitary extract on the growth and development of dogs. The exhibit was in marked contrast to the museum-like exhibits of former times. The bulky heterogeneous exhibit had given place to the serial exhibit which developed a single topic more fully and from the educational standpoint was more useful.

**Report of Committee on Nomenclature and Classification of Diseases.**—Dr. CRESSY L. WILBUR of Washington, D. C., presented this report. He stated that as reported last year this committee had been in correspondence with the Committee of the Royal College of Physicians of London appointed to prepare the fourth decennial revision of the English nomenclature of diseases, but as this report was not completed they wished to delay their report as there would be great advantages in cooperation to the end that the nomenclature of diseases employed in the English-speaking world might be in close accord, hence it seemed wiser to defer the preparation of the final report for the present. In this connection it was of interest to state that the second edition of the "Physician's Pocket Reference to the International Causes of Death" had been sent by the Bureau of Census to all physicians in the United States. The booklet contained a list of undesirable terms, which were thus brought forcibly to the notice of physicians throughout the country, with the recommendation that their use be discontinued.

**Report of Committee on Anesthesia.**—Dr. JAMES T. GWATHMEY of New York submitted this report. He stated that last year it had been suggested that the work of this committee be conducted along the lines adopted by the Council on Pharmacy and Chemistry, namely, that the committee on anesthesia should undertake the preparation of a comprehensive and critical review of the entire subject of anesthesia, and that the information therein should be made easily accessible to all physicians either by publication in the journal of the association or in pamphlet form. The House of Delegates approved of this course and the committee now had the pleasure of reporting that a good beginning had been made in carrying out this plan. They had sought to lay special emphasis on the fundamental scientific principles of anesthesia. The titles and authors of the various articles of the review were as follows: "Intratracheal Insufflation," Samuel J. Meltzer; "The Theory of Anesthesia," Evarts Graham; "Anoci-Association," George Crile; "The Present Status of the Acapnial Theory of Shock," Yandell Henderson; "Present Day Methods of General Anesthesia," James T. Gwathmey; "Rectal Anesthesia by the Use of Mixtures of Oil and Ether," James T. Gwathmey; "Present-Day Methods of Local Anesthesia," James Mitchell; "Recent Studies of the Physiology of Anesthesia," W. D. Gatch.

**Report of Council on Health and Public Instruction.**—Dr. HENRY B. FAVILL of Chicago presented this report in which he stated that this council was created four years ago as the representative of the association on all legislative, economic, and social questions, and as the medium of communication between the association and the medical profession on the one hand and other professional and philanthropic organizations on the other hand. The plans of the council had now developed to a point where a comprehensive program could be outlined, and the study of the present situation led to the conclusion that a rational program must include the following three lines of action:

1. A thorough investigation of present public health conditions in the United States, with a view to securing more accurate information on all phases of the public health problem than was now available.

2. Education of the public by every possible means in order that the people might understand the enormous advances in scientific medical knowledge during the last generation and the possibility of utilizing such knowledge in the prevention of disease, the reduction of the death rate, and the prolongation of human life.

3. The crystallizing of such educated public sentiment in necessary public health laws, regulations and ordinances, which would render possible a conservation of human life commensurate with our advancing knowledge and which would render such laws effective through the only force available in this country, namely, educated and enlightened public opinion.

The first of these required an investigation of the health activities of the Federal government in all its departments, and of State and municipal health activities, and also of the work of voluntary health organizations. The Press Bureau established two years ago had been maintained throughout the year and the number of newspapers manifesting an active interest in public health matters was constantly increasing. To increase the usefulness and scope of the Press Bulletin the secretary had during the last year organized an unofficial staff of editorial contributors comprising about forty members of the association who contributed short articles suitable for the bulletin. This report also included a summary of the work of the Speaker's Bureau, and that of the Bureau on Literature. In connection with the work of the latter bureau a plan had been presented for a series of twelve public health pamphlets as a nucleus for a standard series to be issued during the coming year. Attention was also called to pamphlets on medicolegal subjects, sex hygiene, and cancer. Another plan of the council was for the development of a Lantern Slide Loan Bureau, by which sets of stereopticon slides prepared by recognized authorities and accompanied by a skeleton lecture could be loaned to officers and members of county so-

cieties, physicians, and others interested in educating the public on public health topics. They had now completed a digest of all Supreme Court decisions on medical practice acts that included all decisions by American courts of last resort on questions affecting the regulation of the practice of medicine by the State. This material would be of immense value to State boards of examiners and their legal advisors; it would be issued during the coming year. In the field of national health legislation nothing had been done during the last year owing to the other problems occupying the present regular session of Congress. The sentiment in favor of proper governmental regulation of health matters was growing both in the public and the legislative mind. It was safe to say that in view of the triumphant demonstration of modern sanitary methods in the Canal Zone, Cuba, and Vera Cruz, and the practical abolition of typhoid fever in the United States Army, that when the subject of a national department of health next came before the American people it would receive greater support than it had at any previous time. When that time came this association would be able to supply accurate knowledge of the situation and a carefully worked out feasible plan for organizing a national department of health. The most direct national legislation during the past year were the socalled Harrison bills for the regulation of the manufacture and traffic in habit-forming drugs. Representatives of this council participated in the conferences and hearings on this bill and helped to frame its provisions. As it passed the House it provided that any person who "produced, imported, manufactured, compounded, dealt in, dispensed, sold, distributed, or gave away opium or coca-leaves or any compound manufactured salt derivative or preparation thereof" should register with the internal revenue collector of his district. A provision in the second section specified that nothing contained in the section should apply to the dispensing or distribution of any of these drugs to a patient by a physician. Several amendments rather burdensome to the physician had been added, but it was believed that these would not be pushed. The association should lend its support to any measure that offered any prospect of controlling the traffic in these dangerous drugs. This report also contained a review of the legislation enacted in the various states during the past year. One of the most effective means of putting the association in a favorable light before the people had been the plan of furnishing speakers for the churches on the Sunday preceding the annual meeting of the association. This year, on account of the few pulpits to be filled in Atlantic City, the privilege had been asked of filling the pulpits of the churches of Philadelphia. This plan had been endorsed by the officers of the Philadelphia County Medical Society and speakers were provided for fifty churches. Attention was called to the work of the various subcommittees of the council on health and public instruction. These included the committee on resuscitation from Mine Gases, committee on the protection of medical research, committee on conservation of vision, committee on public education among women, committee on cancer, committee to confer with the national educational association, committee on expert testimony. Special attention was called to the report of the committee on the conservation of vision and that of the committee on cooperation with the national education association, and public education among women. These committees had shown a tendency to develop definite and limited fields and to the accomplishment of actual constructive work. The committee on conservation of vision had prepared weekly nontechnical articles for the Press Bulletin on such subjects as "The Eyes and the Movies," "Face Powder and the Eyes," "Illumination in Homes, Offices, Schools, Shops, etc." This committee had planned a lecture campaign in almost every State to create a sentiment in favor of the conservation of vision. This lecture campaign had on the whole been successful. The work of the committee on public health education among women had aimed to connect the work of the American Medical Association with the women's clubs of the country and thus draw together existing forces so that cooperation might be secured. They had done excellent work in the better babies movement, the prevention of infant mortality, and subjects of hygiene of special importance to women.

**Report of Subcommittee on Uniform Membership.**—Dr. THOMAS MCDAVITT of St. Paul, Minn., presented this report, in which he stated that a conference of the State secretaries was called at the headquarters of the American Medical Association on February 25, 1914, at which time the reports from the various secretaries showed clearly that practical uniformity in method and results with consequent uniformity in the necessary details was gradually becoming prevalent throughout the organization. All of the executive officers of the different parts of the associations had recognized the importance of sufficient uniformity to reduce correspondence and "red tape" on membership matters to a minimum. The general adoption of the calendar year as the fiscal year of the State societies had alone been of great service in bringing about a better condition in membership regulation. The organization was still far from perfect in its mechanical details. Improvement would come as the executive officers of the various parts of the organization came to recognize more and more the need of simple, automatic, and easily handled methods for the regulation of membership.

**Report of Committee to Consider Mode of Commemoration of the Completion of the Panama Canal.**—Dr. ALBERT L. BRITTIN of Athens, Ill., presented this report, in which the committee recommended that a monument be erected, to be financed by the American Medical Association, possibly with government aid, located on the Canal Zone at a point to be chosen by the Secretary of War. This monument was to be commemorative of the contributions of the American medical profession to preventive medicine and sanitary science. The names of those men whose work was essential to the attainment of the sanitary condition, which made possible the construction of the canal, were to be inscribed on the base. These names were to be selected later by the joint committee. This monument was to be dedicatd by the American Medical Association on the Canal Zone, not more than two weeks before the meeting of the American Medical Association, presumably to be held in San Francisco, in 1915. The joint committee recommended further that the house of delegates request the board of trustees to appropriate $30,000 for the monument, and that a day be set aside during the exposition to be designated as Honor Day in recognition of the services of the men, living or dead, who by their contribution to sanitation and preventive medicine had made feasible the construction of the canal, and that on that day a general session of the American Medical Association be held which should be open to the public.

**Report of Committee to Advise with the British Medical Association Regarding a Joint Meeting with the American Medical Association.**—This report, of which W. W. GRANT of Denver, Col., was chairman, stated that the cordial invitation of the British Medical Association to meet with that Association in Cambridge from July 6 to 10, 1915, would have to be declined as the constitution and by-laws of the association provided that the annual session should be held at some place in the United States. The committee suggested that it be authorized in behalf of the association to invite the British Medical Association to meet with the American Medical Association in annual convention at the earliest date possible.

*Tuesday, June 23—Second Day.*

THE PRESIDENT, DR. VICTOR C. VAUGHAN, IN THE CHAIR.

**Report of Reference Committee on Medical Education.**—Dr. BERT C. ELLIS of Los Angeles, Cal., presented this report, in which it was recommended that the suggestion of the council on medical education that a hospital intern year be recommended for adoption as a requirement by State licensing boards and that medical colleges be urged to approve of this action; that the house of delegates should reiterate its action in recommending that a year in college in physics, chemistry, and biology in addition to the four years' high school work be required for admission to a medical college, and that high school courses in the above subjects be not substituted for college courses in these subjects; that the action of the council in reference to the reorganization of clinical work be approved; that the action of postgraduate schools in giving certificates in special courses be safeguarded; that no medical college conducted in the interest of stockholders be given a rating higher than C; that the changes in the ratings of medical colleges made by the council on medical education be endorsed; that the use of the metric system and the pharmacopeia of 1910 be adopted by medical colleges be endorsed by the house of delegates. The committee expressed itself as much impressed by the

progress in medical education during the past ten years. This report was adopted by the house of delegates.

**Report of Reference Committee on Constitution and By-Laws.**—This committee reported that it had made only a few insignificant changes in the by-laws designed to clarify the meaning and a slight change in arrangement of the sections in one chapter. The recommendations of the judicial council in regard to the matter of appellate jurisdiction were acted upon and the section referring to this matter was changed to conform with the recommendations of that council.

**For and Against the American College of Surgeons.**—Dr. WILLIAM J. NOBLE of Chicago presented two sets of resolutions regarding the new College of Surgeons. The first, from the Medical Society of the State of Illinois, deplored the organization of the American College of Surgeons as opposed to the democratic principles on which the American Medical Association was based and urged the delegates from Illinois to use all honorable means to have this resolution adopted by the house of delegates of the American Medical Association. A second set of resolutions stated that whereas there had been chartered in the State of Illinois an American College of Surgeons, the avowed object of which was to elevate the standard of surgery and to indicate special qualifications on the part of its fellows, and whereas the American Medical Association had never indicated any stated requirements and the public had no other means of knowing what men were properly qualified except they were informed by the American College of Surgeons, it was resolved that the house of delegates endorse and commend the American College of Surgeons as thus far the American Medical Association had failed to adopt resolutions recognizing the organization officially. These resolutions were laid on the table.

**Resolutions from the Section on Surgery.**—A representative of the section on surgery presented resolutions stating that several years ago the section on obstetrics, gynecology, and abdominal surgery, which up to that time had been known as the section on obstetrics and gynecology, requested that its name be changed so as to include "abdominal surgery." The house of delegates had granted this action and as a result they had taken the heart out of the section on surgery. He showed that it was inconsistent that the section on obstetrics and gynecology should appropriate the term "abdominal surgery" and requested that the words "abdominal surgery" be omitted from the name of the section now known as the section on obstetrics, gynecology, and abdominal surgery. These resolutions were referred to the proper reference committee.

**Resolutions on Expert Testimony.**—Resolutions were presented providing for the appointment of a commission to study the subject of expert testimony and for the appointment of a similar commission by each State society, and a committee in each county society. These committees were to report on all cases involving expert medical testimony in their localities.

**To Give the Young Man a Chance.**—Resolutions were also presented calling attention to the fact that only men of wide reputation now obtained the opportunity of presenting papers before the sections, and that one of the objects of the association was the development and encouragement of the younger men in the profession, and providing that hereafter only two-thirds of the program of any section should be filled by invitation, while the remaining one-third be left open for articles which should be submitted three months before the time of meeting so that the officers of the sections might decide on their value. Resolutions were also presented providing for the establishment of a section on hydrography. These resolutions were referred to their appropriate reference committees.

*Held Wednesday, June 24—Fourth Day.*

**Report of Reference Committee on Constitution and By-Laws.**—Dr. W. A. JAYNE of Denver, Col., presented this report, the same presented the previous day but which could not according to the by-laws be adopted until it had laid over for a day. The report was adopted with the changes suggested except that portion relative to the Appellate Jurisdiction of the Judicial Council, which, as it involved the relations of members of constituent state and county societies, it was deemed advisable to submit to the several states societies before taking final action. In reference to the recommendation from the Surgical Section that the name of the Section on Obstetrics, Gynecology, and Abdominal Surgery be changed to the Section on Obstetrics and Gynecology, Dr. Jayne stated that there had been a meeting of the committee with the representatives of both sections. After a great deal of discussion a compromise had finally been agreed upon as a temporary measure. This consisted in changing the name of the Section on Surgery to Section on Surgery, General and Abdominal. The resolution providing that in making the programs for the sections the presidents and secretaries should fill only two-thirds of the program by invitation, leaving one-third to be filled by articles selected from those submitted to the president and secretary of the section in which it was proposed to read them three months before the meeting. This idea seemed to be a good one, but there were a number of difficulties to be considered, so it was deemed best not to take final action at present.

This report was adopted with the exception of the last section which was referred to the Permanent Committee on Sections and Section Work with request to report upon it next year.

**Report of Reference Committee on Reports of Officers.**—Dr. THOMAS B. DAVIS of Pittsburgh, Pa., reported that this committee commended the report of the secretary and praised the Propaganda Department, the various publications of the Association, the new Medical Directory and the Advertisement Bureau. There would be more and better advertisements in the future, and the committee recommended that the work of this bureau be continued. It was also recommended that a reserve fund be established and that to this end all the departments of the Association be careful in regard to unnecessary and extravagant expenditure. The adoption of the resolution providing for the appointment of a publicity committee in every county society was recommended. In view of the fact that the Appellate Court of Illinois had rendered a decision casting doubt on the legality of the incorporation of the American Medical Association, the question had been asked why the text of this decision had never been published in the *Journal*, and had never been explained. The committee recommended that this decision should not be published because it was not right that the space in the *Journal* should be devoted to this purpose, and because the decision of a higher Court, the Supreme Court of the State of Illinois, had overruled the decision of the Appellate Court and consequently the decision in question was not worth printing.

This report was adopted.

**Report of Judicial Council.**—Dr. ALEXANDER LAMBERT reported for the Judicial Council that in the matter under advisement, relative to the holding in trust of patents of medical and surgical appliances, such a plan would insure the medical profession and the public against cheap substitutes and would enable the sale of instruments and appliances at a lower cost to the profession than at present. The Judicial Council recommended that the House adopt this resolution providing for the holding in trust by the association of patents on medical and surgical appliances with the provision that neither the Association nor the patentee should receive any remuneration therefrom.

With reference to the scheme presented by the Medico-Legal Protective Association, they had found that this was a form of insurance against libel suits and not the ordinary malpractice suit. In the near future each physician would be interviewed on this subject, and it seemed to the Council that this was not a matter for consideration by the House of Delegates but one that must be decided by each one for himself.

**Report of Committee on Sections and Section Work.**—Dr. HUGH CABOT of Boston submitted this report. He stated that the application for a Section on Hydrotherapy had been denied as it was thought that this came within the province of the Section on Pharmacy and Therapeutics. The proposition submitted with reference to dividing the section into two groups, general and special, had been considered, but it was thought that action on this subject should be deferred. It was pointed out that there were good reasons why the further multiplications of sections was not advisable at present. Each new section meant an additional financial outlay. The registration showed that the sections on Medicine and Surgery contained 60 per cent. of the registration; none of the other sections included more than 10 per cent. of the registration, and one section had enrolled only 1 per cent. of the registration. It was recommended that a committee of five be appointed to make a thorough study of the proposition to divide the sections into two groups which should make a report at the next meeting.

**Resolutions.**—The following resolutions were presented: 1. Endorsing the Palmer-Owen Child Labor bill and providing that its sponsers be notified of the approval of the Association. 2. Urging the passage of a comprehensive bill for the care and control of leprosy by the Federal Government. 3. Calling for an investigation of nervous and mental diseases in reference to their incidence, causes, relations to heredity, alcoholism, syphilis, and the means of promoting mental hygiene, etc. 4. Calling for the investigation and control of the sale by grocers of lyes and cleansing substances which had frequently been responsible for injuries, especially to children.

**Invited Guests.**—The following invited guests were in attendance at the session: Harold Collinson, England; Eldred M. Corner, England; Louis I. Doublin, New York; Professor Otfrid Foerster, Germany; Otto Folin, Boston; John Fraser, Scotland; Wilfred Harris, England; W. McKimm Marriot, Baltimore; Alexander Primrose, Toronto, Canada; George B. Roth, District of Columbia.

**Honorary Fellowship.**—Dr. George B. Primrose was elected to Honorary Fellowship in the Association.

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GENERAL SESSION.

*June* 23, 1914.

The President, Dr. John A. Witherspoon of Nashville, Tenn., in the Chair.

**Invocation.**—Reverend Henry Merle Mellen of Atlantic City opened the meeting with an invocation.

**Address.**—Hon. William Riddle, Mayor of Atlantic City, made this address of welcome, in which he said in part that it was more than a duty, it was a pleasure to speak for the people of Atlantic City on this occasion. Atlantic City owed its success to the physicians of the nation; through them it had grown to be perhaps the greatest health resort in the world. Atlantic City was deeply grateful and there was no body of men who gathered here more heartily welcome than the physicians. After extolling the advantages of the city, he expressed the hope that the American Medical Association would honor them by returning year after next.

**Address of Welcome.**—Dr. Enoch Hollingshead of Pemberton, N. J., president of the Medical Society of New Jersey, welcomed the American Medical Association in behalf of the State Society. He said, in part, that it gave him great pleasure to greet the American Medical Association in the name of the Medical Society of the State of New Jersey, the oldest in America, as Allah greeted the rising sun, with reverence; to greet them as friend greeted friend, as brother greeted brother on his own threshold; to greet them as the greatest creators of medical thought in this country if not in the world. No nation could be successful which did not make its medical ideals the highest. He believed that the knowledge and the inspiration which they brought would, like "Mercy," bless alike those who gave and those who received.

**Address of Welcome.**—Justice Wescott, Attorney-General of the State of New Jersey, made this address as the representative of the Governor of New Jersey. He said the whole proceedings of the meeting suggested the physician; they had been directly to the point, without fuss and without feathers, and the incongruity was that a lawyer should be in their midst. It was very difficult for a lawyer to know the appropriate thing to say. He was much in the position of the young man who was very much concerned about his destiny. He finally decided that the greatest object of life was the saving of the soul and thereupon determined to be a preacher. He soon found that most people were much more concerned about saving their bodies than their souls and then decided to be a physician. After a little further observation he perceived that this was an error and that most people were much more concerned about their pocketbooks than about either their bodies or their souls and immediately began to study law. This might have been a rightful commentary on conditions in this country a short time ago, but happily people were undergoing a change of sentiment. Men were destined to care less and less for their pocketbooks and more and more for their souls and bodies. And it was realized that we could not have great souls without strong bodies. The medical profession from the standpoint of the lawyer had seemed to be a profession based on empiricism and almost necessarily so because it dealt with special and individual cases, but it had developed a peculiar type of courage. The martyr went to his doom once in a century through divine comfort and support; the soldier met his fate under an environment of tremendous dramatic significance; the doctor went to his doom, not once in a century, not under circumstances accentuated by glory, but under conditions of mental calm; he confronted danger and walked to the very gates of death silently, unseen, and unsung daily, and this had developed the peculiar type of courage, the highest species of courage known to the human animal. The medical profession had up to the present time been a profession of separateness, so to speak. It had proceeded under conditions that did not admit of cooperation. The characteristic of the age was cooperation and the physician had come to appreciate the power of coordination and cooperation. The time would come to pass when every county in every state would have its medical society concatenated with the State society, and the State societies would form a great national unit. If these all cooperated with and all possessed the high courage already described they would form the most tremendous power that could be contemplated. They would form an irresistible force in legislation and in the improvement of the people, not only physically but morally and religiously, as without the physical foundation there could be no morality, no theology, no religion. Thus far the profession had worked at each block in the foundation of this great structure, but they had not worked at this foundation as a whole. The average physician was a philosopher, an economist and the soundness of our institutions would be better insured in his hands than in those of any other group of men. In the hands of the physicians rested the future of this country, because in the hands of the profession rested the physical life of the country, and upon this depended its patriotism. The human animal was a susceptible creature in every direction. The average man or woman picking up a newspaper and reading a patent medicine advertisement would, by his constructive imagination, appropriate as a part of his own physical life and as his disease the symptoms of disease set forth in the advertisement. He hied himself to the nearest drug store to purchase freedom from his disease by buying the compound advertised. "What was it?" "God only knows." It was called a proprietary medicine. It was not the result of scientific knowledge but of a knowledge of human weakness. While not wishing to burden his audience with statistics, there was an agreement in the assertions that the people were consuming unknown compounds in the dry forms by the ton and in the fluid form by the hogshead. The foundations of society were being poisoned through the destrictive influences of proprietary medicine. What was this body going to do about it? They had the intellect and the courage and what they should do was to hedge about the manufacturer of proprietary preparations as they themselves were hedged about. He repeated that the medical profession carried in its hands the destiny of this country, and its first duty was that it should save the country from poisoning through liberated ignorance.

Dr. Witherspoon said he wished to express his appreciation of what had been said and to express his gratitude to the last speaker who had outlined the trail along which the medical profession had been barking, and had pointed out the aims of the association as though he were its regularly appointed counsel. He stated that he wished to call upon Dr. Reed to make a report.

**Conferring of Medal on Surgeon-General Gorgas.**—Dr. C. A. L. Reed of Cincinnati said that it was his privilege and happiness to present to an illustrious member of the profession a gold medal in the name of the American Medical Association. He said: "A citizen of the Republic, a graduate in Arts and Medicine, a Doctor of Science and of Medicine, an Army Surgeon by special Act of Congress, Chief Sanitary Officer of the Isthmian Canal Zone, Consultant on Sanitary Problems, Honorable Associate of many foreign associations, illustrious writer and scholar, William C. Gorgas, sanitarian, whose genius made possible the construction of the Isthmian Canal, as one of the acts of the present administration, I am proud to have been appointed Chairman of a Special Committee for the purpose of showing to all the appreciation of ability, of greatness and of genius which made possible the building of the Isthmian Canal. Five hundred thousand lives are lost each year in the United States which might be saved by the proper application of preventive medicine. It is to be hoped that you will always be at the head of the sanitary affairs of the

people. It gives me much pleasure to turn over and present this Gold Medal as a token of appreciation that this country and the American Medical Association contains a man who has done so much for the salvation of mankind."

Dr. WILLIAM C. GORGAS expressed his gratitude for the honor conferred upon him and said that he accepted it only as the chief of the three or four hundred young men who had worked with him and in conjunction with whom he shared the honor.

**Address of the President.**—Dr. VICTOR C. VAUGHAN of Ann Arbor delivered the annual address of the president (see page 1151).

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SECTION ON PRACTICE OF MEDICINE.

DR. CHARLES LYMAN GREENE OF ST. PAUL, MINN., IN THE CHAIR.

*Tuesday, June 23—First Day.*

**Notes on Cases of Sprue Invalidated from the Tropics—Will It Become Endemic Here?**—Dr. H. B. HIATT of High Point, N. C., and Dr. WM. ALLAN of Charlotte, N. C., presented this communication which was read by Dr. Hiatt. In their summary they stated that cases of sprue were constantly sifting back into this country and should be recognized and treated as such. Sprue should not be confused with pellagra. Rest in bed, a monosaccharid and skimmed milk diet, and cold weather seemed to be the important factors in the treatment. Sprue might very possibly be or become endemic in the Southern States.

**The Syndrome of Adrenal Insufficiency.**—Dr. TOM A. WILLIAMS of Washington, D. C., read this paper. The cases reported and the considerations involved were far from completely presented, and he said he was well aware of this; but a consulting neurologist, without the hospital facilities for research on a large scale, was not well fitted to elaborate what was a very complex problem, namely, the pathogenesis of a complete clinical syndrome, and the treatment of hypoadrenalism. Although it would seem that prolonged psychic strain played a part in the induction of this condition, yet, on the one hand, thousands of individuals underwent long psychic strain and retained their adrenal sufficiency, and perhaps functionating excessively in that respect; while, on the other hand, it was hardly creditable that the adrenal inadequacy from which the Boston physician's daughter died was due to any excessive strain. They were reduced then to the hypothesis of the general inadequacy of the chromafin system to explain cases of this kind. It might be indeed that the inherent inadequacy was responsible for the failure of the adrenals in all cases in which there was no inflammatory or toxic process damaging the glands. He commended the problem to the resources of some large clinic. His paper was presented mainly in the hope of again drawing attention to the need of differentiation, even in a group of cases most typically neurasthenic.

**Neurasthenia and Tuberculosis (Concealed).**—Dr. GEO. DOUGLAS HEAD of Minneapolis, Minn., presented evidence which it seemed to him conclusively proved that many individuals exhibiting the symptom syndrome of so-called neurasthenia harbored a tuberculous infection, and this only; that the tuberculous process in most cases was so concealed as to escape detection by the usual clinical examination methods employed, and a specific test must be used to reveal its presence; that in the light of this evidence these cases should be diagnosed as tuberculosis, and not neurasthenia; that they should recognize and adopt a new clinical symptom type for concealed tuberculosis; that this symptom type was the symptom now recognized by clinicians the world over as neurasthenia.

Dr. NATHAN ROSEWATER of Cleveland said that in 1909 he read a paper on disguised starvation in which he attempted to show this to be one of the causes possibly of beginning tuberculosis. The question then arose how to distinguish between so-called neurasthenia and disguised starvation. In the first place the physician failed to know the time of day when the symptoms became worse. In so-called neurasthenia naturally the symptoms would appear or become worse when the patient was tired, and the nervous system taxed; they would not appear in the morning when the patient was not tired. This was supposed to belong to that class of conditions developed only when the body was tired; yet they might be due to a beginning tuberculosis or to a disguised starvation.

Dr. CHAS. STOVER of Amsterdam, N. Y., said that before deciding that the case was one of neurasthenia they should first exclude myasthenia gravis, a not uncommon condition that appeared when patients became exhausted.

Dr. ELIZA M. MOSHER of Brooklyn, N. Y., said she was particularly interested in the paper, and especially what was said regarding enteroptosis. She believed that they would always find behind neurasthenia, melancholia, starvation, etc., a condition of stasis in the intestine due to falling out of place of some part of the intestinal digestive tract. It was her observation that a peculiar shape of the body already described, with long trunk, wide hips and narrow chest almost certainly predisposed to enteroptosis, and said she had yet to see a young girl with such a body make-up but had enteroptosis. Mr. Lane had stated that enteroptosis was an infantile condition beginning in early life, and even before birth. Enteroptosis produced the very symptoms that had just been described.

Dr. A. J. CAFFREY of Milwaukee, Wis., called attention to the large number of cases of neurasthenia that came to the free clinics, and which reacted positively to tuberculin. There seemed to be some connection between neurasthenia and tuberculosis.

Dr. JOHN RITTER of Chicago believed that at least 40 per cent. of the cases of so-called neurasthenia were tuberculous. They all knew that about 50 per cent. of the typhoid fever cases were tuberculous, and that tuberculosis manifested itself in as many ways as did lues.

Dr. WALTER B. SWIFT of Boston recalled the case of a young woman who had, he believed, all the typical signs of a marked neurasthenia; nothing else could be found. Six months after he examined her she died of carcinoma of the stomach.

Dr. ALBERT ROBIN of Wilmington, Del., referred to the careless manner in which patients were examined in the clinics; 20 per cent. of those applying for aid had no physical examination made of their chests except through the clothing, and so the early cases of tuberculosis were not detected. The effects of exercise, when carefully observed and studied, was of as great diagnostic value as were the injections of tuberculin, and exercise was safer.

**The Use of Atophan and Radium Emanations in the Treatment of Gout and the Arthritides.**—Dr. ARTHUR F. CHASE and Dr. MORRIS S. FINE of New York City presented this communication. Whatever might be the cause, gout was undeniably characterized by a concentration of blood uric acid which was from two to five times as great as that observed in normal individuals. Since the principle of treatment in gout was to avoid purine foods, and to maintain the uric acid of the body tissues as low as possible, it would seem that an agent which was essentially a specific eliminant for uric acid, as stophan appeared to be, would form a rational therapy in this condition. It then became desirable to learn the details attending the action of this drug. Under treatment with atophan, five cases of gout showed improvement of more or less permanence, as also did four cases of possible gouty nature. Of eleven cases of arthritis of various types, two showed some improvement. They had thus far treated thirteen cases of gout and arthritis in an emanatorium with radium emanations in one to two hour sittings for one or two months, and in no instance was there any change whatever in the uric acid concentration of the blood.

Dr. CHARLES G. STOCKTON of Buffalo said he had had a part in some studies relative to the action of atophan in relieving the uric acid burden of the blood during the past winter and he had seen some cases in which the drug administered according to the method of Folin had acted unpleasantly. The term "gout" had been used as though it was a parallel to excess of uric acid in the blood. The term gout implied something in addition to excess of uric acid in the blood. He had observed two cases with similar conditions one of which was treated by the alkaline method and one by atophan; the latter had given rather the better results.

Dr. S. SOLIS COHEN of Philadelphia said that for years he had been making use of this drug and of novatophan. His colleague had been making certain studies which bore out the report made as to the influence of atophan on the uric acid content of the blood but the uric acid was not by any means the whole story nor did clinical results run parallel to the reduction and elimination of uric acid under atophan and radium elim-

ination. The most striking effect clinically in gout, arthritis and acute rheumatism was the relief of pain. In one case under observation the administration of the drug was accompanied by relief of pain and reduction of temperature and withdrawal of the drug by recrudescence of pain and temperature, but this did not mean recovery. The change to the usual salicylate treatment resulted in prompt recovery. In cases of chronic gout he had settled on the following method: He administered atophan for one week in every month but not in large doses, using one gram a day in three doses. In cases of gout with bad heredity the normal uric acid index was higher than that of the normal individual, and all one could hope to do was to bring the uric acid down to what would be normal for that individual and to such a condition that no symptoms were manifested. He had used radium emanations and radium water and thought he obtained better results in acute than in chronic cases. The result of the first few radium treatments was to increase the pain in the joint, and unless there was such an exacerbation one could not hope for curative results.

Dr. ARTHUR F. CHACE of New York said that where there was intolerance for the drug it could be given in smaller doses or in combination with soda. He preferred atophan to novatophan. Gout would have to be defined in the future. He did not call the cases gout unless there was at least four milligrams per 100 c.c. of uric acid of blood. He had been interested in the significance of a high uric acid content in nephritis and uremia and he pointed out the advisability of searching for a foci of infection where the uric acid content remained high. He also administered the drug by giving it four days and then allowing a four days' interval. In nearly all cases he had used the purin-free diet. If the drug was given only one week in the month one might permit a moderate amount of purin in the diet. He had tried reducing the uric acid by a diet purin free and alcohol free and had reduced the uric acid from six to three milligrams per 100 c.c. by dietary precautions. In his experience the radium treatment had given the best results in the subacute cases.

**Intrarectal Administration of Sodium Salicylate in Acute Rheumatic Fever with Satisfactory Results.**—Dr. LOUIS G. HEYN of Cincinnati said that this method had for its justification its ability to answer the requirements of any therapeutic agent such as the ease of administration; the ready absorption of the drug; a minimum of untoward effects; the ability to administer large quantities of the preparation as was to be advocated in bactericidal therapy; the removal of the residue of the drug from the bowel by subsequent enema if the dosage ever proved excessive; and the results were more prompt than by any other measure. He reported cases which he believed to be fairly illustrative of the efficiency of the intra-rectal therapy and he said that if the common methods of treatment in acute rheumatic fever had so often been disappointing the intra-rectal method was offered as a very reliable and safe solution to the therapy of this serious affection.

Dr. E. W. MITCHELL of Cincinnati said he wished to corroborate what had been said of the value of the salicylates when given in primary large doses and this had been found impossible when they were given by the mouth. The method just described had been exceedingly satisfactory in hospital practice and they very seldom had an unpleasant reaction. They had given as much as 300 grains in twenty-four hours without producing more than ringing in the ears and if symptoms of salicylism developed they were relieved by washing out the rectum. Absorption of the salicylates seemed to be more prompt by the rectum than by the stomach. Salicylic acid never circulated in the blood as such but was changed to salicylates, the change being effected by the carbon dioxide in the blood. It was not difficult to employ this method in private practice and it was satisfactory to the patient to be free from the nausea caused by administering salicylates by the mouth, and the treatment had to be given only once or twice a day. There were only one or two cases in which the ringing in the ears was so severe as to make it necessary to stop the treatment. They had tested the drug in both its synthetic and its natural form and had found no difference in its effects.

Dr. JOSEPH L. MILLER of Chicago said that Dr. Heyn's paper was interesting as showing that salicylates given by the rectum were actually absorbed, but he questioned whether there was greater action than when they were given by the mouth since when administered by the mouth they were very freely absorbed. They used larger doses when administering it by the rectum and it was absorbed as completely as by the stomach. In patients who could tolerate larger doses than usual by the mouth, it gave more favorable results. Dr. Heyn's method of administering the drug would be very valuable in cases in which it cannot be tolerated by the mouth. Many would scarcely agree that the salicylates were a specific for acute rheumatic fever as they were a comparatively recent remedy. It had been shown that of the patients receiving salicylates 30 per cent. relapsed while those receiving the alkaline and heat treatment only 6 per cent. relapsed. A comparison of 2,000 cases treated by the older methods and 1,600 by salicylates showed that the stay of the former patient averaged 33.4 days in the hospital, while for the latter the time spent in the hospital was 33.2 days. Dr. Miller referred to experiments on rabbits in which hemolytic streptococci were administered and then large doses of salicylates but this did not prevent the animals from getting arthritis.

Dr. J. N. UPSHUR of Richmond, Va., referred to the advantages of bicarbonate of potassium after having unloaded the liver. He used the preliminary alkaline treatment until the perspiration and the urine became neutral, but did not believe in large doses of salicylates as he believed they predisposed to endocarditis, and the patients were more apt to relapse than those treated by the method indicated.

Dr. J. M. RECTOR of Columbus, O., used a smaller dose and by a certain method caused further absorption along the tract. He used a tube to inject the solution, attaching to its end the Pullitzer bulb, which caused the agent to be trapped along the colon. Another feature to be borne in mind in the treatment of these cases was that two or three enemas a day unloaded the colon and assisted especially in the elimination of the contents of the upper alimentary canal.

Dr. JAMES C. TYSON of Philadelphia added his testimony and said he had described this method some years ago. It was not often necessary to administer the drug by the rectum as there were other compounds as aspirin that could be administered by the mouth.

Dr. NATHAN ROSEWATER of Cleveland, Ohio, said that he did not give large doses of salicylates but had found that 15 or 20 grains at bed time did as well as larger doses. During the day he gave an alkali preferably iodide of potassium in order to preserve a decent circulation and that being good he saw no cardiac complications.

Dr. W. W. TOMPKINS of Charleston, W. Va., asked Dr. Heyn whether he had a record of the number of cases of endocarditis in his series of 124 cases. He emphasized the advantages of rest even in those cases in which the affected joint did not prevent the patient from being about.

Dr. LOYIS G. HEYN of Cincinnati said that Dr. Miller's experiments on animals were a strong argument against the bactericidal effect of the salicylates. In regard to the salicylates predisposing to endocarditis, he said he had given them in cases of marked arrhythmia with no untoward effects so far as could be judged.

*Wednesday, June 24—Second Day.*

There was a joint meeting with the Section on Pathology and Physiology with a symposium on nutrition.

**Newer Points of View Regarding the Part Played by Different Food Substances in Nutrition.**—Dr. LAFAYETTE B. MENDEL of New Haven, Conn., read this paper. He said to speak of "newer" points of view regarding the rôle of the different food substances in nutrition implied a contrast of to-day with yesterday in this progressive domain of physiology. One need not turn back far to reach the days of Liebig, to whom, above all others, were due the beginnings of present-day knowledge of the constitution of foods, tissues and excreta. The vague and indefinite generalizations of a generation ago in respect to the functions of the foodstuffs had slowly been transformed into the more tangible theories of the passing decade. Proteins were now understood to be disintegrated in the digestive tract into relatively simple nitrogenous fragments, the amino-acids, not exceeding twenty in number. It was these digestion products, absorbed into the blood stream, that represented the real form in which the protein intake of the body was transported throughout the organism. Protein metabolism had at length become essentially a question of the behavior of amino-acids in the body, their uses and fate. So far as the nitrogenous transformations were concerned, the amino-acids were the center of interest in nutrition,

the pivot about which the modern conceptions turned. Most, if not all, of these amino-acids were essential for the construction of tissue and the regeneration of cellular losses. Prof. Mendel said that he trusted in his hasty review he had given emphasis to the contention that the problem of protein metabolism had largely become one of amino-acid supply.

**Intermediary Protein Metabolism.**—Dr. Otto Folin of Boston read this paper. He said that in its broad outlines the intermediary protein metabolism appeared now comparatively simple and clear. The blood got amino-acids from the digestive tract and all the tissues got them from the blood. From the amino-acids thus received each tissue rebuilt itself, and the amino-acids which were not needed for such synthesis were converted into urea and carbonaceous remainders. The latter were either converted into carbohydrates or were otherwise oxidized for the production of heat and energy. When protein materials from within the body were broken down, as in fasting and in fevers, these were in all probability digested in the tissues down to the stage of amino-acids, and from that stage on underwent the same transformation as did the amino-acids derived from the food.

**The Specific Dynamic Action of Foodstuffs.**—Dr. Graham Lusk of New York presented this communication. He stated that the results obtained were based upon 250 experiments upon dogs in the respiration calorimeter. The cause of specific heat production lay not within the absorptive or excretive mechanisms, but in the interplay between the living cells and the nutrient material, the sugars and amino-acids contained in the blood. Experiments had been devised to determine the effects of these changes, which demonstrated a marked increased heat production after the ingestion of sugar. The heat production of the fourth or fifth hours after the ingestion of glucose regained the level of the basal metabolism. The speaker discussed the cause of this increased heat production, and stated that it was due to the mass action of the sugar molecules reacting with the living cells. When alcohol was given in addition to glucose the heat production was raised above the level to which glucose alone would have raised it, and the alcohol was oxidized in preference to the carbohydrates. The metabolism of three amino-acids yielding sugar were studied. An amino-acid convertible into sugar and urea might be given without appreciable increase in the heat production. The result which followed the administration of amino-acids was like that which occurred after meat ingestion in that the amount of the increase in heat production was proportional to the quantity of material metabolized. He had presented the view that the great increases in heat production were due to stimulation of the protoplasm to higher activity through the mass action of accumulated amino-acids. Experiments made since had led him to believe that the highest heat production was coincident with the highest metabolism of amino-acids, and that the amino-acids themselves did not lie in the tissues to act as stimuli without being involved in highly active metabolism. It was indicated that specific intermediary acids were formed in metabolism which were the real stimuli, and that when ingested protein was reconstructed into body protein the amino-acids involved in this reaction did not cause an increase in the heat production. It might be stated that living cells metabolized carbohydrates and fats in increased quantity when these were present in large amounts in the surrounding fluid, and that they were also stimulated to a higher heat production during metabolism of certain amino-acids to an extent entirely out of proportion to their energy value.

**The Total Energy Requirement in Disease as Determined by Calorimetric Observations.**—Dr. Eugene F. DuBois of New York presented this paper, which was based on a study of 140 cases in the respiration calorimeter of the Russell Sage Institute of Pathology in Bellevue Hospital. In typhoid fever the heat production might rise to from 100 to 160 per cent. of the normal, and at this stage there was little or no specific dynamic action manifested by protein or carbohydrate; that was to say, the taking of food, even in large quantities, did not increase the amount of heat produced. In exophthalmic goiter the total metabolism might rise as high as 192 per cent. of the normal, and in cretinism it might be as low as 75 per cent. In all the various diseases studied the methods of direct and indirect calorimetry agreed closely.

Dr. Victor C. Vaughan of Ann Arbor, Mich., said that he would not dare criticise the papers as the authors were the best authorities there were on this subject and he congratulated the American Medical Association on having such men in its ranks. He asked Dr. Folin to explain one point. It was recognized that in enterodigestion proteins were split into amino-acids. Dr. Folin held that amino-acids were directly absorbed in the walls of the intestines, carried to the individual cells and each utilized what it found suited to its needs. The point that he should explain was in regard to synthesis; there must be some synthesis in the body. The seroalbumins and globulins of the blood were specific proteins each from diverse sources, and synthesis must occur somewhere. They must not lose sight of the fact that enterodigestion was by no means the only digestive process. The blood had a digestive function. The leucocyte cell of the blood possessed a proteolytic ferment, a trypsin and an antitrypsin, and the adjustment of these to one another was one of the great problems of physiological chemistry.

Dr. S. J. Meltzer of New York said he wished to offer the same congratulations as those of the president. It was gratifying to see the gulf between the scientific investigator and the practical clinician narrowing more and more. It was also gratifying to get four men in the United States together at once who could tell not what was being done abroad but what they were doing themselves, and who took a pride in work that had a practical bearing on the practice of medicine. Dr. Mendel's remark that they saw only guesses and gaps had not been made for the last time. Always from a certain point of view there were guesses and gaps. Guesses and theories existed to bring out facts and a theory continued to live as long as it continued to bring out facts. Mendel had contributed one of the best facts ever demonstrated when he found the usefulness of butter to growth and at the same time that lard did not do what butter did, but had not pointed out the difference between the two. One thing the scientific man should remember was that he should do no harm to the patient, and should consider well before subjecting certain patients to too much experimentation.

Dr. F. M. Potenger of Monrovia, Cal., asked if the difference in the absorption of fats applied the same to all animals, whether it was the same for herbivorous, carnivorous animals and for man.

Dr. J. P. Joselin of Boston asked Dr. Lusk if he could give the reason why the metabolism was not by increased generous feeding in typhoid fever.

Dr. A. D. Eustis of New Orleans, La., said that one point that had been mentioned could be utilized by the practitioner and that was the effect of the different aminos which were the putrefactive results of the amino-acids. These were non-toxic to the normal person, but injected into animals acted as toxins and might be toxic in diseased conditions in man. Dr. Eustis discussed the effect of diet in arterial hypertension and stated that under dietetic treatment alone he had seen blood pressure of 200 to 260 come down to 140.

Dr. George D. Head of Minneapolis asked if observations had been made as to the heat production after feeding butter to enteroptic individuals as compared with those of short stocky build.

Dr. A. J. Carlson of Chicago called attention to the fact that in the particular field covered by these papers America had made a distinct addition to science. He had been greatly impressed by the way in which these papers had been received though it was true that if there was anything in the practice of medicine that was of importance it was a knowledge of nutrition.

Dr. L. B. Mendel of New Haven, Conn., expressed the fear that he had been misunderstood in what he had said regarding the "gaps and guesses" in their knowledge of metabolism; he had intended to show how these gaps and guesses were being filled in and to present present-day views. He did not wish his statements to be taken too specifically. In reference to the experiments in fats, butter, cod liver oil, etc., these had been made only on rats and mice, but these had proved so satisfactory for experimental purposes that it had not seemed necessary to try the experiments on a wide variety of animals. Styles had changed in infant feeding in reference to fats and it had been noticed in pellagrins that the theory of corn in relation to this disease was complicated by the fact that many of these patients used lard to a great extent. The new attitude of the clinical fraternity to the laboratory worker was a cause for mutual thanksgiving and rejoicing.

Dr. Otto Folin of Boston said he thought the audience would agree with him that the question asked by

the president was too much of a question for even a laboratory worker, to attempt to answer it would be to answer the question as to how tissue was produced. He had discussed the problem from the standpoint of metabolism of food. This was a matter that had two aspects, a destructive and a constructive one, but the constructive aspect, the synthesis, was synonymous with the formation of life itself and far from the transformation of amino acids into protoplasm.

Dr. GRAHAM LUSK of New York said that in reference to the question as to the increase of metabolism in typhoid fever, he had studied the basal metabolism which was the metabolism taken when there was no food in the intestines and a high temperature. The 26° C. mentioned in the paper excluded the thermal influence entirely. If an animal was in the cold and the heat production was raised, meat could then be given without causing a further increase in the heat production. That was if one established the heat production at a certain level of metabolism, combining two heat producing factors did not cause a further increase in the heat production.

Dr. EUGENE F. DUBOIS of New York said that a comparison of metabolism in enteroptic individuals with that of short stocky ones was interesting. It seemed that with under nourishment there was low metabolism and with the other class there would be a higher metabolism, yet from clinical observation of enteroptic individuals there seemed to be higher energy requirement.

**The Heart in Pneumonia.**—Dr. ROBERT N. WILSON of Philadelphia said that according to the vitality and endurance of the heart and circulatory system might be reckoned the outcome of the given instances of pneumonia. Seldom, if ever, would the mechanical obstruction of the lungs prove a serious factor except in its influence upon an already crippled cardiac mechanism. In speaking of the microscopical changes he said that the heart showed post mortem evidences of the toxemia in every fatal case of fibrinous as well as of broncho-catarrhal pneumonia that reached the microscope. During the past year he had taken great interest in studying microscopical sections of the cardiac musculature from fatal cases of pneumonia and in not a single instance was there a lack of evidence that a toxic influence had been actively at work.

**The Treatment of Heart Involvement in Syphilis.**—Dr. HARLOW BROOKS and Dr. JOHN CARROLL of New York City presented this paper and offered the following conclusions: 1. Cases of heart involvement in early syphilis might be fully cured irrespective of the character of the lesion by vigorous specific treatment alone and independent of circulatory measures. 2. Even well established and late cases usually respond to treatment with care, or marked though perhaps temporary benefit. 3. In most tertiary instances purely circulatory measures produce but slight benefit unless preceded by or combined with specific medication. 4. Interrupted inefficient treatment established an immunity or resistance on the part of the lesions against the specific drugs employed. Hence the importance of vigorous and carefully systematized treatment. 5. The most satisfactory treatment was one which combined the use of salvarsan with mercury and the iodides. Combined treatment might be unnecessary in early cases but it was essential in late ones. 6. Salvarsan, preferably old salvarsan, produced in most instances the quicker results. It was capable, however, of inducing serious symptoms and in untried cases of heart involvement it should be administered in small doses until its action had been ascertained, particularly in those lesions characterized by disturbances of rhythm. 7. Mercury alone might produce apparent cure. Best effects were secured with this drug when its form was from time to time changed. Its use appeared to be indispensable in all well established cases. 8. The iodides were valuable adjuvants in the treatment of tese cases, especially in their late stages, but they were apparently without specific action. 9. Permanent injury to the heart must be assumed to have taken place in late cases, even though prompt response to treatment and apparent cure occurred. 10. Successful treatment resulted primarily on the recognition of the cause of the disease and on its specific treatment.

**The Four More Common Types of Heart Disease—An Analysis of 600 Cases.**—Dr. RICHARD C. CABOT of Boston presented this communication and offered the following conclusions: 1. 93 per cent. of 600 recent hospital cases of failing heart had been found to group themselves without much resistance in four classes, rheumatic (streptococcic), syphilitic, arteriosclerotic, and nephritic. 2. About 5 per cent. could not easily be thus classified. The remaining 2 per cent. were "goiter hearts." 3. In the 278 rheumatic cases females predominated, 170 or 61 per cent. to 108 males or 39 per cent. 4. Sixty per cent. of these rheumatic cases began before the twenty-second year. The typical rheumatic heart case was therefore a young girl. 5. Of the 74 syphilitic cases 70 per cent. were in men; only 30 per cent. in women. The typical syphilitic heart case was a middle aged man (average age 47) with aortic regurgitation and no rheumatic history. 6. The 93 arteriosclerotic cases averaged 59 years of age. The 117 glomerulo-nephritic cases averaged 36 years old. The arteriosclerotics were therefore 23 years older than the nephritics. The sexes were about equally represented in both groups. 7. Diagnosis, prognosis, and treatment were put upon a more rational basis if they gave up the terms "myocarditis," "cardiorenal" disease, "aortic regurgitation," "mitral regurgitation," or qualified them with an adjective like "syphilitic," "rheumatic," or "arteriosclerotic." 8. Practically the stenoses belonged in the rheumatic group.

**The Effect of Low and High Nitrogen Diet on Renal Function Tests in Chronic Nephritis.**—Dr. C. FROTHINGHAM, Jr., and Dr. W. G. SMILIE of Boston presented this communication. Cases of chronic nephritis were placed on diets of about 2,000 calories daily, which contained alternately 20, 75, and 150 gm. of protein. The blood pressure, phenolsulphonephthalein excretion, and non-protein nitrogen retention in the blood were studied. Apparently the diets had no effect on the blood pressure. In cases which showed an inability to excrete added urea, the waste nitrogen in the blood increased on a high protein or an average protein diet. In cases with salt retention but without urea retention, the waste nitrogen did not accumulate in the blood. In the cases in which the waste nitrogen in the blood rose, the phenolsulphonephthalein excretion in the urine sometimes diminished. It would seem that a low protein diet was especially indicated in certain types of nephritis.

**Studies in Liver Function.**—Dr. L. G. ROWNTREE, Dr. ALLEN CHESNEY, and Dr. E. K. MARSHALL, Jr., of Baltimore presented this communication and offered the following conclusions: 1. Definite functional changes were to be demonstrated in many cases of liver disease. 2. Most marked changes were present in cirrhosis and carcinoma of the liver. 3. The study of phthal excretion of feces, of fibrinogen in the blood, and nitrogen partition in the blood and urine was of decided value in determining the presence of fibroid change.

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## SECTION ON OBSTETRICS, GYNECOLOGY, AND ABDOMINAL SURGERY.

### DR. E. GUSTAV ZINKE OF CINCINNATI IN THE CHAIR.

*Tuesday, June 23—First Day.*

**A Few Important but Unsolved Problems in Obstetrics, Gynecology and Abdominal Surgery.**—Dr. E. GUSTAV ZINKE of Cincinnati presented the chairman's address, with the above title. He said that chronic intestinal stasis, placenta previa and puerperal eclampsia were a few of the obstetrical conditions that were of paramount import. Of these, chronic intestinal stasis was the most important subject before the profession today. He explained that this condition meant a retention of toxic products in the intestinal canal due to an irregular diet, lack of proper exercise and constipation. As a result of the absorption of these toxic products changes were observed in the liver and gall-bladder; there was loss of fat and there were degenerative changes in the heart. Mental apathy and melancholia were also noted. As to the treatment, he advised the ingestion of paraffin before meals, a restricted diet, moderate exercise and the constant wearing of an abdominal support. Sometimes it was necessary to resort to surgical measures. In the matter of puerperal eclampsia, he referred to a recent meeting of the New York State Medical Society at which two reports on the subject were introduced. One report treated the subject from a standpoint of medical care, while the other dealt with the surgical treatment. The mortality under medical care was 13 per cent., while those treated surgically showed a mortality of 28 per cent. Veratrum viride was given after the first convulsion. Free catharsis was induced and hot baths administered. In many cases of placenta previa, abdominal hysterectomy was indicated.

**The Treatment of the Albuminuria of Pregnancy.**—Dr. EDWARD J. ILL of Newark presented this paper. He

said that sudden albuminuria occurring in primipara was a serious illness, and that the seriousness was increased the further the patient was from term. No single method of treatment sufficed for all cases. If the onset were gradual minor remedial measures were often effective. If coma was present, Caesarian section was indicated. He believed veratrum viride was a valuable remedy. He had no experience with pituitrin extract. In a series of 29 cases treated at the Rotunda Hospital, Elizabeth, N. J., the mortality showed 17.2 per cent. for the mother and 37 per cent. for the child.

**The Treatment of the Toxemias of Pregnancy.**—Dr. A. J. RONGY of New York read this paper. He believed that all symptoms incident to pregnancy from simple morning sickness to pernicious vomiting of pregnancy were varying degrees of toxemia. The treatment depended upon the degree of intoxication. He said there was a pre-eclampsic stage which was of great importance from the standpoint of treatment. He used the placental serum treatment with satisfactory results. Individualization was the keynote of the successful treatment of the condition.

Dr. ASA B. DAVIS of New York said that the pregnant state was not a simple one. At any time it was liable to become serious and threatening. Toxemia was preventable by a careful regulation of the patient's habits. Each case demanded individual treatment.

Dr. PHILIP MARVEL of Atlantic City said he wanted to bring out two points not mentioned. One was the hypertension that existed in these cases and the other was the valuable results obtained from the use of pilocarpin. This drug was administered in a dose of 1/50 of a grain. The hypertension was reduced in less than 24 hours.

Dr. M. HOWARD FUSSELL of Philadelphia thought that eternal vigilance on the part of the family physician was necessary to prevent toxemia. It was necessary to examine the urine every two weeks. Blood pressure records were of great value.

Dr. EDWARD J. ILL of Newark closed the discussion of his paper and said that pilocarpin was used many years ago, but was no longer popular as a remedy. He believed early cases of albuminuria were not dangerous.

**The Treatment of Placenta Previa.**—Dr. EDWARD P. DAVIS of Philadelphia presented this paper. He said placenta previa was a variety of ectopic gestation. Septic infection was the greatest factor in the mortality rate of placenta previa. Frequent vaginal examinations and vaginal manipulations were discouraged. The treatment was divided into methods which were reasonably successful when used by general practitioners in private houses and methods which were successfully carried out in hospitals.

**Hysterotomy.**—Dr. JOHN B. DEAVER of Philadelphia read this paper. He said that hysterotomy was the surest method of treatment in placenta previa and in neglected cases of toxemia of pregnancy. It was recommended as a diagnostic procedure. In uterine hemorrhage of uncertain origin it was the best method of determining the lesion. It had given great satisfaction in dealing with intrauterine polypi and submucous fibroid. It was contraindicated in infected uteri and in inexperienced hands.

Dr. RICHARD C. NORRIS of Philadelphia said that Dr. Deaver's method was too radical. In making a diagnosis he relied upon the curet and the examining finger.

Dr. GEORGE M. BOYD of Philadelphia said the best treatment of placenta previa was bipolar version.

Dr. JOHN O. POLACK of Brooklyn was not in favor of performing hysterotomy for diagnostic purposes.

Dr. HENRY M. FISHER of Philadelphia believed that digital examination of the uterine cavity was sufficient to make a diagnosis. He was not in favor of hysterotomy for diagnostic purposes.

Dr. EDWARD P. DAVIS of Philadelphia closed the discussion of his paper. He said that statistics showed that 10 per cent. of the deaths of lying-in patients were caused by placenta previa.

Dr. JOHN B. DEAVER of Philadelphia closed the discussion of his paper. He said that digital explorations of the uterine cavity were not satisfactory from the standpoint of diagnosis. He urged a thorough education of the rank and file of physicians as to the importance of early diagnosis in placenta previa.

*Wednesday, June 24—Second Day.*

**Vesicovaginal and Rectovaginal Fistulas.**—Dr. HENRY O. MARCY of Boston read this paper. He said that the basis of the operation for the cure of vesicovaginal and rectovaginal fistulas was the complete separation of the vagina from its attachments over a rather wide area, and the closing of the fistulous openings separately with a fine continuous, absorbable suture. When this was done, the coaptation and restoration of the parts to their normal condition by the use of aseptically applied, buried tendon-sutures became a simple problem of easy solution.

Dr. J. WESLEY BOVER of Washington said he was interested in the subject, and highly approved of Dr. Marcy's method of treatment.

**The Embryology of the Umbilical Region.**—Dr. THOMAS S. CULLEN of Baltimore read this paper which was illustrated by lantern demonstration. He said that at the St. Louis meeting of the American Medical Association he had discussed the diseases of the umbilicus, and had laid special stress on the pathological lesions due to remnants of the omphalomesenteric duct, and of the allantois. In this paper the gradual closing in of the abdominal walls was shown. The development of and subsequent atrophy of the omphalomesenteric duct, and of the allantois, was illustrated, and the umbilical cord was unraveled, showing its component parts.

SYMPOSIUM ON SURGERY OF THE LARGE INTESTINE.

**The Pathogenesis of the Pericolic Membranes.**—Dr. ARTHUR E. HERTZLER of Kansas City, Mo., presented this paper, which was illustrated with lantern slides. He said that all lesions were grouped under the general heads of congenital folds, new-formed membranes, vascular dilatations, and subperitoneal scleroses. He believed there was a need of distinction between the anomalies of development and the lesions, the result of antenatal pathologic conditions. Vascular changes were due to temporary or permanent activity of potential vessels not normally visible. Subperitoneal scleroses were due to organization of fibrinous exudates.

**Experimental and Clinical Studies of Colon Stasis.**—Dr. JOSEPH RILUS EASTMAN of Indianapolis read this paper. He demonstrated that the cecum and ascending colon of dogs were almost invariably the seat of pericolitis. Colon stasis in dogs was constant. Artificially induced colon stasis in animals resulted in pericolitis. Membranous pericolitis was almost constant in chronic appendicitis. For the relief of this condition of stasis, numerous operations were advised, but operative procedures gave unsatisfactory results.

**The Condition of a Few Patients Two Years after Ileosigmoidostomy.**—Dr. CHARLES L. BONIFIELD of Cincinnati read this paper, which was based upon results obtained in patients operated on two years ago. The first patient was a woman, age 30 years, who had suffered from more or less constant abdominal pains, and who for the past five years was markedly constipated. She was nervous and irritable, and had lost weight. On the third day after operation, the bowels moved normally, the pain disappeared, and several weeks later the patient reported a gain in weight of fifteen pounds. The second patient was a woman, aged 35 years. She suffered from constipation for years, and, at times, was extremely melancholy. On the third day following operation, the bowels moved normally, and some months later she reported a gain in weight of sixty-five pounds.

**Resection of the First Portion of the Large Intestine and the Resulting Effects on Its Function.**—Dr. WILLIAM J. MAYO of Rochester, Minn., wrote this paper, which was read by Dr. Charles Mayo. He said that in the past too much importance had been attributed to purely incidental changes in the position and attachments of the large intestine, and thus gave bands, kinks, and adhesions of a normal character, a fictitious rôle in the supposed production of symptoms. The results of surgical procedures were good. The patients showed exaggerated conditions of cecocolic stasis and in all of them, constipation was marked. A removal of the cecocolon relieved these conditions. Among the number operated upon there was no mortality.

**Some Surgical Phases of the Sigmoid.**—Dr. CHARLES A. L. REED of Cincinnati read this paper. He said it was rare to find a sigmoid which measured over 25 c.m. It was important to know the anatomic relations of the sigmoid. Redundant sigmoid was encountered oftener than other types. The most constant symptoms were constipation and pain. The *x*-ray was one of the best aids to diagnosis. The palliative treatment consisted of massage, bathing, and postural treatment. Curative treatment was obtained by surgery.

Dr. JOSEPH SAILER of Philadelphia said that these

cases were usually first seen by the internist. He thought that the symptoms were caused by autointoxication. He believed that surgical measures were not curative in every case.

Dr. JOHN H. GIBBON of Philadelphia said that the exact cause of intestinal stasis was not known. In his opinion, surgery of the colon had not found its proper place in surgery as yet.

Dr. JOHN B. DEAVER of Philadelphia said it was a question of cause and effect. He believed that lesions in the intestine were pathological in character and were caused by a previous inflammatory condition. He did not always rely on the *x*-ray in the matter of diagnosis.

**Parenteral Protein Digestion.**—Dr. VICTOR VAUGHAN of Ann Arbor read this paper. He said that some bacteria secreted diffusible ferments while other bacteria furnished intracellular ferments. At the present there were no known bacterial ferments which were capable of digesting the living cells. The leucocytes digested the proteids. The ferment furnished by the leucocytes was different than those furnished by bacteria. The protein ferments were non-specific.

**Limitations of the Dialysis Method as a Practical Test for Pregnancy.**—Dr. CHESTER M. ECHOLS of Milwaukee read this paper. He said that the basis of Abderhalden's test was theoretically correct. The test was carried out by adding the serum from the patient to cooked human placenta. A pregnant woman's serum had the power of digesting human placenta. Many observers thought the test was unreliable, and was hard to execute. The test was tried in a number of cases and showed positive results in pregnant women. In non-pregnant women the test showed positive results in 12 per cent. of the cases.

**The Value of Abderhalden's Biological Reactions to the Obstetrician and Gynecologist.**—Dr. HENRY SCHWARZ of St. Louis read this paper. He said that serum diagnosis was of real service. Cancer serum acted with cancer serum only. It was possible to get a negative test and yet cancer was present in the patient. The serum diagnosis was of value in those cases of cancer where it was impossible to secure material for microscopic examination. It was also of value in controlling cases after radical operations. The serum diagnosis of pregnancy was not suitable to routine work.

Dr. HERMAN J. BOLDT of New York said the dialysis test gave negative results in two of his cases who were pregnant. It was not reliable.

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## SECTION ON SURGERY.

*Tuesday, June 23—First Day.*

### DR. CHARLES H. FRAZIER OF PHILADELPHIA IN THE CHAIR.

**The Cerebrospinal Fuid as a Problem in Intracranial Surgery.**—Dr. CHARLES H. FRAZIER of Philadelphia presented the chairman's address with the above title. He called attention to the important work being performed at the present time by physicists, chemists, bacteriologists, and psychologists in the scientific laboratory. The same scientific principles were applied to brick laying, agriculture, and hygiene contributing toward modern happiness. The pathogenic factors in meningitis were said to be infection and increased intracranial pressure. This increased pressure followed disturbances in circulation, absorption, and secretion. Increased tension was more important. Hydrocephalus was said to be due to one or other of these factors. Several explanations for its mechanics were offered. The author had several times withdrawn 60-100 c.c. cerebrospinal fluid from the ventricles. This invariably speedily reaccumulated. Cerebrospinal fluid was said to nourish nerve tissue. It was increased by carbon dioxide. Its pressure was thought to equal or exceed intravenous pressure. It was believed to escape into the venous channels through the Pacchionian bodies. Increased secretion of cerebrospinal fluid occurred in cerebral syphilis and brain tumors. The choriod was spoken of as a gland with a duct. It had the ductless gland and the gland with a duct. It had an external secretion and no duct. As in the thyroid ligation of its blood supply decreased its secretion of cerebrospinal fluid. Ligation of the common carotid was mentioned as an effectual means of controlling its secretion in hydrocephalus. Its secretion was increased probably by stimulation of the gland by the introduction into the blood stream of such substances as pilocarpin, atropin, liver, spleen, thyroid, brim, and especially choriod extract. This increased cerebrospinal fluid was associated with decreased blood pressure.

**A Contribution to the Surgery of Brain Tumors.**—Dr. HERMAN KÜTTNER of Breslau had his assistant, Felix Sandau, read for him. One hundred cases had been treated at Küttner's clinic during the past six years. There was difficulty in diagnosing between brain tumor and local hydrocephalus. Decompression was performed to relieve increased tension and to preserve vision. Of his cases 75 per cent. lived to regain full working ability, 30 per cent. survived operation for several months, and 30 per cent. did not survive operation or lived but a few weeks. In 75 per cent. of the cases choked disc decreased. In private practice 50 per cent. of the cases showed good permanent results after early treatment. He did not recommend puncture of corpus callosum.

Dr. WILLIAM G. SPILLER of Philadelphia regarded Dr. Küttner's report as pessimistic. He recognized proper indications for as well as grave dangers of central decompression. Hemiphlegia and hernia were seen to follow trephining. Enlargement of the brain in the presence of a tumor was pointed out as a cause for increased intracranial pressure. Serous meningitis unaffected by decompression gave choked disc. He considered puncture of corpus callosum too radical. Associated markings on inner surface of thinned-out skull and diseased brain indicated the atrophied convolutions of hydrocephalus and not serous meningitis. He had found an occlusion of aqueduct of Sylius in one and of the foramen of Monro in another case of hydrocephalus. He concluded by advising careful study of suspected tumor cases without symptoms.

Dr. HARVEY CUSHING of Boston held classification of brain tumors impracticable. He recognized slowly growing tumors and silent-area tumors as tumors giving no symptoms. He declared his mortality to be but 10 per cent. and Küttner's high mortality as discouraging. He said Krause gave a 50 per cent. mortality. Cushing lost 7.1 per cent. of 148 cases, including subtemporal, transphrenoidal, and suboccipital operations.

**Osteoplastic Closure of the Trifacial Canals: An Experimental and Clinical Study, Illustrated by Lantern Slides.**—Dr. ALLEN B. KANAVEL introduced a new method of blocking cranial nerve exits by advocating the use of bone transplants. The present methods of trifacial nerve blocking were successful only in so far as they succeeded in obliterating the bony foramen or were free from complicating infection. His technique included avulsion of nerve, curettage of foramen, and plugging with tibial bone flap the size of a penny introduced at right angles to the direction of the foramen. He recommended further study before utilization as a clinical measure.

Dr. S. J. MIXTER of Boston blocked the sensory nerve by division and plugging foramen about cut end with amalgam. He reported one success clinically for Kanavel's experimental method.

**Treatment of Unlocalized Intracranial Injuries by Drainage through a Subtemporal Approach.**—Dr. VILRAY P. BLAIR of St. Louis declared frontal temporal and sphenoidal lobes were often pulpified in severe head injuries. Twenty per cent. died in first two hours, 50 per cent. in first 24 hours. Encephalitis was the probable cause of death following traumatism to brain. Removal of pressure allowed room for increased blood supply to damaged part. Subtemporal decompression offered a clean and speedy route for examination following injury.

Dr. OTTO H. SCHULTZE of New York favored the subtemporal route. Puncture of skull when in doubt was favored. It differentiated cerebral shock which did not require decompression.

Dr. EVANS of Milwaukee reported a 25 per cent. mortality for 25 cases.

Dr. C. E. RUBLE of Ann Arbor reported holding to the belief that extradural hemorrhage occurred only in infancy until two recent senile cases compelled abandonment of that belief. He explained there could be no decompression without opening dura.

Dr. BLAIR concluded discussion by correcting former impression of a decompression without opening dura.

**Consideration of 275 Cases of Acute Appendicitis, with Special Reference to Complications and Causes.**—Dr. ARCHIBALD MACLAREN of St. Paul laid emphasis upon amount of pus present in appendicitis and not upon virulence of pus as valuable prognostic evidence.

In his first 150 cases he lost 12 large abscess cases, one small abscess, and no unruptured appendix cases. In his second 150 cases he lost seven of the 24 general abscess cases. He emphasized the importance of rectal examination and rectal drainage.

**Has the Last Word Been Spoken Concerning Appendicitis?**—Dr. T. E. MOORE of Minneapolis emphasized the syndrome pain, local tenderness, and muscle rigidity for appendicitis. He called attention to the exceptions. He considered muscle rigidity most important. When this was absent in the presence of the other symptoms he thought of retrocæcal appendicitis. He advised against refinements of diagnosis until after operation. He gave a mortality of 3.4 per cent. for 87 acute cases and no mortality for his last 44 cases under improved hospital conditions. It was not always necessary to remove appendix although he had removed it in 95 per cent. cases. He advised operation between attacks to avoid subsequent attack in women because of the greater dangers of appendicitis and pregnancy. He held Fowler position unimportant declaring pus would always be forced into pelvis by intraabdominal pressure.

Dr. A. J. OCHSNER of Chicago cautioned against making sure of state of bladder before rectal incision for drainage. He warned against use of purgatives in acute cases and advised palliation in which a favorable outcome from operation was doubtful.

Dr. T. N. T. FINNEY of Baltimore declared we should have 100 per cent. recovery from appendicitis. When this was not the case some one had made a mistake. He advised operation when in doubt of the presence of appendicitis as a conservative measure.

Dr. L. DAVIS of Boston emphasized gravity drainage and gave a mortality for his 249 appendix cases of 5.5 per cent.

*Wednesday, June 24—Second Day.*

**Congenital Cystic Kidney.**—Dr. F. B. JUND of Boston discussed the surgical importance of congenital cystic kidney. He described the symptoms of dragging and pain as important indications for incision over a kidney that could be palpated, felt lobulated, and seemed enlarged. He added cachexia to above symptoms. He recommended delivery of kidney to surface of body and puncture of cysts. This process relieved whatever normal kidney tissue remained from pressure atrophy and saved the patient from uremic death. The fluid obtained on paracentesis was generally clear but sometimes greenish in color. The frequent involvement of both kidneys at same time necessitated careful exploration of corresponding kidney as well as the making sure that no healthy kidney tissue remained in the first kidney before nephrectomy was advisable. He described Rovesing's three cases of puncture of kidney cysts and their favorable outcomes. The operation was described as resting but not curing the cystic kidney process. Of the theories of formation of kidney cysts, including (1) developmental, (2) neoplasm, (3) fetal inflammation of kidney, Dr. Lund favored the developmental method.

Dr. D. N. EISENDRATH of Chicago claimed priority of operation for Dr. Witherspoon. When patient was found to be uremic, he advised consideration of a possible congenital cystic kidney, examination for same and if present, careful consideration of progress in corresponding kidney. He emphasized the additional symptom of hematuria, and the bilaterality of cystic kidney.

Dr. G. L. CHUTE of Boston described one clinical case occurring in his practice. He suggested the bilaterality of suppuration complicating cystic kidney.

Dr. J. BEVAN of Chicago advised consideration of nephrectomy. He pointed to the slowly progressing nature of cystic kidney.

Dr. J. OCHSNER of Chicago emphasized the following palliative treatment: (1) The administration of regulated diet including milk, buttermilk, cream, fruit juices, and eggs and (2) the exposure of women to *x*-ray for three to six twenty-minute periods. This sterilized them and protected them against a possible pregnancy complicating a cystic kidney, a condition usually terminating in uremia.

Dr. F. W. MCRAE of Atlanta reported one case of unilateral polycystic kidney.

Dr. F. B. LUND, in conclusion, advisedly recommended nephrectomy.

**Ischemic Myositis of Arm, Forearm and Leg.**—Dr. J. B. MURPHY of Chicago recommended the term Volkman's contraction and not paralysis. The condition followed fracture of arm bones. Muscles may become secondarily adherent to bone. There was no change in arteries. The essential causes were: (1) the cast or bandage. (2) Flexion of arm. The greatest muscle destruction occurred within the first 48 hours. The symptoms were said to be intense pain after dressing of fracture. (3) Edema of part below dressing. (4) Ischemia. Tight dressings had been applied fallaciously to reduce fractured ends or to hold them reduced. The most efficient treatment was prophylactic; namely, cutting the constricting band as soon as edema of the hand was recognized. He suggested two possible operative procedures: 1. Shortening the bones of forearm and 2, lengthening of tendons. He employed the latter method. He lengthened tendons from one to three inches or long enough to bring hand into proper position. He enclosed his tendons in fat or fascia, transplanted if necessary. He maintained the success of this method depended upon the freedom of tendons from contact with hands. He described the drop-foot to be due to pressure over the external popliteal nerve, and advised keeping dressings from over nerve.

Dr. E. LAPLACE of Philadelphia mentioned the importance of the prophylactic treatment, declaring there to be no post-haste in treating fractures of arm. It was more important to deal with the soft tissues in order to get a good functional result. He held that hematin and fibrin remained after an edema of hand or forearm which agglutinated the tendons together.

Dr. D. D. LEWIS of Chicago reported contraction due to retrofascial hematoma in supracondylic fracture of the humerus in 8 per cent. of cases. He outlined the treatment as incision of anticubical fascia and liberation of blood.

Dr. HAROLD COLLINSON of Leeds called attention to pressure contraction following hematoma. Massage and passive motion worked well in one case of his. His tendon work he declared to be disappointing.

Dr. MURPHY, in conclusion, emphasized as a third cause of Volkman's contraction exudative swelling and hemorrhage. The treatment was declared to be liberational blood clot. He warned against passive motion after fracture when such motion caused pain.

**A Simple Method of Tapping a Distended Bladder and Making Permanent Drainage.**—Dr. W. L. RODMAN of Philadelphia emphasized the importance of relieving the toxemia and doing a suprapubic paracentesis in cases of gonorrheal stricture, hypertrophied prostate, and tumors, especially cancer. It is particularly indicated as the first stage of a prostatectomy and materially lessens its mortality. A general anesthetic is undesirable. He reported 50 cases of prostatic hypertrophy in which he did the two-stage operation without a single mortality.

Dr. H. M. CHRISTIAN of Philadelphia regarded suprapubic puncture as an emergency measure and advocated drainage before prostatectomy in infection.

Dr. ALEX. RANDALL repeated the indications for suprapubic puncture already given, but disapproved of the two-stage operation for prostatectomy.

**Testing the Efficiency of the Collateral Circulation; Its Importance in Determining Surgical Intervention and Methods of Applying the Tests.**—Dr. R. MATAS of New Orleans most ably reviewed the surgery of the vascular system. Bleeding from a collateral vessel, preservation of peripheral pulse, bleeding from a distal end of a vessel compressed at cardiac end were tests for the existence of collateral circulation. He cited additional indications as normal or approximately normal color during the compression of the main vascular supply, bleeding from veins, the integrity of the associated arteries being questionable, instrumental indications, and the indication determined by a calorimeter of Prof. G. M. Stewart. He recommended the application of the occlusive band to facilitate the closure of certain aneurysms.

**Aneurysm of the Posterior Tibial Artery, with Report of Two Cases.**—Dr. ALEXIUS MCGLANNAN of Baltimore reported two exceptionally rare cases of aneurysm in the posterior tibial artery. These two cases occurred in his service at Mercy Hospital within four months. In one case he did the obliterative aneurysmorrhaphy of Matas, in the other he did an excision of sac. He declared the Matas operation to be preferable because it was the more feasible and associated with less hemorrhage.

Dr. B. N. Berheim of Baltimore explained the infrequent use of the above tests for collateral circulation by calling them too involved, difficult to interpret, and when interpreted, not conclusive. He recommended the tying of the occlusive band for the larger trunks and the utilization of some other method than ligation or extirpation for gangrene. The pulse test he considered most satisfactory for the general surgeon. He held that aneurismorrhaphy required laboratory experience.

Dr. A. Primrose of Toronto commended Dr. McGlannan on the choice of his operations for his two critical cases. He reported one case in which he used the Matas method.

Dr. J. W. Price of Louisville described the technic for the vessel in anastomosis, emphasizing the importance of endothelial apposition.

Dr. J. S. Horsley of Richmond proposed excision of sac and the substitution of a piece of vein as a vascular bridge between the ends of the arteries. Dr. Matas concluded by declaring there was no seriousness attached to vascular injury so long as the periphery remained normal in color and temperature. He maintained no method was free from accidental failure.

Dr. McGlannan found the pulse absent in his first case. In the second case, the excision was forced upon him.

**Experimental Surgery of the Heart and Lungs.**—Dr. Axel Werelius of Chicago described considerable operations performed upon cats. He found puncture wounds not serious; when repaired the dangers were those of cardiorrhaphy. He described excision of auricular appendages and other experimental cardiac work. His pneumectomy operation he found particularly fatal on the cat. He described section of tracheas and other tracheal operations.

Dr. J. B. Murphy said that he had performed the first blood vessel anastomosis in 1896. He congratulated Werelius on the exceptional importance of his work.

Dr. Wyllys Andrews of Chicago claimed the greatest benefits of experimental heart and lung surgery to be the skill incidental to the opening of the chest and the treatment of blood vessels.

Dr. Willie Meyer of New York mentioned longitudinal splitting of the sternum for a method of thoracotomy. He had operated successfully on seventeen out of twenty-one dogs in which he had removed one lung. The sensitiveness of the vagus and sympathetic nerves had to be encountered. He emphasized the importance of disinfecting bronchial stumps.

**Oration on Surgery: The Relations of the Surgeon to the Conquest of Cancer.**—Dr. Joseph Bloodgood of Baltimore assigned the mortality of cancer to be due chiefly to ignorance, or fear of operation, which led to delayed or bad treatment. He favored a defusion of information among the profession and the public through the lay and medical press. This information should be under the absolute control of responsible medical authority, such as the A. M. A. He described the protection from cancer to be the seeking of advice and receiving a thorough examination. He mentioned the different warnings of cancer according to its respective location, as "indigestion" in the case of the stomach, and hemorrhage in case of the uterus. The most frequent seat of cancer was said to be external skin and mucous membrane, the stomach and colon, and the uterus. He emphasized the importance of early, thorough operation. The difficulty of making an early diagnosis must be met by the physician.

**Exploration of the Knee Joint and Its Teachings.**—Dr. F. M. Corner of London discussed the importance of the crucial ligaments in fractures of the knee-joint. He believed many injured ligaments had been overlooked, accounting for poor functional results after fracture. He repaired his ligaments using silver wire, if necessary. He showed cases of fractured spines of tibiæ, and believed them occasionally overlooked. In one case, it was necessary to remove a fractured spine. Portions of torn ligaments and periosteum sometimes became free bodies within the knee-joint.

Dr. J. B. Murphy of Chicago discussed Corner's contribution, considering it the first of its kind offered before the A. M. A.

**Exophthalmos and Methods of Surgical Treatment.** Dr. C. H. Mayo of Rochester discussed the mechanics of exophthalmos. They depended upon the existence of a microscopic muscle under sympathetic control, and developed more on some individuals than in others. He knew of two cases in which eyeball had been protruded so far that lids closed behind it, requiring surgical relief to replace it.

Dr. Dean Lewis of Chicago discussed Dr. Mayo's paper.

**Mechanism for Injuries of the Shoulder Region; Results of Forty Operations.**—Dr. T. Turner Thomas of Philadelphia believed injuries to shoulder-joint are most frequently caused by hyperabduction of the shoulder-joint. Fractures of the clavicle, surgical neck of humerus, and dislocations of humerus (anterior) and inner end of clavicle, were caused in the same manner. The fragments were directed downward and inward, except the inner end of the clavicle, which was forced upward. Their corresponding fragments were directed upward and inwards and forwards. He considered painful shoulders which could not be demonstrated as cases of fracture or dislocation were cases in which the antero-inferior capsule had been ruptured by a dislocation under hyperabduction, which had spontaneously reduced itself. He emphasized the need for putting the painful shoulder to rest in the abducted position to prevent the cicatricial shortening of the capsule when the arm was left at rest. He recommended early motion, but so much as to relax the capsule. When relaxed, plication of capsule was necessary.

Dr. A. C. Wood of Philadelphia supported the abduction theory of Thomas. Dr. Wood recommended abduction of shoulder upon a triangle to 40 degrees.

**Operation on Thoracic Wall for Relief of Bronchial Asthma.**—Dr. E. Wyllys Andrews of Chicago urged that the credit for devising the operation of chondrectomy for bronchial asthma be given to Dr. Freud. The operation consisted in removing the costal cartilages of second, third, fourth, fifth ribs on each side. This gave immediate relief in suitable cases. Refixation of chest by fibrous tissue or cartilage could be prevented by interposing muscle tissue.

Dr. Chas. Goodman of New York performed operations in a number of cases. He sutured perichondrium so as to prevent reformation of cartilage.

Dr. Andrews concluded by advising the careful selection of cases in which there was a rigid chest.

**Aperiosteal Amputation (Hirsch-Bunge).**—Dr. Henry H. M. Lyle of New York showed some very striking roentgenograms of amputation stumps, showing spikes of bone reproduced from periosteum. He favored denuding bone of periosteum from one cm. above cut end of bone, and scraping out marrow from interior of bone for corresponding distance. Lyle believed many cases of painful stumps in which pneuromata was supposed to exist were actually made painful by these bony spines. When these new bone processes were removed, pain was relieved.

Dr. Cotton of Boston asked about the mechanical resistance of denuded stumps, and was answered by Dr. Lyle.

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## SECTION ON DISEASES OF CHILDREN.

*Tuesday, June 23—First Day.*

**The Wet Nurse in Hospital Practice.**—Dr. F. S. Churchill of Chicago read this paper. He said that a large proportion of the death rate in infants occurred in institutions where it was 30 to 40 per cent. Babies were brought in with malnutrition and lowered resistance to respiratory diseases in winter and gastrointestinal diseases in summer. Breast milk had of recent years been found more satisfactory than substitute feeding. For the past five years at the Children's Memorial Hospital wet nurses had been kept on hand. The examination of these women included the Wassermann test. Babies were not put on the breast for fear of infection to the nurse. Infants were put on alternate feedings of breast milk and modified cow's milk, and as they improved took more and more cow's milk. The supply of breast milk was limited, but under hygiene could be increased to perhaps sixty ounces per day. This, with small feedings of two to three ounces, could be distributed to many babies. The first examination of results upon babies (1) receiving breast milk and cow's milk and (2) receiving cow's milk alone showed the mortality about the same. It was found that Group II were heavier and older than Group I, and an estimation based upon equal weight and vigor was determined. Group II was subdivided and the average weight of all babies selected was 7.7 pounds. Group I

then showed a mortality of 36 per cent. as against 44 per cent. in Group II. The difference, however, was slight. With a limited supply of breast milk it was not known that the best distribution had been made. With healthy children some breast milk was undoubtedly better, but was this so with the sick? Among desperate cases the mortality was not found to be lowered by the use of breast milk, but among the less sick the use of part breast milk gave a very decided advantage. Since the use of breast milk the infant mortality rate in the hospital had not been lowered, but it had not risen, while that of the city had risen considerably. Breast milk was not a panacea but a very decided help.

**Some Practical Breast-Milk Problems.**—Dr. A. W. MYERS of Milwaukee, Wis., said that in maternal nursing some difficulties occurred in which both child and mother needed help. A great deal was accomplished by regular habits of nursing for the child, and in rest, fresh air and exercise for the mother. In glandular activity the psychic state was a very important point. Still babies did not always thrive on breast milk, and it was unjust to condemn the mothers for not nursing them. Where the baby was distressed after feedings, lost weight, and did not sleep, the mother also lost rest, became worn out, and her supply of milk diminished. The diet of the mother was very important. In Denmark, the foremost dairy country in the world, strict regulations as to the substances fed to cattle were enforced. The minor changes, however, in human milk, caused by diet, received scant attention. These changes could not be chemically proved, for they did not at once follow changes in diet. But where the child was uncomfortable, distressed between nursings, and perhaps had diarrhea during the earlier stages of lactation it was due to the mother's milk. Dr. Myers cited three cases that had come under his observation of children who showed disturbed digestion, restlessness and fretfulness. Inquiry into the diet of the mothers showed them to be in the habit of eating fruit (oranges, apples, etc.) daily and plenty of vegetables. With elimination of these the children took feedings without distress and breast feedings were able to be continued for several months. These cases were typical. Regulation of diet was all that was required. The explanation was perhaps in the passing of aromatic substances into the milk; some babies were more sensitive to this and the diet of the mother must be bland and starchy. As early as the fourth century writers had restricted from the diet of the nursing mother substances strongly fragrant, acid, sweet, or sour. The lessons of Aristotle might be repeated to present-day physicians.

**The Feeding of Skimmed Breast Milk.**—Dr. F. C. NEFF of Kansas City read this paper. He had found the problem of high fat content of milk of frequent occurrence, resulting in digestive disturbance of the infant. When the fat content was reduced digestion was easier. Only a temporary reduction of the fat might be necessary. Dilution might be tried, but this reduced all percentages alike. With the reduction of fat the emptying of the stomach was facilitated. Later the child might have an increased tolerance for fat. In cases of severe digestive disturbance, persisting vomiting, pylorospasm, etc., complete recovery followed the removal of fat. The method was to obtain twenty-four hours' supply of milk. The milk was kept on ice and the supply of the previous twenty-four hours was used for feeding. The milk was placed in a rubber stoppered bottle (eight ounces), with a tube at the bottom for withdrawing the milk without the fat. In this way the reduction of fat could be measured. The skimmed milk thus obtained was an easily digested food.

Dr. ZAHORSKY of St. Louis said these papers afforded very valuable considerations. Most practitioners had difficulty in keeping babies on the breast. It was a problem what to do with severe cases of dyspepsia. He was surprised to hear Dr. Myers condemn fruit, as he had been told that citric acid did not get into the milk. The exclusion of fruit, however, was indicated by clinical observations. The method of skimming was rational, but the same results could be obtained by putting the baby on rice water till recovery from dyspepsia resulted. What was important was to know why the baby originally got dyspepsia on breast milk. So little was known of breast feeding compared to artificial feeding.

Dr. DOUGLAS of Detroit said that for a great many years he had opposed eating of fruits by nursing mothers, but his views were contradicted by his brother physicians. More time was spent at present in studying the nutrition of young animals than in studying young children. Highly flavored foods had been condemned, but sugar containing foods and medicines were also to be strongly condemned. Nurses were very careless in giving children doses containing sugar because the child seemed to like it.

Dr. LOWENBERG of Philadelphia commented favorably upon the study of the problems of breast milk. Papers of this kind were greatly needed. Physicians were too quick to discontinue breast feeding because of dyspepsia. The suggestion of Dr. Neff was important and should be made known to general practitioners.

Dr. MORSE of Boston said he believed that human milk was the best food for the baby under almost all conditions. It contained fat, milk-sugar, and protein, but where intolerance for sugar or fat existed it would disagree as badly as cow's milk. As regards the question of fruit for the mother these cases were the exception and not the rule. Most healthy women could take fruit without disturbing the baby. Often colic in the baby was due to the nervous make-up of the mother.

Dr. MYERS said that substances producing flavors were purely aromatic acids, phenol derivatives, which were apt to be combined with the glucose in the blood and eliminated in the urine in the form of glycuronic acid. With a new outlet in the breast these might be combined with glucose and eliminated in the milk. One per cent. of substances in human milk were unknown toto us. The cases of disturbance from feeding fruit to the mother were, however, exceptional.

**Care of Delicate and Premature Children in the Home.**—Dr. H. M. MCCLANAHAN of Omaha read this paper. He said the two important requirements were conservation of body heat and nourishment. Incubators were unsatisfactory because ill ventilated. The use of a clothes basket lined with oil cloth and cotton batting and heated with hot-water bottles was to be preferred. A top covering of flannel was used. The bottles maintained a temperature of 90 degrees. The body was warm, the face exposed. Absorbent cotton was used for wrapping the body and for napkins. The body was oiled. Great care was to be taken to make sure the baby drew milk from the breast, as some were too weak to do so and died of exhaustion. A medicine dropper must be used or a Breck feeder. Another source of danger was excessive heat. The temperature must be taken twice or thrice daily.

Dr. H. D. CHAPIN of New York emphatically condemned incubators. Fresh air was a vital factor for the infant. Even the use of a Breck feeder was sometimes difficult and a catheter had to be resorted to. Great care must be exercised lest a food clot enter the larynx and cause death.

Dr. ZAHORSKY of St. Louis preferred the use of a radiator to hot-water bottles. A soapbox with one side out could be placed against this and the heat maintained. Most premature babies died of insufficient feeding. Very small and very frequent feedings were sometimes necessary.

Dr. HAMILL of Philadelphia joined the protest against incubators. He had had an experience of leaving a premature baby in a ward of 55 degrees temperature. The body heat was maintained at 90 degrees near a radiator. The baby had done remarkably well.

Dr. FRITZ TALBOT of Boston said that the newborn baby maintained body by use of glycogen deposited in the liver. If the mother's milk came soon the baby did not depend upon the body fat. If it did not come for five to six days the baby lost weight because it used the body fat. It should be fed milk early to maintain the body heat.

Dr. ROGERS of Manchester, N. H. said that too much packing of cotton about the child caused more or less weight and absorbed energy.

Dr. HELMHOLZ of Chicago advocated a 6 per cent. solution of dextrose in Ringers to be kept up at 5-hour intervals until breast milk became available. This should be used hypodermically.

Dr. MCCLANAHAN of Omaha corroborated Dr. Hamill's views about cold air.

**The Physician's Function in Infant Feeding.**—Dr. H. D. CHAPIN of New York read this paper. He said that the standpoint of physicians towards infants had greatly changed within the last few years. Ideas as to feeding had changed. The processes involved must now be in consonance with animal nutrition. A really scientific food prepared unscientifically might obtain good results. A great deal of scientific work had to be

done in order to find out that something was not the truth. Results justified any method that really produced them. Various viewpoints, such as bacteriological, chemical, and caloric had been studied without regard to the whole. Individual feeding was, however, a biological matter. It was a question of the selective action of the body cells and explained why one individual utilized products which another rejected. The power of selection in the organism picked out for the offspring what it needed giving it in form suitable for the young organism. Attempts to improve on nature were unscientific. Physicians were broadening out in their conception of infant feeding. By too much manipulation the biological elements in food might be ignored. If these principles were practiced in future, physicians might use many methods and get good results.

HOUSE OF DELEGATES

*Thursday, June 25—Fourth Day*

**Election of Officers.**—The following officers were elected for the coming year: *President*, Harry L. Rodman, Philadelphia; *1st Vice-President*, E. S. Fairchild, Kansas City, Mo.; *2d Vice-President*, D. Misner R. Townsend, New York; *3d Vice-President*, Alice Hamilton, Chicago; *4th Vice-President*, William E. Darnall, Atlantic City, N. J.; *Secretary*, Alexander R. Craig, Chicago; *Treasurer*, William Allan Pusey, Chicago; *Trustees*, Philip Marvel, Atlantic City; W. T. Sarles, Sparta, Wis.; Philip Mills Jones, San Francisco.

## CONNECTICUT STATE MEDICAL SOCIETY.

*One Hundred and Twenty-second Annual Meeting, Held at New Haven, May 20 and 21, 1914.*

DR. D. CHESTER BROWN OF DANBURY, PRESIDENT.

**Demonstration of Skin Diseases.**—Dr. R. A. McDONNELL of New Haven exhibited a patient with lupus vulgaris, which had started six years before. Dr. McDonnell stated that the only satisfactory treatment for the disease was to destroy the bacilli, for, in spite of the use of the *x*-ray on the scars, the disease would recur again. He had a patient who had died as a result of a carcinomatous growth around a scar. He also showed a case which he felt no one would have taken to be tubercular. It was an old case of fibroid eczema of the palms and soles and was something like a form of syphilis.

**Newer Methods of Diagnosis and Treatment of Glaucoma.**—Dr. ARTHUR N. ALLING of New Haven declared that there was more written about glaucoma than about any other disease in ophthalmology and that it would always be a subject of perennial discussion, and said that the term "glaucoma" was practically synonymous with high ocular pressure; although not absolutely so, because it was possible for a man to have glaucoma and yet, at times, not show tension—as in the case of glaucoma simplex. He mentioned that formerly the only method of diagnosing intraocular tension was to measure the hardness of the eyeball with the finger; and that although many instruments had been devised with the idea of testing the pressure scientifically, most of them had proved rather unsatisfactory. He spoke of an instrument which they now had for that purpose which was more satisfactory. It was his belief that glaucoma resulted from interference with the drainage apparatus, and he stated that the intraocular pressure normally was between twenty and thirty mm. of mercury. If it rose above that, generally speaking, there was a glaucomatous condition. Dr. Alling stated that when glaucoma attacked an eye it was never really recovered from. A patient might live his or her life out, but the eye would never be right. He said the treatment had been, first, palliative, by means of pilocarpin and eserin, which sometimes did fairly well; and secondly, making an iridectomy. There had been other operations devised, for instance the La-Grange and Eliot. He mentioned Col. Eliot as having been the first to make the procedure of trephining into the sclera, in cases of glaucoma, useful; but said that while they were all enthusiastic over the Eliot operation that they should bear in mind the fact that it was not a cure for glaucoma, but only arrested the disease and afforded a certain amount of drainage. Therefore, they should all hope that something else might be offered by which a cure could be effected. Dr. Alling presented a patient on whose eye he had performed an iridectomy, and spoke of that operation as the "sheet-anchor" treatment for glaucoma. He said they should have had a bleb over the seat of the operation, showing that filtration was going on, but in this case there had been no bleb. The tension, however, was down, which proved that it was possible to relieve tension without the edematous swelling over the wound.

**Diagnostic Methods in Gastrointestinal Diseases.**—Dr. L. M. GOMPERTZ of New Haven, exhibited a number of patients showing a variety of gastrointestinal diseases. The first case was that of a patient who had complained of symptoms that led to a diagnosis of gastric ulcer. That was in August, 1909. He had been treated for a short time and felt so much improved that he failed to return for further treatment. On May 11, of the present year he had returned with an aggravation of the previous symptoms and with loss of weight. He had been given a test supper of meat, rice, raisins, and anything else he desired. The following morning when a tube had been passed into the fasting stomach and some of its contents removed, they showed the presence of sarcinæ and food remnants (hydrochloric acid having been present in order to favor the growth of sarcinæ). A diagnosis of cicatricial ulcer was made. Dr. Gompertz said that although many physicians had difficulty in getting the contents of a fasting stomach, it was a very simple matter; stating that if the patient had a dilated stomach he should be made to lean forward, the tube being compressed at the same time, and that anything in the tube would come out. It was his opinion that no matter how little of the contents were secured they would be sufficient for a microscopic examination.

It was stated that the next patient had been seen at times since 1908, and when any excitement occurred she had spells of vomiting, and could not eat anything. Everything came up almost immediately after being swallowed. Quantities of mucus and food were vomited. In attempting to pass a bougie into her stomach an obstruction was encountered just above the cardia, 42 cm. from the mouth. She was given belladonna and bromides, and recovered; but two years later she had another attack and after it had had a spasm. The patient had these spells so frequently, coming on when there was any excitement, that there was a dilatation of the esophagus above the cardia.

The next case showed the transition of a non-malignant growth into a malignant growth. The patient had come to Dr. Gompertz in June, 1907, with symptoms of ulcer of the cardiac end of the stomach, showing increased acidity. He had been treated for a time and gained weight and improved generally. The doctor did not see him for a long time, when he came back with a different history. The second time his appetite was good but he could not get the food down, and his bowels were constipated. A bougie was passed down and an obstruction was met at the cardia. Dr. Gompertz stated that occasionally the obstruction would let up a little so that food could go down through it. It was his opinion that the case was positively a malignant one and would go from bad to worse, without any possibility of help.

Another case was shown, being that of a young woman seen eight years before for the first time. Then, the clinical history, chemical examination, etc., had indicated the case to be one of pure ulcer. After a month's treatment the girl was told she needed an operation. She left and did not return until a year ago, when she said she was ready for the operation. In passing the stomach tube, hydrochloric acid, sarcinæ and food remnants were found. This time the diagnosis was cancer of the pylorus, which proved to be wrong. Just before the operation an *x*-ray was taken, not suspecting the presence of an hour-glass stomach. Dr. Verdi operated and made an end-to-end anastomosis. At the end of two months after the operation, a picture showed the stomach to be smaller, but normal in position. The young woman was seen within the past two weeks, and was eating three meals a day and was getting fat.

A woman patient was shown, whom it had been thought had a gastroptosis. In passing the tube Dr. Gompertz got into a pocket and thought she had an hour-glass stomach; but the next time he passed a bougie he got into the stomach. She was told that an operation would be necessary. When it was performed multiple ulcers were found, instead of an hour-glass stomach. The ulcers were taken out and the stomach put into proper position by an end-to-end anastomosis. Dr. Gompertz said that with the aid of the *x*-ray, the

microscope and chemical examinations a positive diagnosis could often be arrived at; but, on the other hand, this was sometimes impossible, and he suggested that all the different methods of testing be tried in order to make sure of a correct diagnosis.

**Presentation of Cases of Bone-Grafting for Various Conditions in Different Localities.**—Dr. E. H. ARNOLD of New Haven stated that he had done bone-grafting in almost every situation of the body. He told of having grafted in clubfoot cases; in tubercular tarsus by means of inserting pieces of bone; in the tibia for an osteomyelitic defect; in the knee, etc. He exhibited a patient who had had a tubercular knee, which had been treated at first by scrapings on the outside, by brace, and with plaster of Paris; but they did no good, the destruction continuing to go on. Dr. Arnold did a resection of the knee, cutting away as much as he could. The result was that the patient had some motion in the knee, although he was able to go back to his trade after three months. Later, as one of the sinuses still persisted, a bone-graft was put in at the front of the knee by Dr. Arnold in order to do away with the movement. He succeeded in this, but the discharging did not stop. It was his opinion that a tuberculous knee did not make bone, and the best that could be done was to hope for fibrous union, as no brace would secure absolute immobility, and a child could not be kept in plaster always. A case was shown by Dr. Arnold where he had opened the hip and inserted two grafts. One of these had sloughed out, but the other remained in and stimulated bone-making to such an extent that a firm bony union was made, the child now walking without a brace. The doctor mentioned having grafted in cases of sacroiliac and sacrolumbar disease, the results in these having been generally unsatisfactory. A male patient was displayed who, when he first came to Dr. Arnold, had been moribund. He was put on a plaster of Paris bed for four months, with but little improvement. Then he was operated on, a Y bone-graft being inserted in an inverted position. He had grafts in the lower lumbar and upper sacral region, and immobility was secured. Three weeks after the first operation a second one was done on the other side (two heriotomies being done); and within six weeks the man walked out of the hospital and went back to his work after three months.

**The Wassermann Test for Syphilis.**—Dr. C. J. BARTLETT of New Haven explained that when complement was spoken of in connection with the Wassermann test for syphilis it always referred to the fresh guinea-pig's serum. He said that theoretically speaking the organism producing syphilis was the antigen. It had been shown, however, that an extract of normal tissues would act as a syphilitic antigen in the same way as the red corpuscles acted, as an antigen. Also, that if the serum to be tested was not from a syphilitic there would be nothing to unite the antigen for syphilis to the complement and it would remain free. In making the tests he stated that they got their serum in 5 or 10 c.c.; that they let the serum separate over night and then heated it to 132° F. for half an hour. If they did not get a positive reaction they knew the case was not syphilis. Dr. Bartlett did not think the simple negative test was of much value. He had found that the blood serum would give a negative reaction sometimes when the spinal fluid gave a positive one; therefore, he thought it best to always examine the spinal fluid before discharging a patient as cured.

**Experiments in Nutrition.**—Drs. T. H. OSBORNE and L. B. MENDEL of New Haven presented for inspection charts showing the relative growth of rats fed on different foods. They said the rat would grow for a time on starch and then decline after forty or sixty days. The foods they used for their experiments were water-free and were mixed with lard, generally. The rats grew on that food when certain protein substance was mixed in, and failed to grow when that protein was left out. One chart showed the normal growth on a single protein, such as casein, destin, the albumin of the white of an egg, glutinin from meat, etc. On some foods there was practically no growth, but when this occurred all that was necessary to have growth start again was to change the diet from an imperfect to a perfect protein. Some proteins were shown to be enough for maintenance but not for growth. They had found that solid fats sometimes failed to nourish the animals, but that the animals quickly recovered when butter oil was substituted. They explained that most of the proteins used by them in preparing the foods contained all the aminoacids and were complete proteins, but some lacked one or more of these acids and were incomplete proteins; this enabled them to determine whether the protein that was lacking was of real importance for growth and maintenance. The tryptophane group was found to be necessary for maintenance; without it the animal died in a very short time, but the lysin group was essential for growth only and not needed for maintenance. They felt that several interesting questions had been brought up by the effect of these different proteins on the animals, namely, How long could an animal be stunted and still recover the power to grow? Could the deficiency in one protein be supplemented by adding another protein to it? and How well could that be done? During these doctors' interesting work they had discovered that if the amount of casein were doubled, up went the growth; that one-fourth of destin was insufficient for growth, one-half was nearly enough, and three-quarters was just right. They had tried adding to a diet of 9 per cent. casein, on which the rat was growing slowly, cystin, and it immediately improved the growth. They related an unique experiment of an animal that had been kept for 168 days on a food that did not contain lysin (and so was inadequate for growth), yet it had been able to give birth to young and maintain and nourish them, but it did not recover its original weight. The embryo was produced at the expense of the mother's life. It was their belief that when anorexia was said to be due to the sameness of food it was probably an error. They believed it to be due rather to individual social conditions, claiming that one could eat the same thing day after day if it constituted the correct diet, but as soon as a defective diet was used anorexia would be produced. Malnutrition being the cause of the anorexia, and not *vice versa*, as has been generally supposed. They explained that rats were used for their experiments because they had comparatively the same rate of growth as human beings (250 days covering the period of growth, 250 days more covering the period of middle age, and nearly a similar number of days covering the period of old age), and the cost of feeding them was within the capacity of a scientific institution.

**Transplantation and Examination of Tissues and Organs.**—Dr. ROSS G. HARRISON of New Haven stated that at the time the experiments were made the embryos had no nervous system and that the number of successful operations were nearly 100 per cent. He remarked that as there was no muscular contraction it was unnecessary to give an anesthetic to overcome any sudden movements; also they did not suffer any great amount of pain, as it was assumed they had no nervous system. The embryos were operated on under a binocular microscope and the parts brought together and held in position; they had lived for weeks afterward and even grown remarkably. He said that a union of parts of different species was often useful for experimental purposes, and that the cells being each of different color enabled one to follow the development and growth more accurately. Muscle tissue that was entirely undifferential when taken out of the embryo had been found to differentiate without the presence of any other tissue whatever. Dr. Harrison remarked that a method had been devised whereby it was possible to obtain large quantities of plasms with which to carry on experiments concerning the processes of growth.

**Cesarean Section.**—Dr. O. G. RAMSAY of New Haven exhibited a patient of twenty-one years, on whom he was about to do a cesarean operation. The pelvic organs were so small that he could not get the child's head to engage. She had gone into labor the night before, which had dilated the cervix, making it unnecessary for them to bother with drainage. Dr. Ramsay had tried an experiment with the patient, having given her ergot before she took the ether, to see what it would do for the contraction, as many of those cases bled badly because the uterus would not contract properly. He stated that he usually employed the high incision, taking the umbilicus as the median point, since by so doing there was less chance for adhesions to form and of injuring the bladder. The baby could be gotten at just as well as through the lower incision. He mentioned one case of infection they had had among the cesarean sections from letting the uterus lie against the bladder wall. It was his opinion that some day that operation would be very popular, being, to his notion, much easier than other procedures.

**Exophthalmic Goiter.**—Dr. J. M. FLINT of New Haven showed a patient, a woman of thirty-eight years, with subacute hyperthyroidism in exophthalmic goiter. She was to be operated on. Her physical examination had

shown few [illegible] symptoms, there was no mononucleosis, which usually was associated with the more serious cases. A general anesthetic was used. Dr. Flint said he always used pharyngeal anesthesia in head and neck cases and in those in which the patient was inverted and the anesthetist had to work at a disadvantage. Its chief recommendation was that the anesthetist was not in the surgeon's way, the former being able to sit at some distance. The patient had a relatively small goiter, the right lobe being chiefly involved. It was soft and had no palpable thrill. There was no evidence of thymus persistence.

**The Luetin Reactions.**—Dr. J. B. SULLIVAN of New Haven displayed a patient with a pustular type of syphilis. The woman had had an initial lesion of the breast two years before, caused by nursing a neighbor's child. Six months ago the Wassermann test had been positive. She had been given four injections of Salvarsan and mercury, after which four negative Wassermann tests had been secured. Later it had been found that the luetin reaction was strongly positive, which meant she still had syphilis. Another patient was shown with specific prostatitis. His Wassermann was positive. A third patient had a lesion of the soft palate that had been thought at first to be a malignant growth. After the administration of salvarsan and strong mercury he had shown a papular and almost pustular reaction. A babe was shown from the Children's Clinic. It had ulcers around the rectum and bad teeth, but no spirochetes were found from the lesions; however, the mother's Wassermann was triply positive, while the luetin was negative, whereas the baby's luetin was positive. Dr. Sullivan advised using every test possible, it being his belief that at some stages of the disease all tests were not positive.

**Fractures of the Clavicle.**—Dr. W. E. HARTSHORN of New Haven said that they had had quite a problem presented to them in the treating of fractures of the clavicle at the dispensary. He had found it impossible to reduce the deformity with the ordinary plaster dressings. The Sayre dressings had been unsuccessful, after which he had adopted the Collins, following later with the Bellamy method, which, while better than the others, was not adequate. Lastly he had tried the Peckham dressing and had found that it worked splendidly with children. It not only reduced the deformity, but was comfortable to wear and could be put on over the clothing.

**Apparatus for Suction and Aspiration in the Treatment of Empyema.**—Dr. J. M. FLINT of New Haven exhibited an empyema tube which he had devised six years before that had given excellent results. He said it was like an ordinary empyema tube, but had a large rubber dam. They operated on all cases under novocaine. He explained that the stitches were left untied, the apparatus being inserted up to the hilt. The rubber dam was pulled backwards and the wound closed with silkworm gut. The chest wall near the thoracotomy was smeared with ointment, the rubber dam folded against the chest and covered with gauze. Near the center overlapping strips of adhesive were placed, making an absolutely air-tight job. Dr. Flint said that the use of the Politzer bag was impossible in cases where empyema was associated with bronchial fistula, because the leak through the bronchus caused the bag to collapse. He had devised a water vacuum to obviate that difficulty. He stated that the apparatus could be carried around by the patient while attending to business.

**Apparatus for Aspiration and Irrigation of Joints.**—Dr. J. W. CHURCHMAN of New Haven said that the spinal cord and the joints presented unsolved problems as regarded surgical treatment. Formerly, it had been the custom to apply incision and drainage in their treatment the same as to the treatment of infection elsewhere. It was soon realized that that would not do, for if organisms got into the mucous membrane below the surface, it was impossible to dislodge them, particularly if they had penetrated to the base of the mucous membrane. He knew of no antiseptic that would kill the organisms without destroying the membrane itself. Dr. Churchman exhibited an apparatus which he said would—with perfect technique—enable them to aspirate a joint, washing it out and distending it at the same time; thus permitting the material to reach all the recesses of the joint. Any fluid might be used without exposing the joint to subsequent infection. He stated that they aimed to fill not only the space between the bones, but also all of the interstices, and described the apparatus as consisting of a series of tubes which connected, through common openings, with the tube inserted into the joint and with the leading tube connected with the pump. The pump provided both force and suction power. The apparatus could be autoclaved, just as it stood. Dr. Churchman explained that they first cleaned out the joint, drawing off all pus, then they used an irrigating fluid. He had used this method in two cases of arthritis, the results being very satisfactory, in fact the second case was a complete cure.

**Gentian Violet in Surgery; Influence of Gentian on Tissue Cultures.**—Dr. J. W. CHURCHMAN of New Haven explained that there was a marked bactericidal action possessed by gentian violet dye. At the present time it could not be injected into the body, because if doses sufficient to kill germs were given, the animal changed the stain within two hours, rendering it harmless to the organisms. He thought this very fact might prove of great value in the future because if you could make the stain reach the organisms and stay unchanged long enough to kill them, the body then changing the stain and getting rid of it, you would have a very remarkable antiseptic. He said they had some cultures of tissue growing in gentian violet, absolutely unimpaired, showing that it did not impair tissue growth. The difficulty seemed to be to get the substance in contact with the organisms. Could that be done with this or some similar material, it was his opinion that it would be of great use in surgery.

**Stitch Ulcers after Gastroenterostomy.**—Dr. J. M. FLINT of New Haven said that his investigations had led him to believe that stitch ulcers of the jejunum, following gastroenterostomy, were due either to sloughing out of the stitch or to changes in the circulation that the stitch had produced.

**Facial Hemiatrophy.**—Dr. MAX MAILHOUSE of New Haven stated that facial hemiatrophy was a rare disease and usually occurred between the ages of ten and twenty years. He showed a case, a man, in which it had started at the age of eighteen, with some discolored spots. His family history was entirely negative and there was nothing specific in the case. No beard would grow on the right side of the face, but beard grew on the left; his mouth was drawn to the right side, there was marked atrophy of the right side of the tongue and also of the palate; but he had no difficulty in swallowing. The pathology was unknown. It seemed that Starr classified the case under fifth-nerve affections, but Dr. Mailhouse did not think that could be right. There was a question in his mind as to whether there might not be some pituitary disturbance, as there was considerable difference in the size of the patient's right hand when compared with his left. It was much larger.

**Acromegaly.**—Dr. OLIVER T. OSBORNE of New Haven exhibited a patient with acromegaly. Although there were no serious symptoms, he had developed the disease of recent years and showed a perfectly typical hand and face. The jaw came forward. Dr. Osborne explained that usually hypertrophy of the soft tissues went on all the time, but such had not been the case with the present patient. He said that acromegaly meant increased secretion of the pituitary gland, and described the gland as having three parts, the anterior, the middle, and the posterior. Should the anterior lobe be removed the animal would die, but if even a portion of it were left the animal would live. Whereas, if the anterior part of the gland hyper-secreted there would be a condition of bone growth. If that happened when the human animal was young, before the cartilages of the epiphyses had united, the person would become a giant. He stated that those patients lived from ten to twenty years and usually died from circulatory weakness and cardiac failure. There was no treatment that was curative, so far as he knew.

**Clinical Tests.**—Dr. WILDER TILESTON of New Haven stated that among the numerous methods devised for the estimation of various substances in the blood the following were the most important: The methods for estimation of cholesterin in the blood; sugar in diabetes; of uric acid; and lastly, that of estimating the nonprotein nitrogen in the urea. He dealt largely with the last named. Stating, that in health the method had but little effect, the chief interest centering around nephritis and other kidney diseases. They had examined many such cases. One uremic case showed the effect of diet on the total nitrogen. There had been 56 mgm. of non-protein nitrogen at first. After a few days of low protein diet, it had sunk to 24 mgm. No case which showed very high figures lived more than a

few weeks. The doctor felt that this estimation promised to be of value in hypertrophy of the prostate where operation was considered, though he thought it unwise to operate on a case showing as high as 75 mgm. He had also proven lead to have an injurious effect on the kidneys. Acute intestinal obstruction was the only disease not of the kidney that showed a marked increase. In syphilis they had found a marked increase in many cases, indicating that the kidneys were often more affected than had hitherto been supposed. He said that the value of the method from the standpoint of diagnosis and prognosis was very apparent.

**Pericarditis.**—Dr. GEORGE BLUMER of New Haven spoke of some points that had come up in his experience with pericarditis, especially pericarditis with effusion. He said it was often only recognized on the autopsy table and was frequently found unexpectedly in routine examinations. They had had two or three cases in which the effusion was undoubtedly proved, and in which the apex impulse did not disappear. He observed that the presence of pericardial friction sound did not rule out pericarditis with effusion; and that one was apt to mistake extensive effusion with consolidation, for pleurisy with effusion. In fact he had tapped the pericardium once in mistake for the pleura. He felt the *x*-ray was valuable, not only in diagnosis, but as an indication of where to tap the patient. Dr. Blumer exhibited a little boy who had entered the ward with rheumatic endocarditis, and pointed out the right border of the heart, showing that there was no effusion at the base. The boy had recovered after the tapping. The doctor told of one case where they had tapped and the dulness had persisted. On tapping the pleura it was found that there was pleurisy.

**Officers.**—The following officers were elected: *President*, Dr. Oliver C. Smith, Hartford; *Vice-Presidents*, Dr. Stephan J. Maher, New Haven and Dr. John B. Kent, Putnam; *Secretary*, Dr. M. McR. Scarbrough, New Haven; *Treasurer*, Dr. Jos. H. Townsend, New Haven. The next annual meeting will be held at Hartford, on the third Wednesday and Thursday of May, 1915.

## MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

*Stated Meeting, April* 20, 1914.

THE PRESIDENT, DR. THOMAS S. SOUTHWORTH, IN THE CHAIR.

**Chronic Intestinal Stasis—Presentation of Cases Illustrating the "End Group."**—Dr. HAROLD D. MEEKER presented two cases: one after ileocolostomy, and one after gastroenterostomy and ileocolostomy. The first case was that of a gentleman 31 years old who was seen for the first time in May, 1912. He had had more or less digestive disturbance for ten years; growing slowly but progressively worse. He suffered from eructations and pyrosis, and the worst symptom was pain in the right hypochondriac region, most severe two or three hours after eating. Frequently he lived for several weeks at a time on milk and eggs. He was depressed, had headaches, suffered greatly from constipation, and was steadily losing weight. On two occasions he had discovered blood in his stools. On examination, Dr. Meeker found him a poorly nourished man, weighing 142 pounds, with a heavily coated tongue, a sallow, almost saffron-colored complexion, loose, dry skin, and cold extremities. Over the abdomen there was a general soreness, with a point of maximum tenderness in the right hypochondriac region. Aside from a low urea output and a large indican content, the urine was normal. Clinically, the patient presented the picture of chronic intestinal stasis, with a probable duodenal ulcer. He was referred to Dr. L. G. Cole for radiographic examination, and Dr. Cole reported that from a study of a series of stomach and intestinal plates taken he felt justified in excluding a new growth. There was, however, a very definite lesion, involving the extreme pyloric end of the stomach, on the lesser curvature. He believed this to be caused by adhesions following a gastric or duodenal ulcer, though there was a slight possibility that it was due to adhesions from the gall-bladder. There was a distinct narrowing of the pylorus, causing bismuth to remain in the stomach seven hours after ingestion. There was evidence of stasis all along the intestinal canal, with a dilated terminal ileum and an obstruction near the ileo-cecal valve. There was also a kink in the first portion of the transverse colon, in the region of the gall-bladder. The patient was operated upon at the Red Cross Hospital on January 13, 1913; when the following condition was found: A portion of the great omentum, twisted upon itself, was firmly adherent to the first portion of the duodenum. Upon separation of the adhesions it was found that this structure formed the anterior wall of the gut over an area 1½ inches long and half an inch wide, where the normal wall had been destroyed by ulcerations. The duodenum was sectioned at the upper and lower limits of the ulcerated area, the ends closed, and a posterior no-loop gastrojejunostomy performed. Further inspection revealed a broad band fixing the terminal ileum, which caused a marked kink when the patient was in the upright position. The colon was dilated, and the last portion of the transverse colon was firmly adherent to the ascending colon by an apparent extension of the so-called Jackson's membrane. Clearly this case had passed beyond the "mid group," of cases of stasis, and, feeling confident that a gastrojejunostomy would not effect a cure unless proper intestinal drainage was provided for, Dr. Meeker then performed an ileocolostomy, the short-circuiting operation. This patient was here to speak for himself. He now weighed 170 pounds, ate anything he fancied, suffered from no pain or gas, and had a bowel movement once or twice daily without the use of medicine. The second case was that of a married lady, 31 years old, who was seen for the first time in November, 1913. She had suffered, ever since she could remember, from "stomach trouble," which manifested itself in occasional pain after eating, frequent eructations, and large quantities of gas in the intestine as well as the stomach. Her bowels were obstinately constipated, and she had not had a natural movement for many years. She was nervous, irritable and depressed, and had a sallow complexion, dry skin, and lumpy breasts. There was general abdominal tenderness, especially marked over the points of normal bowel fixation and in the epigastrium just to the right of the median line. The radiographic examination was made by Dr. A. Judson Quimby, who reported that he found some gastric spasm and a slight deformity on the lesser curvature of the stomach, near the pylorus. The first and second portions of the duodenum were dilated, and there was also some dilatation in the third portion. The ileum was constricted about five cm. from the ileo-cecal valve, which was patulous. When the rectum and sigmoid were not distended, the cecum rested in the left anterior cul-de-sac, but could be pushed upward from the position. The appendix crossed the ileum where it was constricted, and moved with the ileum at this point, though the remainder of its shaft and the tip were movable independently of other structures. The cecum and ascending colon were for the most part dilated, but in the ascending colon near the hepatic flexure there was a decrease of calibre, with limited motility. The pelvic signoid was moderately redundant, with slight interference within it, and the rectum was dilated. The radiographic diagnosis was: Probable small ulcer on the lesser curvature of the stomach, near the pylorus; dilated duodenum, due to mechanical interference at the apex of the conus duodenalis and the juncture of the duodenum and jejunum; moderate ileal stasis, due to constriction of the ileum from an adherent appendix; patulous ileocecal valve—the low position of the cecum aiding in the draining of the ileum; non-functionating, adherent appendix; dilated cecum and ascending colon, due to interference near the hepatic flexure caused by a mesenteric band or contracted mesentery reducing the acute angle—obstructive only when patient is erect; redundant pelvic sigmoid; dilated rectum. The patient was operated upon at the Red Cross Hospital on January 22, 1914. The scar of an old ulcer was found near the lesser curvature of the stomach, four c.m. from the pylorus, and adherent to this was a band extending to the great omentum and causing a marked kink in the transverse colon. The band was divided, the scar of the ulcer excised by an incision parallel with the long axis of the stomach, and the incision closed in the opposite direction, in order to overcome the cicatricial contraction of the old ulcer. The obstruction causing the dilatation of the duodenum was immediately relieved when bands which Dr. Meeker believed had best be called evolutionary, causing a greatly exaggerated duodeno-jejunal angle, were divided. The condition of the appendix had been accurately described in the radiological report. The fixation of the terminal ileum, however, was due, not so much to the adherent

appendix, as to a firm, broad, so-called Lane band. The diseased appendix was removed, and an ileocolostomy was performed; the technique followed being in general that of Lane. The convalescence of the patient (who was present) had been uneventful, and to-day she was bright and happy, having a good appetite and walking five or six miles a day.

Dr. SIDNEY H. GARDINER also presented a patient in good health upon whom he had done an ileocolostomy for marked stasis, and related the history of the case.

Dr. WILLIAM SEAMAN BAINBRIDGE said that, as he had stated at the December meeting of the Association, the cases of chronic intestinal stasis could be classified in a broad way under three groups. The first, in which surgery was unnecessary, was the medical group, and in the third, or end, group either short-circuiting or a colectomy was required. Between these two there was a middle group in which it was possible to "patch up" the drainage system, and thus effect a cure. The cases which he had then presented belonged to this mid group; but as at that time some skepticism was expressed as to the results which were obtained in cases of the end group, he had thought it might be of interest to show some actual cures which had been effected by the radical procedures called for in this class, and he had therefore asked Dr. Meeker and Dr. Gardiner to present the patients who had now been seen. Dr. Bainbridge then described two cases of his own in which complete restoration to health had resulted, and also presented the patients. Both were cases of extreme stasis, and in one he had done an ileocolostomy and in the other a colectomy. In the latter instance the operation was performed more than five years ago, and the patient had been in perfect health ever since.

**Radiological Demonstration of the Changes Found in Chronic Intestinal Stasis.**—Dr. ALFRED C. JORDAN, medical radiographer to Guy's Hospital, London, delivered an address on this subject, which was illustrated by many lantern slides. (Will be published later.)

**On Thyroid Deficiency.**—Dr. EUGENE HERTOGHE of Antwerp made an address with this title. (Will be published later.)

Dr. JOHN ROGERS said that myxedema seemed to represent a terminal stage of a process which showed many variations. Some types of myxedema were much more easily remedied than others, and only a few cases were susceptible of the perfect results described by Dr. Hertoghe. He apparently used in treatment the desiccated thyroid gland substance, but much better preparations were now available. These would help many more cases than formerly could be remedied. Occasionally, improvement could be obtained from the hypodermic injection of thyroid. The relations of the thyroid gland to other organs were often shown in the field of the gynecologist, and sometimes, instead of menorrhagia, we found amenorrhea as the result of thyroid deficiency. The problems of the thyroid were therefore very difficult of solution. In certain conditions almost any kind of preparation seemed to be of service, and, again, in others thyroid administration proved hurtful. As far as we knew at present, the active constituent of the gland appeared to be a protein associated with iodine, and it was a fact that in experimentation upon animals which had not been fed with thyroid or iodine the only part of the body (except in one or two very doubtful instances) in which iodine was found was the thyroid gland. Search was still going on for the active constituent, and recent experiments, in which he himself was participating, with a thyroid derivative showed some curious and apparently contradictory results. The calorimeter was employed to indicate the oxygen consumption, and in one of two cases which seemed to be very much alike which were treated with this derivative there was a fifty per cent. increase, while in the other there was a decrease of twenty per cent. Thyroid disease had been found to be accompanied by disturbances in two or three groups of nerves. Thus it sometimes affected the autonomic system, and sometimes the sympathetic. The whole subject of the internal secretions was still involved in much obscurity and the question arose, Are these internal gland mills in which the inorganic elements of the body are metabolized in order to perform their work? If once the problems of the ductless glands were mastered, it looked almost as if we would have found the solution of old age and of life itself.

Dr. C. AM ENDE said that it had been demonstrated by Dr. Rogers that the thyroid gland contains two active constituents, a globulin and a nucleo-albumin, and that it is the latter which produces the symptoms of hyperthyroidism. Both were closely related chemically, and the structure of the globulin atom was so delicate that such an effect as that produced by a few degrees' rise of temperature would cause in it sufficient molecular changes to reduce it to the nucleo-albumin. As this process was necessarily a gradual one, it would serve to explain much. The speaker then referred to the important effect obtainable in the elimination of the depressing toxins of carcinomatous disease by means of a fluid extract of thyroids prepared without heat or drying, given in teaspoonful doses once a day, or at first twice daily. This produced marked relief of pain and a considerable improvement in the general condition resulting in prolongation of life. One of the most striking examples of this good effect which he had met with was the case of a lady referred to him by Dr. J. C. Taylor. A panhysterectomy for adenocarcinoma had been followed by profuse hemorrhages, which were not completely controlled by the application of the Paquelin cautery. When she was transferred to Dr. Am Ende's care she was so weak that she had to be lifted from her couch to the table, for local treatment. On account of the hemorrhagic condition she was at first given very small doses of the thyroid fluid extract, but the amount was increased later, and under this and x-ray treatment she gradually improved until at last she was able to walk a considerable distance. Unfortunately, as the result of exposure to a violent snow storm she contracted a general peritonitis, which in ten days proved fatal. Having cited other cases in which this treatment had proved of service, he said that as to the mode of action of thyroid substance, it was to be noted that it increases the heart's action, but lowers blood-pressure; a seeming anomaly, since increased cardiac action should (and especially in arteriosclerosis) induce or increase hypertension. He offered as an apparently satisfactory hypothesis the conjecture that the process begins in the blood-vessels, through relaxation of the vasoconstrictors, and that the heart's action in refilling the more easily emptying arteries is secondary.

Dr BAINBRIDGE described some experiments made in the transplantation of the thyroid when he was in Berne in 1900, and stated that after a year or so there was scarcely a trace of the transplanted gland in any of the eighteen cases in which the procedure had been tried. Afterwards he had gone to Antwerp, and, in walking about the streets with Professor Hertoghe, he had seen that it was possible to pick out, simply from their appearance, numerous persons whose maximum efficiency was not what it ought to have been, for the reason that they suffered from thyroid deficiency. It was undoubtedly the fact that in the case of a large number of individuals the administration of a little thyroid would be followed by good results, and when that halcyon time had come when the gospel of Hertoghe was universally accepted and appreciated we should see very much less of the evil effects of hypothyroidism than at present.

Dr. HERTOGHE, in closing, said he could by no means agree with Dr. Rogers, who had expressed the views of Leopold-Levy and Rothschild, in Europe, who had brought forward the idea of what they called thyroid instability. They claimed that certain patients suffering from thyroid deficiency would, after the administration of thyroid extract, straightway become affected with hyperthyroidism. It was not difficult to explain, however, how these eminent authorities had fallen into this error of thyroid instability. When thyroid was given to a hypothyroid patient, infiltrated material promptly began to be absorbed. If this took place slowly, all was well; but if too rapidly, the sudden removal of such infiltrated material would produce pain and other symptoms more acute, even, than those present before the treatment was commenced. Thus cardiac pains and palpitation were often increased by a few, but too large doses of thyroid extract, and we had a condition simulating hyperthyroidism. In fact, however, it was simply one due to too rapid absorption. Intense and sudden oxidation of the accumulated waste matter might also assist in producing such a condition. Rise of temperature was nearly always observed under intensive thyroid treatment, and this increase in body heat had been mistakenly considered as due to hyperthyroidism. If, in cases of thyroid deficiency, we were always careful to use moderation in our dosage, we would not meet with any of the disastrous results referred to. It was a good rule not to attempt to get rid of more than from five to seven ounces of infiltration a day.

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